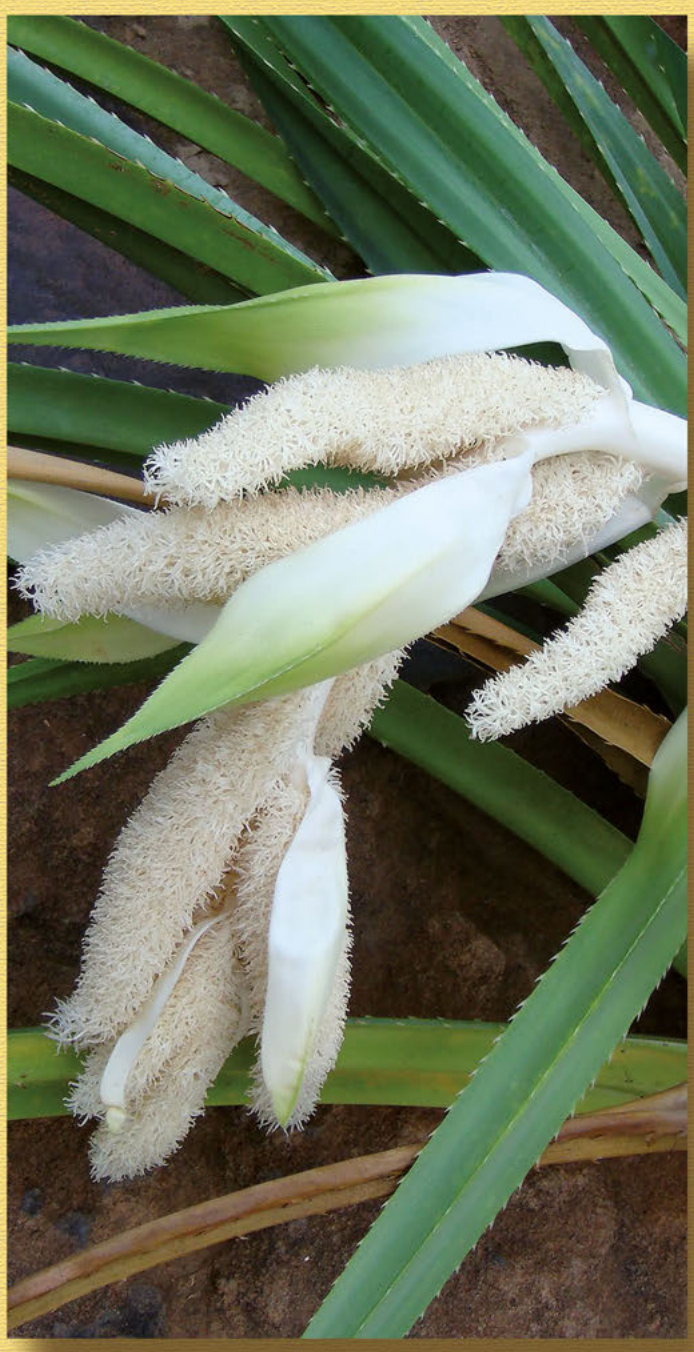
TROPICAL AFRICAN FLOWERING PLANTS

Ecology and Distribution

Vol. 8 – Monocotyledons 2 (Anthericaceae-Palmae)

• J.-P. LEBRUN
• A. L. STORK



Conservatoire
et Jardin botaniques
de la Ville de Genève
2014

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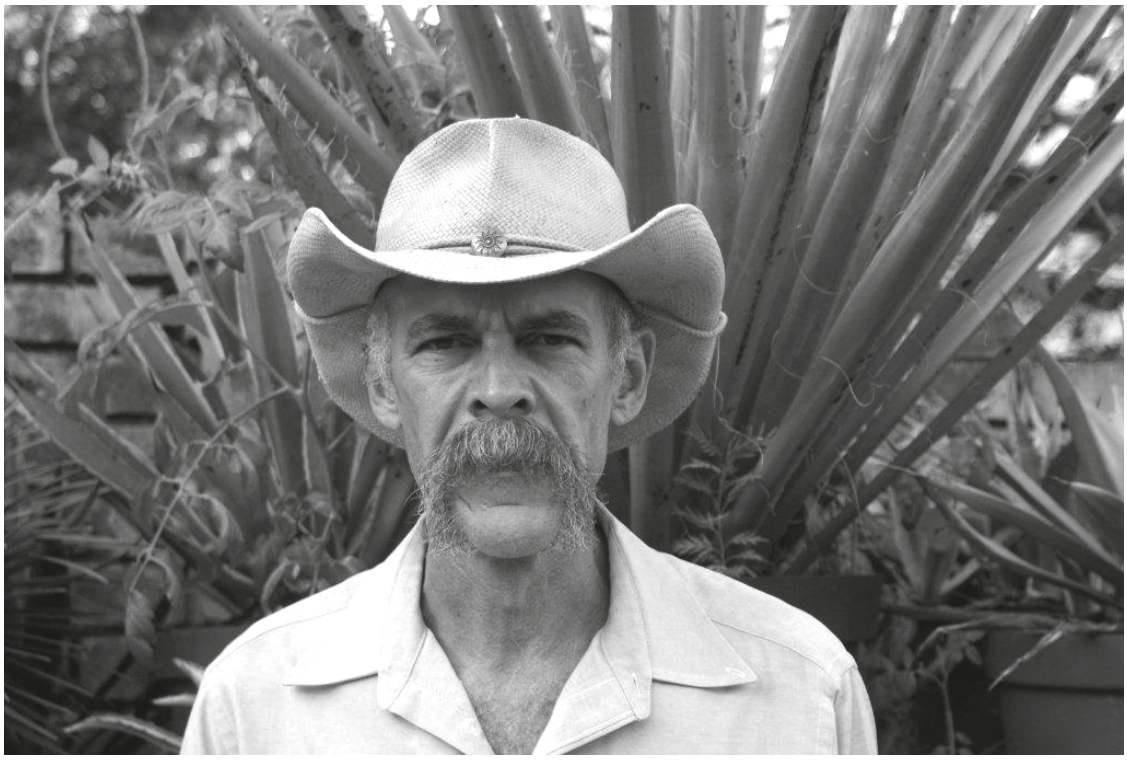

This volume is dedicated to our friend Professor Gideon F. Smith, Pretoria, in recognition of his outstanding contribution to the study of the southern African flora, including Angola.

One of the earlier explorers of the rich Angolan flora was Friedrich Welwitsch. In honor of his memory we present two photographs of his last resting place in London on page 6.

Cover page illustration: *Pandanus senegalensis* St. John ex Huynh (syn.: *P. brevifrugalis* Huynh), staminate inflorescence. Photograph: Adjima Thiombiano ©, Burkina Faso, Comoé, Karfiguela Waterfall. 24 July 2011. Extracted with autorisation from the WWW.WESTAFRICANPLANTS.SENCKENBERG.DE

Back cover illustration: *Freesia laxa* (Thunb.) Goldblatt & J. C. Manning subsp. *laxa (Iridaceae)* is one of the earliest *Freesia* to be discovered. *Anomatheca cruenta* Lindl., or later *Lapeirousia cruenta* (Lindl.) Baker, is still the name used for it in many horticultural catalogues. Mr. Tate, of Sloane Street, communicated it in May 1829, "with the information, that he had received it several years ago from the Cape, and finds it a very desirable plant, continuing to throw out flowering shoots till late in the autumn" (J. Lindley in Edwards's Bot. Mag. 16: pl. 1369, 1830).

J.-P. LEBRUN and ADÉLAÏDE L. STORK
With contributions by: P. Meerts (Chlorophytum, Anthericaceae),
H. Beentje and M. W. Callmander (Pandanaceae) and F. Stauffer and
D. Ouattara (Palmae)

TROPICAL AFRICAN FLOWERING PLANTS

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VILLE DE GENÈVE
ÉDITIONS DES CONSERVATOIRE ET JARDIN BOTANIQUES
Genève, juin 2014

www.cjb-geneve.ch

Une institution
Ville de Genève

VILLE DE GENÈVE

Editions des Conservatoire et Jardin botaniques

Directeur:
Pierre-André Loizeau

Rédacteur des publications:
Patrick Perret

Rédacteur de ce volume:
Cyrille Chatelain

Réalisation technique:
Carine Schilling

Couverture:
Matthieu Berthod

Publication hors-série n° 9g

ISBN: 978-2-8277-0131-5

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CONTENTS

Acknowledgements 7
I. Introduction 9
II. Bibliography 11
III. Statistical summary 12
IV. List of families included in Volume 8 13
V. How to use this book 14
VI. The Checklist: Monocotyledons 2 (Anthericaceae-Palmae) 17
Index to families and genera 355

Lectotypification made in this volume: *Pandanus thomensis* Henriq. 324

Angola has a very rich flora. Among its most remarkable earlier explorers was the Austrian botanist Friedrich Martin Josef Welwitsch (1806-1872). He died in London and was buried in the Kensal Green cemetery. His gravestone is situated just inside the main entrance in the shadow of the more imposing tomb of the Indian merchant and philanthropist Dwarkanath Tagore (1795-1846) of Calcutta, grandfather of the better known poet and author [Sir] Rabindranath Tagore (1861-1941), awarded the Nobel prize for literature in 1913.
Photographs: A. L. Stork, 13 September 2010.

ACKNOWLEDGEMENTS

Many people have helped us in different ways during the final editing of this Volume, a time that was marked by the sudden illness of one of us (J.-P. L.). We cannot mention all, but we would especially mention those who provide us excellent working conditions at the Conservatoire et Jardin botaniques (Genève): the Director, Dr. P.-A. Loizeau, and Mr. P. Perret, Head of Library and Editor of publications, as well as the extremely helpful Library staff including Mrs. Carine Schilling of our Printing Office. We are also much indebted to Dr. C. Chatelain, Editor of this series, for his very important contribution to our compilation, and to Mr. N. Fumeaux for his help in our research. Special thanks go to colleagues at the Herbarium, Royal Botanic Gardens, Kew: Dr. J. Timberlake for his help with literature, Dr. J. Dransfield for his revision of the *Palmae*, and Dr. R. M. Polhill and Mrs. Diana Polhill for their constant support and friendship. We extend our thanks to Mrs. Véronique Compagnon, Geneva, and Mrs. P. Mérigout, Créteil/France, for their assistance in all practical matters.

We express our particular gratitude to Dr. H. Beentje and Dr. M. W. Callmander, and Dr. F. Stauffer and Mr. D. Ouattara for their compilations of the families *Pandanaceae* and *Palmae*, respectively, as well as to Professor P. Meerts for his contribution to the genus *Chlorophytum* (*Anthericaceae*).

I. INTRODUCTION

The second part of the family *Liliaceae* in its traditional broad sense is included in this volume. The first part was published in Volume 7 (2012). We explained there (p. 9) why we retained a narrower family circumscription used already in our "Enumération" (Volume 3, 1995). However, the family sequence has been slightly changed. Other families figuring in the present Volume are also treated in a narrower, "traditional" sense. References to the APG III classification are given. We agree with J. Cullen, in his Preface to the second edition of "The European Garden Flora, Flowering Plants" (Volume 1 : XI, 2011) that the "old" system, also used by us, is no longer tenable. But we were "loath to accept any of the current labile and uncertainly documented systems … as these are more likely to confuse users of this book rather than help them".

Readers may notice that we still use the name "Zaire" for the now known "Democratic Republic of Congo". Names of many countries have changed more or less recently. Our choice is such in order to avoid confusion with "Congo" (-Brazzaville).

The descriptions of the species and the ecological notes figuring in our Checklist are mainly borrowed or adapted from the floras or papers cited.

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III. STATISTICAL SUMMARY

The present volume covers 21 families, including 100 (+1?) genera and 846 (+93?) species. They are listed below (Table 1) in alphabetical order. To avoid confusion we use 6-letter acronyms (cf. Vol. 1 : 15, 2003).

Table 1 summarizes our lack of information relating to plant habit, flowers, fruit, ecology, and herbarium material.

With a total of 846 (+93?) species, Table 1 shows the following results (figures within brackets indicate uncertain data) :

– 2 species (= < 1 %) without known habit ;
– 14 (+1?) species (= c. 1,6 %) for which flowers are unknown ;
– 2 species (= < 1 %) for which male flowers are not known ;
– 109 (+23?) species (= c. 13 %) for which fruits have not been seen ;
– 13 (+5?) species (= c. 1,5 %) without records on their ecology ;
– 41 (+11?) species (= c. 5 %) which are only known from the type.

We are aware of the fact that our figures do not reflect the absolute truth. They are certainly too high and should be considered as an indication only.

Table 1. – Families included in Volume 8 (alphabetical order, 6-letter acronyms). Statistical summary : number of genera (Nr. gen.) and species (Nr. spp.) ; number of species for which habit (hab.), reproductive organs (flowers, male flowers, female flowers, fruits) or ecology (eco.) are not recorded ; and number of species only known from the type collection. Figures within brackets indicate uncertain data.

Family	*Nr. gen.*	*Nr. spp.*	*No hab.*	*No fl.*	*No ♂ fl.*	*No ♀ fl.*	*No fr.*	*No eco.*	*Only type*
Anther	2	114 (+15?)		1			4		6 (+1)
Aracea	19	130 (+6?)		2 (+1?)			30 (+4?)	1	8
BurThi	5 (+1?)	23 (+1?)					6 (+1)		8 (+1?)
Colchi	7	17 (+2?)					4		1
Diosco	1	29 (+4?)							
Dracae	2	97 (+18?)	1	3			19 +4?	4+3?	4+1?
Eriosp	1	8 (+9?)					2		
Hyacin	12	84+24? (+3?)					7 (+1) +9?	4+1	3 (+6?)
Hypoxi	2	31 (+2?)							
Iridac	16	159+6?					30 (+4)	1	9
Juncac	2	20+1?							
Lemnac	4	13							
Palmae	15	63	1	8			5	2	1?
Pandan	1	11			2				
Ponted	4	5							
Smilac	1	2							
Taccac	1	1							
Tecoph	3	6					1		
Typhac	1	4							
Velloz	1	29+2?					1	1+1?	2+1?
Total	100+1?	846+93?	2 = < 1 %	14+1? = c. 1,6 %	2 = < 1 %		109+23? = c. 13 %	13+5? = c. 1,5 %	41+11? = c. 5 %

IV. LIST OF FAMILIES INCLUDED IN VOLUME 8

Sequence of families:

Anthericaceae ..... p. 19
Hyacinthaceae ..... p. 63
Eriospermaceae ..... p. 104
Ruscaceae ..... p. 109
Smilacaceae ..... p. 109
Colchicaceae ..... p. 110
Tecophilaeaceae ..... p. 119
Iridaceae ..... p. 120
Dioscoreaceae ..... p. 168
Taccaceae ..... p. 183
Burmanniaceae – Thismiaceae ..... p. 184
Hypoxidaceae ..... p. 190
Velloziaceae ..... p. 203
Dracaenaceae ..... p. 212
Pontederiaceae ..... p. 252
Araceae ..... p. 255
Lemnaceae ..... p. 299
Typhaceae ..... p. 306
Juncaceae ..... p. 308
Pandanaceae ..... p. 316
Palmae (Arecaceae) ..... p. 326

V. HOW TO USE THIS BOOK

For each species there is a description and a simplified map of distribution. In a few cases two species figure on the same map but with different symbols.

The **text** is conceived in the following manner, based upon our "Enumération", Vol. 1 (J.-P. Lebrun & A. L. Stork 1991).

- Bibliographical references are sometimes given at the beginning of families and genera, as appropriate. They mostly refer to monographs or articles published after the issuing in 1997 of Volume 4 of our "Enumération" (an updating of the bibliographies is found at the end of each volume in the chapter "Additions et corrections...").
- Basionym and synonym(s) are only cited if they do not figure in the "Enumération".
- A short description, mainly with regard to life form, is given, e.g. tree, shrub, subshrub, liane, (annual, perennial) herb, and to the height of the plant; for trees sometimes also other characters, such as diameter and/or girth of the bole or presence of buttresses, are mentioned. Presence of rhizomes, tubers or bulbs and of spectacular features, such as showy flowers, exceptionally small or large leaves, flattened or rounded shoots, etc., or particular uses, are often specified.
- Ecological data are recorded, sometimes in rather detailed form if known; range of altitude is generally given.
- If a species comprises two or more intraspecific taxa, this is mentioned, but their names are not always quoted, as most of them appear in our "Enumération". However, there may have been changes since the publication in 1991, and in this case the names figure in the text.
- Extraterritorial geographical distribution is given (i.e. not marked on the accompanying map of distribution which includes only the tropical part of Africa as defined in our "Enumération").

* * *

On the **maps** of distribution (Fig. 1) we indicate the northern and southern limits of our area, as well as the political frontiers of the countries within these borders. Arrows (at the margin of the continent, W Africa) indicate the situation of four particular countries, viz. Western Sahara, Guinea Bissau, Togo, and Benin.

The main phytochoria, based upon Frank White's classification and indicated on the maps that figure in Volume 1 of this Series (p. 19), have been slightly modified. In the following list Section B has been split into two areas. From North to South, and East to West the phytochoria are (Figs. 1 and 2):

- A. Southern Sahara-Sindian zone [corresponding to the southern part of White's phytochorion XVII (Sahara regional transition zone)].
- B. Sahelian-Sudano-Zambezian zone :
  - Ba. Sahel regional transition zone [corresponding to White's zone XVI];
  - Bb. Sudano-Zambezian zone [corresponding to the following phytochoria of White: III (Sudanian regional centre of endemism), XI (Guinea-Congolia/Sudania regional transition zone); X (Guinea-Congolia/Zambezia regional transition zone); II (Zambezian regional centre of endemism); XIII (Zanzibar-Inhambane regional mosaic); and the north-eastern tip of XV, i.e. the southernmost part of Mozambique]; the enclosed parts of the "Afromontane archipelago-like regional centre of endemism" (VIII) and of the "Afroalpine archipelago-like region of extreme floristic impoverishment" (IX) have not been taken into account here (precluded by the small scale of our map).
- C. Guineo-Congolian rain-forest zone [corresponding to phytochorion I of White (Guineo-Congolian regional centre of endemism)].
- D. Ethiopian Afromontane zone [the northern part of White's phytochorion VIII (see above under Bb)].

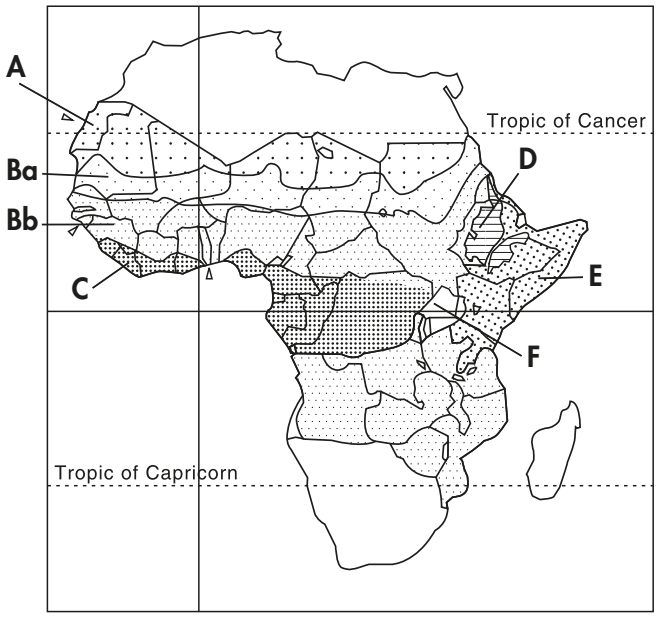

Fig. 1. – Main phytogeographical zones of tropical Africa used in the present work. For zones **A** through **F,** see explanations in the text.

- E. Somalia-Masai/Afroriental zone [phytochorion IV of White (Somalia-Masai regional centre of endemism) and the northernmost part of XIII (see above under Bb)]. The "Afromontane" (VIII) and "Afroalpine" (IX) archipelago-like regional centres are included (see above under Bb).

• F. Lake Victoria mosaic [White's phytochorion XII (Lake Victoria regional mosaic)]. As is the case in our zones Bb and E, the "Afromontane" (VIII) and "Afroalpine" (IX) archipelago-like regional centres are included here (see above under Bb).

Madagascar is not included in our compilation although present on the map (Fig. 1).The maps are based on literature records at our disposal; thus they are indicate, but not exhaustive. In certain cases it has even been impossible to find the exact locality. Although it will always be possible to add dots on the maps, we believe that in most cases such additions will not change fundamentally the general pattern of distribution for a particular species.

The distribution of the species is shown on the maps in the following way:

- For small countries only one dot is used. For larger countries, and in particular if the distribution falls into different phytochoria, two (or more) dots are present.
- Dots are also placed in particular "subdivisions" of large countries, according to those given in the following floras: Adumbratio Florae Aethiopicae, Flora of Ethiopia and Eritrea, Flora of Somalia, Flora of Tropical East Africa, Flora Zambesiaca, Flore du Congo Belge et du Ruanda-Urundi (succeeded by Flore du Congo Belge, du Rwanda et du Burundu, and ultimately by Flore d'Afrique centrale), and Conspectus Florae Angolensis.

Readers will notice that plants seem to be more common (as dots are more numerous) in the eastern part of tropical Africa. This is often an illusion due to thesubdivision of large countries mentioned above.

At more or less regular intervals, and at the end of a family, one or two maps areleft blank, in order to allow for mapping of newly described species (or species overlooked by the compilers).

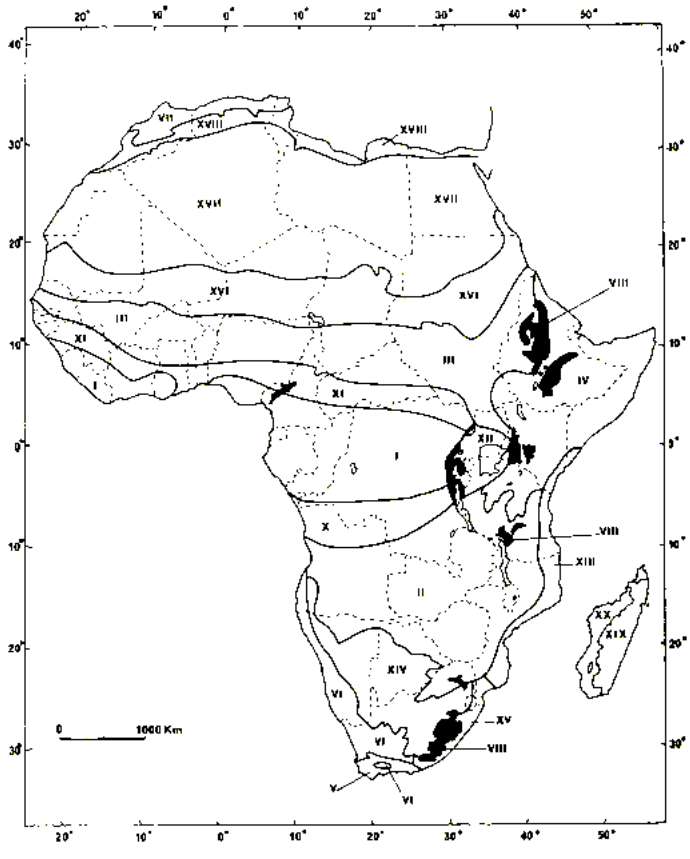

Fig. 2. – Main phytochoria of F. White (1983): p. 38 (cf. quotations in the text). See also "Enumération", vol. 1: pp. 24-25 (1991).

BASIC REFERENCE

WHITE, F. (1983). The vegetation of Africa: A descriptive memoir to accompany the Unesco/AETFAT/UNSO vegetation map of Africa. Unesco, Paris.

VI. THE CHECKLIST: Monocotyledons 2 (Anthericaceae-Palmae)

ANTHERICACEAE / *2* g. / *114* (+ *15*?) spp.

Often included in a broad *Liliaceae*, sometimes in *Asphodelaceae*. APG III family *Asparagaceae.* Tropical to temperate family, worldwide, of 8-9 genera, and 200-230 species, a number difficult to estimate due to uncertain delimitation at different levels (fide Nordal & al., Fl. Trop. E. Africa, Anthericaceae: 1, 1997).

Among the species retained by us, a few *(Chlorophytum)* are incompletely known: 1 species without flowers (= < 1%); fruit unknown in 5 species (= c. 5%); 8 species (= 8%) are known only from the type gathering(s).

In addition to the retained species we cite uncertain taxa within brackets, and we present lists of taxa (under *Anthericum* and *Chlorophytum*) in need of further study, of nomina *invalida* and of other gatherings not (yet) placed in any specific taxon.

The number of synonyms listed below is considerable. Under *Anthericum* there are some 244 such and under *Chlorophytum* c. 270. In addition to those, synonyms also figure under other genera.

Perennial geophytes with a short rhizome (white inside, not yellow as in *Asphodelaceae*); leaves in basal rosette or distichous; flowers hypogynous, mostly actinomorphic; tepals 3+3, free or sometimes fused basally; capsule loculicidal; seeds black (not dull brown as in *Asphodelaceae*), without an extra seed coat.

Very few are cultivated as ornamentals.

BJORÅ, C. S. & al. (2007). A phylogenetic analysis of Anthericum and Chlorophytum. *In:* ACHOUNDONG, G., ed., *XVIIIth AETFAT Congress 26 February -2 March 2007 Yaoundé, Cameroon, Abstracts: 19.* L'herbier National du Cameroun, Yaoundé.

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(ACROSPIRA)

Acrospira Welw. ex Baker 1878, nom. illegit., non Montagne 1857 (Fungi).

TAXON IN NEED OF FURTHER STUDY:

A. curtisiae I. M. Johnston

Herb 20-24 cm tall, glabrous; "corm" oblique, depressed, with dark wrinkled, scarred surface, 15-25 mm Ø, with fleshy fusiform roots in upper part; leaves 3-5, linear, 4-5 mm wide; peduncle leaf-less, slender, 13-15 cm long; raceme 8-10-flowered, simple, with ovate acuminate bracts; flowers (yellowish) white; pedicels 2-6 mm long; tepals lanceolate, acute, 10-11x3 mm, keeled, 3-nerved; capsule ovoid, lobed, glabrous, 4-5 mm Ø; seeds numerous, black, irregularly lobed, c. 2 mm wide.

Type: Mrs. Curtis 333, collected in 1923. Angola, E of Cuanza Riv. (c. 11°50'S × c. 17°E). Not mapped.

Said to resemble *A. asphodeloides (5 Chlorophytum stolzii),* but much smaller, leaves much narrower; and differing from *Anthericum laurentii* De Wild. *(= Chlorophytum subpetiolatum)* in lack of pubescence, narrow leaves, much less developed bracts; and differing from *Acrospira lilioides (= Ch. tuberosum)* in much narrower leaves, narrower lanceolate tepals.

Not cited by Figueiredo & Smith, Plants of Angola, 2008. Not treated by Meerts & Bjorå in Pl. Ecol. Evol. 145: 373-409, 2012 (Zaire plants).

ACROSPIRA

SYNONYMS:

Acrospira asphodeloides Baker = **Chlorophytum stolzii**

breviscapa De Wild. = **C. subpetiolatum** var. **subpetiolatum**

var. *pilosaefolia* De Wild. = **C. subpetiolatum** var. **pilosifolium**

curtisiae I. M. Johnston = ?

giorgii De Wild. & Ledoux = **C. africanum** var. **africanum**

homblei De Wild. = **C. velutinum**

kapiriensis De Wild. & Ledoux = **C. subpetiolatum** var. **subpetiolatum**

laurentii De Wild. = **C. subpetiolatum** var. **subpetiolatum**

var. *minor* De Wild. = **C. subpetiolatum** var. **subpetiolatum**

var. *variegata* De Wild. = **C. subpetiolatum** var. **subpetiolatum** fa. **variegatum**

lilioides A. Chev. = **C. tuberosum**

ANTHERICUM / *3*

Genus of 3 species in NE-E tropical Africa and one in S Spain – NW Africa [*A. baeticum* (Boiss.) Boiss.]. For other names in *Anthericum* (mostly synonyms of *Chlorophytum*), see below under the list of "Taxa in need of further study" and under "Synonyms".

Anthericum angustifolium Hochst. ex A. Rich.; Fl. Eth. & Eritrea 6: 90, 1997; Fl. Trop. E. Afr., Antheric.: 2, 1997; Nordal in Symb. Bot. Upsal. 35/2: 99, 2011. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 144, 1994; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 75, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 134, 2010.

syn.: *A. humile* Hochst. ex A. Rich.; *Phalangium humile* (Hochst. ex A. Rich.) Schweinf.; *P. angustifolium* (Hochst. ex A. Rich.) Schweinf.

Herb to 15 cm tall; roots fleshy; leaves linear, 5-10 × 0,2-0,5 cm, glabrous or with ciliate margins; peduncle hidden among the leaves; rachis almost completely reduced, making the inflorescence umbel-like; pedicels 30-80 mm long, not jointed; flowers white, slightly green outside, star-like, 2-10 per plant; tepals 8-12 × 2-3 mm, 3-veined; capsule 5-8 mm long, subglobose, smooth or slightly ridged, on reflexed pedicels (fruit lying on the ground).

In clumps. Grassland, seasonally waterlogged, often heavily grazed and eroded; black shallow soil; gritty black or lateritic soils; sometimes in crevices in the rock; 1300-3000 m alt.

A. corymbosum Baker, incl. var. *floribundum* Chiov.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 316, 1994; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 75-76, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 130-131, 2010. – Icon.: Thulin, Fl. Somalia 4: 43, 1995; Fl. Eth. & Eritrea 6: 92, 1997; Fl. Trop. E. Afr., Anther.: 3, 1997.

Herb 10-30 cm tall; leaves linear, 5-25 × 0,1-0,8 cm, ± succulent, channelled, often with ciliate margins; peduncles 3-15 cm long, glabrous; inflorescence a *simple raceme*, 3-7 cm long, 3-30-flowered; pedicels semipatent, not jointed, sometimes drooping in fruit, 5-40 mm long; tepals white with green stripes on the outside, 8-10 × 2-3 mm; capsule subglobose, 3-8 mm long, slightly ridged.

ANTHERICUM CORYMBOSUM

In clumps. Depressions in grassland, bushland, degraded *Acacia, Combretum* woodland; also on rocky outcrops; often on shallow soils overlying rocks (often lava, sometimes limestone), seasonally waterlogged, on heavy clayish black or red lateritic soils or on lighter brownish to reddish sandy soils; often on heavily grazed and eroded areas; degraded *Juniperus* forest; 250-2900 m alt.

Yemen.

A. jamesii Baker; Thulin, Fl. Somalia 4: 42-43, 1995; Fl. Eth. & Eritrea 6: 91, 1997; Fl. Trop. E. Afr., Anther.: 4, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 76, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 131, 2010; Nordal in Symb. Bot. Upsal. 35/2: 99, 2011.

syn.: *A. verruciferum* Chiov., only type (Paoli 1068), excl. specim. 942, 1254, and plate *(= Chlorophytum bifolium).*

Herb to c. 15 cm tall; roots fleshy; leaves linear, 10-15 × c. *1* cm, sheathing into a neck 3-5 cm long, margins ciliate to obscurely papillose; peduncle 1-4 cm long; inflorescence a raceme, often with 1-3 branches at base, 5-10 cm long, 10-15-flowered; pedicels semipatent, not jointed, c. 1 cm long, elongating with age; flowers as in *A. corymbosum; capsule verrucose.*

Acacia, *Commiphora* woodland on alluvial flats, on shallow stony soils; temporary waterlogged red sandy soil; clearings in bushland; 400-900 m alt.

A. neghellense (Cufod.) Bjorå & Sebsebe and **A. tetraphyllum** (L. f.) Nordal & Sebsebe are treated under **Chlorophytum**.

TAXA IN NEED OF FURTHER STUDY: (cf. also list of unplaced names in Figueiredo & Smith, Pl. Angola: 171, 2008):

Anthericum altiscapum Poelln. – Central African Republic: Bozum, way to Pokoito; grassland. Tessmann 2422 (1914).

A. angustovittatum Poelln. – Angola: Ciyaka (= Chiaca ?); ecology unknown. Wellman 1544 (1907).

A. basilanatum Poelln. – Angola: Huila, Gambue; ecology unknown. Newton s. n. (1882). Said to be near *Chlorophytum affine* (syn.: ? *A. andongense* Baker var. *papillosum* Poelln.; see below under *Chlorophytum sphagnicolum*, Note).

A. benguellense Baker; Fl. Trop. Afr. 7: 487-488, 1898; Poellnitz in Bol. Soc. Brot., Ser 2, 17: 61, 1943; Rendle, Cat. Afr. Pl. Welwitsch 2/1: 51, 1899. – Angola: Huila, around Lopollo and Humpata; open woods and shady pastures; 1300-1800 m alt. Welwitsch 3794 (1860).

A. beretumense Poelln. – Cameroon: near Beretum (Baja Highl.), Mildbraed 9662 (1914), ecology unknown; Range 74 (1908), at Kousseri (= Fort Foureau), clayey soil.

A. bornmuellerianum Poelln. – Cameroon: Gamu (8°14'N × 12°19'E), Mao Deo; strongly flooded *Borassus* savanna with thorny bush; 480 m alt. Ledermann 5301 (1909).

A. breviantheratum Poelln. – Angola: between Quimbundo and Cuango; ecology unknown. Pogge 442 (1876).

A. brevifilamentatum Poelln. – Cameroon: Tapare (7°41'N × 12°09'E), near Tukurna (6°38'N × 11°41'E); rocky savanna. Ledermann 5584 (1909).

A. brunneomarginatum Poelln. – Cameroon: Mao Deo, between Gamu (8°14'N × 12°19'E) and Mao Yanga (8°03'N × 12°14'E); flooded *Borassus* savanna with thorny bush; 480 m alt. Ledermann 5312 (1909).

A. depauperatum Poelln.; Fl. Trop. E. Afr., Antheric.: 63, 1997. – Tanzania: Morogoro Distr., Uluguru Mts. Type: Brehmer 765 (1942) not found; description too general.

ANTHERICUM

A. dissitiflorum Baker; Fl. Trop. Afr. 7: 481, 1998; Rendle, Cat. Afr. Pl. Welwitsch 2/1: 51, 1899. – Angola: Pungo Andongo, near Condo; damp pastures. Welwitsch 3781 (1857). A dwarf form of *Chlorophytum andongense*?

A. excellens Poelln. – Tanzania: Kyimbila, near Usafwa; meadow; 1600 m alt. Stolz 2401 (1913). Said to be near *A. orchideum* Welw. ex Baker, *A. viridulobrunneum* Poelln.

A. exellii Poelln. – Angola: Moxico, Riv. Cassai, road to Dundo; ecology unknown; 1200 m alt. Exell & Mendonça 1941 (1937).

A. exellii Poelln. var. *angustifolium* Poelln. – Angola: Bié, Vila da Ponte; half shrub formation. Gossweiler 2493 (1905).

A. exellii Poelln. var. *papillosum* Poelln. – Angola: idem. Gossweiler 4016 (1906).

A. fallax Poelln. – Angola: Bié, Riv. Cubango, Vila da Ponte; river banks, rocky desert formation. Gossweiler 4014 (1906). Said to be near *A. gambuense* Poelln.

A. fernandesii Poelln. – Angola: Bié, between Riv. Cuelai and Riv. Luacentha (Serpa Pinto); hardgrass formation subject to seasonal bushfires. Gossweiler 4019 (1906). Said to be near *Chlorophytum andongense*.

A. gambuense Poelln. – Angola: Huila, Gambue; ecology unknown. Newton 167 (1882).

A. incohatum Poelln. – Angola: Bié, Riv. Cuito, Mpihiri (Cuanavale); hardgrass formation. Gossweiler 2651 (1906).

A. junciforme Poelln. – Angola: Huila; ecology unknown; Antunes 34 (s.d.).

A. kemoense Hua – Centr. Afr. Rep.: mission station on the upper Kemo, a tributary to Riv. Dua or Mobangi; in tall grass. Dybowski 707(1892). Said to be near *Chlorophytum cameronii*. – A. Chevalier, Etudes flore Afrique centrale 1: 315, 1913, cites this species from: Centr. Afr. Rep., between Riv. Kemo and Riv. Tomi, Chevalier 5510 (1902); as well as from the low plaines of lower Bahr-Sara (= Ouham), Chevalier 8670 (1903; "with yellowish white flowers").

A. liliagastrum Engl. & Gilg – Angola: left side of Riv. Kubango, near Kuimarva; sandy ground with white marl; 1100 m alt. Baum 461 (1899).

A. mendoncai Poelln. – Angola: Lunda, Dala, near Riv. Chiumbe; ecology unknown. Carrisso & Mendonça 572 (1927).

A. mildbraedii Poelln. – Centr. Afr. Rep.: Baja Highl., Bozum, Mt Jauja; savanna. Mildbraed 9692 (1914).

A. molle Baker; Fl. Trop. Afr. 7: 493, 1898; Rendle, Cat. Afr. Pl. Welwitsch 2/1: 52, 1899. – Angola: Pungo Andongo, near the Fort; sunny rocky places. Welwitsch 3780 (1856).

A. nervosum Hua – Centr. Afr. Rep.: mission station on the upper Kemo; ecology unknown. Dybowski 753 (1892). Said to be near *Chlorophytum cameronii*.

A. nodulosum Poelln. – Angola: Bié, Cuanavate; hardgrass formation. Gossweiler 2215 (1906).

A. orchideum Welw. ex Baker; Fl. Trop. Afr. 7: 487, 1898; Rendle, Cat. Afr. Pl. Welwitsch 2/1: 51, 1899. – Angola, Huila, at the foot of the Serra de Monino; damp grassy places; 1140-1650 m alt. Welwitsch 3806 (1860). – Cited by Poellnitz in Feddes Repert. 71-72, 1942, also from Tanzania, Uhehe, Iringa Plateau, specim. "Frau Hauptmann Prince", 1899, as well as "Uhasteppe", specim. v. Trotha 133, 1896/97. These specimens are probably different from Welwitsch 3806 collected in Angola.

A. paludosum Engl. & K. Krause – Cameroon: Schuari near Garua (9°18'N × 13°24'E); swampy hollow at Benué; Ledermann 4613 (1909).

A. papillosum Engl., non *Chlorophytum papillosum* Rendle *(= C. longifolium)*. – Tanzania: Morogoro Distr., Uluguru Mts, Mbakana; edges of bush; 600 m alt. Goetze 353a (1898). – Type not found; description too general.

A. pumilum Hua – Centr. Afr. Rep.: mission station on the upper Kemo; ecology unknown. Dybowski 761 (1892).

A. ramiferum Peter ex Poelln., non *Chlorophytum ramiferum* Rendle (= *C. comosum* var. *comosum*); Fl. Trop. E. Afr., Antheric.: 63, 1997. – Tanzania: Tabora Distr., Ngulu, from Malongwe W to Nyahua; open miombo; c. 1200 m alt. Peter 34697 (1926). Type not found; description too general.

A. saxicola Engl. ex Poelln., non *Chlorophytum saxicola* Poelln. (= *C. blepharophyllum* subsp. *blepharophyllum*); Fl. Trop. E. Afr., Antheric.: 63, 1997. – Tanzania: Lushoto Distr., Usambara Mts, Kwai; wooded savanna; 1650 m alt. Engler 1232 (1902).

A. tenuissimum A. Chev., nom. nud. – Chad: South Baguirmi, Korbo. Chevalier 9322 (1903).

A. tostum Poelln. – Angola: Benguela, between Ganda and Cacondo, Xongorolo; dry grassland; c. 1700 m alt. Hundt 95 p.p. (1932). – Said to be near *Chlorophytum andongense*, *Anthericum ustulatum* Welw. ex Baker var. *ciliatum* Poelln., Bol. Soc. Brot., Sér. 2, 17: 77, 1943.

A. ustulatum Welw. ex Baker; Fl. Trop. Afr. 7: 479, 1898. – Angola: Pungo Andongo, Mutolo; boggy sunny wooded places. Welwitsch 3800 (1857). Also Huilla; pastures flooded in the rainy season, now dry; Welwitsch 3801 (1860). – ? Incl. var. *ciliatum* Poelln.; Angola: Benguella, between Ganda and Caconda, Xongorolo. Hundt 95 p.p. (1932); cf. above under *A. tostum*.

A. xylorrhizum Engl. & Gilg – Angola: near Riv. Cuito; forest edge on sand; c. 1150 m alt. Baum 530 (1899).

NOMINA INVALIDA AND COLLECTIONS OF UNCERTAIN TAXONOMIC STATUS:

Anthericum polyphyllum Peter ex Poelln. 1942, non Baker 1896 (= *Chlorophytum recurvifolium*). – Tanzania: Useguha, between Korogwe (5°09'S × 38°28'E) and Mnuyssi, Pangani; ecology unknown; c. 290 m alt. Peter 40623, and a living specimen sent to Göttingen (1926). – Said to be near *Chlorophytum cameronii*.

A. validum Peter ex Poelln. 1942, non *Anthericum validum* Poelln. 1942, S. Africa [= *Trachyandra brachypoda* (Baker) Oberm., *Asphodelaceae*]. – Tanzania: Ngulu, E Goweko (5°20'S × 33°08'E). Peter 34904 (1926).

A. sp. aff. *A. ciliare* Poelln. (N° 69). – Tanzania: Unyanyembe, S of Tabora to Kwihala (5°03'S × 32°44'E); rocky hill; 1250 m alt. Peter 35253 (1926). – Said to be near *Chlorophytum affine*.

A. sp. aff. *A. robustulum* Poelln. (N° 68). – Tanzania: Ngulu, S of Goweko (5°20'S × 33°08'E); bush; c. 1200 m alt. Peter 35110 (1926). Said to be near *Chlorophytum sphacelatum*.

A. sp. aff. *A. uyuiense* (N° 66) sensu Poelln., non Rendle. – Tanzania : Bombo Hill (5°07'S × 38°33'E); valley; c. 470 m alt. Peter 18652 (1916). – Said to be near *Chlorophytum cameronii*.

A. sp. aff. *A. uyuiense* (N° 67). – Tanzania: Handei, Tengeni (5°11'S × 38°45'E); bush; 250 m alt. Peter 16712 (1916). – Said to be near *Chlorophytum cameronii*.

A. sp. (N° 70). – Tanzania: Useguha, from Saadani (6°02'S × 38°47'E) to Kissauke; sand, in some places in [pure] stands. Peter 14638 (1915).

A. sp. in A. Chevalier, Etudes flore Afr. centr. 1. – Centr. Afr. Rep.: Bahr el Abiod, near Kaba Bodo; riverside. Chevalier 8426 (1903).

A. sp. in A. Chevalier, o.c. – Centr. Afr. Rep.: upper Ombella, Kono, etc. Chevalier 5918 (1902).

A. sp. in A. Chevalier, o.c. – Chad: near Bémoul, between lower Bahr Sara and Fort Archambault (= Sahr); wood. Chevalier 8671, 8717 (1903).

A. sp. in A. Chevalier, o.c. – Centr. Afr. Rep.: E Dar-Banda, Kaga Bongolo. Chevalier 7273 (1903).

A. sp. in A. Chevalier, o.c. – Centr. Afr. Rep.: Fort Sibut, Tomi Valley; cultivated ground. Chevalier 5393 (1902).

A. sp. in A. Chevalier, o.c. – Centr. Afr. Rep.: from Fort Crampel to Ungourras. Chevalier 10774 (1903).

A. sp. in A. Chevalier, o.c. – Centr. Afr. Rep.: E Dar-Banda, Ndellé; burned savanna. Chevalier 7080, 7646 (1913).

A. sp. in A. Chevalier, o.c. – Centr. Afr. Rep.: Dar-Banda, Diganga Plain; in tall grass. Chevalier 6734 (1902). Also, on Riv. Gribingui, between Fort Archambault and Fort Crampel; riverside. Chevalier 10404 (1903).

Note: Duplicates of types of certain species described by Poellnitz in 1942 (Feddes Repert. 51: 112-139, 1942) were distributed. They need to be searched for in herbaria.

SYNONYMS (see also above under "Taxa in need of further study"):

Anthericum acuminatum Rendle = **Chlorophytum suffruticosum**

albovaginatum Peter ex Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

altiscapum Poelln. = **?**

altissimum Miller = **Bulbine asphodeloides** *(Asphodelaceae)*

amboense Poelln. = **Trachyandra saltii**

amplexifolium Engl. ex Poelln. = **Chlorophytum blepharophyllum** subsp. **blepharophyllum**

anceps Baker = **C. anceps**

andongense Baker 1878: 257 (Welwitsch 3798) = **C. sphagnicolum**

andongense Warburg 1903: 187 = *Anthericum andongense* Baker var. *glabrum* Poelln. = **?**

andongense Baker (cf. under **Chlorophytum sphagnicolum** p. 54) var. *glabrum* Poelln. = **?**
var. *papillosum* Poelln. (type: Newton s.n., 1882) = ? *Anthericum basilanatum* Poelln. = **?**
var. *parviflorum* Poelln. = **?**

angulicaule Baker = **C. angulicaule**

angustissimum Poelln. = **C. angustissimum**

angustovittatum Poelln. = **?**

annuum Pourr. ex Willk. & Lange = **Asphodelus tenuifolius** *(Asphodelaceae)*

arenarium Baker = **Chlorophytum sphacelatum**

aristatum Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

articulatum Hutch., p.p. = **Chlorophytum nubicum**, **Drimia indica** *(Hyacinthaceae)*

arvense Schinz = **Trachyandra arvensis**

asphodeloides L. = **Bulbine asphodeloides** *(Asphodelaceae)*

asphodeloides auctt., non L. = **B. abyssinica**

atacorense A. Chev. = **Chlorophytum cameronii** var. **pterocaulon**

bakerianum Poelln. = **C. galpinii** var. **galpini**

basilanatum Poelln. = **?** (= ? *Anthericum andongense* Baker var. *papillosum* Poelln.)

benguellense Baker = **?**

beretumense Poelln. = **?**

betschuanicum Poelln. = **Trachyandra saltii** var. **oatesii** *(Asphodelaceae)*

bifoliatum Poelln. = **Chlorophytum subpetiolatum** var. **subpetiolatum**

blepharophyllum Peter ex Poelln. = **Trachyandra saltii**

bornmuellerianum Poelln. = **?**

bragae Engl. = **Chlorophytum subpetiolatum** var. **subpetiolatum**

brehmerianum Poelln., ? incl. var. *longibracteatum* Poelln. and ? incl. var. *longipedicellatum* Poelln. = **C. subpetiolatum** var. **subpetiolatum**

breviantheratum Poelln. = **?**

brevifilamentatum Poelln. = **?**

breviscapum De Willd. = **C. hysteranthum**

brevitepalum Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

brunneomarginatum Poelln. = **?**

brunneum Poelln., incl. var. *angustatum* Poelln. = **Chlorophytum cameronii** var. **cameronii**

buchananii Baker = **C. cameronii** var. **pterocaulon**

burgeri Cufod. 1971, p.p. = **C. stolzii**

burgeri Cufod., p.p., quoad spec. Burger 1025 = **C. ducis-aprutii**

bussei Poelln. = **C. subpetiolatum** var. **subpetiolatum**

caespitosum Dinter = **C. calyptrocarpum**

calyptrocarpum Baker = **C. calyptrocarpum**

cameronii Baker = **C. cameronii**

campestre Engl. = **C. suffruticosum**

caulescens Baker = **C. caulescens**

cepifolium Dinter & Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

chamaemoly Hochst. ex A. Rich. = **Chlorophytum tetraphyllum**

ciliare Peter ex Poelln. = **C. affine** var. **curviscapum**

claessensii De Wild. = **C. subpetiolatum** var. **subpetiolatum**

collinum Poelln. = **C. collinum**

colubrinum Welw. ex Baker = **C. colubrinum**

comosum Thunb. = **C. comosum**

congolense De Wild. & T. Durand, incl. var. *elongatum* De Wild. = **C. cameronii** var. **cameronii**

conrathii Baker = **C. fasciculatum**

cooperi Baker = **C. cooperi** (S. Africa)

cooperi auct. = **C. cameronii** var. **pterocaulon**

crassiusculum Dinter = **Trachyandra saltii** *(Asphodelaceae)*

ANTHERICUM

curvifolium K. Krause = **Chlorophytum calyptrocarpum**

curviscapum Poelln. = **C. affine** var. **curviscapum**

dalzielii Hutch. ex Hepper = **C. dalzielii**

deflexum A. Chev. 1913 nom. nud. ex Hutch. 1936, nom. inval. = **C. affine** var. **curviscapum**

deightonii Hutch. ex Berhaut = **C. warneckei**

delagoense Poelln. = **C. galpinii** var. **galpinii**

depauperatum Poelln. = **?**

dilatatum Poelln. = **C. cameronii** var. **cameronii**

dimorphum Poelln. = **C. subpetiolatum** var. **subpetiolatum**

dissitiflorum Baker = **?**

divaricatum Schinz = **C. galpinii** var. **galpinii**

diversifolium Poelln**.** = **C.** ? **subpetiolatum** var. **subpetiolatum**

djalonis A. Chev. = **Aristea angolensis** subsp. **angolensis** *(Iridaceae)*

drimiopsis Baker = **Chlorophytum longifolium** var. **longifolium**

durum Poelln. = **C. cameronii** var. **grantii**

elongatum Willd. var. *holostachyum* Baker = **Trachyandra saltii** *(Asphodelaceae)*

englerianum Poelln. = **Chlorophytum affine** var. **curviscapum**

excellens Poelln. = **?**

exellii Poelln.= **?**

exellii Poelln. var. *angustifolium* Poelln. = **?**

exellii Poelln. var. *papillosum* Poelln. = **?**

falcatum Welw. ex Baker = **C. longifolium** var. **longifolium**

fallax Poelln. = **?**

fasciculatum Baker = **C. fasciculatum**

favosum Thunb. = **Bulbine favosa** *(Asphodelaceae)*

fernandesii Poelln. = **? Chlorophytum** sp.

fibrosum Hutch. = **C. nubicum**

filiforme Thunb. var. *longifolium* Rendle and var. *pyrenicarpum* (Welw. ex Baker) Rendle = **Trachyandra pyrenicarpa** *(Asphodelaceae)*

filiforme Thunb. var. *reflexipilosum* Kuntze = **T. saltii**

fischeri Baker = **Chlorophytum fischeri**

flagelliforme Baker = **Eriospermum abyssinicum** *(Eriospermaceae)*

flavoviride Baker = **Trachyandra arvensis** *(Asphodelaceae)*

foliatum Poelln. = **Chlorophytum stolzii**

friesii Weim. = **C. sphacelatum**

fruticosum sensu Cact. Succ. J. (US) 55 : 55, 1983 = **C. suffruticosum**

galpinii Baker = **C. galpinii**

var. *matabelense* (Baker) Oberm. = **C. galpinii** var. **matabelense**

var. *norlindhii* (Weim.) Oberm. = **C. galpinii** var. **norlindhii**

gambuense Poelln. = **?**

giganteum Poelln. = **C. polystachys**

gilvum K. Krause, incl. var. *brunneolum* Poelln. = **Trachyandra arvensis** *(Asphodelaceae)*

giryamae Rendle = **Chlorophytum cameronii** var. **pterocaulon**

goetzi (Engl.) Poelln. = **C. goetzei**

gossweileri Poelln. = **C. andongense**

gracilitepalum Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

gramineum Poelln. = **Chlorophytum goetzei**

graminoides Poelln. = **C. goetzei**

grantii Baker var. *engleri* Baker = **?**

grantii Baker, incl. var. *muenzneri* Engl. & K. Krause = **C. cameronii** var. **grantii**

gregorianum Rendle = **Anthericum corymbosum**

harrarense Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

hecqii De Wild. = **Chlorophytum subpetiolatum** var. **subpetiolatum**

hereroense Schinz = **C. fasciculatum**

hockii De Wild. = **C. sphacelatum**

homblei De Wild. = **C. sphacelatum**

humile Hochst. ex A. Rich. = **Anthericum angustifolium**

hyacinthoides Willd. ex Kunth = **Drimia indica** *(Hyacinthaceae)*

immaculatum Hepper = **Chlorophytum immaculatum**

incohatum Poelln. = **?**

inconspicuum Baker = **C. inconspicuum**

inconspicuum sensu Raimondo & al. 1981 = **C. filifolium**

indutum Poelln. = **C. transvaalense**

inexpectatum Poelln. = **C. suffruticosum**

intricatum Baker = **Schizobasis intricatum** *(Hyacinthaceae)*

jaegeri Engl. & K. Krause = **Chlorophytum cameronii** var. **cameronii**

junciforme Poelln. = **?**

junodii Baker = **C. galpinii** var. **galpinii**

kapiriense De Wild. = **C. galpinii** var. **matabelense**

kassneri Poelln. = **Trachyandra saltii** *(Asphodelaceae)*

kemoense Hua = ? **Chlorophytum** sp.

kilimandscharicum Poelln. = **C. tuberosum**

korrowalense Engl. & K. Krause = **C. cameronii** var. **pterocaulon**

koutiense A. Chev. = **C. cameronii** var. **cameronii**

kyimbilense Poelln. = **C. cameronii** var. **pterocaulon**

lacustre Poelln. = **C. subpetiolatum** var. **subpetiolatum**

lanzae Cufod. = **Trachyandra saltii** *(Asphodelaceae)*

latifolium L. f. = **Bulbine latifolium** *(Asphodelaceae)*

laurentii De Wild., incl. var. *minor* De Wild. = **Chlorophytum subpetiolatum** var. **subpetiolatum**

ledermannii Engl. & K. Krause = **C. affine** var. **curviscapum**

liliagastrum Engl. & Gilg = **?**

limbamenense Engl. & K. Krause = **C. subpetiolatum** var. **subpetiolatum**

limosum Baker = **C. limosum**

longifolium A. Rich. = **C. longifolium**

longipedicellatum Poelln. = **Ornithogalum flexuosum** *(Hyacinthaceae)*

longiscapum Jacq. = **Bulbine asphodeloides** *(Asphodelaceae)*

longisetosum Poelln. = **Chlorophytum suffruticosum**

longistylum Baker = **C. recurvifolium**

longituberosum Poelln. = **C. comosum**

lukiense De Wild., incl. var. *intermedium* De Wild. and var. *kionzoense* De Wild. = **C. sphacelatum**

lunatum Poelln. = **C. longifolium** var. **longifolium**

lydenburgense Poelln. = **C. fasciculatum**

macrophyllum A. Rich. = **C. macrophyllum**

magnificum Poelln. = **C. krookianum**

malchairii De Wild. = **C. subpetiolatum** var. **subpetiolatum**

malosanum Baker = **Trachyandra malosana** *(Asphodelaceae)*

matabelense Baker = **Chlorophytum galpinii** var. **matabelense**

mendoncai Poelln. = **?**

micranthum Baker = **Trachyandra saltii** *(Asphodelaceae)*

milanjianum Rendle = **Chlorophytum sphacelatum**

mildbraedii Poelln. = **?**

molle Baker = **?**

monophyllum Baker = **C. subpetiolatum** var. **subpetiolatum**

montanum Poelln. = **C. subpetiolatum** var. **subpetiolatum**

muenzneri (Engl. & K. Krause) Poelln. = **C. cameronii** var. **grantii**

multisetosum Baker = **C. angulicaule**

neghellense (Cufod.) Bjorå & Sebsebe = **C. neghellense**

nervosum Hua = **?**

nguluense Poelln. = **C. cameronii** var. **cameronii**

nidulans Baker = **C. nidulans**

nigericum Hepper = **C. angustissimum**

niveum (Poir.) Spreng. = **C. tuberosum**

nodulosum Poelln. = **?**

nubicum Baker = **C. nubicum**

nyasae Rendle = **C. nyasae**

oatesii Baker = **Trachyandra saltii** *(Asphodelaceae)*

oehleri Engl. & K. Krause = **Chlorophytum cameronii** var. **cameronii**

omissum Poelln. = **Trachyandra saltii**

orchideum Welw. ex Baker = ? **Chlorophytum** sp.

ornithogaloides Hochst. ex A. Rich. = **C. tuberosum**

ornithogaloides (Kunth) Baker = **Ornithogalum flexuosum** (*Hyacinthaceae*)

otavense Engl. & K. Krause = **Chlorophytum anceps**

pallidiflavum Engl. & Gilg = **Trachyandra arvensis** *(Asphodelaceae)*

paludosum Engl. & K. Krause = ? **Chlorophytum** sp.

papillosum Engl. = **?**

patulum Baker = **C. galpinii** var. **matabelense**

paucinervatum Poelln. = **C. paucinervatum**

pendulum Engl. & K. Krause = **C. affine** var. **curviscapum**

peteri Poelln. = **C. ruahense**

pilosicarinatum Poelln. = **C. pilosicarinatum**

pleiostachyum Welw. ex Baker = **C. colubrinum**

polyphyllum Baker 1896, non Peter ex Poelln. 1942 = **C. recurvifolium**

polyphyllum Peter ex Poelln. 1942, (nomen nudum) = **?**

porense Poelln**.** = **C. subpetiolatum** var. **subpetiolatum**

princeae Engl. & K. Krause = **C. cameronii** var. **cameronii** var. *latifolium* Poelln. = **C. sphacelatum**

pseudopapillosum Poelln. = **C. collinum**

pterocaulon Welw. ex Baker = **C. cameronii** var. **pterocaulon**

puberulum Weim. = **C. pygmaeum** subsp. **pygmaeum**

pubiflorum Peter ex Poelln. = **C. affine** var. **curviscapum**

pubirhachis Baker = **C. affine** var. **affine**

pumilum Hua = **?**

purpuratum Rendle, incl. var. *longipedicellatum* Poelln. = **C. cameronii** var. **pterocaulon**

pygmaeum Weim. = **C. pygmaeum**

pyrenicarpum Welw. ex Baker = **Trachyandra pyrenicarpa** *(Asphodelaceae)*

ramiferum Peter ex Poelln. = ? **Chlorophytum** sp.

rautanenii Schinz = **C. anceps**

recurvifolium Baker = **C. recurvifolium**

rehmannii Baker = **C. galpinii** var. **galpinii**

remotiflorum Poelln. = **C. goetzei**

rhodesianum Rendle = **C. pygmaeum** subsp. **rhodesianum**

rigidum De Wild. = **C. galpinii** var. **grantii**

robustulum Poelln., incl. var. *angustum* Poelln. = **C. sphacelatum**

robustum Baker = **C. angulicaule**

roseum Poelln. = **C. rubribracteatum**

rubellum Baker = **C. cameronii** var. **pterocaulon**

rubribracteatum De Wild. = **C. rubribracteatum**

rubrovittatum Poelln. = **C. angulicaule**

russisiense Poelln. = **C. stolzii**

ruwense De Wild. = **C. blepharophyllum** var. **blepharophyllum**

saltii Baker*,* incl. var. *oatesii* (Baker) Cufod. = **Trachyandra saltii** *(Asphodelaceae)*

saxicola Engl. ex Poelln. = ? **Chlorophytum** sp.

secundum K. Krause & Dinter = **Trachyandra saltii**

seineri (Engl. & K. Krause) Poelln. = **Albuca seineri** (*Hyacinthaceae*)

senussiorum Poelln. = **Chlorophytum nubicum**

setiferum Poelln. = **C. subpetiolatum** var. **subpetiolatum**

sp. nov. sensu Nordal, 1990 = **C. ducis-aprutii**

speciosum Rendle = **C. cameronii** var. **pterocaulon**

sphacelatum Baker = **C. sphacelatum** subsp. *milanjianum* (Rendle) Kativu = **C. sphacelatum** var. **milanjianum**

sternbergianum Schult. & Schult. f. = **C. comosum**

stolzii Engl. & K. Krause = **C. subpetiolatum** var. **subpetiolatum**

stuhlmannii Engl. = ? **C. cameronii** var. **grantii**

subpapillosum Poelln. = **C. cameronii** var. **pterocaulon**

subpapillosum sensu Cufod., non Poelln. = **C. nervosum**

subpetiolatum Baker = **C. subpetiolatum**

subulatum Baker, incl. var. *longibracteatum* Poelln. = **C. fasiculatum**

succulentum Salisb. = **Bulbine asphodeloides** *(Asphodelaceae)*

suffruticosum (Baker) Milne-Redhead = **Chlorophytum suffruticosum**

superpositum Baker = **C. superpositum**

taylorianum Rendle = **C. affine** var. **affine**

tenellum Welw. ex Baker = **C. calyptrocarpum**

tenuissimum A. Chev. = **?**

tetraphyllum (L. f.) Nordal & Sebsebe = **C. tetraphyllum**

tostum Poelln. = **?**

transvaalense Baker = **C. transvaalense**

triflorum Baker, p.p. = **C. cameronii**

triphyllum Baker = **C. subpetiolatum** var. **subpetiolatum**

tropicum Poelln. = **C. subpetiolatum** var. **subpetiolatum**

tuberosum Roxb. = **C. tuberosum**

tuberosum De Wild., nom. illegit. = **C. subpetiolatum** var. **subpetiolatum**

tubiferum Hutch., nomen = **C. dalzielii**

turuense Poelln. = **C. affine** var. **affine**

ugogoense Poelln. = **C. subpetiolatum** var. **subpetiolatum**

ulugurense Engl. = **C. cameronii** var. **cameronii**

undulatifolium Engl. = **C. somaliense**

unifolium Poelln. = **C. subpetiolatum** var. **subpetiolatum**

unyamweziense Poelln. = **Eriospermum mackenii** *(Eriospermaceae)*

urumburense Poelln. = **Chlorophytum subpetiolatum** var. **subpetiolatum**

useguahaense Poelln. = **C. subpetiolatum** var. **subpetiolatum**

usseramense Baker = ? **C. sphacelatum** var. *occidentale* A. Chev. = **C. limosum**

ustulatum Welw. ex Baker = **?**

uyuiense Rendle, incl. var. *latifolium* Poelln. = **C. cameronii** var. **cameronii**

validum Peter ex Poelln. 1942, nomen nudum = **?**

vallis-trappii Poelln. = **C. comosum**

velutinum De Wild. = **C. sphacelatum**

venulosum Baker = **C. cameronii** var. **grantii**

verruciferum Chiov., p.p. = **Anthericum jamesii** (Paoli 1068), **Chlorophytum bifolium** (Paoli 942, 1252)

vestitum Schinz, non *Chlorophytum vestitum* Baker = **Chlorophytum transvaalense**

viridulobrunneum Poelln. = **C. blepharophyllum** subsp. **blepharophyllum**

volkii Sölch = **C. galpinii** var. **matabelense**

warneckei Engl. = **C. warneckei**

ANTHERICUM

welwitschii Marais & Reilly = **C. stolzii**
whytei Baker = **C. sphacelatum**
williamsii auct. (Gard. Chron.) = **C. comosum**
wilmsii Diels ex Poelln. = **C. fasciculatum**
xylorrhizum Engl. & Gilg = **?**
zanguebaricum Baker = **C. cameronii** var. **pterocaulon**
zavattarii Cufod. = **C. zavattarii**
zenkeri Engl. = **C. staudtii**

(ASPHODELUS, Asphodelaceae)

See also Volume 7: **Asphodelaceae**

Asphodelus chamaemoly Hochst. ex Baker 1876, nom. inval. = **Chlorophytum tetraphyllum** *(Anthericaceae)*

(CAESIA)

Caesia africana Baker = **Chlorophytum africanum**
comosa (Thunb.) Spreng. = **C. comosum**

(CAMPYLANDRA)

Campylandra dasystachys Welw. ex Baker = **Chlorophytum colubrinum**

CHLOROPHYTUM / *111* (+ *15*?)

syn.: *Acrospira* Welw. ex Baker 1878, nom. illegit., non Montagne 1857 (fungi).

With contribution from **Pierre Meerts** (Bruxelles). We wish to thank, Mr. Nicolas Fumeaux (Genève) for his help with this genus.

A genus of some 150 species distributed in tropical and subtropical regions of the Old World: Africa, SE Asia, N Australia, with centre of diversity in tropical Africa. Numbers of species given for various countries are, e.g., Central Africa 50; S. Africa 36 with 18 endemics; India 16; China 4 with one endemic; Madagascar 13 endemics; also known in Australia (e.g., *C. comosum, C. laxum*). Species are often difficult to delimit, in particular those occurring in tropical African rain-forest habitats.

"Closely related to both *Anthericum* and *Trachyandra* from both of which it can be reliably distinguished only by the fruit. The trigonous capsule is deeply lobed, the lobes ± oblong in shape; the black seeds are circular in outline and ± discoid in shape" (J. R. I. Wood, A handbook of the Yemen flora: 403, 1997).

These plants are very variable in morphological features. *Chlorophytum filifolium* has very narrow leaves (1-2 mm); *C. hirsutum* has leaf blades densely pubescent beneath, as well as scape and panicle pubescent (dense pubescence rare in the genus); *C. pusillum* is a dwarf plant to 3,5 cm tall; *C. humifusum*, *C. minor*, *C. parvulum* and *C. pterocarpum* reach 10-12 cm in height, whereas *C. arcuatoramosum* gets 1,8-3 m tall; *C. serpens* has a long, lax, arcuate to trailing scape; *C. rhizodenpulum* has a prominent rhizome to 1 m long (the rhizome is usually short in the genus).

In their study on *Chlorophytum* in India (Kew Bull. 67: 285-292, 2012) Lekhak & al. point out that "morphology alone cannot be taken as a means of circumscribing species and hence cytology can become one of the additional tools in delimiting taxa in this genus." They used the somatic chromosome number, karyotype

and mitosis as well as certain floral characters. The following features were shown to be relevant: relative flower size; length of tepals, filaments and anthers, the length of filaments with respect to anthers, and also presence or absence of papillae on the filaments.

Chlorophytum cameronii and *C. comosum* are often cultivated, the latter most often in its variegated cultivars, with small plantlets at inflorescence nodes.

BJORÅ, C. S. & I. NORDAL (2010). Anthericaceae. *In:* SOSEF, M. S. M. & al., eds., *Flore du Gabon* 41: 1-9.

MEERTS, P. & C. S. BJORÅ (2012). Synopsis of the genus Chlorophytum (Asparagaceae) in Central Africa (Democratic Republic of the Congo, Rwanda, Burundi). *Plant Ecol. Evol.* 145: 373-409.

POULSEN, A. D. & I. NORDAL (2005). A phenetic analysis and revision of Guineo-Congolean rain forest taxa of Chlorophytum (Anthericaceae). *Bot. J. Linn. Soc.* 148: 1-20 [with maps].

Chlorophytum affine Baker; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 494, 1995; Fl. Eth. & Eritrea 6: 102, 1997 (sub nom. *C. tordense*); Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 91, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 155-156, 2010; Nordal & al. in Biol. Skr. 54: 249, 2001; Akoegninou & al., Fl. analyt. Bénin: 37-38, 2006; Fl. Zambes. 13/1: 60, 2008; Lisowski, Fl. Rép. Guinée 1: 422, 2009; Meerts & Bjorå, l. c. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 146, 1994; Fl. Trop. E. Afr., Antheric.: 25, 1997 (var. **curviscapum**).

Herb 10-40 cm tall with fibrous remains of old leaf-bases on a woody knobbly rhizome; roots thin with white tubers at tip; leaves linear, *distichous*, erect to falcate, often canaliculate, sometimes finely undulate, firm, 10-40 × 0,4-2 cm, margins and often midribs ciliate; leaf-bases and cataphylls *blotched* with greenish brown to brownish red *spots or bands;* peduncles upright or arcuate at base, angled, glabrous to shortly hairy below, densely papillate to pubescent above; inflorescence a simple raceme, *3-13 cm long;* rachis angled, pubescent or scabrid, sometimes sinuate; pedicels suberect, articulated below middle, ± papillate, 3,5-10 mm, 1-3 per node; flowers white, star-shaped; tepals *6-11* × 2-4 mm, 3-5-veined, with a greenish brown stripe outside; capsule deeply triquetrous, smooth to slightly transversely ridged, 4-5 × 5-7 mm, emarginate.

Often in dense clumps. Open woodland; *Acacia-Commiphora* bushland; wooded grassland; grassland with *Themeda-Hyparrhenia;* thornbush; often in overgrazed and eroded sites with bare patches, usually on sandy soils; in shallow soils overlying limestone; more rarely on black cotton soils and hard pans; often in seasonally wet sites; swamps, meadow; 15-2800 m alt.

Yemen.

Comprises 2 vars.: – var. **affine** [syn.: *Anthericum pubirachis* Baker; *A. taylorianum* Rendle; *A. turuense* Poelln.; *Chlorophytum conspicuum* Poelln.; *C. pubescens* Peter ex Poelln.; *C. uvinsense* sensu Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 318, 1994, non Poelln.], large plant with long straight peduncle and leaves 11-22 mm wide; widespread; – var. **curviscapum** (Poelln.) Hanid [bas.: *Anthericum curviscapum* Poelln.; syn.: *A. ledermannii* Engl. & K. Krause; *A. pendulum* Engl. & K. Krause 1910, non Hornem., 1813; *A. deflexum* A. Chev. 1913, nom. nud., ex Hutch. 1936, nom. invalid.; *Chlorophytum tordense* Chiov. and sensu Berhaut, Fl. Sénégal, ed. 2, 9: 311, 1967; *Anthericum englerianum* Poelln.; *A. pubiflorum* Peter ex Poelln.; *A. ciliare* Peter ex Poelln.; *Dasystachys graminea* A. Chev., nom.], rather small plant with deflexed peduncle and short congested raceme and leaves to 9 mm wide; widespread.

The two varieties are sometimes found together.

CHLOROPHYTUM AFFINE

C. tordense Chiov. was earlier treated by Nordal as a near endemic species in Ethiopia, but later studies have shown that it "represents a slender form of the widespread *C. affine*"… "adapted to the drier northern areas". It is treated as a good species in Thulin, Fl. Somalia 4: 49, 1995.

Very close to *C. hysteranthum*.

C. africanum (Baker) Baker; Fl. Trop. E. Afr., Antheric.: 21-22, 1997; Fl. Zambes. 13/1: 66, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008.

bas.: *Caesia africana* Baker

syn.: *Acrospira giorgii* De Wild. & Ledoux; *Chlorophytum marginatum* Rendle, incl. var. *hispidulum* Poelln.; *Dasystachys marginata* (Rendle) Baker; *D. africana* (Baker) T. & H. Durand; *Chlorophytum setosum* Poelln., incl. var. *micranthum* Poelln. – All of var. **africanum.**

Rhizomatous herb often clumped, 10-50 cm tall with fibrous remains of old leaf-bases; rhizome regularly constricted; leaves rosulate, glabrous, linear-lanceolate, 5-50 × 1,5-5 cm; cataphylls and leaves with *red-ciliate margins* and sometimes also veins (var. **africanum**) or margins glabrous with short pallid cilia; peduncle terete, glabrous to pubescent; inflorescence a moderately dense subspicate raceme, unbranched or with a single basal branch, 2-20 cm long; rachis subterete, angled, scabrid to shortly pubescent; pedicels articulated at apex, to 3 mm long, solitary at nodes; perianth white, ± bell-shaped; tepals 5-7 mm long, 1-veined; capsule triquetrous, deeply lobed, emarginate, 2-4 × 3-5,5 mm.

Acacia, *Commiphora* woodland and degraded such; miombo on laterite; rocky hillsides; gravelly roadsides; red sandy soils; often in partial shade; remnants of *Juniperus* forest; *Brachystegia* woodland; often on ± degraded, badly drained, loamy or sandy, black or reddish soils (var. **silvaticum**); 1-100-2300 m alt.

Comprises 3 vars.: – var. **africanum** with leaf margins with dense crispate reddish hairs; – var. **nordalianum** Meerts (Icon.: Meerts & Bjorå o.c.: fig. 4A & B), with cataphylls (above) and peduncle pubescent, endemic to extreme SE Zaire and adjacent Zambia; – var. **silvaticum** (Dammer) Meerts (bas.: *C. silvaticum* Dammer; syn.: *C. bakeri* Poelln.; *C. pergracile* Poelln.; *C. papilliferum* Poelln.; *C. comatum* Poelln.; *C. inexpectatum* Poelln.; *C. robustum* Poelln.; *Dachystachys gracilis* Baker, non *Chlorophytum gracile* De Wild.; *D. debilis* Baker, non *Chlorophytum debile* Baker; *C. basitrichum* Poelln.; – Icon.: J. E. Afr. Nat. Hist. Soc. 24: fig. 11, 1962, as *C.* sp. near *bakeri* sensu Polhill; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 141, 2010, as *C. silvaticum*, with glabrous cataphylls and peduncle. – Intermediates between var. **africanum** and var. **silvaticum** are sometimes found.

C. alismifolium Baker ("alismatifolium"); Brunel & al., Fl. analyt. Togo in Englera 4: 657, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 494, 1995; Cheek & al., Pl. Kupe…: 425, 2004; Poulsen & Nordal in Bot. J. Linn. Soc. 148: 13-15, 2005 [map]; Sosef & al., Check-list pl. vascul. Gabon: 250, 2006; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 876, 2006; Lisowski, Fl. Rép. Guinée 1: 422, 2009; Fl. Gabon 41: 4, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 37, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 215, 2011 (sterile specim.); Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 231, 2011; Meerts & Bjorå, l.c. – Icon.: Morton, W. African lilies & orch.: fig. 13, pl. IV facing p. 19, 1961; Adam, Fl. descr. Mts Nimba 5: pl. 835-836, 1981.

syn.: *C. baillaudii* A. Chev.

CHLOROPHYTUM ALISMIFOLIUM

Herb with short stem, rhizomatous, tuberous; leaves 5-8, distichous, blade rather abruptly narrowed into the petiole c. 6 cm long; lamina lanceolate, 4-20 × 1,5-3,5 cm with c. 8 parallel nerves on each side of midrib; inflorescence ± branched, as long as leaves; pedicels 5-10 mm long, jointed in lower half; flowers and young fruits white, bracts shorter than pedicels; fruit obovate, 3-lobed, c. 5 mm high, 5 mm Ø, lobes divergent.

Amongst stones in streams, stream sides; on humus in forest and on falling and rotted trunks; humid rocks with mosses, under shade in forest with *Heritiera utilis;* 30-1000 m alt.

"Some collections from Sudanian Congo (Garamba) have lateral tubers…, a trait typical of… the closely related *C. holstii*".

C. altum Engl. & K. Krause; Onana & Cheek, Red Data Book flow. pl. Cameroon: 350-351, 2011.

syn.: *C. garuense* Engl. & K. Krause

Perennial herb with thin roots; leaves linear, 30-65 × 1,2-3,5 cm, glabrous, with distinct nerves; peduncle branched, 0,5-1 m tall; lower bracts 3 cm long, upper ones 6-8 mm; pedicels 4-7 mm long; tepals greenish white, linear, 5-6 × c. 1 mm; fruit ovoid, 5-6×6-7 mm, 3-lobed, apex emarginate.

Wooded savanna; flooded depression in savanna; 300-500 m alt.

C. anceps (Baker) Kativu; Fl. Zambes. 13/1: 40, 2008. – Icon.: Martineau, Rhodes. wild flow.: pl. 1 facing p. 12, 1953; Tredgold & Biegel, Rhodes. wild flow.: pl. 4, 1979, sub nom. *Anthericum anceps*.

bas.: *Anthericum anceps* Baker

syn.: *A. rautanenii* Schinz; *A. otavense* Engl. & K. Krause

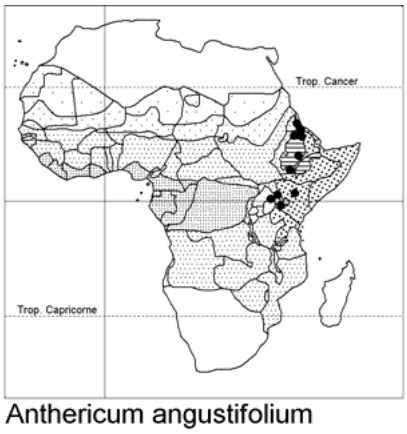
Herb *solitary* or *loosely* tufted, 18-34 cm tall; rhizome short, horizontal, constricted regularly, with fibrous remains of old leaf-bases; leaves in 2 rows, basal, 4-7, half-folded, linear, 12-16 × 0,15-0,20 cm, closely veined, glabrous, base clasping, margins scabrid; peduncle slightly flattened, closely ribbed, glabrous, to 34 cm long, narrowly winged; inflorescence congested, to 4 cm long, often with < 10 flowers; pedicels *clustered*, articulated below middle, to 5 mm long; tepals white, 7-8 mm long, 5-veined, outer ones with purple to dark brownish tips; capsule shallowly deltoid, c. 4,5 × 4 mm.

Open woodland; grassland margins; lateritic soils; shallow soils overlying rock; 1000-1400 m alt.

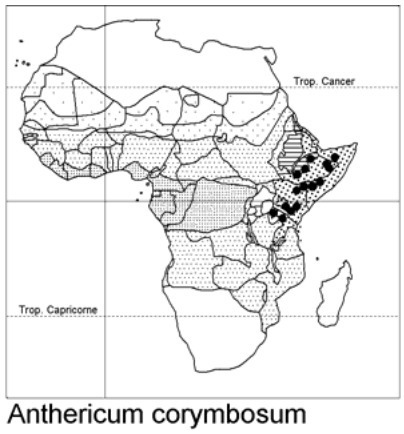
Botswana, N Namibia, S. Africa.

C. andongense Baker, Trans. Linn. Soc., Ser. 2, Bot. 1: 260, 1878 (type: Welwitsch 3770), non *Anthericum andongense* Baker (type: Welwitsch 3798 = *Chlorophytum sphagnicolum*), nec sensu A. Chevalier 1920: 649 *(= C. gallabatense).* – Brunel & al., Fl. analyt. Togo in Englera 4: 657, 1984; Akoegninou & al., Fl. analyt. Bénin: 38, 2006; Strugnell, Checklist Mt. Mulanje, Malawi: 40, 2006; Figueiredo & Smith, Pl. Angola: 170, 2008; Lisowski, Fl. Rép. Guinée 1: 422, 2009; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008. – Icon.: Fl. Trop. E. Afr., Antheric.: 12, 1997; Fl. Zambes. 13/1: 71, 2008; Meerts & Bjorå, o.c.: fig. 4 C & D.

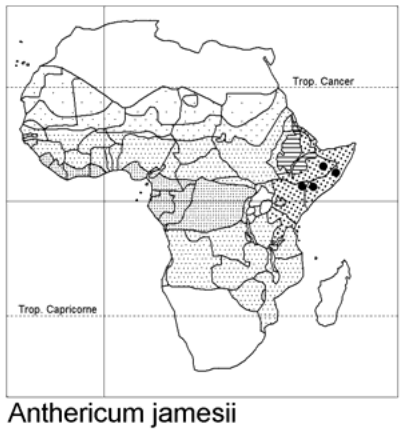
syn.: *Anthericum gossweileri* Poelln.; *Chlorophytum viridescens* Engl. var. *majus* Poelln.; *C. pedunculosum* Peter ex Poelln.; *C. guineense* A. Chev., nom. nud. et ex Poelln., nom invalid.; *C. longipes* Baker



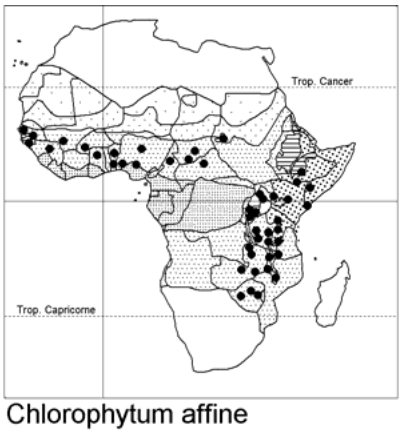
Anthericum angustifolium



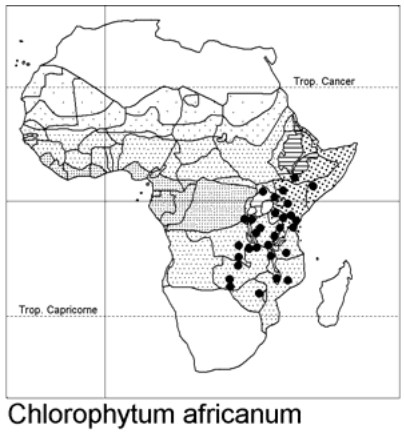
Anthericum corymbosum



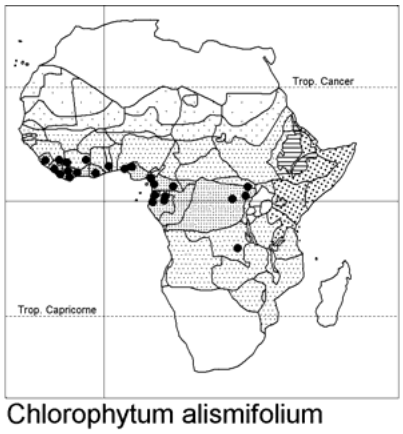
Anthericum jamesii



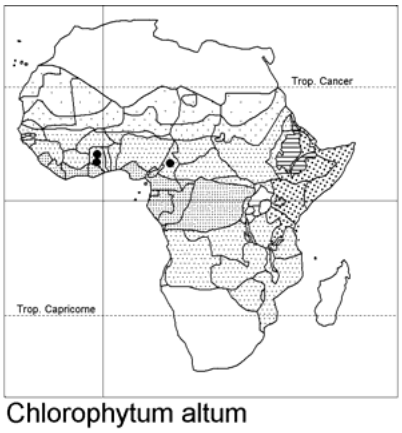
Chlorophytum affine



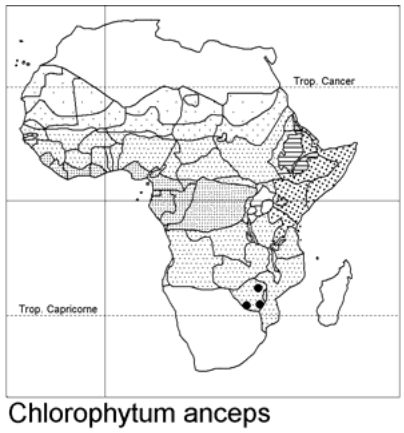
Chlorophytum africanum



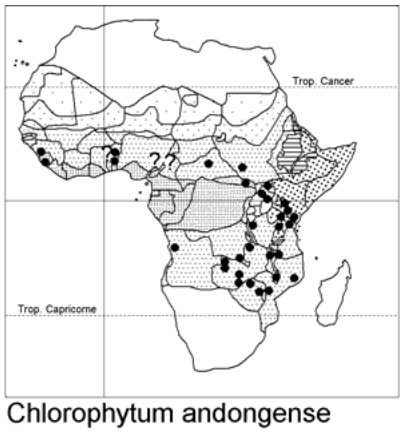
Chlorophytum alismifolium



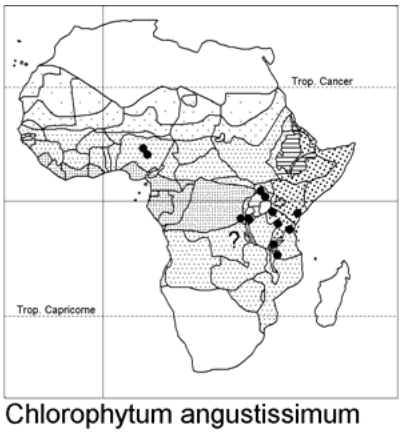
Chlorophytum altum



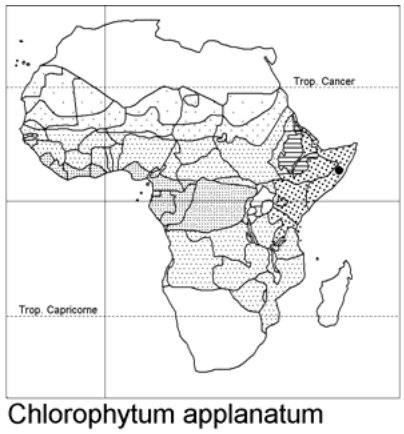
Chlorophytum anceps



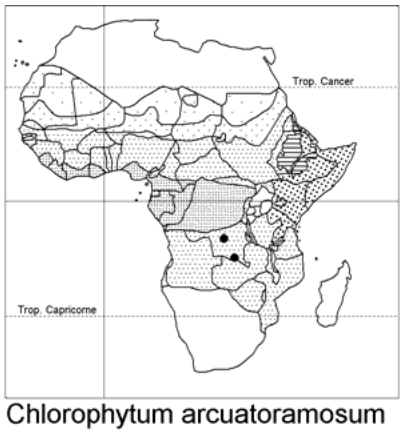
Chlorophytum andongense



Chlorophytum angustissimum



Chlorophytum applanatum



Chlorophytum arcuatoramosum

CHLOROPHYTUM ADONGENSE

Herb 0,65-2 m tall; rhizome thick, erect, constricted regularly, with fibrous remains of old leaf-bases; roots fleshy, spongy, without tubers, just below the soil surface; leaves rosulate, 4-7, sheathing at base, *pseudopetiolate*, glabrous, oblong-lanceolate, 25-80 × 2,5-9 cm; peduncle terete, glabrous, 5-7 mm Ø, with deciduous leaves all along; panicle loose, to 80 cm tall; flowers sometimes congested in the apical parts of branches; pedicels articulated above the middle, to 3 cm long, 4-9 per lower nodes; flowers ± pendulous; perianth *greenish* to whitish, urceolate, tepals 9-20 × 2-3 mm, with *ligulate rims above the constriction* to the cup, 3-veined, margins scabrid; capsule obovoid (ovary *stipitate*), 5-12 mm long.

Open woodland; forest margins; riverine thicket; often on termite mounds; sandy damp woods; thicket-grown rocks on great cliffs; 1500-2100 m alt.

Resembling *C. viridescens* from E. Africa. Closely related to *C. macrosporum*, and might not be distinct at species rank. Revision of the group is needed.

(**C. angulicaule** (Baker) Kativu)

bas.: *Anthericum angulicaule* Baker

syn.: *A. robustum* Baker; *A. multisetosum* Baker; *A. rubrovittatum* Poelln.

A S. African species cited in Bothalia 7: 675, 1962, also from Mocuba, Mozambique: specimen Faulkner 242, PRE, needs revision. It does not figure in Fl. Zambes. 13/1, 2008.

(**C. angustifolium** Rendle); Fl. Zambes. 13/1: 89, 2008. – Type: Swynnerton 772, Mozambique: Madanda Forest; 120 m alt.

Plant of uncertain status. «The description ... matches that of … *C. subpetiolatum* (Baker) Kativu". Type specimen not located.

C. angustissimum (Poelln.) Nordal; Fl. Trop. E. Afr., Anther. : 42, 1997. – Icon. : Kew Bull. 22: 455, 1968, sub nom. *Anthericum nigericum;* Meerts & Bjorå, o.c.: fig. 4 E & F.

bas.: *Anthericum angustissimum* Poelln.

syn.: *A. nigericum* Hepper; *Chlorophytum nigericum* (Hepper) Nordal 1993, non A. Chev. 1920, nom.

Herb clumped, 15-25(-56) cm tall; rhizome slender; leaves filiform, with expanded bases, 20-35 cm × *1-3 mm; margin often ciliate;* peduncle often arcuate below, ± prostrate, glabrous, or slightly hairy in lower parts, 1-4 cm tall; inflorescence a branched panicle, *rachis cylindrical*, 6-20 cm long, sometimes prostrate; pedicels articulated at or slightly below middle, 4-7 mm long, 2-3 per lower nodes; perianth open, whitish to yellowish, with green or brownish dorsal stripes or tip; tepals 5-8 × 2-3 mm, 3-veined; capsule 2-4 mm long, subglobose, slightly ridged, emarginate, rounded-deltate in cross section.

Shallow pockets of soil on rocky outcrops; *Themeda* grassland; sometimes seasonally wet grassland with shallow soils (dambos); 850-1900 m alt.

Confused with the southern *C. calyptrocarpum* (often so named by E. African botanists).

C. applanatum Nordal & Thulin – Icon.: Fl. Somalia 4: 45, 1995; Nord. J. Bot. 13: 272, 1993 (seed).

Herb to 22 cm tall; rhizome short, fibrous; leaves 1-2, basal, *flat on the ground*, ovate to broadly elliptic, *18-40 mm wide*, glabrous, margins with a c. 0,3 mm wide hyaline border; raceme glabrous, simple of few-branched; peduncle papillose-puberulous at base;

CHLOROPHYTUM APPLANATUM

flowers 1 at each node; pedicels 7-18 mm long, spreading, articulated 1-3 mm below the flowers, glabrous; tepals white, midvein greenish, 7-8 mm long, 3-nerved; capsule c. 3-3,5 × 5-5,5 mm.

Acacia, Commiphora bushland in shallow loamy sand over limestone; 200-340 m alt.

Superficially resembling *C. perfoliatum*; near *C. hiranense*.

C. arcuatoramosum R. B. Drumm. – Icon.: Meerts & Bjorå, o.c.: figs. 1 A & B, 4 G & H.

Perennial herb 1,8-3 m tall; leaves rosulate, *ensiform*, 1,2 m × 6-10 cm, margin *ciliate;* peduncle smooth, glabrous, to 1 cm Ø; inflorescence with spreading branches, to 30 cm long; branches to 3 mm Ø, *arcuate*, densely racemose towards apex; pedicels 1-3 per node, 2,5-6,5 mm long, *articulated at the very apex;* perianth segments white, 9 mm broad, 3-nerved, the outer ones papillose outside, minutely ciliate at apex, inside bearded at base; capsule strongly 3-lobed, 8-10 × 7-8 mm Ø, apex emarginate, base truncate, lobes 4 mm wide.

Wooded savanna; 900 m alt.

A striking species. Related to *C. longifolium*, *C. colubrinum*.

(**C. baturense** K. Krause)

Herb with fibrous and very many moderately thick roots but apparently without tubers; leaves sessile, linear, glabrous, apex acute, 20-30 × 1,2-1,4 cm; peduncle erect, 16-22 cm tall, the upper half floriferous; pedicels 4-5 mm long, articulated below the flower; tepals white, narrowly oblong, 5 × 2 mm, apex subacute, dorsally keeled; capsule deeply 3-lobed, blackish brown, 4-5 × c. 4-5 mm.

Open bush.

Said to be related to *C. camporum* from which it differs by its white, not green flowers.

? Known only from the type (Mildbraed 4834) collected in March 1911. Cameroon: S Adamaua, Batouri (c. 4°N × 15°4'E). – Taxonomic status uncertain. Not mapped.

C. benuense Engl. & K. Krause, not *C. beniense* De Wild. *(= C. sparsiflorum),* Onana & Cheek, Red Data Book flow. pl. Cameroon: 351, 2011.

Herb 30 cm tall with fibrous roots c. 2 mm Ø, apparently without tubers; leaves linear, glabrous, blue-green, 20-28 × 0,4-1,1 cm; peduncle 10-15 cm tall; *pedicels 2-4 mm long; bracts acute, 3 cm long;* tepals oblong-obtuse, 5-7 mm long, white; capsule yellowish brown, ellipsoid, 3-5 mm high, 3 mm wide, slightly emarginate.

Hills of rocks, rocky hills covered with a forest-like vegetation of trees and shrubs or woody savanna; wooded grassland, possibly in swampy conditions; 300-900 m alt.

C. bifolium Dammer; Thulin, Fl. Somalia 4: 45-46, 1995; Fl. Eth. & Eritrea 6: 95, 97, 1997; Fl. Trop. E. Afr., Anther.: 27, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 83-84, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 145-146, 2010.

CHLOROPHYTUM BIFOLIUM

Herb to 15 cm tall with a very short rhizome; roots *tuber-like*, fasciculated; leaves 2-5, rosulate, lanceolate, 8-14 × c. 1,5 cm, acute, margins hyaline; peduncle scabrid, leafless, 5-7 cm long; raceme simple, *rachis pubescent;* pedicels suberect, 3 mm long, articulated near middle; flower 1(-2) per node; tepals white, 6 mm long, 3-veined; capsule triangular, indistinctly transversely ridged, 6-9 × 9-12 mm, emarginate.

Ecology unknown in Ethiopia; *Acacia, Commiphora* bushland, with shallow drained soils, on limestone; often in alluvial soil; fallows; 250-1000 m alt.

Exact locality in Ethiopia unknown.

C. blepharophyllum Schweinf. ex Baker, non *Anthericum blepharophyllum* Peter ex Poelln. *(= Trachyandra saltii, Asphodelaceae);* Brunel & al., Fl. anal. Togo in Englera 4: 657, 1984; Peters in Timberlake & Kativu, eds., African plants: biodiversity, taxonomy and uses: 485-486, 1999 (with map); Fl. Trop. E. Afr., Antheric.: 51-52, 1997; Fl. Eth. & Eritrea 6: 105, 1997; idem 1: 243-244, 2009; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 94, 2003; idem, Aloes and lilies Eth. & Eritrea, ed. 2: 161, 2010; Burrows & Willis, Pl. Nyika Plateau: 287, 2005; Fl. Zambes. 13/1: 74, 76-77, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008; Lisowski, Fl. Rép. Guinée 1: 422, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 146, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 28, 2012. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 144, 1994; Bot. J. Linn. Soc. 157: 234-236, 2008. – All of var. **blepharophyllum**.

Herb growing single or clumped, 5-80 cm tall; rhizome with *fibrous remains of old leaf-bases;* roots spongy, often tuberous; leaves rosulate, *clasping the scape;* lamina linear-lanceolate, 4-66 × 0,5-12 cm, ± canaliculate; *margins ciliate;* leaves expanding at flowering time, becoming larger in fruiting; hysteranthous forms sometimes observed; scape terete, glabrous, 5-40 cm long; inflorescence usually unbranched, occasionally with a few branches at base 8-15 cm long; *rachis* papillose to *pubescent;* pedicels articulated near or distinctly above middle, 3-10 mm long, 2-4 at lower nodes; flowers sweet scented; *perianth* whitish tinged greenish cream to purplish or brownish; tepals 6-8 × 1,5-2,5 mm, 3-5-veined, scabrid on margins and veins; capsule obovoid, emarginate, 3-quetrous, 6-10 mm long, not pseudoviviparous (cf. *C. comosum*).

Open deciduous woodland and grassland, grassland margins; rocky outcrops; often on light sandy and stony soils, both damp and dry, sometimes grazed and eroded; *Brachystegia* woodland; amongst stones in moist savanna; clayey soils, under shade; *Combretum collinum*, *C. molle*, *Annona senegalensis* woodland; gallery forest; 50-2450 m alt.

Comprises 2 vars.: – var. **blepharophyllum** [syn.: *C. blepharophyllum* subsp. *rubropygmaeum* Bjorå & Nordal, and subsp. *pendulum* Hoell & Nordal; *C. brunneum* Baker; *C. nigrescens* De Wild.; *C. distachyum* Peter ex Poelln.; *C. kombense* Peter ex Poelln.; *C. saxicola* Poelln.; *C. trichocraspedum* Peter ex Poelln.; *C. viriduliflorum* Poelln.; *Anthericum amplexifolium* Engl. ex Poelln.; *A. viridulobrunneum* Poelln.; *A. ruvense* De Wild.; *Chlorophytum ciliatum* Baker; *C. fibrosum* Engl. & K. Krause; *C. longibracteatum* De Wild.; *C. kerstingii* Dammer; *C. stipitatum* Poelln.]; plants c. 5-40 cm tall, cataphylls not prominent and leaf lamina not clasping stem, 0,5-4 cm wide; – var. **amplexicaule** (Baker) Meerts [bas.: *C. amplexicaule* Baker; syn.: *C. homblei* De Wild.]; plants c. 15-80 cm tall, cataphylls prominent, leaf lamina spreading, clasping stem, 4-12 cm wide.

CHLOROPHYTUM BLEPHAROPHYLLUM

C. blepharophyllum is very variable; hysteranthous forms are sometimes reported, also such with deep purple leaves; dwarf plants with reddish cataphyll-like leaves have been recognized as a distinct subspecies *(rubropygmaeum),* but the intensity of purplish colours varies; the leaf margins may be very densely ciliate; plants with pendulous inflorescences have been described as distinct (subsp. *pendulum*).

Note: In Akoegninou & al., Flore anal. Bénin: 39, 2006, v. d. Burg remarks on the identity of the plant figured in Fl. Trop. E. Afr., Anthericaceae p. 50, 1997, named *C. macrophyllum* there. It is drawn from a cultivated specimen. The habit of *C. macrophyllum* is extremely variable. From herbarium specimens (and living ones in the greenhouses) seen by us at Kew, it seems plausible that the above-mentioned illustration really represents *C. macrophyllum*, and not *C. blepharophyllum*.

C. bowkeri Baker – Icon.: Baker, Refug. bot. 5: pl. 352, 1873; Bot. Not. 1937: 433, 1937, sub nom. *C. magnificum*.

syn.: *C. perlongibracteatum* Poelln.; *C. stramineum* Zahlbr.; *C. strictum* Baker; *C. nigricans* Baker; *C. wilmsii* Engl. & K. Krause; *C. magnificum* Weim.

Herb often gregarious, 0,8-1,6 m tall; rhizome thick, horizontal, constricted regularly; leaves rosulate, linear-lanceolate, 20-54 × 1-4,5 cm, margins undulate; peduncle terete, glabrous, *fleshy*, 0,25- 1m tall; inflorescence *unbranched* or with *1-9 short basal branches;* pedicels 2-4 per node, articulated above middle, to 10 mm long; perianth white, tepals 5-veined; capsule ovoid, 3-angled, c. 12 mm long.

Grassland; forest margins; 1200-2000 m alt.

S. Africa, Swaziland.

C. brachystachyum Baker – Icon.: Fl. Trop. E. Afr., Antheric.: 53, 1997; Fl. Zambes. 13/1: 78, 2008; Bothalia 7: 702, 1962 (sub nom. *C. trachycarpum*).

syn.: *C. trachycarpum* Oberm.

Herb often clumped, 25-45 cm tall; rhizome short, vertical; roots *swollen or with tubers*; leaves rosulate, *narrowed at base*, oblong-lanceolate, 5-40 × 0,5-4 cm, *fimbriate*, margins *crisped* and ciliate; peduncle terete, shallowly angled, 5-40 cm long; inflorescence usually an unbranched, dense raceme, sometimes forked at base; pedicels articulated above middle, ± 5 mm long in fruit, 2-5 at lower nodes; perianth white; tepals papillate, 4,5-6 × 1,5-2 mm, 3-5-veined; capsule deltate to slightly 3-lobed in section, emarginate, papillate, tuberculate or transversally lined when mature, c. 4 × 4-5 mm.

Rock-like clayey hardpan soils; termite mounds, within open woodland; often near water-courses; sodic soils; 350-1600 m alt.

Namibia, Caprivi Strip, Botswana.

Forming a complex with *C. pauper*. – Plants from SE Zaire may belong here (treated as *C.* cf. *brachystachyum* by Meerts & Bjorå, o.c.), marked with ? on our map. They are often more robust, the leaf margins are undulate with long cilia, the rachis is sometimes papillose, and the fruit surface is variably rough; but the tubers are lateral (like in *C. pauper*). Further studies are needed to clarify their taxonomic status.

(**C. bracteatum** Hua) and var. *humile* A. Chev. ? (see below).

Herb with short oblique rhizome with thickened fibres; leaves many, with channelled petiole 7-20 cm long and enlarged base; blade lanceolate, 8-18 × 1,7-3,2 cm, membranous, sparsely villous beneath; peduncles 2-3, short, glabrous; raceme lax, c. 15 cm long, bracts c. 2,5 cm long; pedicels 2-3 per node, articulated above middle; tepals white, linear, 5-7 × 1 mm, apex thickened, hooded; capsule 3-lobed, apex emarginate.

Collected in Nigeria, Nupe (Barter 1314, ex Hua) and Congo Brazzaville, Ngoma (= ? Tsé-Tsé; Lecomte B 104). – Not mapped. – Not figuring in Fl. W. Trop. Afr., ed. 2, 3/1, 1968.

Var. **humile** A. Chev., nomen, in Etudes flore Afrique centrale française (Oubangui & Chari) 1: 317, 1913. Chevalier 5924, collected in 1902 in the basin of the Haute-Ombella, Centr. Afric. Rep., Kono, a plant with white flowers. Identity unknown.

Near *C. comosum* var. *sparsiflorum.*

(**C. brevipedunculatum** Poelln.)

Rhizomatous herb, glabrous except for bracts and filaments; leaves (oblong-)lanceolate, 4-6, 30-38 × 3-5 cm; peduncle *2-4 cm long*; raceme erect, simple, 5-7 cm long; pedicels 1-several per node, erect, articulated below the flower, 1-2 mm long; bracts 1,5-2 cm long; tepals 5,5-6 × 1-1,5 mm, blunt, white, 5-nerved; capsule unknown.

Thornbush savanna (former cultivations); 750 m alt.

? Only known from the type (Ledermann 3748) collected in 1909; Cameroon, Sagosche (8°18N × 13°32E). – Not mapped.

C. bulbinifolium Hoell & Nordal; Flora Zambes. 13/1: 54, 2008. – Icon.: Bot. J. Linn. Soc. 157: 229, 236, 2008.

Herb to 35 cm tall; roots thick; rhizome crowned with fibres from old leaf-bases; leaves rosulate, *glabrous,* linear, to 12 cm × 1 mm, succulent; peduncle without leaves, to 20 cm long; raceme lax, to 15 cm long; flowers 1-2 per node; pedicels 6 mm long, articulated near middle, light green above, light brown below joint; perianth white; tepals 5-7 mm long, outer 2 mm wide, inner 4-5 mm wide, outer with 3-5, inner with 1-3 brownish veins; capsule transversally ridged, to 4 × 5 mm, covered by persistent perianth.

Sandy soils in open patches in *Brachystegia* woodland; c. 1200 m alt.

Only known from the type collected in 1985.

C. burundiense Meerts, Pl. Ecol. Evol. 144: 233, 2011. – Icon.: ibid.: 234; Meerts & Bjorå, o.c.: fig. 1 F.

syn.: *C. comosum* sensu Lewalle (Lewalle 3998) in Bull. Jard. Bot. Natl. Belg. 42: 243, 1972 (table: Liliaceae), non (Thunb.) Jacq.

Herb 5-35 cm tall, glabrous throughout, solitary or tufted; rhizome short, vertical, with fibres; roots spongy at base, sometimes with a small tuber distally; leaves distichous to rosulate, erect to spreading, linear, 4-26 × 3-5,5 mm, dilated at base into a hyaline sheath; peduncles 1-2, stiff, naked or with one bract under the raceme, 5-15 cm long, to 20-35 cm in fruit; raceme ± dense, 4-10 cm long, rachis nearly winged; pedicels 1-3 per node, c. 8 mm long, *distally ± winged*, elongating in fruit, articulated at or above middle; *bracts ovate-lanceolate, 11-17 3 3-5 mm, dark purplish brown;* tepals white, 7-8,5 × 2-2,5 mm, 4-5-nerved, finely papillose above; capsule deeply 3-lobed, slightly veined transversally, 4-6 × 4-6 mm.

Grassland, scrubland; meadow with *Eragrostis;* wet grassland; tea plantation, shrubland with *Philippia;* 2000-2500 m alt.

The single collection from SW Tanzania (Richards 7566) situated c. 700 km S of all other ones (Burundi).

Distinct species also in its habitat requirements.

The closest relative may be the *C. subpetiolatum* complex.

C. calyptrocarpum (Baker) Kativu – Icon.: Fl. Zambes. 13/1: 53, 2008.

bas.: *Anthericum calyptrocarpum* Baker

syn.: *A. curvifolium* K. Krause; *A. caespitosum* Dinter; *A. tenellum* Welw. ex Baker, non *Chlorophytum tenellum* Peter ex Poelln.

Herb grasslike, gregarious,10-85 cm tall; rhizome short, constricted regularly, with fibrous remains of old leaf-bases; roots spongy, tuberous; leaves fascicled, to 10 per plant, filiform, 12-18 cm long, *glandular-spotted*, margins ciliate, base dilated; peduncle terete, bracteate, often *glandular-spotted*, to 45 cm long; panicle with to 7 branches, c. 60 cm long; pedicels articulated below middle, lower ones 2 per node, upper ones solitary, c. 4 mm long in fruit; perianth white; tepals 3-veined dull purple; capsule c. 5 mm long, shallowly deltoid, glabrous.

Seasonally wet grassland; near stream banks; often on clay soils and on shallow sandy loam overlying rock; rocky pastures flooded seasonally; in SE Zaire most often on copper-mineralised substrate; 100-1400 m alt.

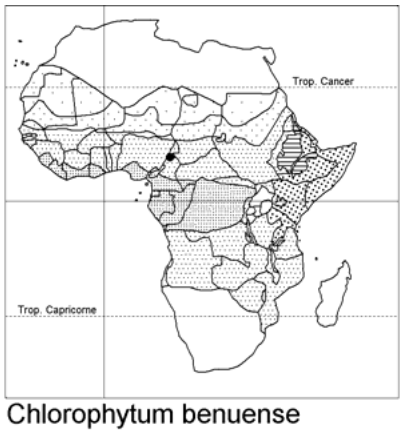
Namibia, N S. Africa. – Not in Burundi; confusion with *C. angustissimum*.

C. cameronii (Baker) Kativu; Brunel & al., Fl. anal. Togo in Englera 4: 654, 1984 (as *Anthericum uyuiense*); Fl. Trop. E. Afr., Antheric.: 30-33, 1997; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 40, 2006; Fl. Zambes. 13/1: 44-45, 2008; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 91-92, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 91-92, 2010. – Icon.: Trans. Linn. Soc. London 29: pl. 103 B, 1875 (as *Anthericum grantii*); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 144, 145, 1994; Fl. Eth. & Eritrea 6: 92, 1997.

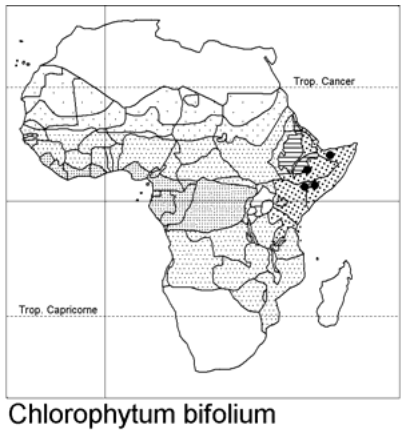
bas.: *Anthericum cameronii* Baker, J. Linn. Soc. Bot. 15: 96 ! 1876, *not* p. 314; the first description of this taxon is given on page 96; the second mention on page 314 is only a *subsequent* description in a revision of the genus *Anthericum*. The name *A. cameronii* page 314 is not an illegitimate name.

syn.: *A. triflorum* Baker, p.p.

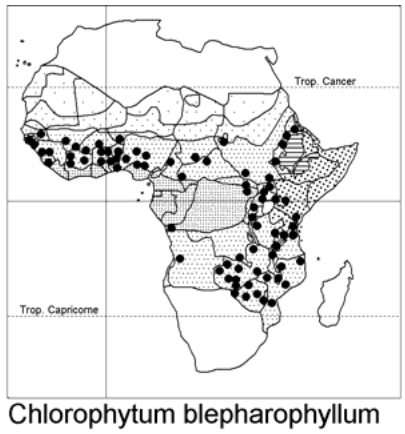
Tufted herb 0,15-1 m tall; rhizome horizontal, knobbly, with fibrous remains of old leaf-bases; roots fibrous with distant tubers; leaves 4-6 in 2 rows or almost so, sheathing below, alternate above, linear-lanceolate, 7-85 × 0,5-4,5 cm, glabrous; peduncle to 40 cm long, flat, narrowly winged above, glabrous; inflorescence to 16 cm long, unbranched, flowers sparsely arranged; rachis flat, with a single wing in lower part, terete above, glabrous; pedicels 1-7 per node, articulated below middle, to 14 mm long in fruit; perianth whitish to pinkish; tepals 8-17 mm long, 3-7-veined; capsule to 7 mm long, obovoid, shallowly deltoid, transversely ridged.



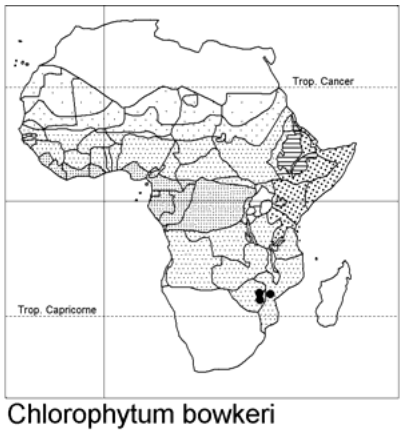
Chlorophytum benuense



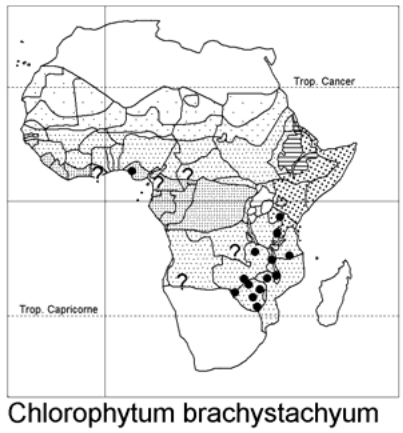
Chlorophytum bifolium



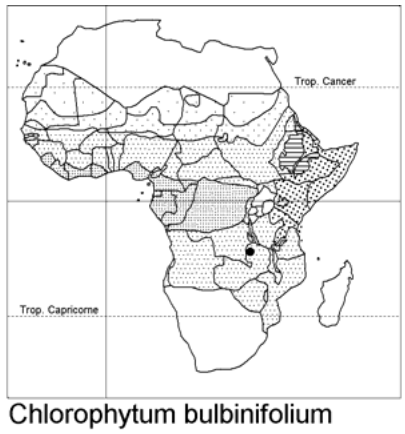
Chlorophytum blepharophyllum



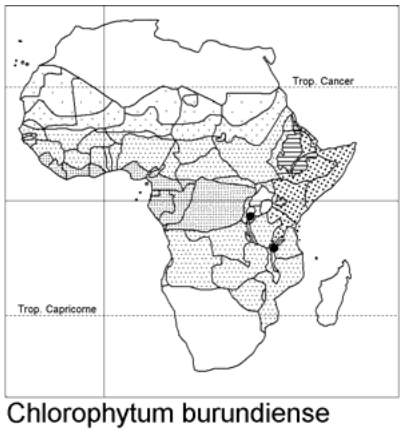
Chlorophytum bowkeri



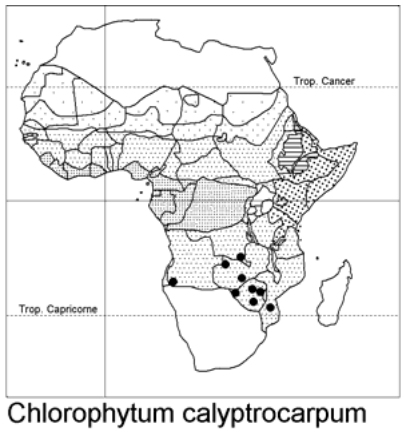
Chlorophytum brachystachyum



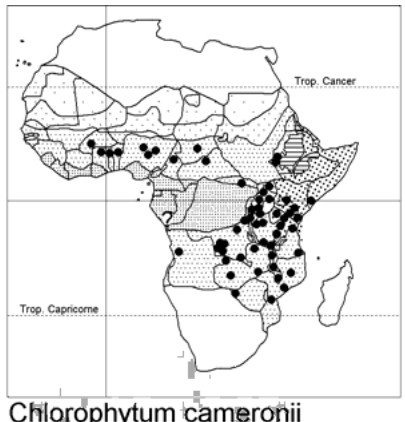
Chlorophytum bulbinifolium



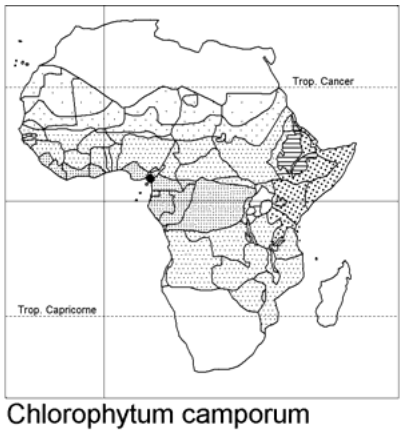
Chlorophytum burundiense



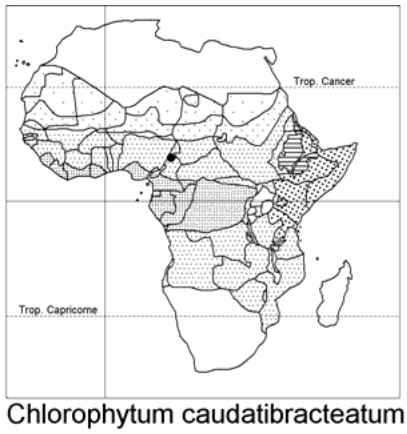
Chlorophytum calyptrocarpum



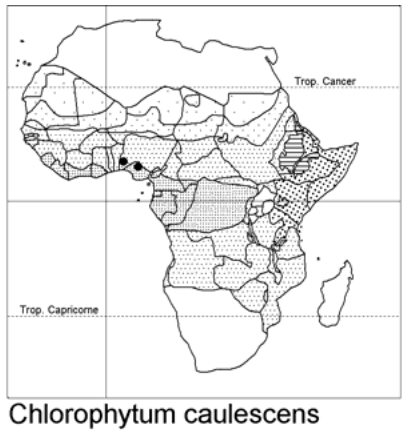
Chlorophytum cameronii



Chlorophytum camporum



Chlorophytum caudatibracteatum



Chlorophytum caulescens

CHLOROPHYTUM CAMERONII

Woodland; forest; swampy and seasonally wet areas; ofen on sandy soils; often in clumps; rain and riverine forest on brown to black loamy-clay; crevices in rocks along streams; sometimes epiphytic; dry bushland/thornscrub; dry tall grassland; gravelly shallow red soils; thicket; fixed reddish sand or shallow soil overlying rocks; rocky outcrops; a character species of the *Fimbristylis dichotoma-Loudetia* cf. *furtiva* community on inselbergs (Parmentier & Miller in Phytocoenologia 36: 586, 2006); 0-3300 m alt.

Very variable, "variation reticulate and difficult to accommodate taxonomically" (Fl. Zambes., l.c.). Four varieties are distinguished: – var. **cameronii** [syn.: *Anthericum uyuiense* Rendle, incl. var. *latifolium* Poelln.; *A. congolense* De Wild. & T. Durand, incl. var. *elongatum* De Wild.; *A. ulugurense* Engl.; *A. koutiense* A. Chev.; *A. jaegeri* Engl. & K. Krause; *A. oehleri* Engl. & K. Krause; *A. princeae* Engl. & K. Krause; *A. brunneum* Poelln., incl. var. *angustatum* Poelln.; *A. dilatatum* Poelln.; *A. nguluense* Poelln., non *Chlorophytum nguluense* Poelln. (= *C. colubrinum*)]; plants with reddish-brown spots or stripes on cataphylls and outer leaf-bases; widespread; – var. **grantii** (Baker) Nordal [bas.: *Anthericum grantii* Baker; syn.: *A. grantii* var. *muenzneri* Engl. & K. Krause; *A. muenzneri* (Engl. & K. Krause) Poelln.; *durum* Poelln. (not a synonym of *Chlorophytum galpinii* var. *galpinii*); *A. rigidum* De Wild. 1913, nom. illegit., non *A. rigidum* K. Krause, nec *A. rigidum* (Kunth) Baker; *A. rigidum* De Wild. var. *breviscapum* De Wild., ? *A. stuhlmanni* Engl.]; plants with green cataphylls and outer leaf-bases, lower leaf surface, peduncle and rachis pubescent; – var. **pterocaulon** (Welw. ex Baker) Nordal [in Fl. Trop. E. Afr., Anther.: 32, 1997, based on *Anthericum cameronii* Baker 1876 and *A. pterocaulon* Welw. ex Baker 1878; syn.: *Chlorophytum cameronii* var. *purpuratum* (Rendle) Govaerts 1999, based on *Anthericum purpuratum* Rendle 1895; syn.: *Chlorophytum purpuratum* (Rendle) Nordal 1993; *Anthericum purpuratum* var. *longipedicellatum* Poelln.; *A. zanguebaricum* Baker; *A. speciosum* Rendle; *A. buchananii* Baker; *A. rubellum* Baker; *A. giryamae* Rendle; *Chlorophytum zanguebaricum* (Baker) Nordal; *C. pterocaulon* (Welw. ex Baker) Kativu; *C. calateifolium* Chiov.; *Anthericum korrowalense* Engl. & K. Krause; *A. atacorense* A. Chev., nom.; *A. kyimbilense* Poelln.; *A. subpapillosum* Poelln., non sensu Cufod. (= *C. nervosum*); *Chlorophytum cooperi* sensu Hanid in Agnew, Upl. Kenya wild flow. ed. 1, 1974, et Cribb & Leedal in Mount. fl. S. Tanzan., 1992, non (Baker) Nordal (in S.Africa)]; plants with green cataphylls and lower leaf-bases, and leaf blades and peduncles glabrous, peduncle flat, rachis undulate, inflorescence distichous, pedicels shorter than flowers; easily recognized, however variable; widespread. – var. **ruziziense** Meerts [syn.: "*C. gracillimum* V.D.", nom. nud., sensu Germain 1952, on plaine de Ruzizi, Zaire, non *C. gracillimum* Dammer, nom. nud. (= *C. warneckei*]; plants with very narrow, conduplicate leaves, 2-3 mm wide, ciliate in lower third, height very variable (20-90 cm); Zaire, on the Ruzizi plain and adjacent Burundi.

C. pilosicarinatum is perhaps a variety of *C. cameronii* (see below under that species).

C. cameronii is cultivated as an ornamental.

As to the synonym *Anthericum uyuiense*, see Bull. Jard. Bot. Etat, Brux. 25: 233-234, 1955.

C. camporum Engl. & K. Krause; Onana & Cheek, Red Data Book flow. pl. Cameroon: 351, 2011.

Herb with tuberous roots; leaves c. 15 per rosette, erect, strap-like, 18-25 × 0,7-0,9 cm, base tapering into pseudo-petiole; peduncle 15 cm long; spike erect, 25-38 cm long; bracts 7 mm

CHLOROPHYTUM CAMPORUM

long; pedicels 2-3 per node, jointed above middle; tepals white, 5-6 mm long; capsule broadly ovoid, blackish brown, 5 × 5 mm, 3-lobed, apex deeply cordate-emarginate.

Probably forest or grassland; 800 m alt.

Known only from the type (Ledermann 1401) collected in 1908.

C. caudatibracteatum Engl. & K. Krause; Onana & Cheek, Red Data Book flow. pl. Cameroon: 351, 2011.

Herb 30 cm tall with numerous scarcely thickened roots; leaves 3-5 per rosette, greyish green, linear-oblong, 20-30 cm long, glabrous, apex long-acute, base lacking pseudo-petiole; peduncles erect, to 40 cm long; bracts to 3 cm long, apex long-caudate-acuminate; pedicels of the not fully developed flowers 6 mm long, jointed at about middle; tepals ovate-oblong, only 3 mm long, green; capsule unknown.

Sandy and stony tree savanna with shrubs; 300 m alt.

Known only from the type (Ledermann 3408) collected in 1909.

Said to be distinguished by its long bracts.

C. caulescens (Baker) Marais & Reilly; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 495, 1995; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 28, 2012.

bas.: *Anthericum caulescens* Baker

Herb with tuberous roots; the following characters given in comparison with *C. nubicum:* leaves *present at flowering time* (not so in *C. nubicum*), *2-2,5 cm broad*, margins scabrid-ciliate; inflorescence *well branched*, to *60 cm long*; pedicels *1-1,5 cm* long in fruit; perianth *1,1-1,3 cm*; tepals 0,11 cm broad, *dull green*, 3-nerved; fruit 4x6 mm, transversally ribbed.

Dry rocky ground.

(**C. chariense** A. Chev.)

Herb with tuberous base and numerous roots, with remains of old leaf-bases; leaves 6-8, erect; petiole 2-3 cm long, white, canaliculate; blade oblong-lanceolate, 16 × 3-3,5 cm, glabrous, hard, apex acute; peduncle 2 cm long; raceme simple, 3-4 cm long, loose at base, dense at apex; flowers 2-3 per node; pedicels ascending, 1-1,5 mm long; bracts 12 mm long; perianth white, 5 mm long; capsule unknown.

Sandstone; c. 650 m alt.

? Only known from the syntypes (Chevalier 8370, 8371), Central Afric. Rep.: Kouti, Télé; collected in 1903. – Not mapped.

A depauperate form of another *Chlorophytum* species ?

C. chelindaense Kativu & Nordal; Fl. Zambes. 13/1: 69, 2008. – Icon.: Bot. J. Linn. Soc. 157: 231, 236, 2008.

Herb 8-12 cm tall; rhizome regularly constricted; leaves rosulate, *erect*, linear, acute, 6-12 cm × c. 2 mm, setose on veins below, glabrous above; peduncles 3-8 cm long, terete, *glabrous* with ± *bract-like leaves* with *red ciliate margins;* inflorescence dense, subspicate, 3-4 cm long; pedicels solitary, to 2 mm long, without a joint; bracts purple, 5-6 mm long, margins ciliate; perianth bell-shaped; tepals to 5 mm long, 1-veined; capsule unknown.

Grassland on shallow soils overlying rocks; c. 2300 m alt.

Known only from the type collected in 2002.

Close to *C. colubrinum*.

CHLOROPHYTUM

(**C. chevalieri** Poelln.)

Rhizome not seen; outer leaves short; leaves c. 6, linear, 20-35 × 2-2,5 cm, apex very acute; peduncle erect, 12 cm long with a few leaf-like bracts 2,5 cm long; raceme not fully developed; bracts lanceolate, 2,5 cm long below, 1,5 cm long above; pedicels ascending, jointed above middle; tepals linear-lanceolate, 8 × 1,5 mm; capsule unknown.

? Known only from the type (Chevalier 9103) collected in 1903. Chad: Lake Iro, Kaba Mara. – Not mapped.

Differs from *C. laxum* by its more robust habit and longer tepals (3-4 mm long in *C. laxum*).

C. clarae Bjorå & Nordal; Fl. Zambes. 13/1: 86, 2008. – Icon.: Bot. J. Linn. Soc. 157: 232-233, 236, 2008; Meerts & Bjorå, o.c.: figs. 2 A-C, 5 A-B.

Herb 25-50 cm tall; rhizome short; roots thick, lateral tubers present; leaves 7-10, rosulate, 10-55 × 3,5-8,5 cm; peduncle glabrous, 10-25 cm long; inflorescence densely spicate, 16-25 cm long, flowers 2-5 per node; bracts whitish, 4(-7)×1-1,5 cm; pedicels 12-15 mm long, articulated above middle; tepals white, 9-10 × c. 2 mm; capsule *globose;* seeds very distinct (cf. Meerts & Bjorå, o.c.).

Usually in shade; forest gallery; hollow in dembo; sometimes on termite mounds; 1100-1650 m alt.

Difficult to distinguish from *C. macrophyllum:* roots and ripe capsules needed.

C. collinum (Poelln.) Nordal; Fl. Trop. E. Afr., Antheric.: 23, 1997; Fl. Zambes. 13/1: 65, 2008.

bas.: *Anthericum collinum* Poelln.

syn.: *A. pseudopapillosum* Poelln.; *Chlorophytum angustiracemosum* Poelln.; *C. pachyrrhizum* Poelln.

Herb 10-40 cm tall; rhizome short, densely covered with fibrous remains of old leaf-bases; roots spongy, fusiform; leaves rosulate, glabrous, lanceolate, to 15-30 × 0,5-2,5 cm, margins often undulate; peduncle without leaves, terete, 5-30 cm long; raceme simple, elongated to ± capitate; rachis pubescent; bracts 2-5 mm long; pedicels *articulated at apex*, pubescent, 4-6 mm long, 1 (rarely 2) per node; perianth white, greenish keeled outside; tepals 4-9 × 2-2,5 mm, *1-veined;* capsule triquetrous, emarginate, 3-5 × 4-5,5 mm.

Grassland; deciduous bushland; riverine thicket; 100-3000 m alt.

Very close to *C. silvaticum*, but flower shape different (not bell-shaped). Seems to link former *Dasystachys* species (flowers bell-shaped) with the open-flowered *Chlorophytum*.

A collection of *C. leptoneurum* from C Zambia (Lusaka Distr.) may belong to *C. collinum*.

C. colubrinum (Baker) Engl.; Burrows & Willis, Pl. Nyika Plateau: 287, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 40, 2006; Figueiredo & Smith, Pl. Angola: 171, 2008; idem in Bothalia 39: 192, 2009 (Baum, Kunene Exp.); Faucon & al. in Pl. Ecol. Evol. 143: 10, 2010 (supposed Cu-endemics in Katanga); Meerts in Pl. Ecol. Evol. 144: 233, 2011 (Burundi); Meerts & Bjorå, o.c. – Icon.: Trans. Linn. Soc. London, Ser. 2, 1: pl. 35, 1878; Bull. Soc. Roy. Bot. Belg. 96: 152, 155, 1963 *(Dasystachys pulchella);* Fl. Trop. E. Afr., Antheric.: 18, 1997; Fl. Zambes. 13/9: 67, 2008.

bas.: *Dasystachys colubrina* Baker

CHLOROPHYTUM COLUBRINUM

syn.: *Anthericum colubrinum* Welw. ex Baker, nom.; *Dasystachys campanulata* Baker; *D. pleiostachya* Baker; *D. bequaertii* De Wild.; *Chlorophytum campanulatum* (Baker) Engl.; *C. pleiostachyum* (Baker) T. Durand & Schinz; *Dasystachys crassifolia* Baker; *D. decorata* Baker; *D. grantii* Benth.; *D. verdickii* De Wild.; *Chlorophytum dolichostachys* Engl. & Gilg; *Dasystachys hockii* De Wild.; *Chlorophytum maculatum* Dammer; *Dasystachys stenophylla* R. E. Fr.; *Chlorophytum subpapillosum* Poelln.; *C. crassifolium* (Baker) Poelln.; *C. engleri* (Baker) Poelln., excl. syn. *C. africanum* Engl.; *C. engleri* (Baker) Poelln. var. *angustifolium* Poelln.; *C. nguluense* Poelln., non *Anthericum nguluense* Poelln. (= *C. cameronii* var. *cameronii*); *C. rubromarginatum* Poelln.; *C. decoratum* (Baker) Marais & Reilly; *C. stenophyllum* (R. E. Fr.) Marais & Reilly; *C. poggei* Engl. ex Poelln.; *C. verdickii* (De Wild.) Poelln.; *C. linearifolium* Marais & Reilly; *Dasystachys pulchella* P. A. Duvign. & Dewit, non *Chlorophytum pulchellum* Kunth (= *C. rigidum*); *D. bequaertii* De Wild.; *Anthericum pleiostachyum* Welw. ex Baker*; Campylandra dasystachys* Welw. ex Baker – All of var. **colubrinum**.

Herb often in clumps, 0,2-1,5 m tall; rhizome thick, regularly constricted, with fibrous remains of old leaf-bases; roots spongy; leaves sheathing at base often with *purple spots*, 12-75 × 0,5-4 cm, glabrous but margins scabrid to shortly ciliate; peduncle terete, *glabrous*, to *subpapillose*, 20-95 cm tall; raceme narrow, subspicate, rarely with a few branches at base, often dense, 1,5-30 cm long; rachis angled, winged; pedicels articulated at apex, glabrous, 1-8 mm long, *solitary;* lower bracts 8-21 mm long, margins red; perianth white, sometimes with greenish apices, ± bell-shaped; tepals connate, cucullate, 6-10 × 1,5-3 mm, 1-veined; capsule ovoid, triquetrous, emarginate, 4-8 × 3,5-5 mm.

Open woodland; wooded grassland: often on stony, gravelly, light soils; sometimes in seasonally flooded grassland; beside stream in *Pinus* plantation; 500-3000 m alt. – Sometimes on copper soils (*C. linearifolium*, *Dasystachys pulchella*, see Plant Ecol. Evol. 143: 10, 2010). Ecology in this case: Chaotic rocky slope of a cupriferous hill; meadow with *Xerophyta* on very toxic soil (2000-5000 ppm); sometimes abundant.

Very variable in size, leaf base coloration, indumentum of leaf margins.

Comprises 2 vars.: – var. **colubrinum** (synonyms, see above), with cylindrical raceme 4-30 cm long, leaves 0,3-4 cm wide, bracts not or only shortly ciliate, cataphylls glabrous; – var. **upembense** Meerts, with ± ovoid raceme 1,5-4,5 cm long, leaves 0,2-0,4 cm wide, bracts long ciliate, cataphylls pubescent, in swampy savanna, Upemba Natl. Park, Zaire, at 1750-1830 m alt.

C. comosum (Thunb.) Jacques !; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 318, 1994; Fl. Eth. & Eritrea 6: 102, 105, 1997; idem 1: 244, 2009; Fl. Trop. E. Afr., Anther.: 55, 57-58, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 92, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 157-158, 2010; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 40, 2006; Fl. Zambes. 13/1: 80-81, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011.

bas.: *Anthericum comosum* Thunb.

CHLOROPHYTUM COMOSUM

syn.: *Phalangium comosum* (Thunb.) Poiret; *Caesia comosa* (Thunb.) Spreng.; *Hartwegia comosa* (Thunb.) Nees; *Hollia comosa* (Thunb.) Heynh.; *Anthericum sternbergianum* Schult. & Schult. f.; *Chlorophytum sternbergianum* (Schult. & Schult. f.) Steud.; *Cordyline vivipara* Steud.; *Phalangium viviparum* Reinw. ex Kunth; *Anthericum williamsii* auct., Gard. Chron. 1875 (1): 490, 1875; *Chlorophytum kirkii* Baker; *C. bukobense* Engl., incl. var. *kilimandscharicum* Engl.; *C. miserum* Rendle; *C. ramiferum* Rendle; *C. brevipes* Baker; *C. gazense* Rendle; *C. elgonense* Bullock; *C. limurense* Rendle; *C. elatulum* Poelln.; *C. glaucidulum* Engl. ex Poelln., incl. var. *pauper* Poelln.; *C. inopinum* Poelln.; *C. longum* Poelln.; *C. magnum* Poelln.; *C. nemorosum* Poelln.; *C. paludicolum* Poelln.; *C. rugosum* Poelln.; *C. turritum* Peter ex Poelln.; *C. usambarense* Engl. ex Poelln.; *C. burchellii* Baker; *C. elatum* var. *burchellii* (Baker) Baker; *C. delagoense* Baker; *Anthericum* ! *longituberosum* Poelln.; *A.* ! *vallistrappii* Poelln.

Note: In their study of Guineo-Congolean rain-forest taxa of *Chlorophytum* (Bot. J. Linn. Soc. 148: 1-20, 2005, vide pp. 11, 15-16) Poulsen & Nordal treated the "rather heterogeneous" species *C. comosum* in a broad sense. They recognized 3 varieties partly overlapping geographically, viz. var. *comosum*, var. *bipindense*, and var. *sparsiflorum*. In previous tropical African flora treatments *C. sparsiflorum* is cited as a synonym under *C. comosum*. Further studies by Bjorå & al. showed that *C. comosum* s.l. is not monophyletic (e.g., Pl. Syst. Evol. 274: 243-253, 2008). Meerts & Bjorå in their study of Central African material (Pl. Ecol. Evol. 145: 401, 2012) conclude that they are not "able to settle the objective limits of those taxa"… and that "the placing of many collections is problematic. Molecular markers may hopefully provide new insight into this taxonomic conundrum".

In our present treatment we enumerate two distinct entities, viz. *C. comosum* and *C. sparsiflorum*, thus following Meerts & Bjorå l.c. A recent molecular study shows that "accessions from C Africa and S Africa belong in different clades. Since the type specimen originates from S. Africa, the epithet *'comosum'* can no longer be applied to C African material".

Rather fleshy herb 0,15-1 m tall, often in clumps; rhizome small, ± indistinct; roots narrow to slightly swollen, often with elongated scattered tubers; plants drying green to greenish black; leaves in basal rosette, pseudopetiolate, lanceolate, glabrous, 8-40x0,5-4 cm, margins minutely scabrid; peduncles 1-4 per plant, terete, glabrous; raceme simple or with 1-2 branches, or ± paniculate; pedicels jointed above middle, 2-4 at each lower node, 4-5 mm long; bracts 4-10 mm long, outer ones glabrous, inner ones small and often ciliate on margins; tepals whitish, 5-7 mm long, 3-veined; capsule triquetrous, emarginate, 3-9 × 4-5 mm; plant sometimes pseudoviviparous.

Riverine and rain-forest; rain-forest with *Albizia*, *Macaranga*, *Croton*, *Ocotea;* evergreen forests; woodlands; in shade; 50-2450 m alt.

S. Africa, Swaziland. Introduced (cultivated) throughout the tropics.

Cultivated as an ornamental, also as an indoor pot plant; most commonly in its variegated cultivars. The name *C. capense* (L.) Voss is often misapplied to the species (European Garden Flora, ed. 2, 1: 25, 2011; see also Eggli, Ill. handbook succ. pl., Monocot.: 228-229, 2001; Fl. Mascareignes 183, Liliaceae: 32, 1978).

Note: *C. comosum* sensu Lewalle, 1972 (Lewalle Nr. 3998), from Burundi and specimen Richards Nr. 7566 from SW Tanzania = *C. burundiense*.

CHLOROPHYTUM COMOSUM

See also under *C. macrophyllum*: A herbarium specimen at Geneva (G) annotated *C. macrophyllum* Aschers. var. *tenuifolium* Engl., from Kenya, may belong to *C. comosum*.

(**C. cooperi** (Baker) Nordal) – Icon.: Lowrey & Wright, The flora of the Witwatersrand 1: 267 fig. N, 1987; Fabian & Germishuizen, Wild flowers of Northern South Africa: pl. 17e p. 51, 1997.

bas.: *Anthericum cooperi* Baker

Small erect herb; roots often with tubers; leaves distichous, flat or folded, glabrous; flowers white, green-keeled, in dense unbranched inflorescences opening only in the morning; tepals 3-nerved; filaments scabrid, distinctly longer than anthers.

Grassland and moist places.

In S. Africa, Swaziland.

The name *A. cooperi* has been widely used in E. Africa for *Chlorophytum pterocaulon* (= *C. cameronii* var. *pterocaulon*), cf. Nord. J. Bot. 13: 62, 1993 (with fig. p. 60). And forms of *C. galpinii* var. *matabelense* similar to *C. cooperi* are present in Zimbabwe and C Malawi (Fl. Zambes. 13/1: 48, 2008).

C. cordifolium De Wild.; Meerts & Bjorå, o.c. – Icon.: Syst. Geogr. Pl. 79: 226-227, 2009 (as *C. unifolium*).

syn.: *C. unifolium* Malaisse & Bamps, non *Anthericum unifolium* Poelln. *(= Chlorophytum subpetiolatum).*

Herb from a compact rhizome; roots fusiform, swollen at base; *leaf single*, with canaliculate petiole, 5-7 cm long, enclosing almost completely a part of the peduncle, with 3 sheathing cataphylls at base; blade broadly *ovate*, base *cordate*, apex acuminate, 5-8 × 4-6,5 cm, glabrous, margins crenulate; inflorescence 12-21 cm long, incl. peduncle ± angular and glabrous, leafless; raceme 3-7 cm long; flowers 3 per node; pedicels 4-6 mm long, *articulated at upper 2/3*, bracts ovate-lanceolate, 5-7 mm long; tepals greenish, margins white, 4-5 × 1,5 mm; capsule triquetrous, 5,5-5 mm Ø.

Copper-bearing savanna at open-forest edge and open forests on normal sandy soils; 1475 m alt.

Very distinct species first collected in 1912, described in 1914. Rediscovered in 2006, and then described as a new species, *C. unifolium*. A narrow endemic, collected on few occasions since first description.

C. dalzielii (Hutch. ex Hepper) Nordal

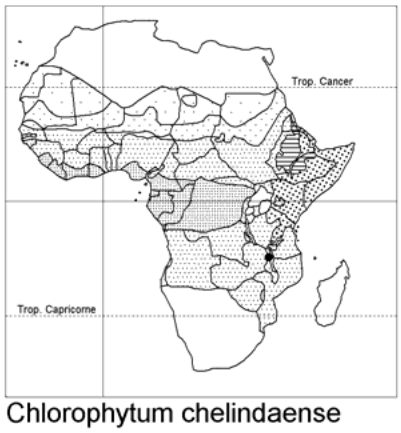
bas.: *Anthericum dalzielii* Hutch. ex Hepper

syn.: *A. tubiferum* Hutch., nom. (unpublished), non *A. tuberiferum* Hutch.

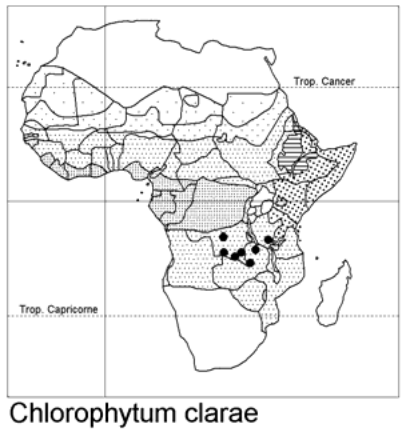
Perennial herb; roots fibrous with elongated tubers to 3 cm long; leaves linear, 12-59 × 2-7 cm, erect or curved, sometimes densely fibrous at base; leaf *sheaths conspicuously red-mottled;* lower part of blade and upper part of sheath *bristly ciliate;* inflorescence erect, paniculate, 14-76 cm long, simple or with 1 to several branches; floral bracts 2-4 mm long, dark brown, 1-flowered; pedicels 2 mm long, jointed at base; perianth *white*; outer tepals 8 × 2-3 mm, 5-nerved, apex dark; inner ones 8,5 × 4,5 mm, 3-nerved, apex not dark coloured; capsule 4 mm long, 5 mm wide, transversely ridged.

River bank in soil pocket on granite; abundant chiefly in rather dry places; sandy places; 1220 m alt.

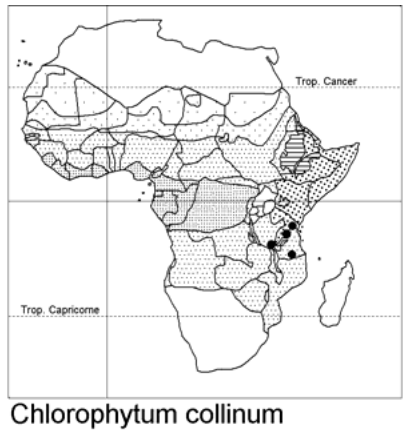
Variable in length and width of leaves, branching of the inflorescence; probably due to ecological conditions.



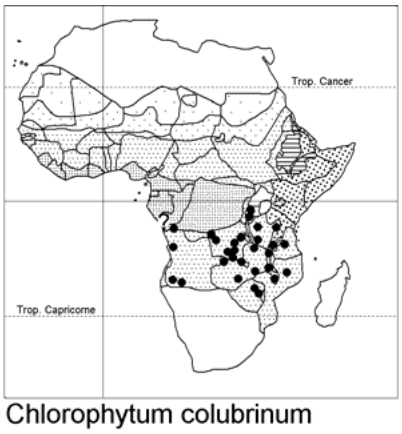
Chlorophytum chelindaense



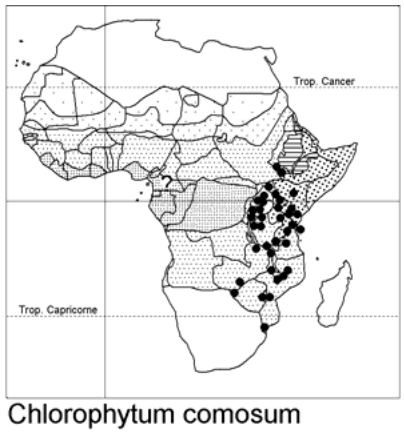
Chlorophytum clarae



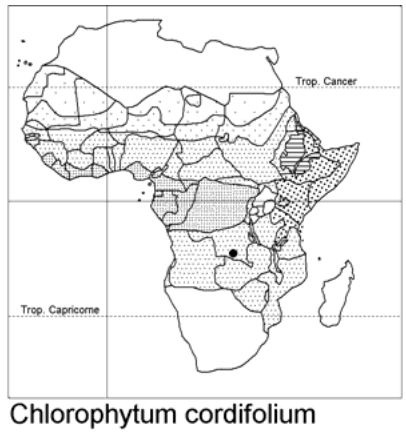
Chlorophytum collinum



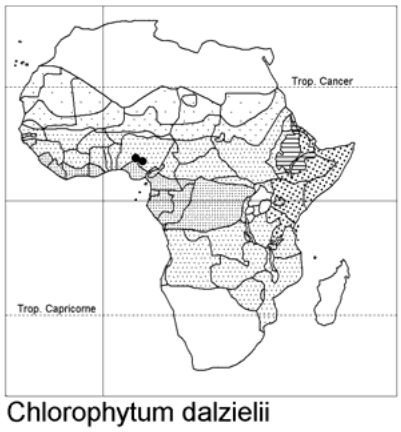
Chlorophytum colubrinum



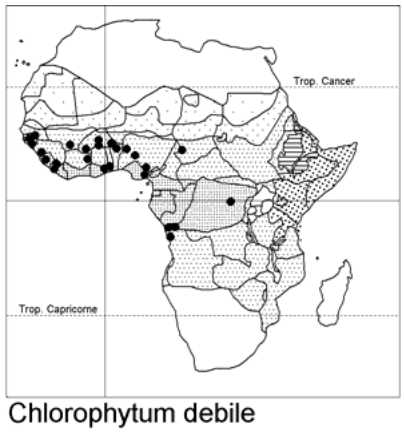
Chlorophytum comosum



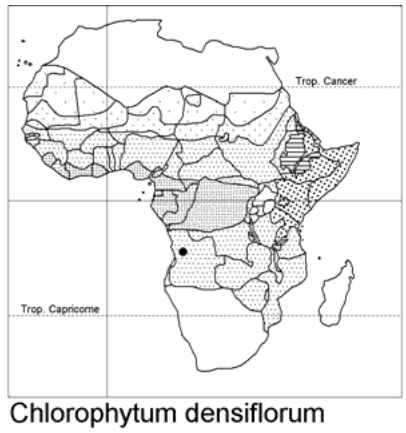
Chlorophytum cordifolium



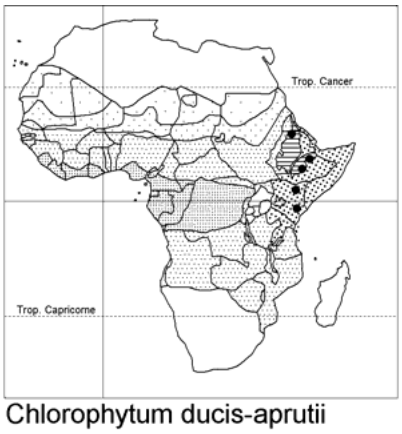
Chlorophytum dalzielii



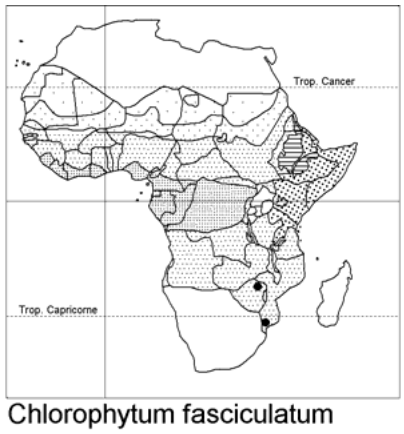
Chlorophytum debile



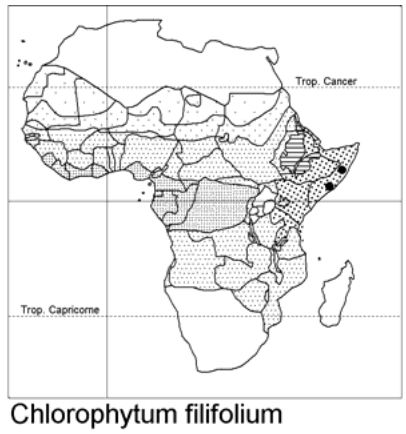
Chlorophytum densiflorum



Chlorophytum ducis-aprutii



Chlorophytum fasciculatum



Chlorophytum filifolium

C. debile Baker; Meerts & Bjorå (2012): 391. – References under *C. laxum* auctt. W. Afr.: Fl. W. Trop. Afr., ed. 2, 3/1: 100, and p. 97 as *Anthericum inconspicuum*, Senegal, 1968; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 496, 1995; Berhaut, Fl. ill. Sénégal 9: 426, 1988; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 876, 2006; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 691, 2010; Lisowski, Fl. Rép. Guinée 1: 422-423, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Akoegninou & al., Fl. analyt. Bénin: 39, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 37, 2010; Figueiredo & Smith, Pl. Angola: 171, 2008; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 28, 2012. – Icon.: Meerts & Bjorå, o.c.: fig. 5 G-H.

syn.: *C. gilletii* Compère; *C. gracile* De Wild. 1911, non Baker 1890 (Bot. J. Linn. Soc. 25: 348, 1890 !, Madagascar), nom. illegit.; *C. laxum* auctt. W. Afr., non *C. laxum* R. Br.

Herb 6-40 cm tall, with 6-13 leaves, narrowed and sheathing at base, 14-40 × 1-3 cm, apex acute; peduncle c. 15 cm long; raceme to 30 cm long, simple; inflorescence ± prostrate in smallest forms; flowers 2-3 per node; pedicels 4 mm long, articulated; tepals c. 4 mm long; capsule c. 3,5 mm long, 4,5 mm Ø.

Above rocks in half shaded vegetation; forest gallery.

The true *C. laxum* R. Br., from the Arabian Peninsula to N Australia (type specimen from Australia), is a different plant. – *C. laxum* sensu Baker and Cufod. (Ethiopia) = *C. inconspicuum*. The specimen Schimper 2231 figuring in Fl. Trop. Afr. 7: 504, 1898, from Ethiopia is *C. inconspicuum*.

Can be confused with slender forms of *C. sparsiflorum* but seed testa very different (apiculate periclinal walls in *C. debile*, and smooth periclinal walls in *C. sparsiflorum*).

C. laxum cited in Sosef & al., Check-list pl. vascul. Gabon: 251, 2006 (Gabon WN), does not figure in Fl. Gabon 41, Antheric., 2010.

The specimen Warnecke 304, from Togo, cited in Fl. W. Trop. Afr., ed. 2, 3/1: 100, 1968, is lost in B, but isotypes exist in P and BM; but it is also the type of *Anthericum warneckei (= Chlorophytum warneckei;* Bot. Jahrb. Syst. 32: 91, 1902).

C. densiflorum Engl.; Poellnitz in Portugaliae Acta Biol., Sér. B, 1: 219, 1945; Figueiredo & Smith, Pl. Angola: 171, 2008.

syn.: *Dasystachys densiflora* Baker ex Engl.

Herb with ascending lanceolate glabrous leaves *4-10* × 0,8-1 cm (wide at middle), margins waved; peduncle 5 cm long, simple or forked, pilose; raceme dense, oblong, 3-5 cm long; bracts 5 mm long; pedicels very short; perianth campanulate, 4 mm long; tepals white with reddish-brown keel; capsule unknown.

Crumbling termite mounds.

Known only from the type collected in 1879.

C. ducis-aprutii Chiov.; Fl. Trop. E. Afr., Antheric.: 16-17, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 82, 2003. – Icon.: Fl. Eth. & Eritrea 6: 96, 1997; Sebsebe Demissew & Nordal, Lilies & aloes Eth. & Eritrea, ed. 2: 142, 2010.

syn.: *Anthericum* sp. nov. Nordal in Mitt. Inst. Allg. Bot. Hamburg 23b: 542, 557, 1990; *A. burgeri* Cufod., p.p., quoad specim. Burger 1025.

Herb very robust, 0,6-2 m tall; rhizome moniliform, with fibrous remains of old leaf-bases; leaves several, basal, 0,45-1 m × 1,5-3 cm, acute, sheathing below, margin often shortly ciliate; peduncle terete, glabrous, to 1 m long, 1 cm Ø at base; raceme simple or branched, rachis glabrous; flowers 1-4 per node; pedicels 4-9 mm long, glabrous, articulated near or below middle; bracts

10-30 mm long; tepals 3-veined, white with pale green stripes outside, inner ones 12-17 × 4-6 mm, outer slightly narrower; capsule *deeply 3-lobed*, *smooth*, 9-14 × 7-9 mm.

Grassy slopes; thickets; evergreen forest; sometimes in ravines or near ditches; ± loamy, dark brown to red soils; 1200-3000 m alt.

C. fasciculatum (Baker) Kativu; Fl. Zambes. 13/1: 41, 2008.

bas.: *Anthericum fasciculatum* Baker

syn.: *A. subulatum* Baker, incl. var. *longibracteatum* Poelln.; *A. hereroense* Schinz; *A. conrathii* Baker; *A. lydenburgense* Poelln.; *A. wilmsii* Diels ex Poelln.

Herb tufted, occasionally solitary, 9-45 cm tall; rhizome densely covered with fibrous remains of old leaf-bases; leaves basal many, 4-30 cm × 1-3 mm, coriaceous, shortly pubescent on veins, margins ciliate; peduncle terete, closely ribbed, glabrous or shortly pubescent on ribs; inflorescence *unbranched*, lax, longer than leaves; bracts small; pedicels 1-3 per node, articulated below middle, to 10 mm long in fruit; perianth white; tepals 10-14 mm long, 3-veined; capsule ovoid, shallowly deltoid, c. 9 mm long.

Grassland; 20-1400 m alt.

Botswana, Namibia, S. Africa, Lesotho.

C. filifolium Nordal & Thulin; Fl. Trop. E. Afr., Antheric.: 43, 1997. – Icon.: Thulin, Fl. Somalia 4: 47, 1995.

syn.: *Anthericum inconspicuum* sensu Raimondo & al. in Webbia 35: 221, 1981, non Baker *(= Chlorophytum inconspicuum).*

Herb from a short rhizome; roots *without* tubers; leaves several, basal, filiform, 5-13 × 1-2 mm, often strongly curved, folded, glabrous, margins minutely denticulate; raceme 5-24 cm long, very lax, simple, prostrate or nearly so, glabrous; flowers 1-2 per node; bracts 1,5-3 mm long; pedicels articulated near middle or in lower half, ± curved; tepals white, medially greenish, c. *2,8* mm long, 3-nerved; capsule c. *3,5*-5 mm.

Coastal, open dunes, open bushland; white or pale orange sand; c. 10-30 m alt.

Near *C. inconspicuum*.

Possibly in Tanzania (Mafia Isl.); more material needed for further study.

C. filipendulum Baker; Meerts & Bjorå (2012): 391; Fl. Trop. E. Afr., Antheric.: 59-60, 1997; Nordal & al. in Biol. Skr. 54: 250-251, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 220, 2002; Poulsen & Nordal in Bot. J. Linn. Soc. 148: 16, 2005 (map p. 12); Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Figueiredo & Smith, Pl. Angola: 171, 2008; Fl. Gabon 41, Antheric.: 4, 2010; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 160-161, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011.

Herb 10-70 cm tall, usually drying ± black; rhizome elongated; roots with spindle-shaped tubers; leaves rosulate, *petiole 10-20 cm* long, sheathing in lower part; lamina lanceolate, glabrous, 12-50x3-10 cm; peduncle terete, 2-50 cm long, glabrous; inflorescence 5-30 cm long, condensed or lax, usually unbranched, sometimes with 1-2 branches in lower part; rachis ± *scabrid;* lower bracts 1,5-16 cm long, upper ones 1-2,5 cm; pedicels articulated in the upper third, or just below flower in condensed inflorescence, 6-8 mm long in fruit, 3-4 at each lower node; perianth whitish, sometimes with green tips, turning brownish; tepals 5,5-7 × 1,5-2,5 mm, 3-veined; capsule triquetrous in section, emarginate, *5-13* mm long, less wide. Pseudovivipary rarely present.

Moist forests on slopes and along streams; coastal or gallery evergreen dry or moist forests; on rocks; coffee plantation; 30-1900 m alt.

Comprises 2 subspp.: – subsp. **filipendulum** [syn.: *C. macrophyllum* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 99, 1968, p.p., quoad specim. Cole 168, Daramola FHI 38034, Irvine 1724; *C. afzelii* Rendle 1899, non Baker 1876], with peduncle longer than 10 cm and lax inflorescence, pedicels jointed low down; – subsp. **amaniense** (Engl.) Nordal & A. D. Poulsen [bas.: *C. amaniense* Engl.], with peduncle shorter than 5 cm, condensed inflorescence, pedicels jointed near flower; in Kenya-Tanzania-Zanzibar. Transitional forms between the 2 subspecies occur.

Confused with *C. macrophyllum*, *C. sparsiflorum* and *C. stenopetalum* (see Fl. Trop. E. Afr., l.c.). The relation between *C. filipendulum* and the *C. comosum* complex needs further investigation. *C. heynei* Baker from India-Sri Lanka is perhaps conspecific.

Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008, cite a specimen of *C. filipendulum* from E Zimbabwe (cf. also Fl. Zambes. 13/1: 86, 2008).

C. fischeri (Baker) Baker; Fl. Trop. E. Afr., Antheric.: 26-27, 1997; Fl. Zambes. 13/1: 69-70, 2008.

bas.: *Anthericum fischeri* Baker

syn.: *Chlorophytum montanum* Poelln.

Herb, tufted, to 20 cm tall; rhizome moniliform, bearing fibrous remains of old leaf-bases; leaves rosulate, few, clasping below, *minutely pubescent* to papillate particularly on veins, linear-lanceolate, 6-12 × 0,4-1 cm, bases with papillate to ciliate margins; peduncle erect, terete, papillate to pubescent above, *7-10 cm* long; inflorescence simple, open, 6-20 cm long; rachis pubescent; pedicels articulated near middle, to 4 mm long, usually solitary; perianth white, papillose; tepals 3-8 × 2 mm, 3-veined; capsule triquetrous, emarginate, ± *3* × 4-5 mm.

Woodland; wooded grassland; brown sandy loam; often on termite mounds; 450-2000 m alt.

C. gallabatense Schweinf. ex Baker; Meerts & Bjorå, o.c.: 391, 393; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 494-495, 1995; Thulin, Fl. Somalia 4: 151, 1995; Fl. Eth. & Eritrea 6: 99-100, 1997; Fl. Trop. E. Afr., Antheric.: 45-46, 1997; Fl. Zambes. 13/1: 81-82, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 28, 2012. – Under *C. micranthum:* Friis & Vollesen in Willdenowia 14: 363, 1984; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 318, 1994; Fl. Eth. & Eritrea 6: 99, 1997; Fl. Trop. E. Afr., Anther.: 46-47, 1997; Nordal & al. in Biol. Skr. 54: 249, 2001; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 152-153, 2010; Meerts in Pl. Ecol. Evol. 144: 233, 2011. – Under *C. floribundum:* Fl. Trop. E. Afr., Anther.: 47, 1997; Burrows & Willis, Pl. Nyika Plateau: 287, 2005; Fl. Zambes. 13/1: 82, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008. – Under *C. psammophilum:* Fl. Zambes. 13/1: 83, 2008; Figueiredo & Smith, Pl. Angola: 171, 2008; idem in Bothalia 39: 191, 2009 (Baum, Kunene Exp.). – Icon.: Robyns, Fl. spermat. Parc Natl. Albert 3: 355, 1955 (as *C. bequaertii*); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 145, 1994; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 88, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 152, 2010; Lisowski, Fl. Rép. Guinée 2: fig. 502, 2009 *(C. bequaertii).*

Herb 15-75 cm tall; rhizome moniliform; roots bearing small tubers; leaves 4-13, rosulate, lanceolate, usually glabrous, 10-75 × 1-8 cm, contemporary with flowers, or appearing after anthesis, apex with a fine point; peduncle terete, 10-50 cm long, glabrous or papillate to pubescent (above), simple or ± paniculate, rachis often papillate; pedicels 2-4 per node, articulated below, near or above middle, 3-10 mm long; tepals greenish or whitish keeled green, 5-8 × 1-2 mm, 3-5-veined; capsule triquetrous, emarginate, 3-7 × 4-7 mm.

Degraded and heavily grazed deciduous woodland and bushland; open *Acacia, Commiphora* or *Brachystegia* woodland; woodland with *Combretum collinum*, *C. molle, Annona senegalensis; Pterocarpus, Anogeissus* woodland; disturbed grassland; sometimes in shade; ± open places; sometimes on termite mounds; laterite sandy loam to heavy clay; moist places in savanna; hollow on hardpan; 20-2500 m alt.

Namibia.

Comprises 3 vars.: – var. **gallabatense** [syn.: *C. psammophilum* Engl. & Gilg; *C. katangense* De Wild.; *C. breviscapum* Dammer, nom. illeg.; *C. breviflorum* De Wild.; *C. longiramum* Peter ex Poelln.; *C. longistylum* Poelln.; *C. polyscapum* Peter ex Poelln.; *C. riparium* Poelln.; *C. socialis* Poelln.; *C. umbraticola* Poelln.; *C. andongense* sensu A. Chev., nom., 1920, non Baker (Brossart in Chevalier 15641); *C. sudanicum* A. Chev., nom. (Chevalier 24375); *C. hockii* De Wild., non *Dasystachys hockii* De Wild.; *C. ukambense* Baker; *C. rivae* Engl.; *C. ginirense* Dammer; *C. ramulosum* De Wild.; *C. elachystanthum* Cufod.; *C. schweinfurthii* sensu Cufod., Enum.: 1536, 1971, ex Somalia, non Baker]; variable in rachis characters and in size of anthers; – var. **floribundum** (Baker) Meerts [bas.: *C. floribundum* Baker 1897; syn.: *C. puberulum* Engl. 1895]; – var. **micranthum** (Baker) Meerts [bas.: *C. micranthum* Baker; syn.: *C. bequaertii* De Wild.; *C. inundatum* A. Chev., nom. in Explor. bot. Afr. occid. franç 1: 651, 1920 (Guinea, Chevalier 18328)]; a small hysteranthous (fire adapted ?) form fide Fl. Trop. E. Afr., l.c., but specimens with fully developed leaves recorded from Zaire, Rusizi Plain; collections from Rwanda referred to as *C. gallabatense* (Troupin 1988) belong here. – Note: A. Chevalier in Etudes fl. Afric. centr. franç.: 317, 1913 cites *C. inundatum* A. Chev. from Chad (Chevalier 10523, 8857, 9090, 9115 bis, 9477). The identity of these specimens is uncertain.

Confused with *C. comosum*, in particular shade forms, but flowers greenish (white in *C. comosum*), and root tubers small (long, spongy in *C. comosum*).

C. galpinii (Baker) Kativu; Peters in Timberlake & Kativu, eds., African plants: biodiversity, taxonomy and uses: 487-488, 1999 (with map); Figueiredo & Smith, Pl. Angola: 171, 2008; Meerts & Bjorå, o.c.: 393 (var. **matabelense**). – Icon.: Bot. Not. 1937: 435, 1937 (as *C. norlindhii* = var. **norlindhii**); Fl. Zambes. 13/1: 47, 2008 (var. **matabelense**); Pickering & Roe, Wild flow. Victoria Falls area: 26, 2009.

bas.: *Anthericum galpinii* Baker

Herb tufted or solitary, glabrous or hairy, to 80 cm tall; rhizome constricted, with fibrous remains of old leaf-bases; roots with distal tubers; leaves distichous, *erect*, linear-lanceolate, 5-65 × 1-1,5 cm, glabrous, with *scabrid* margins, or shortly *setose* on ribs; peduncle flat, ciliate or scabrid on wings, or terete and setose on ribs; inflorescence unbranched or *divaricately loosely branched;* raceme bearing spreading branches; sterile bracts to 3 cm long with long awns; floral bracts small, dark brown; pedicels 1-3-nate, to 9 mm long, articulated below middle; perianth white; tepals 7-15 mm long, 3-veined, keel greenish, brownish, rarely pinkish; capsule shallowly deltoid, 2-8 mm long, transversely ridged. Flowers open only in the morning.

CHLOROPHYTUM GALPINII

Open woodland and grassland on light soils; sandy stony soils; sand pan; sand bank by river; seasonally wet areas on clay soils and shallow soils overlying rock; 50-1500 m alt.

Botswana, S. Africa, Caprivi Strip, Namibia, Swaziland.

Variable species, 3 varieties are distinguished based on pubescence of leaves, shape of peduncle: – var. **galpinii** [syn.: *Anthericum rehmannii* Baker; *A. divaricatum* Schinz; *A. junodii* Baker; *A. bakerianum* Poelln.; *A. delagoense* Poelln.], with pubescence on leaves and peduncle; – var. **matabelense** (Baker) Kativu [bas.: *A. matabelense* Baker; syn.: *A. galpinii* Baker var. *matabelense* (Baker) Oberm.; *A. patulum* Baker; *A. kapiriense* De Wild.; *A. volkii* Sölch], plants glabrous; – var. **norlindhii** (Weim.) Kativu [bas.: *Chlorophytum norlindhii* Weim.; syn.: *Anthericum galpinii* Baker var. *norlindhii* (Weim.) Oberm.], with long white or reddish-brown hairs on leaves and ciliate-hairy or scabrid peduncle wings; in Zambia, Zimbabwe.

C. galpinii var. *galpinii* does not occur in Zaire but reported to occur there in Fl. Zambes. l.c.: *Anthericum durum* Poelln. was erroneously put in synonymy under *C. galpinii* var. *galpinii* by Kativu & al. (fide Meerts & Bjorå, o.c.: 389).

C. geophilum Peter ex Poelln.; Meerts & Bjorå, o.c.: 393,395; Fl. Eth. & Eritrea 6: 93-94, 1997; Akoegninou & al., Fl. analyt. Bénin: 39, 2006; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008; Lisowski, Fl. Rép. Guinée 1: 422, 2009; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire : 231, 2011; Thiombiano & al, Cat. pl. vasc. Burkina Faso: 28, 2012. – Icon.: Fl. Trop. E. Afr., Antheric.: 56, 1997; Fl. Zambes. 13/1: 88, 2008; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 139, 2010; Meerts & Bjorå, o.c.: fig. 6A.

syn.: *C. subcapitatum* Hutch., nom. inval.; *C. afzelii* A. Chev., non Baker, nec Rendle; *C. gourmacum* A. Chev., p.p. quoad specim. Chevalier 24690, 24297; *C. mahengense* Poelln.; *C. pusillum* sensu Troupin, Fl. spermat. Parc Natl. Garamba 1: 191, 1956.

Herb to 5 cm tall growing in clumps; rhizome indistinct, with *narrow roots* bearing *tubers;* leaves 4-6, in a prostrate rosette, oblanceolate, 20-27 × 4-8,5 cm, *petiolate*, *thick*, glabrous, obtuse, *veins prominent*, margins crisped-undulate, occasionally ciliate; peduncle terete, to 2 cm long; inflorescence appearing at ground level, to 4 cm long, dense to almost capitate, sometimes 2-4-branched; bracts to 1,7 cm long, margins crisped and ciliate; pedicels 0,4-1,7 cm long, jointed at apex; tepals white, 6-8 mm long, 5-veined; capsule shallowly 3-gonous, 3-5 × 4 mm, smooth. Pedicels elongating after flowering and reflexing, *burying the fruit* (the type has capsules 2 × 3 mm).

Open *Brachystegia* woodland and grassland; sometimes on termite mounds; open grassland with bare patches; in clumps; fallows; rather heavy soil; deep soil; 200-1100 m alt.

Difficult to separate from *C. pusillum* (with ± sessile inflorescence and shorter pedicels). The relation between *C. geophilum* and *C. pusillum* needs further investigation. See also under *C. latifolium* below.

Specim. Hoell & Nordal 20, from W Zambia in Fl. Zambes. 13/1: 87, 2008, is *C. stenopetalum* var. *latifolium*.

C. goetzei Engl.; Fl. Trop. E. Afr., Antheric.: 33-34, 1997.

syn.: *Anthericum gramineum* Poelln. 1942, non Vell. 1825, nec Baker 1876; *A. graminoides* Poelln., 1944; *A. remotiflorum* Poelln.; *A. goetzei* (Engl.) Poelln.

Herb tufted, glabrous or hairy, 20-40 cm tall; rhizome moniliform, with fibrous remains of old leaf-bases; roots fibrous w ith distal tubers; leaves ± distichous, filiform, clasping below,

CHLOROPHYTUM GOETZEI

ciliate, 10-35 × *1-2 mm;* peduncle terete, ribbed; inflorescence unbranched; bracts small, dark brown; pedicels articulated below middle, 2-6 mm long, 2-3 per lower nodes; perianth white; tepals *7-10 mm* long, 5-veined, keel green, brown or rarely pinkish; capsule shallowly lobed, 2-5 mm long, transversely ridged.

Open woodland; grassland; c. 1000 m alt.

Only known from 3 types, all depauperate specimens. Near the *C. galpinii* complex.

More material needed.

C. graniticola Kativu, non *C. graniticum* H. Perrier (Madagascar); Fl. Zambes. 13/1: 48-49, 2008.

Herb in small tufts, grass-like, 18-45 cm tall; rhizome densely covered with fibrous remains of old leaf-bases; roots with distal rounded tubers; leaves 5-6, linear, to 20 cm × 2-3 mm, broad at base, acute, *densely pubescent;* peduncle *terete*, *pubescent*, to 18 cm long; inflorescence *unbranched*, or with a single short basal branch, *lax;* bracts to 32 mm long, aristate, pubescent; pedicels 1-2 per node, articulated below middle, to 6 mm long; perianth white; tepals c. 9 mm long, *5-veined;* capsule shallowly deltoid, transversely ridged, 4 × 3-4 mm.

Shallow soils overlying granite rock; c. 1200 m alt.

C. herrmannii Nordal & Sebsebe, Biol. Skr. 55: 323, 326, 2005; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 87-88, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 151, 2010. – Icon.: Biol. Skr. 55: 326, 2005; Fl. Eth. & Eritrea 1: 243, 2009.

Herb with horizontal rhizome; roots fleshy without tubers; leaves lanceolate, *rosulate*, slightly petiolate, to 30 × *3,5 cm*, crispy-undulate, *ciliate* on veins below and on margins; peduncle 2-2,5 cm long, prostrate, short-hairy; inflorescence *much branched;* bracts leaf-like, to 2-0,5 cm, ciliate on margins and veins; pedicels straight, 2-4 per node, 5-6 mm long, articulated in lower half; tepals white, tips brownish, 5-6 × 2 mm, 3-5-veined; capsule unknown.

Open rocky outcrop in thicket of *Oxytenanthera abyssinica*; c. 1600 m alt.

C. hiranense Nordal & Thulin; Thulin, Fl. Somalia 4: 45, 1995.

Herb 15-23 cm tall from a fibrous rhizome; roots with distal ± ellipsoid tubers; leaves 1-2, basal, linear-lanceolate, erect or spreading, glabrous, 6-12 × *0,3-0,8 cm*, acute, with prominent veins, *margins undulate* with 0,15 mm wide border; peduncle glabrous; raceme simple or few-branched, glabrous; pedicels single, 8-20 mm long, articulated c. 1 mm below the flowers, *glabrous;* tepals c. 5-6 mm long; capsule 3-lobed, c. 4 × 8 mm.

In shade on rocky limestone slope with low *Commiphora*, *Boswellia* bushland; 200 m alt.

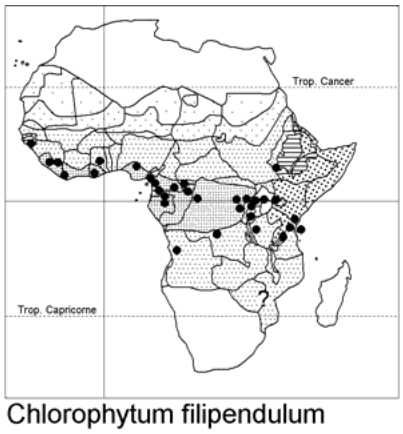
Known only from the type collected in 1985.

Close to *C. applanatum*.

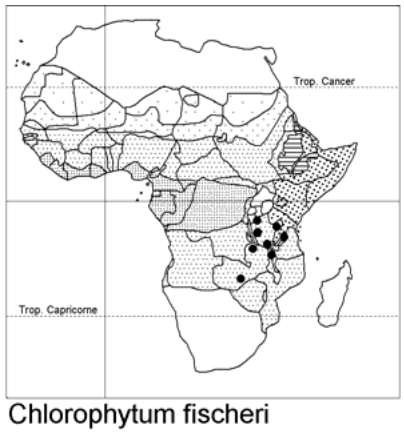
C. hirsutum A. D. Poulsen & Nordal; Meerts & Bjorå, o.c.: 395; Pl. Ecol. Evol. 144: 233, 2011. – Icon.: Kew Bull. 54: 943, 944, 2000.

syn.: *C.* sp. A sensu Fl. Trop. E. Afr., Antheric.: 62, 1997.

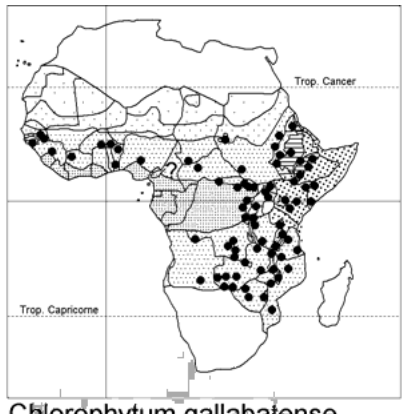
Herb 0,3-1,3 m tall; rhizome short without fibrous remains of leaf-bases; *roots thin*, with elongated distal *tubers;* leaves rosulate, sheathing at base; lamina acute, densely *pubescent* below, 30-90 × 6-10 cm, veins conspicuous, margins undulate; peduncle *pubescent;* panicle lax, *pubescent* to scabrid; bracts inconspicuous; pedicels 1-2 per node, 4-7 mm long, articulated above



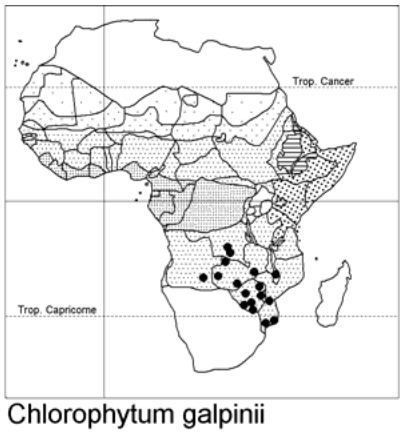
Chlorophytum filipendulum



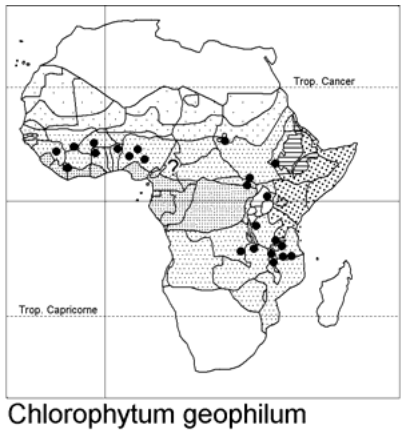
Chlorophytum fischeri



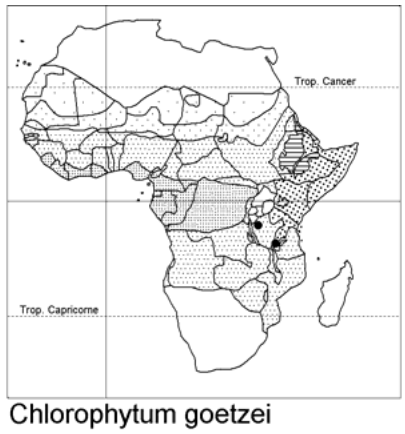
Chlorophytum gallabatense



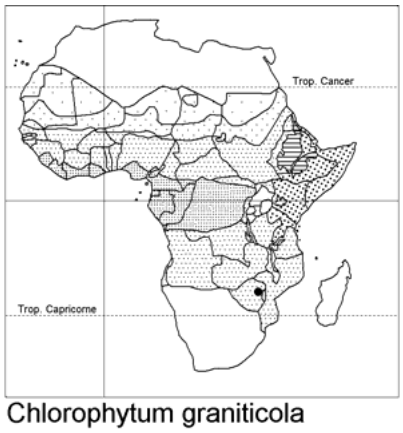
Chlorophytum galpinii



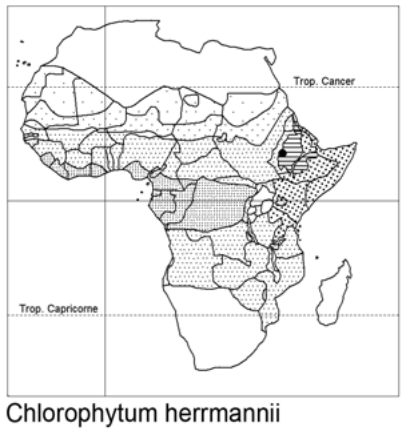
Chlorophytum geophilum



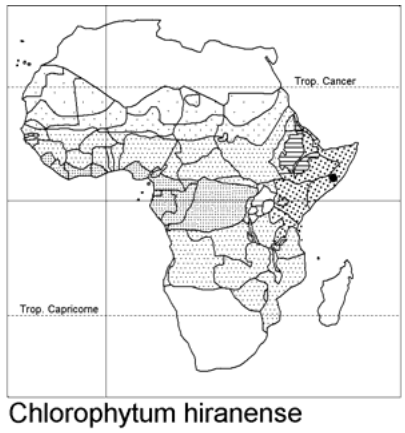
Chlorophytum goetzei



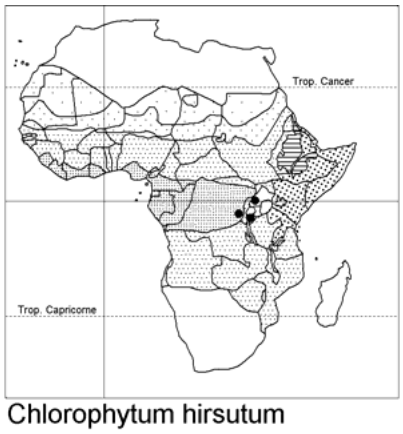
Chlorophytum graniticola



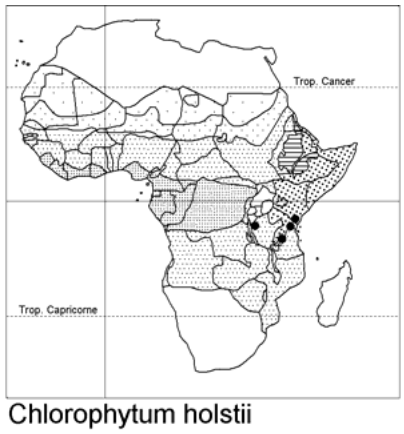
Chlorophytum herrmannii



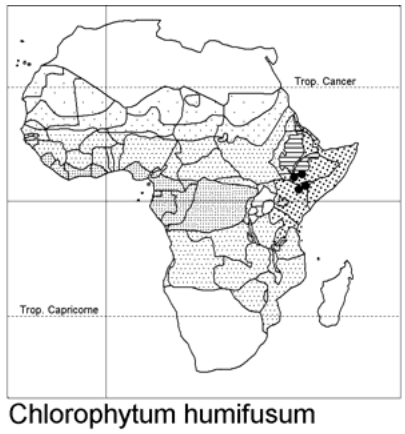
Chlorophytum hiranense



Chlorophytum hirsutum



Chlorophytum holstii



Chlorophytum humifusum

middle, pubescent; flowers urceolate, greenish; tepals 6-15 mm long, 3-veined: capsule triquetrous, 4-6 × 5-6,5 mm, base truncate, apex emarginate, margins thickened, ± papillose.

Open forest; *Loudetia* grassland; forest margins among boulders; forest gallery; ravine with *Euphorbia;* 675-1200 m alt.

Distribution coinciding with the Albertine Rift known for other endemics, e.g. *Impatiens bequaertii*, *I. erecticornis*.

Dense pubescence in *Chlorophytum* is rare, present, e.g., in *C. vestitum*, *C. graniticola*.

C. holstii Engl., incl. var. *glabrum* Poelln.; Fl. Trop. E. Afr., Antheric.: 60-61, 1997.

syn.: *C. hoffmannii* Engl.; *C. pulverulentum* Poelln.; *C. uvinsense* Poelln.

Rhizomatous herb to 15 cm tall; roots *with tubers* on lateral branches; leaves drying yellowish brown, rosulate, sheathing, with canaliculate *petiole 5-10 cm long;* lamina forming an angle somewhere between 90° and 180° with petiole, thus parallel with the soil surface, 10-20 × 1-3 cm, papillose below, with teeth along margins; peduncle 5-20 cm long, scabrid to papillate; raceme lax, 8-20 cm long, simple or slightly branched at base, rachis ± pubescent; bracts 7-18 mm long; pedicels articulated in lower half, 5-6 mm long (to 12 mm in fruit), scabrid to pubescent, 2-4 at each lower node; perianth white; tepals *5-8* × 1,5-3 mm, 3-veined; capsule trigonous, c. 5-7 × 5-9 mm, with truncate base.

Rocky hillsides in dense dry evergreen lowland or riverine forest; *Brachystegia* woodland; thick succulent/thorn scrub; 0-c. 1000 m alt.

Confused with *C. alismifolium*, a rain-forest species. More material and more thorough analyses are needed.

C. humifusum Cufod.; Fl. Trop. E. Afr. Antheric.: 47-48, 1997; Fl. Eth. & Eritrea 6: 100, 1997; idem 1: 243, 2009. – Icon.: Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 87, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 150, 2010.

Herb rarely more than 12 cm tall from a moniliform rhizome carrying fibrous remnants from older leaves; roots wiry with tubers on lateral branches; leaves distichous, *glabrous*, petiolate, to 12 × *1 cm;* peduncle to 1 cm long; inflorescence *prostrate*, to 15 cm long, *simple* or with *one basal branch*, lax; bracts inconspicuous; rachis scabrid; flowers 1-2 at each node; pedicels 6-8 mm long, articulated in lower half; perianth white; tepals *5-7 mm long*, 3-veined; capsule c. 4 × 4 mm.

Shallow stony soil in bushland or woodland often dominated by *Acacia*, *Commiphora;* 450-1300 m alt.

Confused with slender shade forms of *C. gallabatense*.

(**C. huyghei** De Wild.); Meerts & Bjorå, o.c.: 406. – Icon.: Ann. Mus. Congo Belge, Bot., Sér. 5, 3: pl. 1, 1909.

Herb with c. 14 leaves in basal rosette, sheathing at base; petiole glabrous, c. 18 cm long, 1,4 cm Ø, canaliculate, *reddish* outside; blade lanceolate, 30 × 5-6 cm, base cuneate, apex long-acute, margins crisped-undulate; inflorescence 25-80 cm long, bracts leaf-like diminishing upwards, *rachis glabrous;* fertile bracts c. 3 cm long, acute, reddish at base; pedicels 1-3 per node, c. 8 mm long, articulated c. 2 mm below the perianth; tepals 5-6 × 2 mm; capsule glabrous, other details not given.

Ecology not recorded.

Known only from the type collected in 1908; Zaire, Bokele (1°30'S × 20°37'E). – Not mapped.

Compared with *C. macrophyllum* by De Wildeman, l.c. Meerts & Bjorå, l.c., suggest *C. sparsiflorum*.

C. hysteranthum Kativu; Meerts & Bjorå, o.c.: 395; Fl. Zambes. 13/1: 49-50, 2008.

syn.: *Anthericum breviscapum* De Wild. 1913, non *Chlorophytum breviscapum* Dalzell 1850, nec *C. breviscapum* Dammer 1912 *(= C. gallabatense).*

Herb 13-27 cm tall, tufted; rhizome regularly constricted, with fibrous remains of old leaf-bases; roots wiry with distal tubers; leaves *appearing after flowering*, distichous, linear, 5-16 × 0,8 cm, purple banded near base, glabrous to sparsely hairy, margins ciliate; peduncle subterete, shortly pubescent, to *8 mm* long; inflorescence unbranched, sparse, to 8 cm long, rachis angled, pubescent; bracts pinkish, to 1 cm long; pedicels fascicled, 2-9 at lower nodes, articulated below middle, *12-23 mm* long; perianth pinkish-white; tepals c. 7 × 5 mm, 5-7-veined; capsule shallowly deltoid, 6 × 4,5 mm, transversely wrinkled.

Open woodland; wooded grassland, dembo periodically dry and marshy; c. 1300 m alt.

Very close to *C. affine*.

C. immaculatum (Hepper) Nordal

bas.: *Anthericum immaculatum* Hepper

Herb caespitose, c. 30 cm tall; roots fibrous with ellipsoid tubers; leaves linear, to 25 × *0,2-0,3 cm*, glabrous, erect or slightly curved with fibres at unmottled base; inflorescence erect, *23-52 cm* long; peduncle flattened; flowers 2 per node, *few towards apex;* pedicels *4-6 mm* long, articulated below middle; tepals 7-8 × 1,8 mm, 3-nerved; capsule 3 × 5 mm, *strongly ribbed*, triangular.

Swamp; ferrugineous hardpan; inundated depressions; saline soils; swamp.

Hepper compares this plant with *C. cameronii (Anthericum uyuiense).*

C. inconspicuum (Baker) Nordal; Thulin, Fl. Somalia 4: 47, 1995; Fl. Trop. E. Afr., Antheric.: 42-43, 1997; Fl. Eth. & Eritrea 6: 97, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 84-85, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 147, 2010.

bas.: *Anthericum inconspicuum* Baker

syn.: *Chlorophytum laxum* sensu Baker and Cufod., quoad specim. Schimper 2231 (Ethiopia), non R. Br.

Herb to 20 cm tall; rhizome short, fibrous; roots thin but swelling to tubers distally; leaves rosulate, linear, 10-25 cm × 1-4 mm, glabrous except for the sometimes scabrid margins, basal sheaths whitish to purplish; peduncle reduced (lower flowers and fruits found within the leaf-rosette); raceme *simple*, rarely branched below, 2-5 cm long, prostrate; rachis glabrous to slightly scabrid; bracts 5 mm long; pedicels articulated near or below middle, glabrous, ± curved, 2-5 mm long, to 1 cm in fruit, 2 at each lower node; flowers whitish to yellowish, with green dorsal bands; tepals *3-5 mm* long, 3-veined; capsule *deeply triquetrous, 8-10* × 5-6 mm.

Dry woodland to degraded bushland; shallow soils overlying volcanic rocks or limestone, seasonally flooded; c. 250-1800 m alt.

The older name, *C. laxum* R. Br. (type from Australia) has been used for this plant. Recorded from West Africa but plants from that area are probably not conspecific. The correct name for these plants is uncertain (cf. below).

Plants from Yemen, Oman identified as *C. laxum* are close to *C. inconspicuum* (fide Thulin, 1995).

The Somalian species *C. filifolium* is closely related (cf. above under that species).

CHLOROPHYTUM

C. inornatum Ker Gawl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 495, 1995; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 876, 2006; Lisowski, Fl. Rép. Guinée 1: 422, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 146, 2010. – Icon.: Bot. Mag. 27: pl. 1071, 1807; Poulsen & Nordal in Bot. J. Linn. Soc. 148: 9 (seed), 12 (map), 2005.

syn.: *C. macrophyllum* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 99, 1968, quoad specim. Tamajong FHI 23282; *C. afzelii* Baker, non Rendle (= *C. filipendulum*) nec A. Chev. (= *C. geophilum*); *C. baoulense* A. Chev., *C. cavalliense* A. Chev., nom. nud.

Herb c. 30 cm tall (drying green to greenish when pressed); roots fleshy; leaves as long as inflorescence, 6-8 to a plant, pink towards base; petiole 7,5-10 cm long, sheathing stem at base; blade glabrous, acuminate, *15-30 × 2-4 cm;* inflorescence incl. peduncle 15-30 cm long; raceme lax, 15-20 cm long, simple or forked at base; rachis *minutely scabrid;* bracts scabrid below and on margins, 4-8 mm long; pedicels articulated at middle, 3-4 at each lower node; perianth green to greenish-white, *c. 8 mm* long; capsule *8 × c. 8 mm*.

By streams in forest; disturbed forest; sea-level to 1200 m alt.

Not in W Cameroon (= *C. comosum*).

C. krookianum Zahlbr.; Fl. Zambes. 13/1: 84-85, 2008. – Icon.: Gibson, Wild flow. Natal (coastal region): pl. 6, 1975; Conran in Kubitzki, ed., Fam. & gen. vascul. pl. 3: 116, 1998.

syn.: *C. longipedunculatum* H. M. L. Forbes; *C. schlechterianum* Poelln.; *Anthericum magnificum* Poelln.

Herb to 1,8 m tall; rhizome thick, oblique to vertical, regularly constricted; roots extensive, fusiform; leaves rosulate, 85 × 4 cm, base narrowed, glabrous, gradually tapering in upper half; peduncle woody, *stiff*, terete, glabrous, to 1,2 m tall, 1,2 cm Ø at base; panicle loose with *4-9 racemes;* rachis terete, glabrous; bracts small, to 4,5 mm long; pedicels 2-7 per node, articulated at middle, to 18 mm long; perianth white; tepals c. 15 mm long; capsule obovoid, 3-angled, deeply lobed, smooth.

Moist places, among rocks; c. 700 m alt.

S. Africa, Swaziland.

C. lancifolium Welw. ex Baker; Meerts & Bjorå, o.c.: 395; Brunel & al., Fl. analyt. Togo in Englera 4: 658, 1984 (as *C. togoense*); Fl. Trop. E. Afr., Antheric.: 60, 1997; Fl. Zambes. 13/1: 83-84, 2008; Figueiredo & Smith, Pl. Angola: 171, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Meerts in Pl. Ecol. Evol. 144: 233, 2011; Thiombiano & al, Cat. pl. vasc. Burkina Faso: 28, 2012. – Icon.: Poulsen & Nordal in Bot. J. Linn. Soc. 148: 10 (seeds), 12 (maps), 2005.

Herb 20-40 cm tall; rhizome short covered by spongy roots with tubers; leaves rosulate; petiole *6-25 cm long;* blade with base *truncate* to *cordate*, 6-19 × 2-7 cm, margins wavy, smooth or with minute teeth; peduncle terete, 8-27 cm long, glabrous; inflorescence paniculate to unbranched and lax; pedicels articulated above middle, 8-10 mm long, 2-4 at each lower node; perianth greenish white; tepals 4-6 mm long, 3-veined; capsule deeply triquetrous, 3-4 × 4-9 mm.

Forest margins; closed woodland; sandy rocky soils; *Brachystegia* woodland; sandy to gritty-clayey soils overlying rocks; termite mounds; shady places in high forest; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa;* gallery forest; shady places by cataracts on rocks: 550-1950 m alt.

CHLOROPHYTUM LANCIFOLIUM

Comprises 3 subspp.: – subsp. **lancifolium** [syn.: *C. carsonii* Baker; *C. minutiflorum* Poelln.; *C. nebulosum* Poelln.; *C. peteri* Poelln.], plants drying (greenish) black when pressed, pseudovivipary not observed; – subsp. **cordatum** (Engl.) A. D. Poulsen & Nordal [bas.: *C. cordatum* Engl.] drying greenish to blackish, pseudovivipary not observed, in NE part of range; – subsp. **togoense** (Engl.) A. D. Poulsen & Nordal [bas.: *C. togoense* Engl.; syn.: *C. fosteri* A. Chev.; *C. ealaense* De Wild.; *C. uhamense* Poelln.; *C. toumodiense* A. Chev., nom. (excl. syn. *C. talbotii* Rendle = *C. orchidastrum*)], drying blackish to black, pseudovivipary sometimes present.

Resembling *C. orchidastrum* (often confused with each other).

Some specimens seem to be intermediate between *C. lancifolium* and *C. sparsiflorum* (hybrids ?).

C. leptoneurum (C. H. Wright) Poelln.; Meerts & Bjorå, o.c.: 395, 398; Fl. Trop. E. Afr., Antheric.: 22, 1999; Burrows & Willis, Pl. Nyika Plateau: 287, 2005; Fl. Zambes. 13/1: 64-65, 2008; Figueiredo & Smith, Pl. Angola: 171, 2008. – Icon.: Meerts & Bjorå, o.c.: fig. 6 C-D, I.

bas.: *Dasystachys leptoneura* C. H. Wright

Herb 5-12 cm tall, in clumps from a *stoloniferous* rhizome; roots reduced to sessile elongated tubers; leaves ± linear, rosulate, ± prostrate, pubescent above, glabrous below, 3-10 × 0,5-2 cm, margins ciliate; peduncle terete, closely ribbed, pubescent, 1,3-2,2 cm long; inflorescence simple, dense; pedicels articulated at apex, to 3 mm long, solitary; perianth slightly campanulate; tepals connate, white, 1-veined; capsule subglobose, 2,5-3 mm, *hairy* (var. **katangense**).

Open *Brachystegia* woodland; grassland; on bare patches; often on sandy soils; clayey ground; sandy edge of dambo; 450-2600 m alt.

Comprises 2 vars.: – var. **leptoneurum**; – var. **katangense** (De Wild.) Meerts [bas.: *Verdickia katangensis* De Wild., non *Chlorophytum katangense* De Wild.; *C. tenellum* Poelln., non *Anthericum tenellum* Welw. ex Baker; *C. macrorhizum* sensu Fl. Zambes. 13/1: 65, 2008, p.p., quoad specim. Fanshawe 2708 (W Zambia), Pawek 13667 (N Malawi), non Poelln.]; with *hairy fruits*, a mixture of flattened papillae 0,2-0,4 mm high and acute hairs to 0,7 mm long, and often with a striking horizontal rhizome (*C. macrorhizum*-like).

Variable in shape of leaves. Possible confusion with *C. collinum*, *C. leptoneurum*. Near *C. macrorrhizum*.

C. limosum (Baker) Nordal; Brunel & al., Fl. analyt. Togo in Englera 4: 654, 1984 (sub gen. *Anthericum*); Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 493, 1995; Figureiredo & Smith, Pl. Angola: 171, 2008; Lisowski, Fl. Rép. Guinée 1: 421, 2009 (sub gen. *Anthericum*); Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 29, 2012.

bas.: *Anthericum limosum* Baker

syn.: *A. usseramense* Baker var. *occidentale* A. Chev.; *Chlorophytum nigericum* A. Chev., nom. nud., non *Anthericum nigericum* Hepper, nec *C. nigericum* (Hepper) Nordal

Slender herb 30-80 cm tall; rhizome thick with slender roots and neck with a few bristles; leaves linear, 5-6, 30 × 1-2,5 cm, glabrous, with c. *20 lateral nerves on each side of midrib*, *margins minutely scabrid;* peduncle 7,5-15 cm long, flattened; panicle 7,5-60 cm long, with *several branches over 3 cm long* above, rachis flattened; flowers usually *paired*, bracts minute; pedicels jointed *near base;* perianth white, 6 mm long; capsule 5 mm Ø, strongly ribbed.

Dried-up mud; damp sites in rocky savanna.

C. littorale Nordal & Thulin – Icon.: Thulin, Fl. Somalia 4: 46, 1995.

syn.: *C. pusillum* sensu Raimondo & al., Webbia 35: 221, 1981, non Schweinf. ex Baker

Herb 10-32 cm tall from a fibrous rhizome; roots with tubers; leaves 2-4, narrowly lanceolate-ovate, basal, 3-12 × *1-6 cm*, usually with finely undulate-crispate hyaline margins; peduncle glabrous; inflorescence a simple or few-branched raceme, rachis *glabrous;* bracts 2,4-4 mm long; flowers solitary; pedicels 2,5-25 mm long, articulated c. *1-3 mm below flower*, glabrous; tepals white, medially greenish, 6-9,5 mm long, 3-nerved; capsule 3-lobed, c. 6-6,5 × 7-8 mm.

Open coastal dunes, usually of white coral sand; 5-60 m alt.

C. longifolium Schweinf. ex Baker; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 81, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 140, 2010; Figueiredo & Smith, Pl. Angola: 171, 2008; Fl. Eth. & Eritrea 1: 243, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011 (var. **aureum**). – Icon.: Fl. Eth. & Eritrea 6: 94, 1997 (details); Fl. Trop. E. Afr., Antheric.: 18, 1997 (idem); Fl. Zambes. 13/1: 67, 2008 (idem).

syn.: *Anthericum longifolium* A. Rich., nom. illegit., non Jacq.; *A. falcatum* Welw. ex Baker; *Dasystachys falcata* Baker; *Chlorophytum falcatum* (Baker) Engl., nom. illegit., non *C. falcatum* Baker; *C. welwitschii* Poelln.; *C. papillosum* Rendle, non *Anthericum papillosum* Engl.; *Dasystachys papillosa* (Rendle) Baker; *Chlorophytum dolomiticum* Dinter; *C. tsumebense* Dinter; *Anthericum lunatum* Poelln.; *Chlorophytum pleiophyllum* Peter ex Poelln.; *C. poricolum* Poelln.; *C. drimiopsis* (Baker) Poelln.; *Dasystachys drimiopsis* (Baker) Benth.; *Anthericum drimiopsis* Baker – All of var. **longifolium**.

Herb 0,5-1 m tall; rhizome moniliform, bearing fibrous remains of old leaf-bases; roots spongy, without distinct tubers; leaves rosulate, linear, often half-folded, 17-70 × 1-3 cm; margins ± undulate, ciliate; peduncle terete, glabrous below, *densely papillate-pubescent above*, 35-70 cm long; raceme subspicate, *unbranched or with 1-3 basal branches;* rachis densely pubescent; bracts linear, to 15 cm long; pedicels articulated at apex, to 1,5-5 mm long, often pubescent, *2-5* at each lower node; perianth white, bell-shaped to urceolate; tepals 8-11 × 2,5-4mm, *3-veined*, papillate; capsule oblong, deeply 3-lobed, smooth, 6-10 mm long.

Grassland; woodland, often on hill slopes, on shallow, rocky soils; doloritic rocky soils; 400-2000 m alt.

Botswana, Namibia.

Comprises 2 vars.: – var. **longifolium** (synonyms, see above), with a mostly Zambesian distribution; – var. **aureum** (Engl.) Meerts [syn.: *Dasystachys aurea* (Engl.) Baker; *D. atacorensis* A. Chev., nom. nud.; *D. sombae* A. Chev., nom. nud.], with golden yellow pubescence on young flower buds, present in N Zaire and Sudan.

A record from S Somalia in Cufod., Enum.: 1535, 1971 (based on specim. Corradi 4635) is *C. tuberosum* (Thulin, Fl. Somalia 4: 47, 1995).

(**C. longiscapum** Dammer)

Herb with linear-lanceolate leaves c. 30 × 1 cm, glabrous with c. 20 longitudinal nerves; peduncle erect, c. 60 cm long, 0,5 cm Ø, mostly leafless, glabrous, with flowers at tip; bracts ovate, acute, 8-11 mm long; pedicels 4 mm long, jointed below the flower; tepals pale pink with darker mid streak, 5 × 1,5 mm; capsule broadly obovate, deeply lobed, 5 × 8 mm.

Narrow valley, without shade.

Type: Busse 705; lost ? Collected in 1900.

"Mossambik-Küstenland: östlicher Ausläufer des Mampyni-Rückens" (Bot. Jahr. Syst. 48: 364, 1912). – Mampyni Ridge is situated in SE Tanzania c. 9°50'S-10°S × 36°20'-36°48'E, on the Ulanga/Songea border. Busse collected there. – Not mapped.

Not cited in Fl. Trop. E. Afr., Anthericaceae (1997) nor in Fl. Zambes. 13/1 (2008).

C. macrophyllum (A. Rich.) Aschers., incl. var. *albiflorum* A. Chev., var. *angustifolium* Engl., and var. *kyimbilense* Poelln.; Fl. W. Trop. Afr., ed. 2, 3/1: 99, 1968, *excl*. specim. Cole 168, Irvine 1724, Daramola FHI 38034 *(= C. filipendulum)* and Tamajong FHI 23282 *(= C. inornatum);* Meerts & Bjorå, o.c.: 398; Brunel & al., Fl. analyt. Togo in Englera 4: 657, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 496, 1995; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 93, 2003; idem, Aloes & lilies Eth. & Eritrea , ed. 2: 159-160, 2010; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 876, 2006; Fl. Zambes. 13/1: 85-86, 2008; Figueiredo & Smith, Pl. Angola: 171, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008; Lisowski, Fl. Rép. Guinée 1: 423, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 38, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; Fischer & al., Annot. checklist vascul pl. Kakamega For.: 163, 2011; Meerts in Pl. Ecol. Evol. 144: 233, 2011. – Icon.: J. K. Morton, West Afric. lilies: pl. IV facing p. 19, 1961 ! (with pseudo-stem as quoted in Akoegninou, Fl. analyt. Bénin: 38-39, 2006); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 145, 1994; Fl. Eth. & Eritrea 6: 104, 1997; Fl. Trop. E. Afr., Antheric.: 50, 1997; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): photographs 693 a-c, 2010; Meerts & Bjorå, o.c.: fig. 5 C, E-F.

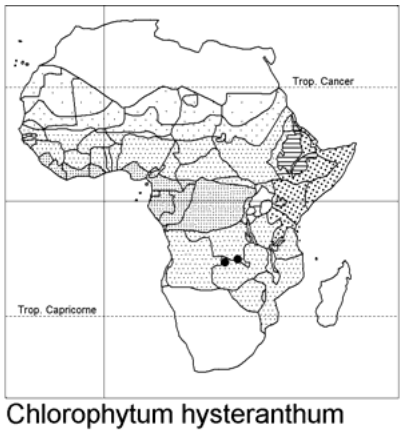
bas.: *Anthericum macrophyllum* A. Rich.

syn.: *Chlorophytum leucolepis* Welw. ex Baker; *C. fuchsianum* De Wild.; *C. massaicum* K. Krause; *C. kyimbilense* Poelln.; *C. hyacinthinum* Peter ex Poelln.; *C. kilimandscharicum* Poelln.; *C. longipaniculatum* Poelln.; *Dasystachys melanocarpa* Chiov.; *Chlorophytum melanocarpum* (Chiov.) Marais & Reilly; *C. laurentii* De Wild., in sched. – Note: According to Nordal in Fl. Eth. & Eritrea, l.c., *C. schweinfurthii* Baker is a synonym of *C.macrophyllum*, but in Fl. Trop. E. Afr., Antheric., l.c., Nordal & al. consider *C. schweinfurthii* Baker as a synonym of *C. stenopetalum* Baker, also considered so by Meerts & Bjorå, o.c.: 403.

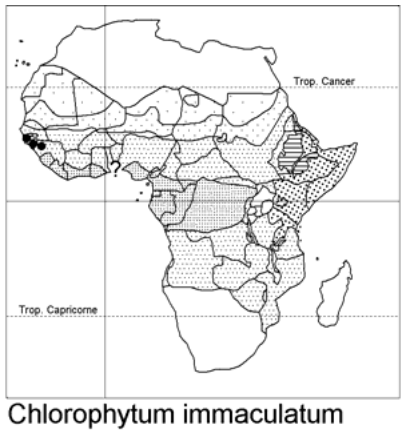
Herb often clumped, 60-90 cm tall; dried specimens pale brownish(-green), not blackish *(= C. filipendulum);* rhizome short; roots spongy with spindle-shaped tubers c. 6 cm long; leaves lanceolate, in basal rosette, 28-90 × 1,5-12 cm and some on a pseudo-stem; peduncle terete, leafless, glabrous; inflorescence *unbranched*, ± *dense*, *rachis smooth;* bracts 10-25 mm long; pedicels fascicled, lower ones to 9 per node, articulated at apex, 8-13 mm long; perianth white; tepals *8-15 mm* long, 5-veined; capsule shallowly deltoid 5-8 mm long.

Epiphytic in crevices of trunk and main branches of fallow fig tree; stream banks; often on stony doleritic soils; riverine forest; dry evergreen forest; usually in shade; also in more open woodland, bushland; swampy grassland on black soils; rarely on coral rock; forest edges; 100-2800 m alt.

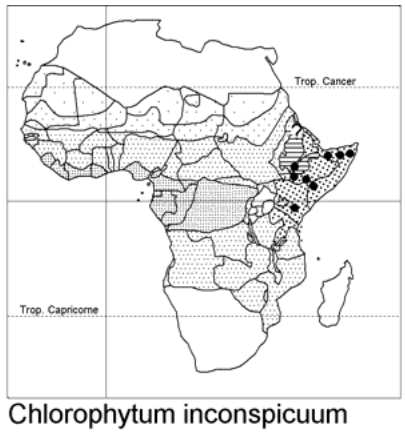
In Sierra Leone and Ghana ? Distribution from Senegal to Mozambique, but probably confused with *C. blepharophyllum* (see above under this species), and some other species. Our map is mostly based on herbarium specimens seen by us at Kew (K) and Geneva (G).



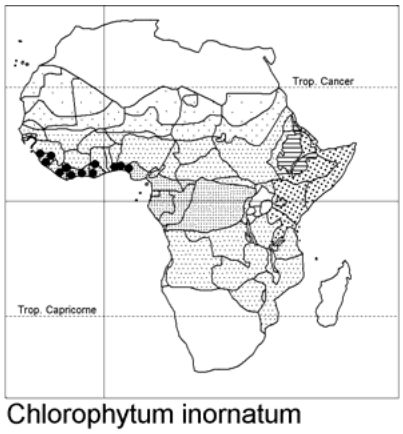
Chlorophytum hysteranthum



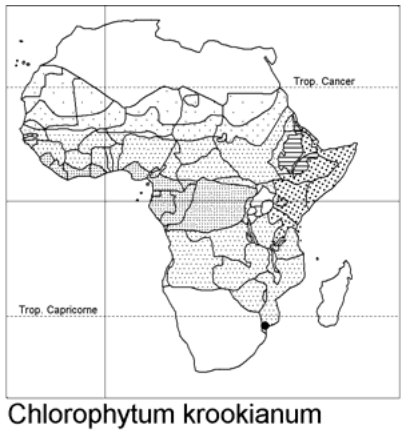
Chlorophytum immaculatum



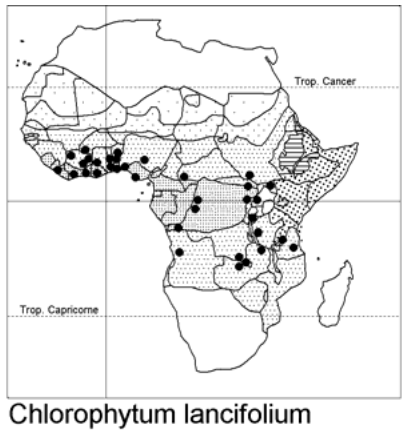
Chlorophytum inconspicuum



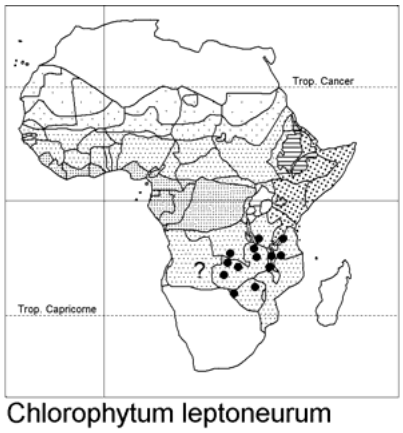
Chlorophytum inornatum



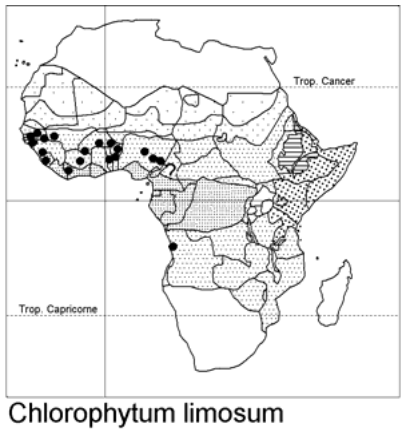
Chlorophytum krookianum



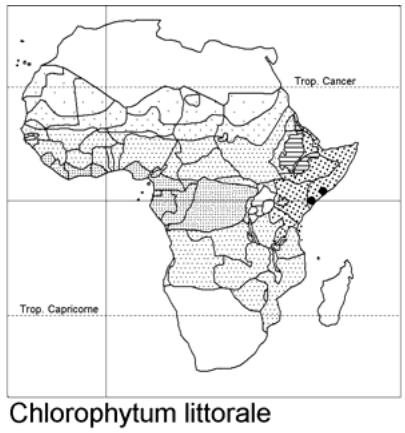
Chlorophytum lancifolium



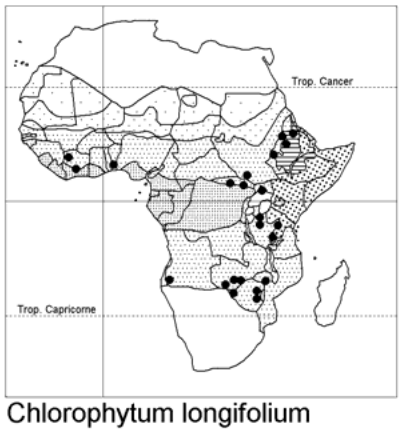
Chlorophytum leptoneurum



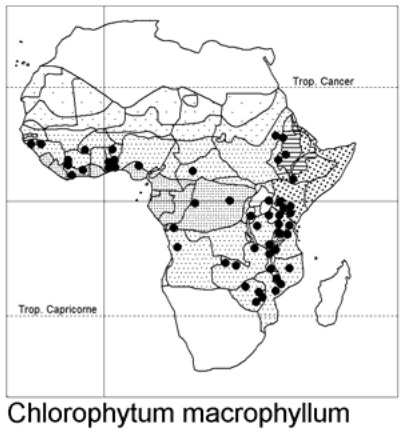
Chlorophytum limosum



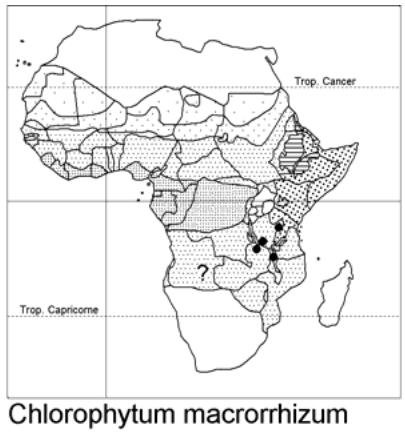
Chlorophytum littorale



Chlorophytum longifolium



Chlorophytum macrophyllum



Chlorophytum macrorrhizum

CHLOROPHYTUM MACROPHYLLUM

Intermediate forms towards *C. comosum* are known; confused with *C. filipendulum* (with *papillate rachis*). Also difficult to distinguish from *C. clarae*: root system and ripe capsules needed for identification.

A herbarium specimen present at Geneva (G) and labelled *C. macrophyllum* Aschers. var. *tenuifolium* Engl. from "British Uganda: Station Kibwezi…Flusse, steiles sonniges Ufer"/steep sunny [river] bank, Scheffler Nr. 196, collected 21.VI.1906, seems to represent *C. comosum* (actual Kenya: 2°24S × 37°57'E).

C. macrorrhizum Peter ex Poelln.; Fl. Trop. E. Afr., Antheric.: 22, 1997; Fl. Zambes. 13/1: 65, 2008 (excl. specim. Fanshawe 2708, Pawek 13667; cf. under *C. leptoneurum*); Figueiredo & Smith, Pl. Angola: 171, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 245, 2008.

Herb to 15 cm tall; rhizome *moniliform* bearing some fibrous remains of old leaf-bases; roots thick, spongy, fusiform, sometimes reduced to subsessile tubers; leaves ± prostrate, ± *purplish*, densely pubescent on nerves beneath, glabrous above, lanceolate, to 10 × 1-2 cm; margins occasionally wavy, ciliate; peduncle short, terete, *purplish* pubescent; inflorescence dense, unbranched, to 3,5 cm long; pedicels articulated at apex, to 1,5 mm long, solitary at nodes; bracts 6 mm long, purple, ciliate-hairy; perianth campanulate; tepals connate, white, papillose at constriction, to 5 mm long, 1-veined; capsule triquetrous, c. 1,5 × 3 mm.

Swampy and seasonally wet areas, on lateritic and clay soils; 1250-2000 m alt.

Very near *C. leptoneurum* var. *katangense*, *C. africanum*, *C. silvaticum*; taxonomic delimitation not clear; resembles forms earlier referred to *C. marginatum* Rendle, a synonym of *C. africanum*.

C. macrosporum Baker – Icon.: Flow. Pl. S. Afr. 14: pl. 540, 1934 (as *C. rhodesianum*); Tredgold & Biegel, Rhodes. wild flowers: 6, 1979; Fl. Zambes. 13/1: 71, 2008 (details).

syn.: *Chlorophytum rhodesianum* E. Phillips

Herb 0,8-1,5 m tall; rhizome regularly constricted; roots without tubers; leaves many, in an ascending basal rosette, usually half-folded, 25-52 × *1,4-2,5 cm*, glabrous, margins *undulate;* peduncle terete, glabrous, 10-25 cm long, to 9 mm Ø at base; panicle lax, to 85 cm long; bracts to 6 mm long; pedicels articulated above middle, lower ones 2-6 per node, to 25 mm long; perianth greenish, urn-shaped; tepals with ligulate rims above cup constriction, 3-veined, margins scabrid; capsule obovoid, *3-angled*, *sharpy lobed*, *11-15 mm* long.

Open woodland; dambo margins, on sodic soils; termite mounds; 400-1400 m alt.

S. Africa.

Plants of *C. andongense* from E. Africa sometimes misidentified as *C. macrosporum*.

C. minor Kativu; Fl. Zambes. 13/1: 81, 2008; Meerts & Bjorå, o.c.: 398.

Herb to *12 cm tall;* rhizome very small, with fibrous remains of old leaf-bases; roots reduced to sessile tubers; leaves 3-9 per plant, lanceolate, 2-15 × 1-1,5 cm, obtuse, margins with *long cilia;* peduncles 1-5 per plant, terete, shorter than leaves, densely papillate pubescent; inflorescence simple, lax; rachis angled, papillate; bracts small, margins ciliate; pedicels sparsely papillate-pubescent, articulated *above middle*, lower ones 2-4 per node, c. 6 mm long; perianth *white;* tepals c. 6 mm long, *3-veined;* capsule globose, 3-angled, 3 × 4 mm.

CHLOROPHYTUM MINOR

Grassland in seasonally wet places; often near pans; on rock, rock crevices; c. 1000-1500 m alt.

(**C. modestum** Baker) – Icon.: E. Pooley, A field guide to wild flowers Kwazulu-Natal and the Eastern Region: 91, 1998 (map p. 90).

syn.: *C. durbanense* O. Kuntze

Herb to 30 cm tall; leaves narrow, thin, flat, in a rosette, 15-30 cm long; peduncle simple; inflorescence few-flowered; flowers shiny white; tepals c. 1 cm long; capsule subcordate, 10 × 8 mm; seeds large (c. 3 mm Ø). – Similar to *C. comosum*.

In S. Africa: thicket, forest, in shade.

There are some reports of this species from S Mozambique (Fl. Zambes. 13/1: 81, 2008), but no specimens have been seen by Kativu & al. in this area. – Not mapped by us.

C. neghellense Cufod.; Fl. Eth. & Eritrea 6: 93, 1997; Nordal & al. in Biol. Skr. 54: 250, 2001 (map). – Icon.: Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 80, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 132, 2010 (under *Anthericum*); Nordal in Symb. Bot. Upsal. 35/2: 98, 2011 (idem).

syn.: *Anthericum neghellense* (Cufod.) Bjorå & Sebsebe; *Chlorophytum ellenbeckii* Poelln.; *C. gallarum* Poelln.

Small ± prostrate herb; rhizome horizontal, with fibre remnants from old leaves; roots with thin small tubers; leaves rosulate, lanceolate, 6-20 × 1,5-2,5 cm, obtuse, margins often crisply-undulate; peduncle 2-5 cm long, prostrate; inflorescence unbranched, or rarely with one basal branch, *lax*, *4-12 cm long*, *flat on the ground;* bracts leaf-like, 15 mm long; pedicels curved, c. 10 mm long, elongating in fruit, not articulated, 2-4 per node; flowers white; tepals c. 8 mm long, 3-5 veined; capsule triangular, slightly ridged, *6-8* × 4-5 mm.

Acacia, *Combretum*, *Commiphora* dominated woodland to degraded bushland, often heavily grazed; red (rarely black) sandy soil; 1050-1700 m alt.

(**C. nervatum** (C. H. Wright) Poelln.)

bas.: *Dasystachys nervata* C. H. Wright

Base (rhizome) unknown; leaves oblong, 15 × 1,5 cm, acuminate, rigid, glabrous on both sides; peduncle 22 cm long, cylindrical, minutely puberulous towards apex; raceme 10 cm long, rachis and pedicels glabrous; pedicels 2 mm long; tepals oblong, strongly concave, obtuse, 3,5 × 1,5 mm, white, yellow-puberulous at apex outside, 1-veined; capsule 4 mm Ø.

Ecology unknown.

? Known only from the type (C. E. F. Allen 338) collected in 1906: Zambia, between Broken Hill zinc mine (14°27'S × 28°27'E) and Bwana M'cuba copper mine (13°01'S × 28°41'E). Not figuring in Fl. Zambes. 13/1, 2008. – Not mapped.

Said to be related to *D. grantii (= Chlorophytum africanum),* but bracts much longer than flowers and leaves not erect. Also compared with *C. inexpectatum (= C. silvaticum).*

C. nervosum Nordal & Thulin – Icon.: Thulin, Fl. Somalia 4: 48, 1995 (detail).

syn.: *Anthericum subpapillosum* sensu Cufod., Enum.: 1532, 1971, non Poelln.

Herb to 30 cm tall; rhizome moniliform, fibrous; roots with distal tubers; leaves 5-9 in 2 rows, linear, 7-24 cm × 2-6 mm, folded, usually ± curved, minutely scabrous along margins and sometimes on main veins; raceme unbranched, rachis glabrous; peduncle terete, glabrous or very sparsely papillate; flowers 1-2 per node; pedicels 3,5-8 mm long, erect, articulated near base, glabrous; tepals white or with pink tips, 6-10 mm long, 3-nerved; capsule 3,5-6x5-6,5 mm with *very prominent raised transverse ridges*, perianth forming *an apical beak*.

Hollows between limestone blocks; c. 2040 m alt.

Yemen (sub nom. *C. tordense* in J. R. I. Wood, A handbook of the Yemen Flora: 403, 1997).

Near *C. cameronii*, *C. ramosissimum*.

C. nidulans (Baker) Brenan; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 40, 2006; Fl. Zambes. 13/1: 55-56, 2008.

bas.: *Anthericum nidulans* Baker

syn.: *Chlorophytum asphodeloides* C. H. Wright 1906, non *Acrospira asphodeloides* Baker 1878.

Herb 15-45 cm tall, tufted; rhizome with fibrous remains of old leaf-bases; roots spongy, without tubers; leaves linear, 12-30 cm × 2-4 mm, glabrous, acute; peduncle terete, glabrous; inflorescence *often unbranched*, occasionally with 1-3 branches; rachis terete, glabrous; pedicels articulated below middle, lower ones 2-3 per node, c. 7 mm long; perianth white; tepals c. 6 mm long, 3-veined; capsule 3-angled, smooth, 4-7 × 3-4 mm.

Grassland; rocks; shallow soils; often in seepage zones; 1200-2000 m alt.

Resembling *C. nubicum* (with swollen tuberous roots).

C. nubicum (Baker) Kativu; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 317, 1994; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 493, 1995 (under *Anthericum*); Fl. Trop. E. Afr., Antheric.: 15-16, 1997; Fl. Eth. & Eritrea 6: 94-95, 1997; Fl. Zambes. 13/1: 55, 2008; Lisowski, Fl. Rép. Guinée 1: 421, 2009 (under *Anthericum*); Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 143-144, 2010; Meerts & Bjorå, o.c.: 398-399.

bas.: *Anthericum nubicum* Baker

syn.: *A. senussiorum* Poelln.; *A. fibrosum* Hutch., nom. invalid., *A. articulatum* Hutch., p.p., nom. invalid.; *Chlorophytum tinneae* Baker; *C. pleurostachyum* Chiov.

Herb loosely tufted, 10-95 cm tall, often with leafy sterile shoots from a rhizome bearing fibrous remains of old leaf-bases; roots spongy, occasionally reduced to *tuberous structures;* leaves *appearing after flowering*, rosulate, linear, to 26 cm × 5 mm, sheathing at base, glabrous; margins minutely papillate, scabrid or ciliate; peduncle terete, inflorescence often unbranched, occasionally with 1-3 branches at base, lax; bracts small; pedicels articulated below middle, lower ones 2-4 per node, 9-14 mm long; perianth white; tepals 3-5-veined, 7-15 mm long; capsule subglobose, 3-angled, deeply lobed, c. 5 × 4 mm.

Lava grassland; burnt areas in dry woodland; open woodland on stony shallow soils; in tall grass in savanna; 150-2300 m alt.

Very close to *C. nidulans*.

Two collections from Zaire, Upemba are atypical – perhaps a distinct taxon.

C. nyasae (Rendle) Kativu ("nyassae"); Burrows & Willis, Pl. Nyika Plateau: 287, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 41, 2006; Fl. Zambes. 13/1: 72-73, 2008. – Icon.: Fl. Trop. E. Afr., Antheric.: 12, 1997.

bas.: *Anthericum nyasae* Rendle

syn.: *Chlorophytum glabriflorum* C. H. Wright

Herb 0,18-2 m tall; rhizome short, densely covered with spongy roots without tubers; leaves ± linear, glabrous with prominent midrib, clasping below, 9-70 × 0,4-2,5 cm, margins entire, glabrous, scabrid or ciliate; peduncle terete, glabrous, to 80 cm long; panicle loose, sometimes only with a few or many branches; rachis terete, glabrous; pedicels articulated below to near middle, to 12 mm long, 2-4 per node, bracts ovate; perianth *open,* white to sometimes yellowish; tepals 7-11 mm long, 3-veined; capsule ovoid, triquetrous, c. 8 mm long.

Grassland; scrubland; often in gullies and around water courses, on stony ground; shrubberies; sporadic but locally abundant; 800-2800 m alt.

Robust and dwarf forms observed in the same populations.

C. nzii A. Chev. ex Hepper; Chatelain & al., Cartes distr. pl. Côte d'Ivoire : 232, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 29, 2012.

Perennial herb with fibrous roots probably tuber-bearing; pseudostem with leaves glabrous on both faces, linear, 8-27 × 1,5 cm, acute, with pseudo-petiolate at base; inflorescence sparingly branched (usually *with 3 equal branches*, to 2 cm long) or simple, to 30 cm long; bracts 5 mm long; pedicels *10-12 mm* long, articulated at middle; flowers fasciculate; tepals 4,5 mm long; capsule 3-lobed, 3 × 5 mm.

Grass-covered land overlying ferruginous plateaux; savanna.

Differs from *C. blepharophyllum* in its glabrous leaves and smaller more numerous flowers. Also similar to *C. camporum*.

C. occultum A. D. Poulsen & Nordal; Bjorå & al. in Pl. Syst. Evol. 274: 246, 2008. – Icon.: Kew Bull. 54: 946-948, 2000.

syn.: *C.* sp. B sensu Fl. Trop. E. Afr., Antheric.: 62, 1997.

Herb to *8 cm tall;* rhizome creeping, ascending, the creeping portion sometimes with single leaves at nodes; roots thick, with distal tubers; leaves glabrous; petiole distinctly canaliculate, 2,5-7 cm long; lamina ± horizontal, with whitish bands beneath, *ovate*, 5-7,5 × 2,5-4 cm, base truncate, apex acute; peduncle terete, glabrous, *to 4 cm long;* inflorescence simple, *1-2 cm long*, with 1-5 nodes each with 1-3 flowers; pedicels 1,5-3 mm long, articulated above middle; perianth greenish; tepals 6-7 × 2 mm, 3-veined; capsule green, triquetrous, 4-5,5 × 6-9 mm, base *truncate*.

In closed-canopy rain-forest dominated by *Cynometra alexandri*, *Khaya anthotheca* or mixed forest; 600-1000 m alt.

Near *C. alismifolium*, *C. petrophilum;* extremely difficult to see in the field.

Cited by Sosef & al., Check-list pl. vascul. Gabon: 251, 2006. The two specimens (Wieringa 460, Breteler 10021) are morphologically similar to *C. occultum*, but they lack seeds, and thus correct indentification not possible (Poulsen & Nordal in Bot. J. Linn. Soc. 148: 9, 2005).

Material from Zaire not seen by Meerts & Bjorå, o.c.: 399.

CHLOROPHYTUM

C. orchidastrum Lindl.; Brunel & al., Fl. analyt. Togo in Englera 4: 657, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 496, 1995; Cable & Cheek, Pl. Mt Cameroon: 146, 1998; Cheek & al., Pl. Kupe…: 425-426, 2004; Poulsen & Nordal in Bot. J. Linn. Soc. 148: 17-18, 12 (map), 2005; Akoegninou & al., Fl. analyt. Bénin: 40, 2006; Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 215, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 232, 2011; Meerts & Bjorå, o.c.: 399. – Icon.: Edwards's Bot. Reg. 10: pl. 813, 1824; Adam, Fl. descript. Mts Nimba 5: 1834, 1981; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 876, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 503, 2009; Fl. Gabon 41: 7, 2010.

syn.: *Phalangium oligospermum* Wight; *Chlorophytum mannii* Baker; *C. zenkeri* Engl., non *Anthericum zenkeri* Engl.; *C. seretii* De Wild., incl. var. *likimense* De Wild.; *C. talbotii* Rendle; *C. macropodum* K. Krause; *C. petiolatum* Baker; *C. lanceum* A. Chev.

Robust herb 0,4-1 m tall; *drying black*; roots woolly, *tomentose*, with tubers on main axes; leaves erect with *distinct petiole* 15-40 cm long; blade dark green, *ovate to ovate-lanceolate*, 15-40 × 5-12 cm, with c. 20 strong nerves, base rounded, apex long acuminate; peduncle c. 30 cm long; inflorescence paniculate, lax, rhomboid, c. 45 cm long, with 1-3 lateral branches 10-15 cm long; bracts 5-65 mm long, glabrous; pedicels 7-8 mm long, 3-4 at each lower node, *articulated in upper half;* flowers white to pale green; tepals *linear*, *6 mm long*, 3-veined; capsule subglobose, *7 mm Ø*.

Forest, forest edges, gallery forest; old secondary forest with *Terminalia superba*; secondary moist fallows; 1-1300 m alt.

Not in Zambia *(= C. lancifolium).*

Flowers decorative for colour and scent; first cultivated in British conservatories, now commonly grown in temperate countries (Burkill, l.c.).

Confused with *C. zingiberastrum* (see Kew Bull. 53: 939, 1998, with a comparative table).

C. parvulum Chiov.; Thulin, Fl. Somalia 4: 48, 1995.

Herb to c. 12 cm tall; rhizome densely fibrous; roots with distal tubers; leaves rosulate, lanceolate, 5-20 mm wide, with *very prominent papillose nerves*, ciliate; raceme simple, dense, glabrous or papillose; peduncle leafless; pedicels 5-8 mm long, articulated in lower half; flowers 2-4 per node; tepals white, 7-9 mm long, 3-nerved; capsule rounded to broadly oblong, 7-13 × 7-11 mm.

Dunes; stony places; silty plains; up to 530 m alt.

C. paucinervatum (Poelln.) Nordal; Fl. Trop. E. Afr., Antheric.: 34, 1997; Fl. Zambes. 13/1: 49, 2008.

bas.: *Anthericum paucinervatum* Poelln.

Herb to 60 cm tall, grass-like; rhizome small, with fibrous remains of old leaf-bases; roots without tubers; leaves rosulate with *prominent red-brown bands at base*, to 55 cm × *4 mm often narrower*, margins ciliate; peduncle compressed or flat, narrowly winged, glabrous; inflorescence branched, occasionally only forked at base; rachis terete, glabrous; bracts small, ciliate; pedicels 1-3 per node, articulated at base, c. 8 mm long; perianth white or pinkish; tepals *c. 12* × 2-3 mm, 3-veined; capsule subglobose, shallowly deltoid, transversely ridged, c. 5 × 5 mm.

Wooded grassland; open woodlands; shallow peaty soils; wet depressions on granite outcrops; 100-900 m alt.

Related to the *C. cameronii* complex.

CHLOROPHYTUM

C. pauper Poelln.; Fl. Zambes. 13/1: 79-80, 2008; Bjorå & al. in Pl. Syst. Evol. 274: 246, 2008.

syn.: *C. kymatodes* Suess.

Herb often clumped, 15-75 cm tall; rhizome small, densely covered with fibrous remains of old leaf-bases; roots thick with lateral *tubers*; leaves rosulate, 3-6 per plant, linear, *14-47* × *1-3,4 cm*, acute, *partly folded*, *undulate*, margins ciliate; peduncle angled, glabrous, to 20 cm long; raceme subspicate, 8-12,5 cm long, rarely with a single appressed branch at base; pedicels 1-4 per node, articulated above middle, to 7 mm long; perianth white; tepals 3-5-veined; capsule 3-angled, globose, 3-6 × 4-5 mm, transversely tuberculate when fresh.

Open woodland, grassland margins; dolerite soils; termite mounds; 500-1400 m alt.

Botswana.

Forming a complex with *C. brachystachyum* (see above under this species).

C. pendulum Nordal & Thulin; Fl. Trop. E. Afr., Antheric.: 26, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 89-90, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 153-154, 2010. – Icon.: Fl. Eth. & Eritrea 6: 101, 1997.

Tufted herb 15-40 cm tall; rhizome moniliform with fibrous remains of old leaf-bases; roots thin with tubers; leaves several, rosulate, linear, 20-45 × 0,4-0,9 cm, midrib distinct, sheathing below, margins ciliate; peduncle glabrous, 5-30 cm long; raceme simple, often drooping, rachis glabrous to slightly papillose; flowers 1-4 per node; bracts small; pedicels glabrous, *drooping*, 5-12 mm long, articulated near base; tepals white, with pale green to brown stripes outside, 5-9 mm long, 3-veined; capsule *pendent*, deeply 3-lobed, *pyramidal*, slightly transversely ridged, 10-15 × 6-10 mm, emarginate.

Woodland dominated by *Acacia*, *Combretum*, and/or *Commiphora;* dark or red stony soils; sometimes on limestone; in ± shade; 1000-1650 m alt.

C. peralbum Poelln.; Figueiredo & Smith, Pl. Angola: 171, 2008.

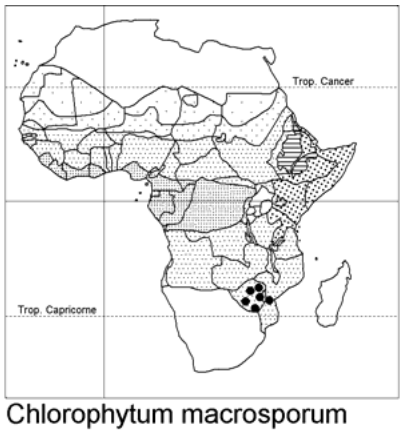
Herb with horizontal rhizome; outer leaves 1-2, lanceolate, erect, acute, to 10 cm long, *margins ciliate;* inner ones 2-3, linear, 15-55 × 4-10 mm, acute with short fine apex, base broadened to 2 cm wide, surfaces glabrous, *margins ciliate;* peduncle rounded, 0,4-1m long glabrous, 1-3 mm Ø, with 6-8 sterile bracts the lowermost 8-20 cm long, the upper ones 1-2 cm long; inflorescence simple, dense, 6-15 cm long, rachis glabrous; bracts lanceolate, 6-10 mm long; pedicels glabrous, *1,5-3* mm long; tepals *6* × 2 mm, *pure white*, 1-3-veined; young capsule winged to the middle, emarginate.

Stream banks; dry places near river; forest; 1220-1330 m alt.

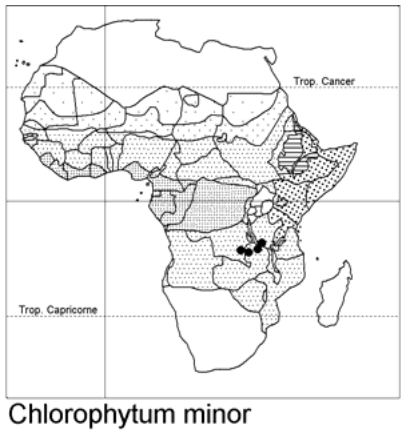
C. perfoliatum Kativu; Meerts & Bjorå, o.c.: 399. – Icon.: Fl. Zambes. 13/1: 59, 2008.

Herb 6-41 cm tall; rhizome short, regularly constricted, with short fibrous remains of old leaf-bases; roots spongy, sometimes reduced to elongated tubers; leaves rosulate, 1-4 per plant, erect or *prostrate*, 2-12 × 1-4,5 cm, clasping, setose on veins beneath, glabrous above; cataphylls with reddish stripes or spots; peduncle glabrous, longer than leaves; *panicle lax*, rarely unbranched; rachis terete, glabrous; bracts to 4 mm long; pedicels solitary, *6-13 mm long*, articulated above middle; perianth *greenish;* tepals c. 5 mm long, 3-veined; capsule 3-angled, deeply lobed, 2,5-3 mm.

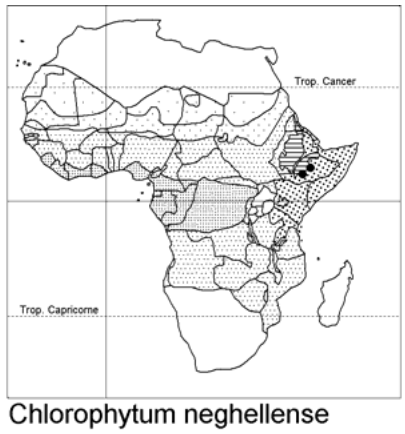
Woodland; termite mound in plain; on heavy clays and rocky soils; 900-1200 m alt.



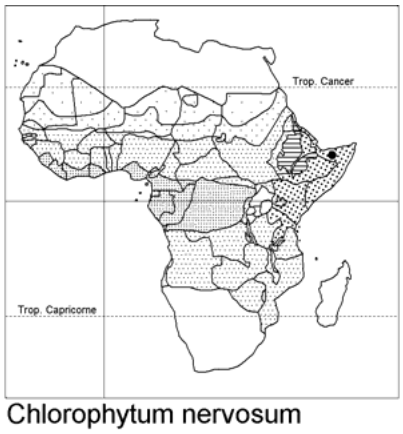
Chlorophytum macrosporum



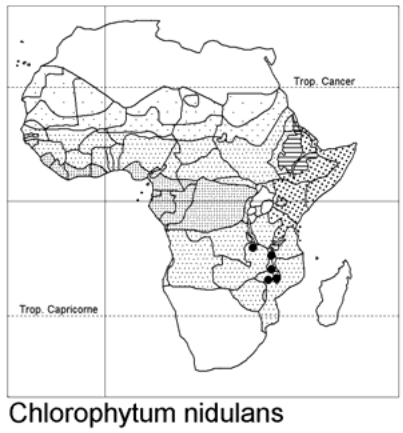
Chlorophytum minor



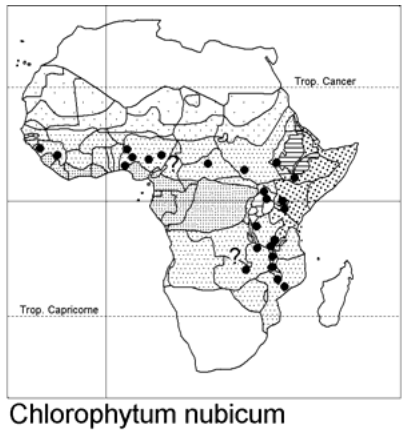
Chlorophytum neghellense



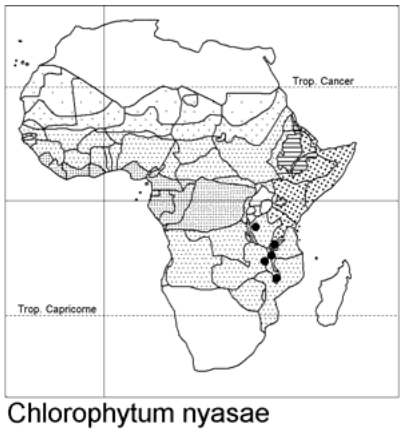
Chlorophytum nervosum



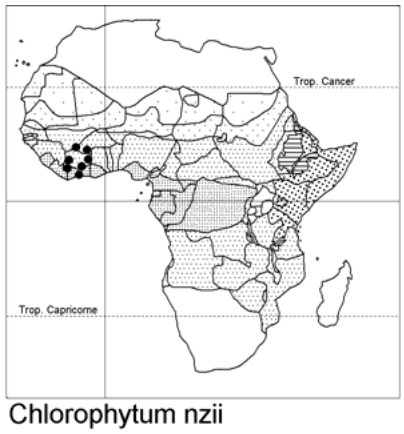
Chlorophytum nidulans



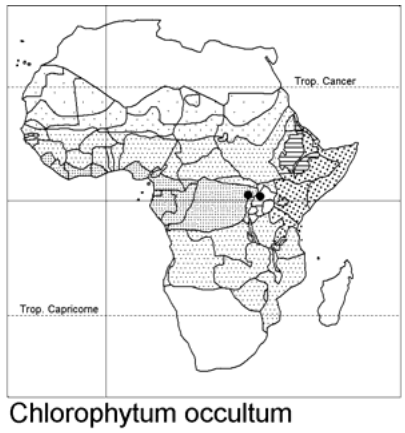
Chlorophytum nubicum



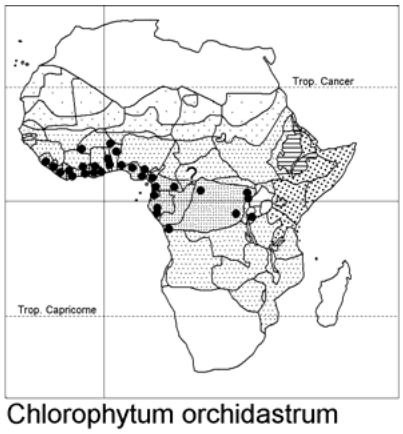
Chlorophytum nyasae



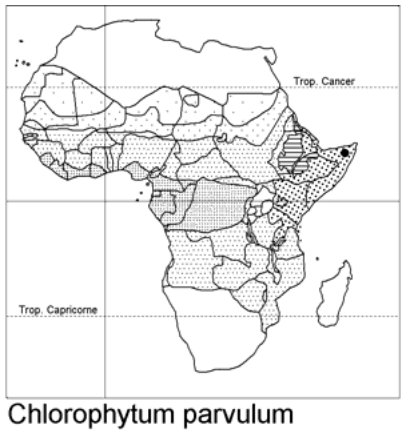
Chlorophytum nzii



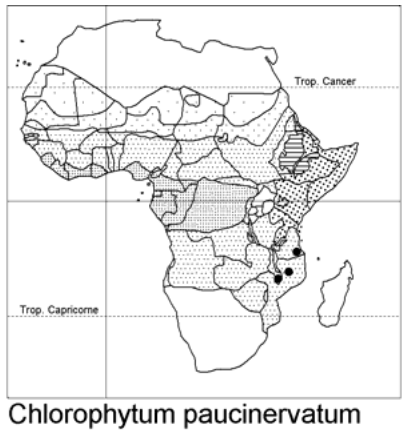
Chlorophytum occultum



Chlorophytum orchidastrum



Chlorophytum parvulum



Chlorophytum paucinervatum

C. petraeum Nordal & Thulin – Icon.: Thulin, Fl. Somalia 4: 44, 1995.

Herb to 32 cm tall; rhizome short, slightly fibrous; roots fleshy, without tubers; leaves rosulate, several, lanceolate, to 20 mm wide, margins ciliate; inflorescence unbranched, glabrous; peduncle glabrous, with *leaves* and *bracts along all its length;* pedicels 3-8 mm long, articulated near middle or in the lower half; tepals white, medially greenish, 5-8 mm long, 3-nerved; capsule 4-5 × 5-7 mm, persistent perianth forming a long beak.

Rock crevices; grassy patches in evergreen bushland; stony soil; often in shady places; 400-1600 m alt.

C. petrophilum K. Krause; Cable & Cheek, Pl. Mt Cameroon: LXIV, 146, 1998; Poulsen & Nordal in Bot. J. Linn. Soc. 148: 18, 12 (map), 11 (seeds), 2005; Sebsebe Demissew & al. in Biol. Skr. 55: 324, 2005; Onana & Cheek, Red Data Book flow. pl. Cameroon: 351, 2011. – Icon.: Sebsebe & al., o.c.: 328.

syn.: *C. sparsiflorum* sensu Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 100, 1968, quoad specim. Onochie FHI 36149 (cf. under *C. sparsiflorum*).

Rhizomatous herb; roots without tubers; leaf petiole 3-6 cm long; blade ovate-oblong, 5-7,5 × 2,5-3 cm, appearing striped, base truncate, apex acute-apiculate, margins glabrous; inflorescence incl. peduncle 33-70 cm long, *very lax*, *trailing, producing plantlets at nodes (pseudoviviparous)*, rachis glabrous; *flowering nodes spaced* with 0-2 flowers per 3 (-8-12) cm rachis; bracts 5 mm long, glabrous; pedicels c. 3 mm long, jointed in upper half; flowers very few, tepals white, 8-10 × 1 mm; capsule 4-5 × 6 mm, base truncate. Flowers not seen by Poulsen & Nordal, l.c.

Rocky slope in half-shade; hilly land; rain-forest in moss mats; 100-500 m alt.

Threatened by conversion of forest to oil-palm plantation.

Part of the *C. comosum* complex.

C. pilosicarinatum (Poelln.) Meerts; Meerts & Bjorå, o.c.: 399.

bas.: *Anthericum pilosicarinatum* Poelln.

Rhizome c. 0,5 cm Ø; roots without tubers; fibrous neck 2-3 cm long; leaves 8, the outer ones ± lanceolate, 4-9 cm long, the inner ones linear, 6-30 × 0,5-1 cm; scape shorter than leaves, 5-18 cm long, flat, edges hairy; spike erect, dense, c. 3 cm long, rachis slightly hairy; bracts 0,8-1 cm long; pedicels articulated at middle, 3-4 mm long; tepals 9 mm long, wihitish, 3-7-veined; capsule wider than long, triquetrous, c. 3 mm long. – "Easily recognized by its unique pattern of leaf pubescence, with glabrous leaf surface and long ciliate leaf margins and lower mid nerve; the hairs are retrorsely oriented at their base"; the bracts show a similar pattern.

Riverside in humid grassland; rocky desert formation; savanna on cobalt-bearing schist; rocky metalliferous alignment.

First collections made in 1905, 1906 (Gossweiler Nrs 2039, 2663, 4018), and not recollected until 1959 (Duvigneaud).

Member of the *C. cameronii* complex according to Meerts & Bjorå, l.c., and best "treated at varietal rank within this latter species, but more material is needed".

Resembling *C. galpinii* var. *norlindhii* in pattern of leaf pubescence.

C. polystachys Baker; Fl. Trop. E. Afr., Antheric.: 43-44, 1997; Fl. Zambes. 13/1: 61-62, 2008; Meerts & Bjorå, o.c.: 399.

syn.: *C. asparagiflorum* Engl.; *C. acrothyrsum* Peter ex Poelln.; *C. holotrichum* Peter ex Poelln.; *C. subrugosum* Poelln.; *C. tuberigenum* Peter ex Poelln.; *Anthericum giganteum* Poelln.; *Chlorophytum palustre* Engl. & K. Krause

Herb often gregarious, 25-64 cm tall; rhizome moniliform, often bearing fibrous remains of old leaf-bases; roots with tubers; leaves linear, distichous, bases often red-brownish to deep green and with a white band at top, 25-75 × 0,6-3 cm, glabrous, margins minutely scabrid to ciliate; peduncle sometimes arcuate below, terete, glabrous, 20-40 cm long, sometimes bronze-coloured in upper part; panicle lax, to 25 cm long; rachis angled, glabrous, scabrid, or shortly ciliate; pedicels *glabrous*, articulated below middle, pinkish brown, to 5 mm long, 2 per each flower node; perianth *glabrous*, greenish white; tepals 4-5 mm long, scabrid, 3-5-veined, sometimes with a brownish stripe outside; capsule subglobose, trigonous, smooth, 3-7 × 5-9 mm.

Open woodland; rocky outcrops; stony soils; black clay soil; forest edges; swampy hollows or thornbush thicket; 150-2900 m alt.

Variable. Closely related to *C. pubiflorum*, also similar to *C. vestitum*. The three taxa need further studies for determination of taxonomic rank between them.

In the Flora Zambesiaca area 2 cytotypes (2n=14, 2n=28) are recorded.

C. pseudocaule Tesfaye & Nordal; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 157, 2010 – Icon.: Kew Bull. 62: 131, 2007; Fl. Eth. & Eritrea 1: 245, 2009.

Herb to c. 1 m tall; rhizome short; *roots thick, spongy*, without tubers; leaf-bases forming a distinct pseudostem to 40 cm long, surrounded by cataphylls almost without lamina in lower part; inner leaves with lamina to 40 × *5-6,5 cm;* peduncle 10-13 cm long, 1-1,5 cm Ø, with 1-2 bract-like leaves; panicle *much-branched* with 2-3 flowers per node; bracts to 5 cm long; pedicels to 10 mm long, articulated below middle; *flowers urceolate*, *pale brown;* tepals 6 × 1-1,5 mm, 3-veined; capsule 3-locular, c. 5 × 5 mm.

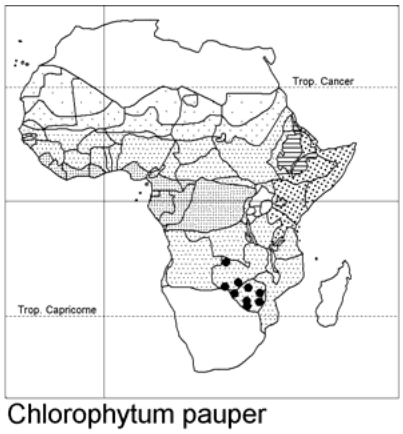
Open bushy meadows on grey clay soil with *Crinum ornatum*, *Drimiopsis botryoides*, *Gladiolus roseolus*, *Habenaria perbella*, *Ledebouria revoluta;* the dominant bush is *Kotschya africana*, grasses are *Cymbopogon*, *Hyparrhenia;* bamboo woodland around the meadows include *Combretum collinum, Piliostigma thonningii, Stereospermum kunthianum, Terminalia laxiflora, T. macroptera, Vitex doniana;* 1430-1560 m alt.

Near *C. andongense*, *C. macrosporum*, *C. viridescens*.

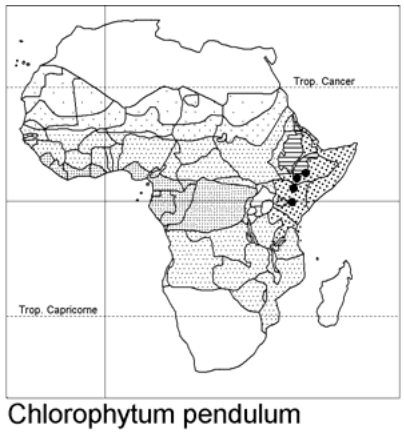
C. pterocarpum Nordal & Thulin; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 84, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 146, 2010. – Icon.: Fl. Eth. & Eritrea 6: 99, 1997.

Herb to 10 cm tall; rhizome very short carrying the fibrous remains of old leaf-bases; roots with tuber-like structures; leaves 2-5, rosulate, lanceolate, 5-7 × c. 1,5 cm, often prostrate, margins finely undulate-crispate, hyaline; peduncle leafless, 3-5 cm long; raceme simple, rachis *glabrous;* flowers solitary at each node; pedicels 5-12 mm long, glabrous, *articulated near apex;* tepals white, 6-8 mm long, 3-veined; capsule *deeply lobed*, with 3 flat *wing-like compartments*, slightly transversely ridged, 6-9 × 9-12 mm, emarginate.

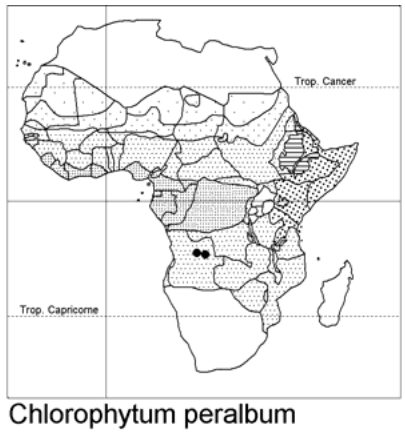
Acacia, *Commiphora* woodland and bushland on limestone; 1400-1500 m alt.



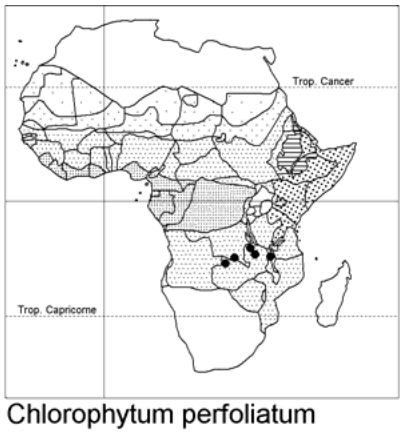
Chlorophytum pauper



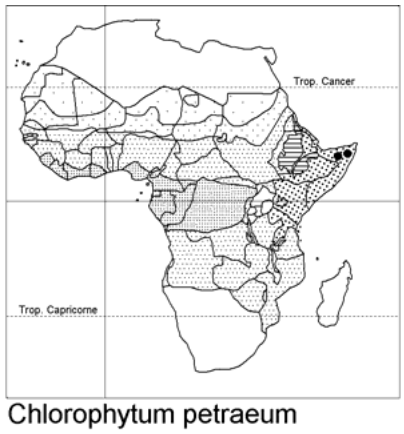
Chlorophytum pendulum



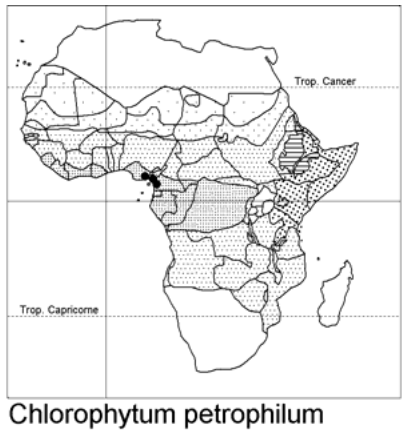
Chlorophytum peralbum



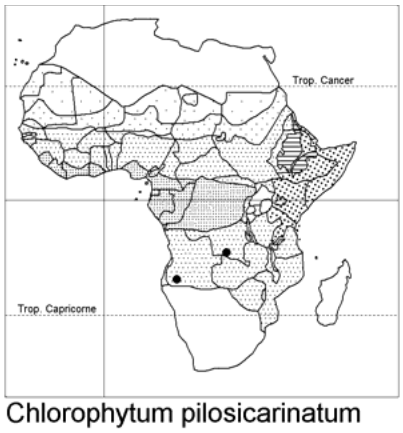
Chlorophytum perfoliatum



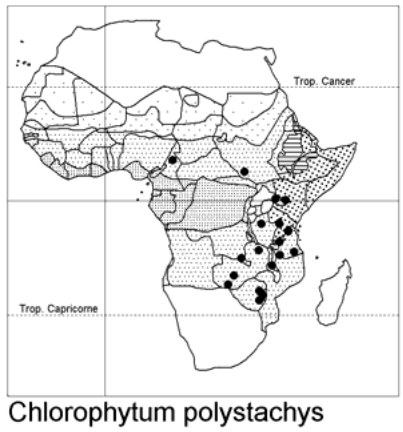
Chlorophytum petraeum



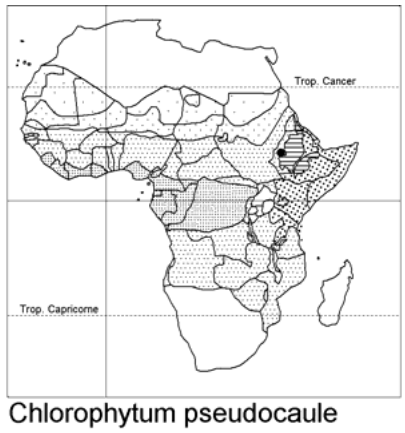
Chlorophytum petrophilum



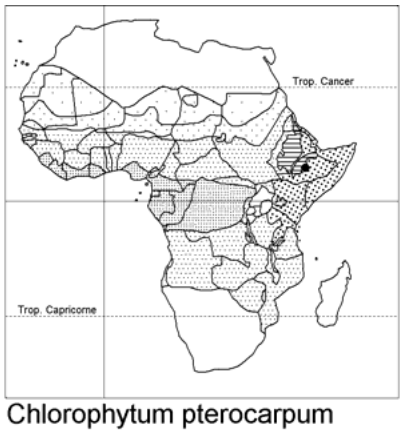
Chlorophytum pilosicarinatum



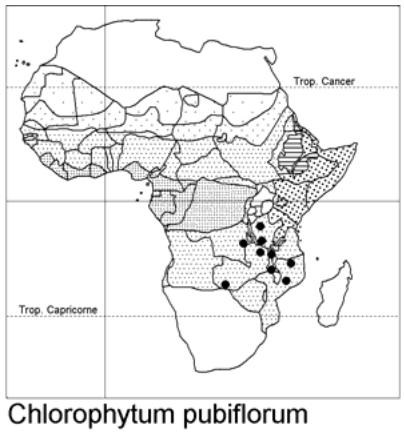
Chlorophytum polystachys



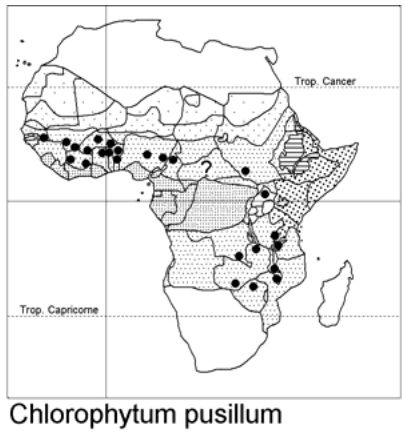
Chlorophytum pseudocaule



Chlorophytum pterocarpum



Chlorophytum pubiflorum



Chlorophytum pusillum

CHLOROPHYTUM

C. pubiflorum Baker; Fl. Trop. E. Afr., Antheric.: 44, 1997; Fl. Zambes. 13/1: 63, 2008; Meerts & Bjorå, o.c.: 399.

syn.: *C. paniculosum* Poelln.

Herb 60-80 cm tall; rhizome horizontal, moniliform; roots with tubers at tips; leaves distichous, broadly linear, usually glabrous, often with a dark green to brownish-green band at base, clasping, 20-30 × 1,2 cm; peduncle subterete, glabrous; inflorescence lax, ascending; racemes 3-10; rachis angled, glabrous, sometimes sparsely papillate; pedicels articulated below middle, *densely papillate-pubescent*, to 10 mm, 2-4 at each lower node; bracts small; perianth greenish white, *papillate-hairy*, c. 5 mm long; tepals 3-veined; capsule globose, trigonous, c. 5 × 5 mm.

Seasonally wet grassland, in sandy clayish soil; river margins; floodplains; 50-c. 1500 m alt.

Closely related to *C. polystachys*, *C. vestitum*.

The Zaire collection originates from the Zaire/Zambia border. The species should be sought for in Luapula River floodplain.

C. pusillum Schweinf. ex Baker; Brunel & al., Fl. analyt. Togo in Englera 4: 657, 1984; Akoegninou & al., Fl. analyt. Bénin: 40, 2006; Bjorå & al. in Pl. Syst. Evol. 274: 246, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 232, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 29, 2012. – Icon.: Fl. Trop. E. Afr., Antheric.: 56, 1997; Fl. Zambes. 13/1: 88, 2008; Meerts & Bjorå, o.c.: figs. 3A, 6B.

syn.: *C. gourmacum* A. Chev., nom. nud., quoad specim. Chevalier 24320, 24108; *C. mossicum* A. Chev., quoad specim. Chevalier 24770; *C. micans* Engl. & K. Krause; *C. littorale* sensu Raimondo & al., 1981: 221, p.p., non Nordal & Thulin

Herb often in patches, to *3,5 cm tall;* rhizome not distinct; roots *spongy*, with *tubers* or *tuberous structures;* leaves rosulate, ± prostrate, thin, 1-4 per plant, glabrous, *sessile*, oblanceolate, 2,5-15 × 1,5-10 cm, margins crisped (sometimes with red cilia), base broad; peduncle 1-3 cm long; inflorescence unbranched, dense, 2-5 cm long; pedicels without articulation, *1-5 mm long*, several per node; perianth white; tepals 4-5 × c. 1 mm, *3-veined;* capsule shallowly deltoid, smooth, c. 4 × 3 mm.

Woodland in shade; often in rock crevices; termite mounds; shallow temporarily very humid soils; 300-1400 m alt.

Similar to *C. geophilum* (with thick petiolate leaves, branched inflorescence, seed testa different in the two species). – *C. pusillum* sensu Troupin, Fl. spermat. Parc Natl. Garamba 1: 191, 1956, is *C. geophilum*.

C. pygmaeum (Weim.) Kativu – Icon.: Bot. Not., 1937: 426 (sub nom. *Anthericum puberulum*) and 427 (sub nom. *A. pygmaeum*), 1937.

bas.: *Anthericum pygmaeum* Weim.

Herb *densely tufted*, sometimes *matted*, 8-28 cm tall; rhizome short, horizontal, constricted, with fibrous remains of old leaf-bases; roots thin with tubers at tips; leaves in 2 rows, basal, 6-12 per plant, linear-lanceolate, 5-42 × *0,2-1,8 cm*, glabrous to minutely puberulous on veins, margins minutely scabrid to ciliate; inner leaves longer; peduncle flat, narrowly winged, wings minutely scabrid; bracts lanceolate, c. 1 cm long; raceme dense, subglobose; pedicels *1-3 per node*, articulated below middle, to 5 mm long; perianth white; tepals c. *11 mm* long, *5-7-veined*, outer ones with dark tips; capsule shallowly deltoid, to 6 mm long, transversely ridged.

Grassland, on stony soils; c. 1800 m alt.

CHLOROPHYTUM PYGMAEUM

Comprises 2 subspp.: – subsp. **pygmaeum** [syn.: *Anthericum puberulum* Weim., non *Chlorophytum puberulum* Engl.], densely tufted, with leaves 9-18 mm wide, in Nyanga and Nuza Mts; – subsp. **rhodesianum** (Rendle) Kativu [bas.: *Anthericum rhodesianum* Rendle, non *Chlorophytum rhodesianum* E. Phillips (= *C. macrosporum)*], in small tufts, with leaves < 8 mm wide, in Chimanimani Mts.

C. ramosissimum Nordal & Thulin – Icon.: Fl. Somalia 4: 48, 1995.

Herb 15-45 cm tall; rhizome moniliform, fibrous; roots slender, with distal tubers; leaves linear, rosulate, 12-25 cm × *2,5-4 mm*, usually folded, margins and nerves minutely scabrous, or glabrous; peduncle leafless, minutely scabrous or glabrous; raceme compound, much-branched; lower pedicels 1,5-5 cm long, upper shorter, articulated 1-1,5 mm below flowers, papillose or glabrous, 1-8 per node; tepals white, 5,5-7 mm long, 3-nerved; capsule 2,2-3 × 4,4-5,5 mm, *the perianth* forming an *apical beak.*

Deciduous bushland on sand; 150-300 m alt.

Indicated from Ethiopia by Nordal and Thulin in Nord. J. Bot. 13: 276, 1993; not in Fl. Eth. & Eritrea 6, 1997 or in "Additions" in Vol. 1, 2009; not cited by Sebsebe Demissew & al., Flow. Eth. & Eritrea…, 2003, or in ed. 2, Aloes & lilies of Eth. & Eritrea, 2010.

C. recurvifolium (Baker) C. Archer & Kativu; Fl. Zambes. 13/1: 56-57, 2008; Meerts & Bjorå, o.c.: 400.

bas.: *Anthericum recurvifolium* Baker

syn.: *A. longistylum* Baker, non *Chlorophytum longistylum* Poelln.; *A. polyphyllum* Baker; *Chlorophytum polyphyllum* (Baker) Kativu, non (Baker) Poelln. *(= C. suffruticosum); C. longiphyllum* Govaerts

Herb tufted, 25-95 cm tall; rhizome horizontal, regularly constricted, covered by fibrous remains of old leaf-bases; roots wiry with distal tubers; leaves linear, rosulate, 9-45 cm × 2-5 mm, *glabrous*, often recurved, folded, clasping below, margins *minutely papillate;* peduncle terete, *glabrous*, to 22,5 cm long; *panicle* lax, *seldom unbranched;* rachis terete, glabrous; pedicels solitary, articulated below middle, to 5 mm long; perianth white; bracts aristate; tepals c. 13 mm long, 3-veined; capsule obovate, shallowly deltoid, transversely ridged, 8-13 mm long.

Open woodland; wooded grassland; stony and sandy soils; wood with *Uapaca robynsii;* 400-1400 m alt.

S. Africa, Botswana, Swaziland (map in Bothalia 31: 40, 2001).

Disjunct species (Zaire-Zimbabwe).

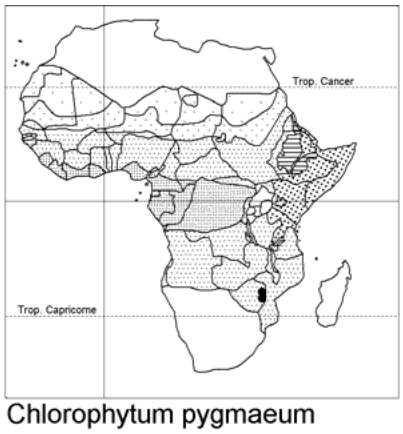
(**C. reflexibracteatum** Poelln.)

Glabrous herb; rhizome oblique with robust roots and few short leaf remains; cataphylls few, narrow, to 10 cm long; leaves c. 6, linear, 60-80 × 0,8-1,2 cm, acute, base sheathing; peduncle stout, leafless, flat below, angular above, c. 40 cm long, 1 cm Ø at base, with bracts in upper part 8-10 mm long; raceme very dense, < 5 cm long, rachis thick; pedicels 3 mm long, jointed at apex, thick, reflexed; bracts 5-7 mm long, reflexed; flowers and capsule unknown.

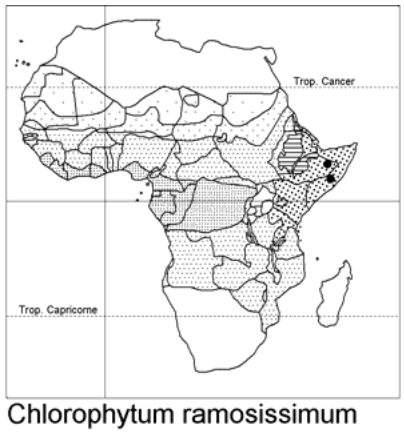
Growing solitary in a mountain depression on clay soil, but more common in marshy area called Lukangaka by the natives; 2700 m alt.

? Known only from the type (Keil 64, lost ?) collected in 1905; "Tanganyika: Seengebiet: Usumbura, Kiballa", i.e. in today's Burundi. – Not mapped.

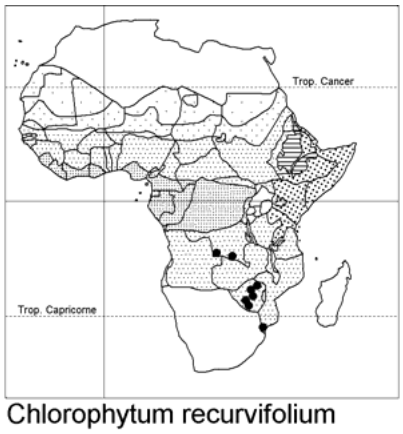
Von Poellnitz placed the species in § *Dasystachys* (Baker) Engl., although flowers are lacking. Taxonomic status uncertain.



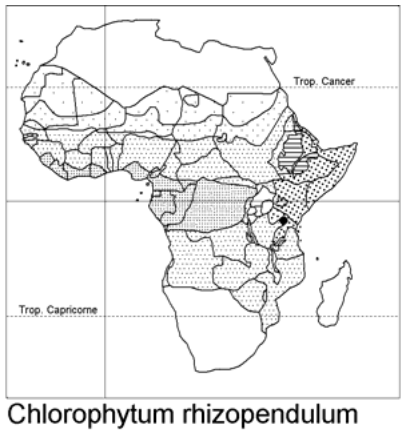
Chlorophytum pygmaeum



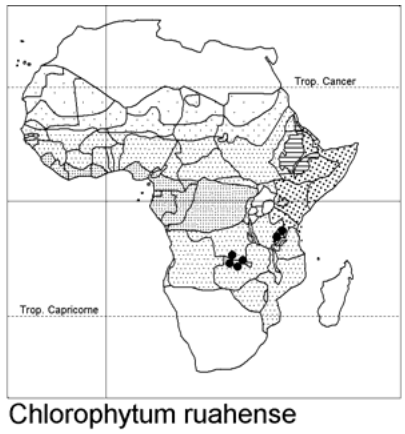
Chlorophytum ramosissimum



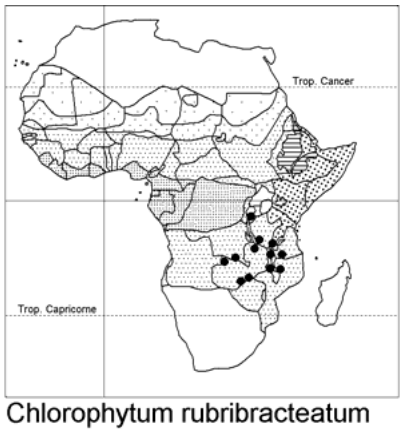
Chlorophytum recurvifolium



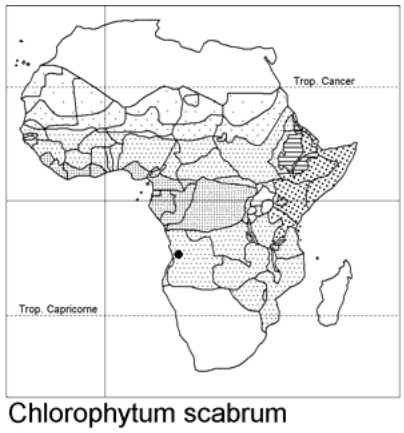
Chlorophytum rhizopendulum



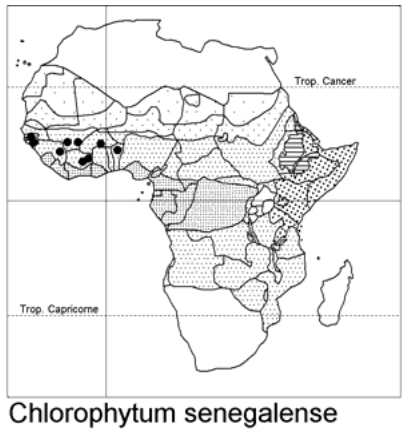
Chlorophytum ruahense



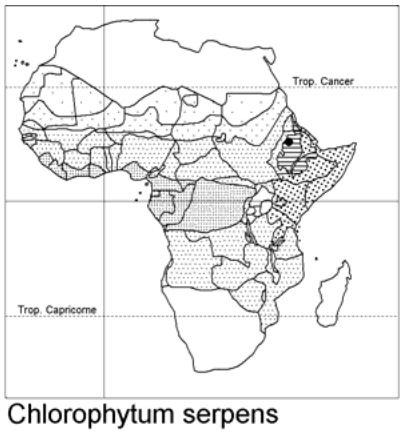
Chlorophytum rubribracteatum



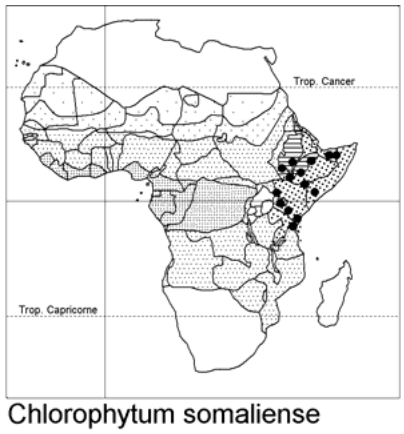
Chlorophytum scabrum



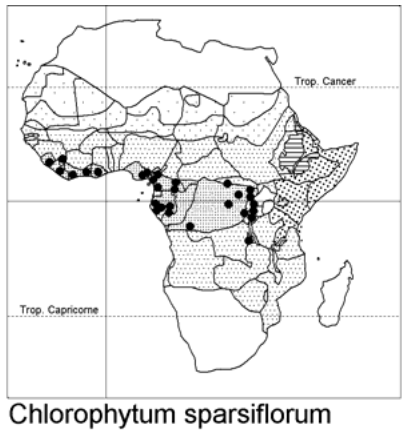
Chlorophytum senegalense



Chlorophytum serpens



Chlorophytum somaliense



Chlorophytum sparsiflorum

C. rhizopendulum Bjorå & Hemp – Icon.: Plant Syst. Evol. 274: 252, 2008.

Herb with *prominent rhizome to 1 m long*, 1,5 cm Ø, covered with old leaf-bases; *aerial roots* thick, tomentose, *without tubers;* leaves rosulate, sheathing, whitish in lower part, glossy green above, more greyish beneath, 30-42 × 3,4-4,2 cm; inflorescence lax, to 1 m long, nodes widely scattered; pedicels mostly 2 per node, *to 4 mm long*, jointed in upper half; bracts c. 4 mm long; flowers green, urceolate; tepals c. 8 mm long, outer ones 3 mm wide, *5-nerved*, inner ones 2 mm wide, 3-nerved; capsule trigonous, 7-8 × c. 5 mm, base truncate, apex emarginate.

On bare rock in narrow ravine; 1000 m alt.

Only known from the type collected in 2004. Mt Kilimanjaro, only 8 localities known.

Near *C. comosum*.

C. ruahense Engl.; Meerts & Bjorå, o.c.: 400. – Icon.: Fl. Trop. E. Afr., Antheric.: 14, 1997; Fl. Zambes. 13/1: 75, 2008.

syn.: *Anthericum peteri* Poelln.

Herb 25-70 cm tall; rhizome vertical, bearing fibrous remains of old leaf-bases; roots thick, without tubers; *basal leaves reduced* to a few glabrous cataphylls; *leaves on peduncle clasping*, lanceolate, apex long-acute, 5-15 × 1,2-1,4 cm (middle leaves); peduncle terete, glabrous; inflorescence paniculate, lax, of 1-4 racemes; rachis terete, glabrous; pedicels articulated above middle, 5-15 mm, 2-4 at each lower node; perianth greenish, c. 6,5 mm long; tepals 3-veined; capsule shallowly lobed, rounded in section.

Woodland; often by water courses; grey laterite; rocky calcareous hill; open forest; c. 700 – c. 1200 m alt.

C. rubribracteatum (De Wild.) Kativu; Fl. Trop. E. Afr., Antheric.: 36, 1997; Fl. Zambes. 13/1: 50, 2008; Meerts in Pl. Ecol. Evol. 144: 233, 2011.

bas.: *Anthericum rubribracteatum* De Wild.

syn.: *A. roseum* Poelln.

Herb grass-like, tufted, 10-40 cm tall; rhizome moniliform, covered with fibrous remains of old leaf-bases; roots wiry, with distal tubers; cataphylls red; leaves distichous, 2-5, glabrous, rarely minutely pubescent, often with a *purplish-pink tinge*, linear, to 30-50 cm × 2-4 mm, margins minutely scabrid to ciliate near base; peduncle terete, often purplish, glabrous, seldom minutely pubescent, to 40 cm long; inflorescence unbranched; pedicels articulated below middle, often pinkish, to 9 mm long, 2 at each lower node, sparsely arranged; perianth star-shaped; tepals 10-13 × 3-5 mm, 3-7-veined, outer ones *pinkish* red, inner ones white with pinkish keels; capsule *reddish*, shallowly 3-lobed in section, transversely ridged, emarginate, 6-8,5 mm long.

Brachystegia woodland; grassland margins; rocky outcrops; cupriferous hill; dembo on lateritic plain; seasonally flooded grassland; often on sandy, sometimes on clayish soils; 200-1850 m alt.

Variable in intensity of red coloration, in height, pubescence and width of leaves. Tall forms in Katanga may represent a distinct taxon.

C. scabrum Baker; Figueiredo & Smith, Pl. Angola: 171, 2008.

syn.: *C. hispidulum* Rendle

Herb from a tuberous rootstock, crowned with ovate scales; roots slender; leaves 6-8 per stem *with petiole* 7,5-10 cm long; blade oblong-lanceolate, scabrous, *15-22,5* × 3,7-5 cm, with close raised densely pubescent ribs beneath; peduncle very short; raceme simple, *dense*, oblong, 5 cm long; bracts small; pedicels short, articulated above middle, the lower geminate; flowers unknown; capsule subglobose, 0,4 cm long.

Gravelly soil in wooded places.

C. senegalense (Baker) Hepper; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 496, 1995; Akoegninou & al., Fl. analyt. Bénin: 40, 2006; Lisowski, Fl. Rép. Guinée 1: 423, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 232, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 29, 2012.

bas.: *Dasystachys senegalensis* Baker

syn.: *D. macinensis* ! A. Chev., nom., not "*macensis*" as in Fl. W. Trop. Afr., ed. 2, 3/1: 99, 1968.

Herb from a thick tuber 3-4 cm Ø or rhizome 20-35 cm long; basal leaves sessile, linear, 20-45 × *1-3* cm, margins *pectinate-ciliate*, base clasping, red; leaves on peduncle ± reduced, clasping, 5-30 cm long; peduncle *1-1,5 m tall* (incl. inflorescence); inflorescence *cylindrical*, 20-35 × c. 2 cm, rachis pubescent, with 50-100 flowers solitary or 2-3 per node, pedicels c. 1 mm long; tepals *white*, green-veined, 8-9 mm long; capsule unknown?

Among rocks in savanna; open forests; swamps.

Leaves developed before or with the inflorescence.

C. serpens Sebsebe & Nordal; Sebsebe Demissew & al., Flow. Eth. & Etritrea…: 93, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 158-159, 2010; Kew Bull. 62: 132, 2007 (map). – Icon.: Sebsebe Demissew & al. in Biol. Skr. 55: 328, 2005; Fl. Eth. & Eritrea 1: 244, 2009.

Herb from a short rhizome; roots short with distal tubers; leaves rosulate, broadly lanceolate, petiolate, 7-10 × 2-3 cm, margins ciliate; peduncles *lax*, *arcuate* to *trailing*, glabrous; inflorescence to 50 cm long, simple or with one branch; pedicels 1-2 per node, 4-8 mm long, articulated near or below middle; bracts 1-1,5 cm long; flowers white; tepals 3-5 × 1,5-2 mm, 3-veined; capsule and seeds unknown. Pseudoviviparous.

In open patches in *Combretum*, *Terminalia* woodland with tall *Sorghum* and *Pennisetum* species; c. 1000 m alt.

Belonging to the *C. comosum* complex.

Only known from the type collected in 2001.

C. somaliense Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 318, 1994; Thulin, Fl. Somalia 4: 44-45, 1995; Tardelli & al., Types Trop. Herbar. Florence 1: Monocot. (= Pubbl. 92): 13, 2001. – Icon.: Fl. Trop. E. Afr., Antheric.: 29, 1997; Fl. Eth. & Eritrea 6: 98, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 83, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 144, 2010.

syn.: *Anthericum undulatifolium* Engl.; *Chlorophytum tenuifolium* Baker; *C. baudi-candeanum* Chiov.; *C. boranense* Chiov. ex Chiarugi; *C. tertalense* Chiov.; *C. pauciflorum* Dammer

Herb 30-70 cm tall; rhizome short, moniliform, bearing fibres from previous leaves; roots spongy or with narrow base enlarging into conspicuous tubers; leaves rosulate, lanceolate, sometimes falcate, clasping, 20-40 × 1-3 cm, margins undulate; peduncle 15-40 cm

CHLOROPHYTUM SOMALIENSE

long; raceme simple; rachis glabrous; pedicels articulated in upper half, glabrous, c. 1 cm long, solitary; flowers *zygomorphic;* tepals white with pale green midrib, *15-20* × 2-3 mm, 3-veined; capsule triquetrous, emarginate, *7-20 mm* long.

± Degraded *Acacia*, *Combretum*, *Commiphora* bushland or woodland; grassland; rather shallow black cotton soil; red lateritic soils; alluvial sands; granite, limestone, lava, gypseous rocks; 100-1700 m alt.

C. sparsiflorum Baker; Meerts & Bjorå, o.c.: 400-402; Cable & Cheek, Pl. Mt Cameroon: 146, 1998; Cheek & al., Pl. Mt Oku…: 170, 2000; Cheek & al., Pl. Kupe…: 425, 2004; Harvey & al., Pl. Bali Ngemba…: 133, 2004; Poulsen & Nordal in Bot. J. Linn. Soc. 148: 12, 2005 (maps); Hawthorne & Jongkind, Woody pl. west. Afric. for.: 876, 2006; Sosef & al., Check-list pl. vascul. Gabon: 250-251, 2006; Fl. Gabon 41, Antheric.: 6, 8-9, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 150, 2010; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 148, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 37, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011. – Icon.: Pl. Syst. Evol. 274: 247, 2008; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 437, 2008 (as *C. comosum* and *C. sparsiflorum*).

Slender to ± robust herb 25-40 cm tall, drying light green; rhizome short; roots with distal fleshy tubers 2,5 cm long; leaves in a rosette, oblanceolate, 15-40 × 3-7 cm, acute-mucronate, base tapering into a variably defined petiole (winged distinct petiole 7-17 cm long in var. **bipindense**, or lamina narrowing ± gradually towards base and petiole ± indistinct in var. **sparsiflorum**); lamina dark green above, paler beneath; inflorescence as long as leaves, simple or rarely with 2 lateral branches; rachis scabrid; bracts glabrous, 5-20 × 3-5 mm; flowers 1-3 per node; pedicels 6-10 mm long, jointed near middle or in upper half; tepals white to greenish or yellowish, 5-8 × 1,5-2 mm, 3-veined; pseudovivipary often present; capsule 3-7 × 4-8 mm; seed cup-shaped.

Primary or secondary forest; forest margins; sometimes along rivers, forest gallery; moist clearing in forest with *Gilbertiodendron dewevrei;* mountain forest with *Chrysophyllum fulvum;* shady slopes; also as a weed in plantations (tea, etc.); 130-2200 m alt.

Very variable taxon; has been included in *C. comosum* s.l. with 3 infraspecific taxa distinguished, viz. var. *comosum* "with strap-shaped blackening leaves" (see above under *C. comosum*); var. *sparsiflorum* with elliptic, non blackening leaves tapering gradually into a pseudopetiole; and var.*bipindense* with non blackening leaves abruptly contracted into a petiole. "We have not been able to settle the objective limits of those taxa…Leaf width and shape and colour in herbarium (blackening or not) show an almost continuous pattern of variation in material from Central Africa. Therefore, the placing of many collections is problematic. Molecular markers may hopefully provide new insight…" (Meerts & Bjorå, o.c).

Bioko/Fernando Poo.

Two varieties are still retained by different authors of flora lists (Cameroon) and Flore du Gabon (41): – var. **sparsiflorum** [syn.: *C. comosum* (Thunb.) Jacques var. *sparsiflorum* (Baker) A. D. Poulsen & Nordal; *C. deistelianum* Engl. & K. Krause; *C. thollonianum* Hua; *C. grewenii* Engl. & K. Krause; *C. ledermannii* Engl. & K. Krause; *C. ituriense* De Wild.; *C. semlikiense* De Wild.; *C. elongato-fusiforme* De Wild.; *C. butaguense* De Wild.; *C. sparsiflorum* sensu Hepper, Fl. W. Trop. Afr., ed. 2, 3/1: 100, 1968, excl. specim. Onochie FHI 36149 (= *C. petrophilum*); *C. inornatum* sensu ibidem quoad specim. Daramola FHI 40543; *C. viviparum* A. Chev., incl. var. *maritimum* A. Chev., nom. nud., non *Phalangium viviparum* Reinw. ex Kunth 1843, nec

Cordyline vivipara Steud.], "afromontane" in E part of range; – var. **bipindense** (Engl. & K. Krause) Bjorå & Nordal [bas.: *C. bipindense* Engl. & K. Krause; syn.: *C. comosum* non (Thunb.) Jacques var. *bipindense* (Engl. & K. Krause) A. D. Poulsen & Nordal and var. *petiolatum* (Baker) A. D. Poulsen & Nordal; *C. petiolatum* sensu Baker FTA, 1898, p.p., quoad specim. Preuss 191; *C. cauliferum* Poelln.; *C. sparsiflorum* sensu Hepper, FWTA, ed. 2, 3/1: 100, 1968, p.p., quoad specim. Baldwin 10678, Preuss 191, Small 827], with Guineo-Congolian distribution, lowland.

Slender, narrow-leaved forms have often been improperly named *C. laxum*.

A distinctive variant of the *C. sparsiflorum-C. comosum* complex, *C.* sp. A "*near comosum"*, is reported by Meerts & Bjorå, o.c.: 406, from Zaire and Burundi, a plant not blackening in herbarium. See below at end of species list p. 59.

C. sphacelatum (Baker) Kativu, incl. var. *hockii* (De Wild.) Nordal, var. *milanjianum* (Rendle) Nordal, and var. *latifolium* ined. in World Checklist of Selected Plant Families, Royal Botanic Gardens, Kew; Meerts & Bjorå, o.c.: 402; Fl. Trop. E. Afr., Antheric.: 34-36, 1997; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 41, 2006; Fl. Zambes. 13/1: 42-44, 2008; Figueiredo & Smith, Pl. Angola: 171, 2008; Burrows & Willis, Pl. Nyika Plateau: 287, 2005. – Icon.: Bot. Not. 1937: 423, 1937 (sub nom. *Anthericum friesii* = *Chlorophytum sphacelatum* var. *milanjianum*); Meerts & Bjorå, o.c.: fig. 3 B.

bas.: *Anthericum sphacelatum* Baker

syn.: *A. lukiense* De Wild., incl. var. *intermedium* De Wild., var. *kionzoense* De Wild.; *A. hockii* De Wild., non *Chlorophytum hockii* De Wild., nec *Dasystachys hockii* De Wild.; *A. velutinum* De Wild.; *A. homblei* De Wild.; *A. robustulum* Poelln., incl. var. *angustum* Poelln.; *A. whytei* Baker; ? *A. usseramense* Baker; *A. friesii* Weim.; *A. princeae* Engl. & K. Krause var. *latifolium* Poelln.; *A. arenarium* Baker; *A. milanjianum* Rendle

Herb tufted or solitary 0,35-1,6 m tall; rhizome horizontal, moniliform, densely covered with fibrous remains of old leaf-bases; roots thin with distal tubers; leaves distichous, bases clasping the scape: – outer ones short, falcate; inner ones gradually longer and more erect, 0,18-1 m × 0,5-4 cm, acute, densely pubescent or glabrous, margins scabrid or ciliate; peduncle sharply angled or compressed and winged, glabrous, ciliate or pubescent; inflorescence unbranched or with 1-2 condensed branches at base, ± compact, elongated to subglobose, to 12 cm long; bracts dark brownish, aristate; pedicels articulated below middle, 8-15 mm long, 2-3 at each lower node; perianth white; tepals 9-11 mm long, 5-9-veined, outer ones with *red* or *dark blackish tips*, margins scabrid; capsule obovoid, shallowly 3-lobed to rounded-deltate in section, transversely ridged, 6-8 × 5-6 mm.

Open woodland; wooded grassland; often near seasonal pans; bushland; grassland; grey to brownish, waterlogged clay soils; sometimes on stony soils; termite mounds; *Brachystegia* woodland; wet area and near watercourses; sandy soils; red loams; 50-1750 m alt.

Very variable, but easily recognized by the black-tipped tepals. Three varieties have been distinguished in E-SE Africa, based on habit, aspect and hairiness of peduncle, shape of inflorescence (globose or racemose). But in Zaire these traits are often uncorrelated, and they are not distinguished by Meerts & Bjorå, l.c. – Some forms have yellowish velvety pubescence. Dwarf forms occur under poor, dry conditions; such forms approach *C. graniticola*, *C. pygmaeum*.

Namibia, Botswana.

C. sphagnicolum Meerts, nom. nov., Meerts & Bjorå, o.c.: 402-403.

syn.: *Anthericum andongense* Baker, Trans. Linn. Soc. London, Ser. 2, Bot. 1: 257, 1878 (type: Welwitsch 3798), non *Chlorophytum andongense* Baker 1878: 260 (type: Welwitsch 3770).

Rhizome tuberous; roots slender, bearing small distal tubers; basal leaves 4-6, filiform to *linear*, 8-15 cm × 2-3 mm, glabrous; peduncle simple, naked, flat, angled, 15-25 cm long; raceme lax, simple, 4-5 cm long; pedicels 2-3 at each lower node, 6-8 mm long, articulated below middle; bracts lanceolate, as long as pedicels; tepals white, linear-oblong, 8 × 2 mm, with a 3-5-nerved red-brown keel; capsule rounded, 5-6 mm long.

Savanna on damp nutrient-poor sand; sometimes in *Sphagnum* bogs.

A member of the *C. cameronii* complex; with very thin roots, very narrow leaves and very small flowers, and short anthers (2,5 mm long) which are as long as filaments.

Resembling the W African *C. immaculatum*, but bracts different.

A report from Katanga (Kassner 2462) is rather a depauperate *C. rubribracteatum*.

Note: Von Poellnitz (Bol. Soc. Brot., Sér. 2, 17: 57-59, 1943) described 3 new varieties of *Anthericum andongense* from Angola, not cited by Meerts & Bjorå, l.c., nor by Figueiredo & Smith, Pl. Angola: 171, 2008. They are: – var. *glabrum* Poelln. [syn.: *A. andongense* Warburg, Kunene-Sambesi-Exp. 1903: 187, non Baker], larger than *A. andongense* s. str., leaves 20-30 cm × 2-4 mm, glabrous, tepals 11 × 3 mm, stamen filaments 4 mm long, anthers 2,5-3,5 mm long; type: Baum 683, collected in open wood on sandy soil on the River Longa at the Lazingua beneath Minnesera in 1900, at c. 1250 m alt., rare; – var. *papillosum* Poelln., differs from *A. andongense* s. str. by the presence of papillae on lower leaf surface, scape and bracts; tepals 8-9 × 2-2,5 mm, stamen filaments 3 mm long, anthers 4 mm long; type: Newton s. n., XII. 1882, in Herb B, collected on the Gambue Plain, Huila; ? a synonym of *A. basilanatum* Poelln. (see above under *Anthericum basilanatum* Poelln., p. 000); – var. *parviflorum* Poelln., differing from *A. andongense* s. str. by its very small tepals (5 × 1,5 mm), stamen filaments 1 mm long, anthers 3 mm long; type: Gossweiler 2285, collected at Vila da Ponte in sandy soil on alluvium of the River Cubango in 1905.

C. staudtii Nordal (nom. nov.); Meerts & Bjorå, o.c.: 403; Onana & Cheek, Red Data Book flow. pl. Cameroon: 352, 2011.

syn.: *Anthericum zenkeri* Engl., Bot. Jahrb. Syst. 32: 93, 1902, non *Chlorophytum zenkeri* Engl., ibid. : 92, 1902.

Densely caespitose herb to c. 1 m tall; leaves linear, 30-50 cm × *3-5 mm;* peduncle 50-60 cm long; inflorescence 40-50 cm long, *shortly branched*, *branches to 2,5 cm long;* pedicels to 5 mm long, jointed at middle, *several per node;* bracts 2-3 cm long; flowers pure white, bell-shaped, congested on branches; tepals c. 2,5 cm long, 8 mm wide; capsule subglobose, 3-lobed, strongly transversely ridged, dark green, to 5 mm Ø.

Grassy patches on rocky plain, in sunny places, wet in the rainy season; savanna; inselbergs in open among rocks; 600-1540 m alt.

Insufficiently known; closely related to *C. cameronii*, and perhaps best treated at varietal rank of the latter (Meerts & Bjorå, l. c.).

C. stenopetalum Baker, non A. Chev. (= *C. comosum* var. *comosum*); Meerts & Bjorå, o.c.: 403; Brunel & al., Fl. analyt. Togo in Englera 4: 658, 1984; Fl. Trop. E. Afr., Antheric.: 54, 1997; Akoegninou & al., Fl. analyt. Bénin: 40-41, 2006; Fl. Zambes. 13/1: 86-87, 89, 2008; Figueiredo & Smith, Pl. Angola: 171, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 232, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 28, 2012. – Icon.: Meerts & Bjorå, o.c.: figs. 3 C (var. **latifolium**), 6 E-F (var. **stenopetalum**).

Herb 10-50 cm tall; rhizome moniliform; roots extensive, spongy, with tubers; leaves rosulate, lanceolate, glabrous, ± *petiolate*, clasping, 10-50 × *1,5-8 cm;* peduncle terete, glabrous, 1-6-15 cm long; inflorescence unbranched, occasionally with a single appressed branch at base, dense, to 12,5 cm long; rachis subterete, shallowly angled, glabrous; bracts c. 13 mm long; pedicels articulated at apex, c. 2-6 mm long, 2-4 at each lower node; perianth *whitish* to *greenish;* tepals 5-7 mm long, 3-5-7-veined; capsule deeply triquetrous, 6-7 × c. 5,5 mm.

Open forest; woodland; riverine fringes; often on termite mounds; *Protea* wood; 30-1800 m alt.

Comprises 2 vars.: – var. **stenopetalum** [syn.: *C. menyharthii* Schinz ex Baker; *C. schweinfurthii* Baker; *C. inarticulatum* Poelln.; *C. cinerascens* Engl. & K. Krause; *C. bracteosum* Welw. ex Baker], with narrow elliptic leaves (1-4,5 cm wide), erect to spreading, peduncle 1-15 cm long, raceme not rigid with pedicels 2-8 mm long, and bracts not concealing young fruits, with northern distribution; – var. **latifolium** (Engl. & K. Krause) Meerts [bas.: *C. latifolium* Engl. & K. Krause; syn.: *C. geophilum* sensu Fl. Zambes. 13/1: 87, 2008, p.p., quoad specim. Hoell & Nordal 20], with broadly ovate leaves (4-9 cm wide) ± appressed to the ground, with short peduncle (0-1 cm long), compact and rigid raceme with short pedicels (0-2 mm long), and with prominent persisting bracts concealing the young fruits, is one of the most widespread *Chlorophytum* in miombo woodland, Lubumbashi plain, Zaire.

Sometimes difficult to distinguish from *C. macrophyllum*.

C. stolzii (K. Krause) Kativu; Meerts & Bjorå, o.c.: 403; Fl. Trop. E. Afr., Antheric.: 15, 1997; Burrows & Willis, Pl. Nyika Plateau: 289, 2005; Figueiredo & Smith, Pl. Angola: 171, 2008; Fl. Gabon 41, Antheric.: 9, 2010; Meerts in Pl. Ecol. Evol. 144: 233, 2011. – Icon.: Fl. Zambes. 13/1: 59, 2008.

bas.: *Albuca stolzii* K. Krause, non *Anthericum stolzii* Engl. & K. Krause *(= Chlorophytum subpetiolatum).*

syn.: *Anthericum russisiense* Poelln.; *A. foliatum* Poelln.; *Chlorophytum stolzii* (K. Krause) Weim., nom. inval. based on *Ornithogalum stolzii*, unpublished name; *Acrospira asphodeloides* Welw. ex Baker 1878, non *Chlorophytum asphodeloides* C. H. Wright 1906; *Debesia asphodeloides* (Welw. ex Baker) Kuntze; *Anthericum welwitschii* Marais & Reilly; *Anthericum burgeri* Cufod. 1979, p.p.

Herb 0,85-2,5 m tall; rhizome corm-like, without fibres; roots narrow with distal *tubers;* leaves broadly linear, glabrous, sheathing, to 80 × 2-3,5 cm; peduncle terete, bracteate, glabrous, to 2 m long; inflorescence unbranched, or with few branches at base, to 70 cm long; rachis shallowly angled, glabrous; bracts c. 4,5 mm long; pedicels articulated near or below middle, to 7 mm long, 2-5 at each lower node; perianth white with green keel, sometimes slightly pinkish; tepals 12-30 × 3-7 mm, 3-veined on keel; capsule ovoid, nearly *rounded in section*, shallowly *transversely ridged*, c. 10-12 mm long, acute.

Open *Brachystegia* woodland; tall grassland; often in wet places or along stream banks; clayish or sandy soils; rocks; cataracts; also ruderal; 50-2000 m alt.

Confused with *C. ducis-aprutii;* closely related to and confused with *C. velutinum*.

C. subpetiolatum (Baker) Kativu; Meerts & Bjorå, o.c.: 404-405; Bull. Jard. Bot. Etat, Brux. 25: 232, 1955; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 317, 1994; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 493, 1995; Thulin, Fl. Somalia 4: 48-49, 1995; Burrows & Willis, Pl. Nyika Plateau: 289, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 41, 2006; Figueiredo & Smith, Pl. Angola: 171, 2008; Meerts in Pl. Ecol. Evol. 144: 233, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011. – Icon.: Fl. Eth. & Eritrea 6: 103, 1997; Fl. Trop. E. Afr., Antheric.: 38, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 90, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 154, 2010; Fl. Zambes. 13/1: 51, 2008; Pickering & Roe, Wild flow. Victoria Falls area: 26, 2009; Meerts & Bjorå, o.c.: fig. 3 D (var. **pilosifolium**).

bas.: *Anthericum subpetiolatum* Baker

Herb clumped or single, 10-40 cm tall; rhizome *thick*, *moniliform*, occasionally tuberous, with fibrous remains of old leaf-bases; roots spongy with fusiform tubers at base; leaves often dimorphic, ± distichous, ± clasping, glabrous or pubescent, sometimes ribbed, linear-lanceolate, 5-30-70 × 0,5-5 cm: – outer ones wider and cataphyll-like, – inner ones petiolate, margins scabrid or ciliate; peduncle *papillate* to pubescent, 5-40 cm long; raceme ± lax, 5-15 cm long; bracts to 5,5 cm long; pedicels usually articulated below middle, 3-6 mm long, 2-3 at each lower node; perianth star-shaped; tepals *8-15 × 2,5-4 mm*, 3-5-veined, white, sometimes tinged greenish or brownish; capsule shallowly 3-lobed to rounded-deltate in cross section, smooth or slightly ridged, 5-9 × 6-8 mm, slightly emarginate.

All kinds of open woodland; wooded grassland; grassland; forest clearings; even on ± barren soils; tolerates heavy grazing and erosion; often on very shallow soil overlying rock; from sandy to heavy seasonally flooded soils; steppic savanna on poor Kalahari sand or copper soil; 0-2450 m alt.

Variable polyploid species complex (numerous synonyms !); but easy to recognize by its carrot-like roots, ± distichous leaves, pubescent peduncle and large flowers.

Comprises 2 vars., one with 2 forms: – var. **subpetiolatum**, with distichous leaves 6-40 × 0,4-3 cm, shortly pubescent on nerves beneath, rhizome < 3 cm Ø; and in open habitats and woodland; with 2 forms: – fa. **subpetiolatum** [syn.: *Chlorophytum polyrhizon* Baker; *C. fusiforme* Rendle; *C. moniliforme* Rendle; *C. ruwenzioriense* Rendle; *C. angustifolium* Rendle; *C. buarense* Poelln.; *C. hispidiflorum* Poelln.; *C. hispidoscapum* Poelln.; *C. longiantheratum* Poelln.; *C. subhispidum* Poelln., incl. var. *glabrum* Poelln.; *C. subulatum* Peter ex Poelln.; *Anthericum bragae* Engl.; *A. laurentii* De Wild., incl. var. *minor* de Wild.; *A. stolzii* Engl. & K. Krause, non *Chlorophytum stolzii* (K. Krause) Weim. nec (K. Krause) Kativu; *A. claessensii* De Wild.; *A. malchairii* De Wild.; *A. bifoliatum* Poelln.; *A. brehmerianum* Poelln., ? incl. var. *longibracteatum* Poelln. and ? var. *longipedicellatum* Poelln.; *A. bussei* Poelln.; *A. dimorphum* Poelln.; ? *A. diversifolium* Poelln.; *A. lacustre* Poelln.; *A. porense* Poelln.; *A. ugogoense* Poelln.; *A. unifolium* Poelln.; *A. setiferum* Poelln.; *A. urumburense* Poelln.; *A. useguahense* Poelln.; *A. montanum* Poelln.; *Debesia minor* (De Wild.) Robyns & Tournay; *Anthericum limbamenense* Engl. & K. Krause; *A. triphyllum* Baker; *A. hecqii* De Wild.; *A. monophyllum* Baker; *A. tuberosum* De Wild. 1913, non Roxb. 1798, nec Heyne ex Hook. f. 1892; *Debesia contorta* Lebrun & Touss., nom. nud.; *Acrospira laurentii* De Wild. s. str. and var. *minor* De Wild.; *A. breviscapa* De Wild.; *A. kapiriensis* De Wild. & Ledoux]; – var. **subpetiolatum** fa. **variegatum** (De Wild.) Meerts [bas.: *Acrospira laurentii* De Wild. var. *variegata* De Wild.; syn.: *Chlorophytum variegatum* Schweinf. ex Poelln., non *Anthericum variegatum* Anon.], a striking form with yellow striped leaves, reported from N Zaire, Congo

Brazzaville (on the Oubangui, Chevalier 5162), Cameroon (Joko, Bungbu Hill or Peak), Sudan (Monbuttu country, at Munsa III); cultivated in gardens; – var. **pilosifolium** (De Wild.) Meerts [bas.: *Acrospira breviscapa* De Wild. var. *pilosifolia* De Wild.; syn.: *Chlorophytum unyikense* Engl.], with rhizome > 3 cm Ø, rosulate leaves to 60x4-8 cm, softly pubescent beneath; on termite mounds in miombo woodland; reported from S Zaire, (N) Zambia.

C. suffruticosum Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 317, 1994. – Icon.: Fl. Trop. E. Afr., Antheric.: 41, 1997; Eggli, Ill. Handbook succ. pl., Monocot.: fig. XXVa & d, 2001.

syn.: *Anthericum acuminatum* Rendle; *A. inexpectatum* Poelln.; *A. longisetosum* Poelln.; *Chlorophytum polyphyllum* (Baker) Poelln., non *C. polyphyllum* (Baker) Kativu *(= C. recurvifolium); Dasystachys polyphylla* Baker; *Chlorophytum rhizomatosum* Baker; *Anthericum campestre* Engl.; *A. suffruticosum* (Baker) Milne-Redh.; *A. fruticosum* sensu Cact. Succ. J. (US) 55: 55, 1983.

Herb with erect, rarely prostrate, eventually branched, aerial *woody stem to 50 cm long*, usually c. 2,5 cm Ø, with *circular leaf-scars* and stiff fibres from old leaf-bases; roots spongy without tubers; leaves distichous, borne at tips of branches, grass-like, 5-50 × 1-1,5 cm; peduncles several in leaf axils, 5-40 cm long; raceme simple, rarely with some basal branches, 6-20 cm long; rachis slightly papillose to pubescent; pedicels articulated below middle, 3-6 mm long, solitary at nodes; flowers white, star-shaped; tepals with a greenish, rarely brownish, median stripe, to 15 × 5 mm, 3-veined; capsule rounded-deltate in cross section, with slight transverse ridges, c. 10 × 8 mm.

Pockets of soil in granitic or coral outcrops; sometimes on termite mounds; 0-1150 m alt.

Usually cultivated under the name *Anthericum suffruticosum*.

Very particular and isolated species, the only in the genus with woody stem. Resembling representatives of *Velloziaceae*. Its closest relatives are within the *C. subpetiolatum* complex.

C. superpositum (Baker) Marais & Reilly

bas.: *Anthericum superpositum* Baker

Base (rhizome) unknown; peduncle erect, 60-75 cm long with 3-4 sessile *glabrous* leaves 7,5-15 × 2,5-3 cm, petiole clasping the peduncle, margins *thickened*, stramineous; racemes 1-3, 5-7,5 cm long, lax; pedicels articulated at middle, the lowest ones 3-4 per node; perianth greenish white, 0,4 cm long; tepals linear with a green keel; capsule subglobose, 0,4 cm Ø.

By river.

Very distinct species. Known only from the type ? (Schweinfurth, ser. 3, 174).

C. tenerrimum Peter ex Poelln.; Fl. Trop. E. Afr., Antheric.: 61-62, 1997.

Herb grass-like, to 25 cm tall; rhizome short; roots thin with tubers; leaves rosulate, without petiole, 12-25 × 0,5 cm, apex acute, margins ciliate; peduncle c. 5 cm long, *glabrous;* raceme *lax,* 3-10 cm long, simple or slightly branched at base; rhachis *glabrous;* pedicels articulated in lower half, 7-8 mm long, glabrous, 1-2 at each lower node; bracts 3-10 mm long; perianth white; tepals 4-5 × 1,5-2 mm, 3-veined; capsule trigonous, 6-9 × 7-9 mm, widest near apex, attenuate, slightly stipitate at base.

Dry forest; tall shrub thickets; red sandy soils; 70-150 m alt.

CHLOROPHYTUM

C. tetraphyllum (L. f.) Baker; Fl. Eth. & Eritrea 6: 94, 1997; Puff & Sileshi, Pl. Simen: 218, 2005; Nordal & al. in Biol. Skr. 54: 250, 2001 (map). – Icon.: Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 80, 2003; idem, Aloes and lilies Eth. & Eritrea, ed. 2: 133, 2010; Nordal in Symb. Bot. Upsal. 35/2: 98, 2011.

bas.: *Scilla tetraphylla* L.f.

syn.: *Liliago abyssinica* (Kunth) C. Presl; *Asphodelus chamaemoly* Hochst. ex Baker 1876, nom. inval.; *Phalangium abyssinicum* Kunth; *Anthericum chamaemoly* Hochst. ex A. Rich. 1850; *Chlorophytum schimperi* Engl.; *Anthericum tetraphyllum* (L. f.) Nordal & Sebsebe

± Prostrate herb; rhizome short carrying fibre remnants from leaves of previous year; roots with ± elongated tubers; leaves rosulate, *without petiole*, lanceolate, acute, 3-25 × 1-*3 cm*, margins ciliate; peduncle hidden amongst leaf bases; inflorescence *umbel-like*, rachis sometimes to 1 cm long with a few umbel-like clusters; pedicels curved, 1,5-3 cm long, without articulation; bracts leaf-like, 2-4 cm long; flowers *white;* tepals 6-8 mm long, 3-veined; capsule subglobose, slightly triangular, 3-6 mm long.

Open scrub; grassland; often in degraded and overgrazed areas; red or black soils; grassy forest edge; 1250-3400 m alt.

Yemen.

C. transvaalense (Baker) Kativu; Fl. Zambes. 13/1, 2008.

bas.: *Anthericum transvaalense* Baker

syn.: *A. vestitum* Schinz; 1904, non Baker 1876; *A. indutum* Poelln.

Herb to 80 cm tall; rhizome woody, horizontal, covered with fibrous remains of old leaf-bases; leaves rosulate, to 18 cm × 4 mm, *erect*, *white-pubescent;* peduncle terete, bracteate, *woolly white-pubescent;* inflorescence *unbranched*, moderately dense; rachis terete, pubescent; pedicels solitary, articulated above middle, to 4 mm long; bracts to 1 cm long; perianth white; tepals c. 13 mm long, 3-veined; capsule ovoid, shallowly deltoid, mucronate, transversely ridged, 6-7 mm long.

Grassland; rocky ground; c. 2000 m alt.

S. Africa, Swaziland.

C. tuberosum (Roxb.) Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 318, 1994; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 497, 1995; Thulin, Fl. Somalia 4: 47, 1995; Fl. Trop. E. Afr., Antheric.: 28, 30, 1997; Fl. Eth. & Eritrea 6: 97, 1997. – Icon.: Engler & Drude, Veg. d. Erde 9/2: 309, 1908; Conran in Kubitzki, Fam. & Gen. Vascul Pl. 3, Flow. Pl., Monocot.: 116, 1998; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 85, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 148, 2010; Lekhak & al. in Kew Bull. 67: 290, 2012 (flower detail).

bas.: *Anthericum tuberosum* Roxb. 1800, non "*Ornithogalum*" *tuberosum* "Roxb". 1798 as quoted in Fl. W. Trop. Afr., ed. 2, 3/1: 102, 1968, non *A. tuberosum* De Wild. (= *C. subpetiolatum* var. *subpetiolatum*); *O. tuberosum* Mill. = *Bulbine cepacea* (Burm. f.) Wijnands, *Asphodelaceae*, South Africa.

syn.: *Liliago tuberosa* (Roxb.) C. Presl; *Phalangium niveum* Poir.; *Anthericum niveum* (Poir.) Spreng.; *Liliago nivea* (Poir.) C. Presl; *Anthericum kilimandscharicum* Poelln.; *Acrospira lilioides* A. Chev.; *Phalangium tuberosum* (Roxb.) Kunth; P. *indicum* (Roxb.) Kunth; *P. ornithogaloides* (Hochst. ex A. Rich.) Schweinf.; *Anthericum ornithogaloides* Hochst. ex A. Rich.; *Chlorophytum anthericoideum* Dalzell; *C. russii* Chiov.; *C. kulsii* Cufod.

CHLOROPHYTUM TUBEROSUM

Herb 0,2-1 m tall; rhizome often with fibrous remnants from previous year's leaves; roots with distal *tubers > 5 cm long;* leaves rosulate, lanceolate, glabrous, 10-50 × 1-6 cm, sheathing; peduncle 10-35 cm long, glabrous, terete; inflorescence unbranched, rarely with a few basal branches, racemose, dense, to 17 cm long; pedicels articulated in lower half to near middle, to 10 mm long, 2-3 at each lower node; flowers shallowly bowl-shaped; tepals c. 20 × *6-9 mm*, *10-14-veined;* capsule deeply triquetrous, 15 × 8-12 mm, slightly emarginate.

Woodland; bushland; sometimes abundant and widespread on basement soils; usually on badly drained, heavy black cotton soils; sometimes on lighter, sandy and lateritic soils; often in seasonally flooded areas; wet depressions on clay; degraded *Combretum*, *Terminalia* vegetation; 5-1700 m alt.

India (Kew Bull. 67: 285-292, 2012).

Flowers large, ornamental.

C. longifolium reported from S Somalia (specim. Corradi 4635) is *C. tuberosum*.

C. velutinum Kativu 1993; Meerts & Bjorå, o.c.: 405. – Icon.: Fl. Zambes. 13/1: 59, 2008; Meerts & Bjorå, o.c.: fig. 3E.

syn.: *Acrospira homblei* De Wild. 1915, non *Chlorophytum homblei* De Wild. (= *C. blepharophyllum* var. *amplexicaule*).

Herb *55-180 cm* tall; rhizome regularly constricted, often with concentric rings of old leaf attachments , with *fibrous remains* of old leaf-bases; roots with elongated distal tubers; leaves distichous, linear, 45-94 × 0,4-1,5(-2,2) cm, clasping, *densely pubescent*, apex with an acute point, midrib prominent; peduncle terete, bracteate; inflorescence unbranched, to 30 cm long; rachis subterete, shallowly angled; pedicels 1-2 per node, articulated below middle, to 4 mm long; bracts ovate; perianth white, c. 25 mm long; tepals 3-veined; capsule oblong, nearly rounded in cross section, transversely ridged, often bearing style remains, to 14 mm long.

Open woodland; grassland; rocky and lateritic soils; steppic savanna on Cu/Co mineralization substrate; 1200-1600 m alt.

Closely resembling *C. stolzii* that is itself confused with another large and robust *Chlorophytum*, i.e. *C. ducis-aprutii* (cf. Fl. Trop. E. Afr., Antheric.: 15, 1997).

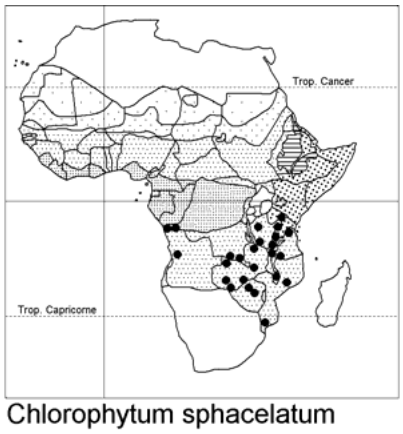
Cited from Tanzania by Kativu also in Nord. J. Bot. 13: 505, 1993.

C. vestitum Baker; Meerts & Bjorå, o.c.: 405 (subsp. **pilosissimum**); Fl. Trop. E. Afr., Antheric.: 44-45, 1997; Burrows & Willis, Pl. Nyika Plateau: 289, 2005; Fl. Zambes. 13/1: 62, 2008.

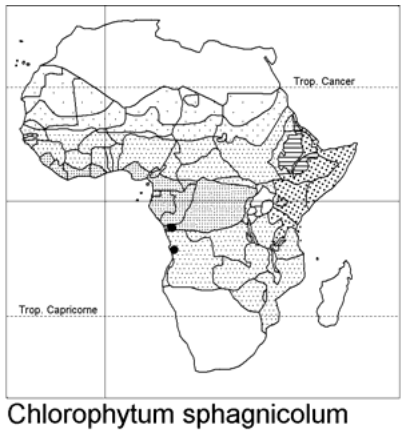
Herb 30-70 cm tall; rhizome horizontal, moniliform, with fibrous remains of old leaf-bases; roots with few tubers; leaves grass-like, *ciliate* to *pubescent*, sheathing the lower part of peduncle, 20-50 cm × 2-6 mm; peduncle terete, ± *pubescent*, rarely glabrous, to 45 cm long; panicle lax, with up to 15 branches; rachis terete, glabrous; pedicels often articulated below middle, sometimes in upper half, to 10 mm long, 1-2 per node; bracts small; perianth yellowish green; tepals 3-4 × 1 mm, 3-5-veined; capsule subglobose, triquetrous, *3-4* × 4-5,5 mm.

Open *Brachystegia* woodland; wooded grassland; often in shade; 950-1600 m alt.

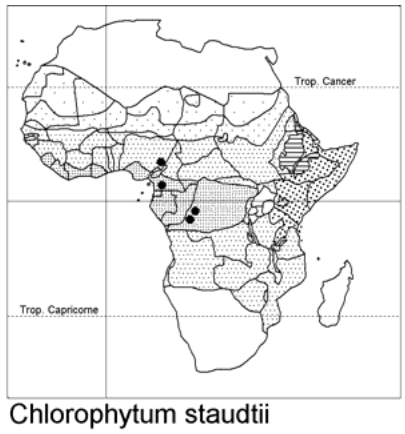
Comprises 2 subspp.: – subsp. **vestitum**, with short peduncle (< 10 cm) and simple or little ramified inflorescence; in Mozambique; – subsp. **pilosissimum** (Engl. & K. Krause) Meerts (bas.: *C. pilosissimum* Engl. & K. Krause), differing by a much longer peduncle and a much more ramified panicle; in N part of range. The two subspecies are not sympatric.



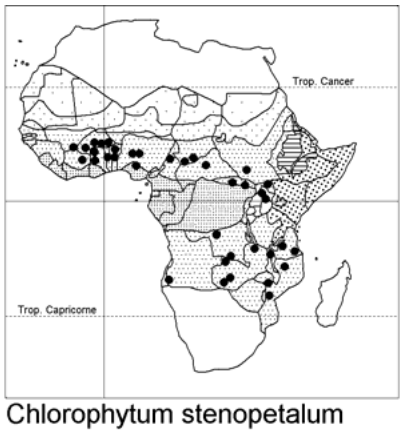
Chlorophytum sphacelatum



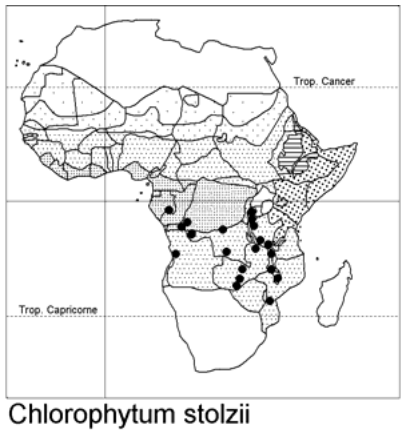
Chlorophytum sphagnicolum



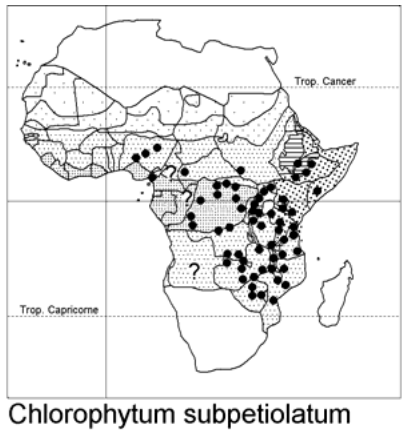
Chlorophytum staudtii



Chlorophytum stenopetalum



Chlorophytum stolzii



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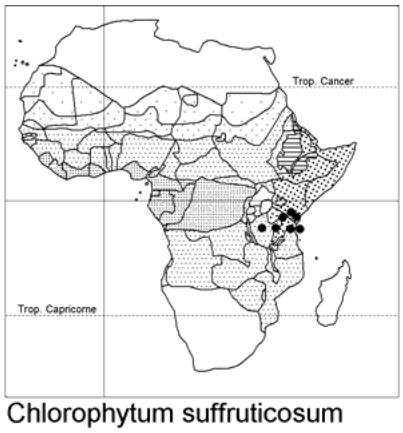
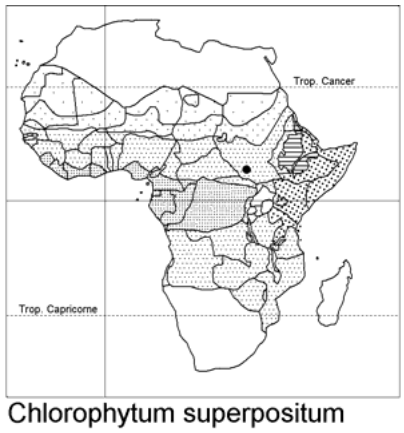
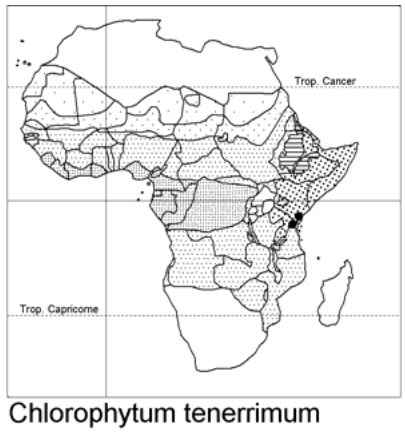


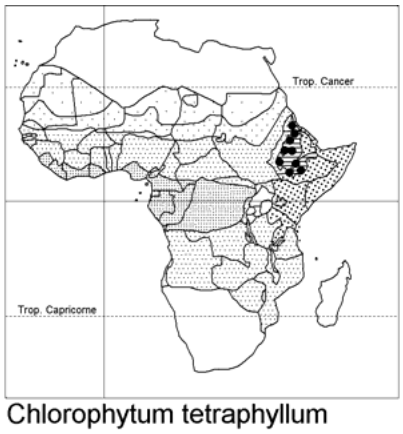
Chlorophytum suffruticosum



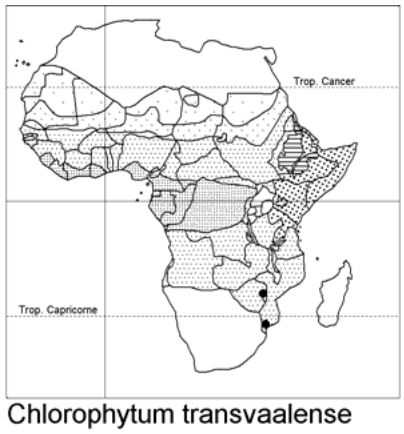
Chlorophytum superpositum



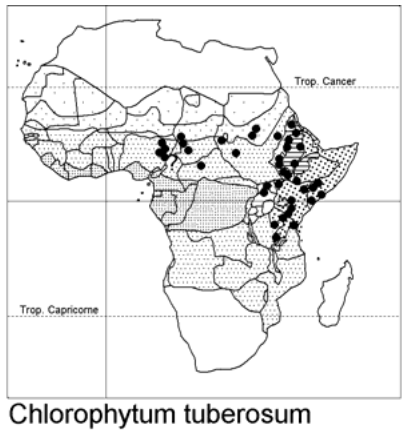
Chlorophytum tenerrimum



Chlorophytum tetraphyllum



Chlorophytum transvaalense



Chlorophytum tuberosum

CHLOROPHYTUM

C. viridescens Engl., excl. var. *majus* Poelln. (= *C. andongense*); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 317, 1994; Bjorå & al. in Pl. Syst. Evol. 274: 246, 2008. – Icon.: Fl. Trop. E. Afr., Antheric.: 12, 1997.

syn.: *C. macrocladum* Peter ex Poelln.

Herb to 1,2 m tall; rhizome short, woody with fibrous remains of old leaf-bases; roots spongy, thick, without tubers; leaves often hysteranthous, rosulate, glabrous, sessile, 20-45 × 0,6-2,5 cm, margins *undulate;* peduncle terete, glabrous, to 70 cm long, 2-6 mm Ø; panicle lax; pedicels articulated below or near middle, sometimes near base, 7-15 mm long, 3-10 at each lower node; perianth whitish, tinged or streaked white outside, *urceolate*; tepals *reflexed,* 6-10 × c. 2-3 mm, 3-veined; capsule triquetrous, 5-11 mm long, emarginate.

Rocky outcrops; shallow black clayish soils; 500-2700 m alt.

Closely resembling *C. andongense* (cf. Fl. Zambes. 13/1: 72, 2008).

(**C. waibelii** K. Krause)

Related to *C. longifolium*, but leaves very narrow (25-40 × *0,8-1,2 cm*, not 1-3 cm wide) and inflorescence shorter (18-26 cm long, not 35-70 cm, with flowers in upper third or half).

"Buschsteppe" (shrub savanna); 850 m alt.

? Known only from the type (Waibel 173) collected in 1912. Cameroon: Bumbu near Yoko (5°29'Nx12°19'E). Not mapped.

C. warneckei (Engl.) Marais & Reilly; Meerts & Bjorå, o.c.: 406; Brunel & al., Fl. analyt. Togo: 658, 657, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 497, 1995; Lisowski, Fl. Rép. Guinée 1: 421, 2009 (under *Anthericum*). – Icon.: Morton, W. Afr. Lilies & orch.: pl. III, fig. 11, 1961.

bas.: *Anthericum warneckei* Engl., non sensu Vanden Berghen in Fl. ill. Sénégal 9: 420, fig. 345 bis, 1988.

syn.: *A. deightonii* Hutch. ex Berhaut, nom. invalid.; *Chlorophytum gracillimum* Dammer, nom. nud.

Small herb with folded, erect or arched grass-like leaves 5-20 cm × 1-3 mm; inflorescence *ascending* or *arching* to the ground, usually *with a few equal branches* from near base *spreading in opposite directions*, very slender, scape and inflorescence 5-20 cm long; flowers *few*, *evenly spaced*, white; perianth *3-4 mm long;* pedicels to 5 mm long, jointed below middle; fruit c. 4 mm Ø.

"Quite common, and even abundant in many grassland areas, but is usually overlooked because it is so inconspicuous" (Morton, 1961); amongst grass; open forests; temporarily very humid sandy soils; silty soil; garden weed; in lawns.

Disjunct species. – Precise locality in W south. Zaire not known (Tilman, s.n., 1899; "Mission Cabra"). It may be supposed that this plant, among others, was collected around Cabinda and in the region of Boma (5°51'S × 13°03'E). Dr. H. Tilman (formerly in Argentina) joined the Cabra commission on 10 December 1897. The Cabra commission, whose aims were both political and scientific (when possible), was in charge of tracing the bounderies between Belgian Congo and the Portuguese enclave Cabinda. The first part of the commission took place at Cabinda from July 1897 through to October 1899, Tilman working with Alphonse Cabra (1862-1932). In the end A. Cabra resigned. Numerous reports were sent to Boma and many boxes containing the scientific collections were dispatched to the Musée du Congo at Tervuren (Belgium). – The second part of the commission (October 1899-August 1900) took its headquarters at Boma (Inventaire des archives de Alphonse Cabra, 1862-1932, C. Liben, 1977; Musée royale de l'Afrique centrale, Tervuren, Archives Alphonse Cabra, H.A.01.115, numéro dans l'inventaire).

Sometimes confused with *C. inconspicuum* (E Africa).

CHLOROPHYTUM

C. zambiense Bjorå & Nordal; Fl. Zambes. 13/1: 73, 2008. – Icon.: Bot. J. Linn. Soc. 157: 230, 2008.

Herb from a short rhizome; roots *thick*, without tubers; leaves rosulate, glabrous, 12-30 × c. 1 cm; peduncle 25-45 cm long, c. 2 mm Ø; inflorescence 10-15 cm long, branched; pedicels 5 mm long, articulated at or above middle, 2-4 per node; perianth urn-shaped, greenish to brownish; tepals to 5 × *1 mm*, 3-veined; capsule *transversely ridged*, to 4 × 5 mm.

Scattered in waterlogged habitats: moist dambo, floodplain with sedges, marsh, on dried mud; floodplain with *Crinum verdoorniae*, *Kniphofia* sp., *Bulbine* sp.; 900-1180 m alt.

Confused with *C. polystachys*.

C. zavattarii (Cufod.) Nordal; Thulin, Fl. Somalia 4: 48, 1995; Fl. Eth. & Eritrea 6: 97, 99, 1997; Tardelli & al., The types of the Tropical Herbarium of Florence 1: Monocot.: 13, 2001. – Icon.: Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 86, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 149, 2010.

bas.: *Anthericum zavattarii* Cufod.

Herb 30-60 cm tall; rhizome short, with fibrous remnants from previous years' leaves; roots swollen; leaves rosulate, broadly lanceolate, 10-25 × 2,5-5 cm, sheathing below, apex ± rounded, margins often hyaline; peduncle terete, 10-25 cm long; panicle much branched with stiffly patent lateral branches to 3 cm long; pedicels *stiffly patent*, articulated *near apex*, to *25 mm* long, 2-3 at each lower node; tepals 5-6 × 2-2,5 mm, white with a greenish dorsal stripe, 3-veined; capsule deltate in cross section, emarginate, c. 4 mm long, perianth *not forming* an *apical beak*.

Open woodland or bushland, often on rocky outcrops dominated by *Acacia*, *Commiphora* and/or *Combretum;* often in degraded and grazed vegetation, on red lateritic soils or on white gritty soils, over granite or limestone; c. 250-1700 m alt.

C. zingiberastrum Nordal & A. D. Poulsen; Fl. Trop. E. Afr., Antheric.: 48-49, 1997; Fl. Zambes. 13/1: 73-74, 2008. – Icon.: Kew Bull. 53: 938, 940, 1998 (with map); Meerts & Bjorå, o.c.: fig. 3 F.

syn.: *C. orchidastrum* sensu Kativu in Kirkia 15: 70, 1994, non Lindl.

Herb 15-70 cm tall; rhizome short, vertical, regularly constricted; *roots thin*, with elongated *tubers* on *lateral* rootlets; leaves 3-7 per stem, pseudopetiolate, first sheathing, but remaining folded, forming a pseudostem; blade ± lanceolate, 10-40x3-9 cm, widest around middle, glabrous, *drying yellowish brown*, base attenuate, apex acute; peduncle slender, terete, glabrous to 50 cm long; panicle lax, 12-18 cm long, branches flattened and angled; bracts leafy, 7 × 0,8-1,8 cm; pedicels 2-4 per node, 8-18 mm long, jointed above middle, angular to winged; perianth greenish; tepals c. 6 mm long, 3-veined; capsule subglobose, 3-angled, deeply lobed, 4-5 × 5-7 mm; seeds (2-3) thick, disc-shaped.

Grassland, open woodland, on rocky ground; often on sandy soils, overlying rocks; termite mounds; forest gallery; 550-1950 m alt.

Has been confused with *C. orchidastrum* (see above under that species).

Treated as a synonym under *C. lancifolium* subsp. *togoense* in World Checklist of Selected Plant Families, Royal Botanic Gardens, Kew.

CHLOROPHYTUM

TAXA OF UNCERTAIN STATUS:

See species list above, names within brackets.

Chlorophytum sp. A "near comosum", sensu Meerts & Bjorå, o.c.: 406.

Member of the *C. sparsiflorum-C. comosum* complex; a tall plant (0,8-1,5 m) with linear rosulate leaves not drying black. See above under *C. sparsiflorum*. In swamps and marshes; 1950-2300 m alt.; in N Zaire-Rwanda-Burundi. Perhaps a new species.

C. sp. B "near tetraphyllum", sensu Meerts & Bjorå, o.c.: 406.

A very small plant without peduncle, with long pedicellate ± umbellate flowers; leaf margins not ciliate, but in other features resembling *C. tetraphyllum* from Ethiopia. In grassy depression in steppe with, i.a., *Tephrosia*, *Crotalaria;* in Zaire, Kansenia station (10°19'S × 26°04E).

UNPLACED NOMINA NUDA:

Chlorophytum dewildemanianum Tournay in A. Schmitz, La Végétation de la Plaine de Lubumbashi (Haut-Katanga). Inst. Natl. Etude Agron. Congo, Sér. Sci. 113, 1971.

C. luembense Tournay in A. Schmitz, o.c.

SYNONYMS:

Chlorophytum acrothyrsum Peter ex Poelln. = **Chlorophytum polystachys**

afzelii A. Chev. = **C. geophilum**

afzelii Baker = **C. inornatum**

afzelii Rendle = **C. filipendulum**

amaniense Engl. = **C. filipendulum** subsp. **amaniense**

amplexicaule Baker = **C. blepharophyllum** var. **amplexicaule**

andongense sensu A. Chev., non Baker = **C. gallabatense**

angustifolium Rendle = **C. subpetiolatum** var. **subpetiolatum**

angustiracemosum Poelln. = **C. collinum**

anthericoideum Dalzell = **C. tuberosum**

asparagiflorum Engl. = **C. polystachys**

asphodeloides C. H. Wright = **C. nidulans**

aureum Engl. = **C. longifolium** var. **aureum**

baillaudii A. Chev. = **C. alismifolium**

bakeri Poelln. = **C. africanum** var. **silvaticum**

baoulense A. Chev. = **C. inornatum**

basitrichum Poelln. = **C. africanum** var. **silvaticum**

baudi-candeanum Chiov. = **C. somaliense**

beniense De Wild. = **C. sparsiflorum**

bequaertii De Wild. = **C. gallabatense** var. **micranthum**

bipidense Engl. & K. Krause = **C. sparsiflorum** var**. bipindense**

blepharophyllum Baker subsp. *pendulum* Hoell & Nordal and subsp. *rubropygmaeum* Bjorå & Nordal = **C. blepharophyllum** var. **blepharophyllum**

boranense Chiov. ex Chiarugi = **C. somaliense**

bracteosum Welw. ex Baker = **C. stenopetalum** var. **stenopetalum**

breviflorum De Wild. = **C. gallabatense** var. **gallabatense**

brevipes Baker = **C. comosum**

breviscapum Dammer = **C. gallabatense**

CHLOROPHYTUM

brunneum Baker = **C. blepharophyllum** var. **blepharophyllum**

buarense Poelln. = **C. subpetiolatum** var. **subpetiolatum**

bukobense Engl., incl. var. *kilimandscharicum* Engl. = **C. comosum**

burchellii Baker = **C. comosum**

butaguense De Wild. = **C. sparsiflorum** var. **sparsiflorum**

calateifolium Chiov. = **C. cameronii** var. **pterocaulon**

cameronii (Baker) Kativu var. *purpuratum* (Rendle) Govaerts = **C. cameronii** var. **pterocarpum**

campanulatum (Baker) Engl. = **C. colubrinum**

carsonii Bak. = **C. lancifolium** subsp. **lancifolium**

cauliferum Poelln. = **C. sparsiflorum** var**. bipindense**

cavalliense A. Chev. = **C. inornatum**

ciliatum Baker = **C. blepharophyllum** var. **blepharophyllum**

cinerascens Engl. & K. Krause = **C. stenopetalum** var. **stenopetalum**

comatum Poelln. = **C. africanum** var. **silvaticum**

comosum (Thunb.) Jacques var. *sparsiflorum* (Baker) A. D. Poulsen & Nordal = **C. sparsiflorum**

comosum non (Thunb.) Jacques var. *bipindense* (Engl. & K. Krause) A. D. Poulsen & Nordal, and var. *petiolatum* (Baker) A. D. Poulsen & Nordal = **C. sparsiflorum** var**. bipindense**

comosum sensu Lewalle 1972 (Burundi) = **C. burundiense**

conspicuum Poelln. = **C. affine** var. **affine**

cooperi sensu auctt., non (Baker) Nordal = **C. cameronii** var. **pterocaulon**

cordatum Engl. = **C. lancifolium** subsp. **cordatum**

crassifolium (Baker) Poelln. = **C. colubrinum**

decoratum (Baker) Marais & Reilly = **C. colubrinum**

deistelianum Engl. & K. Krause = **C. sparsiflorum** var. **sparsiflorum**

delagoense Baker = **C. comosum**

dewildemanianum Tournay in Schmitz 1971 (nomen nudum) = **?**

distachyum Peter ex Poelln. = **C. blepharophyllum** var. **blepharophyllum**

dolichostachys Engl. & Gilg = **C. colubrinum**

dolomiticum Dinter = **C. longifolium** var. **longifolium**

drimiopsis (Baker) Poelln. = **C. longifolium** var. **longifolium**

durbanense Kuntze = **C. modestum**

durum Poelln. = **C. cameronii** var. **grantii**

ealaense De Wild. = **C. lancifolium** subsp. **togoense**

elachystanthum Cufod. = **C. gallabatense**

elatulum Poelln. = **C. comosum**

elatum var. *burchelli* (Baker) Baker = **C. comosum**

elgonense Bullock = **C. comosum**

ellenbeckii Poelln. = **C. neghellense**

elongato-fusiforme De Wild. = **C. sparsiflorum** var. **sparsiflorum**

engleri (Baker) Poelln., incl. var. *angustifolium* Poelln. = **C. colubrinum**

falcatum (Baker) Engl. = **C. longifolium** var. **longifoliu**

fibrosum Engl. & K. Krause = **C. blepharophyllum** var. **blepharophyllum**
floribundum Baker = **C. gallabatense** var. **floribundum**
fosteri A. Chev. = **C. lancifolium** subsp. **togoense**
fuchsianum De Wild. = **C. macrophyllum**
fusiforme Rendle = **C. subpetiolatum** var. **subpetiolatum**
gallarum Poelln. = **C. neghellense**
garuense Engl. & K. Krause = **C. altum**
gazense Rendle = **C. comosum**
geophilum sensu Fl. Zambes. 13/1: 87, 2008, p.p. = **C. stenopetalum** var. **latifolium**
gilletii Compère = **C. debile**
ginirense Dammer = **C. gallabatense**
glabriflorum C. H. Wright = **C. nyasae**
glaucidulum Engl. ex Poelln., incl. var. *pauper* Poelln. = **C. comosum**
gourmacum A. Chev. p.p. = **C. geophilum**, **C. pusillum**
gracile De Wild., 1911 = **C. debile**
gracillimum, nom. nud. sensu Germain 1952 = **C. cameronii** var. **ruziziense**
gracillimum Dammer, nom. nud. = **C. warneckei**
grantii (Baker) Nordal = **C. cameronii** var. **grantii**
grewenii Engl. & K. Krause = **C. sparsiflorum** var. **sparsiflorum**
guineense A. Chev. ex Poelln. = **C. andongense**
hispidiflorum Poelln. = **C. subpetiolatum** var. **subpetiolatum**
hispidoscapum Poelln. = **C. subpetiolatum** var. **subpetiolatum**
hispidulum Rendle = **C. scabrum**
hockii De Wild. = **C. gallabatense** var. **gallabatense**
hoffmannii Engl. = **C. holstii**
holotrichum Peter ex Poelln. = **C. polystachys**
homblei De Wild. = **C. blepharophyllum** var. **amplexicaule**
huyghei De Wild. = **?**
hyacinthinum Peter ex Poelln. = **C. macrophyllum**
inarticulatum Poelln. = **C. stenopetalum** var. **stenopetalum**
inconspicuum sensu Fl. W. Trop. Afr., ed. 2 = **C. debile**
inexpectatum Poelln. = **C. africanum** var. **silvaticum**
inopinum Poelln. = **C. comosum**
inornatum sensu Fl. W. Trop. Afr., ed. 2 p.p. = **C. sparsiflorum**
inundatum A. Chev., p.p. = **C. gallabatense** var. **micranthum**
iroense A. Chev. ex Poelln., nom. inval. = **?**
ituriense De Wild. = **C. sparsiflorum** var. **sparsiflorum**
katangense De Wild. = **C. gallabatense** var. **gallabatense**
kerstingii Dammer = **C. blepharophyllum** var. **blepharophyllum**
kilimandscharicum Poelln. = **C. macrophyllum**
kirkii Baker = **C. comosum**
kirkii sensu Robyns & Tournay = **C. sparsiflorum**
kombense Peter ex Poelln. = **C. blepharophyllum** var. **blepharophyllum**
kulsii Cufod. = **C. tuberosum**

kyimbilense Poelln. = **C. macrophyllum**
kymatodes Suess. = **C. pauper**
lanceum A. Chev. = **C. orchidastrum**
latifilamentatum Poelln. = **Drimiopsis** sp. *(Hyacinthaceae)*
latifolium Engl. & K. Krause = **Chlorophytum stenopetalum** var. **latifolium**
laurentii De Wild. in sched. = **C. macrophyllum**
laxum sensu Baker and Cufod. (Ethiopia) = **C. inconspicuum**
laxum sensu auctt. W. Afr. = **C. debile**
ledermannii Engl. & K. Krause = **C. sparsiflorum** var. **sparsiflorum**
leucolepis Welw. ex Baker = **C. macrophyllum**
limurense Rendle = **C. comosum**
linearifolium Marais & Reilly = **C. colubrinum**
littorale sensu Raimondo 1981, p.p., non Nordal & Thulin = **C. pusillum**
longiantheratum Poelln. = **C. subpetiolatum** var. **subpetiolatum**
longibracteatum De Wild. = **C. blepharophyllum** var. **blepharophyllum**
longipaniculatum Poelln. = **C. macrophyllum**
longipedunculatum H. M. L. Forbes = **C. krookianum**
longipes Baker = **C. andongense**
longiphyllum Govaerts = **C. recurvifolium**
longiramum Peter ex Poelln. = **C. gallabatense**
longistylum Poelln. = **C. gallabatense**
longum Poelln. = **C. comosum**
luembense Tournay in Schmitz 1971 (nomen nudum) = **?**
macrocladum Peter ex Poelln. = **C. viridescens**
macrophyllum sensu Fl. W. Trop. Afr., ed. 2, p.p. = **C. inornatum, C. filipendulum**
macrophyllum (A. Rich.) Aschers. vars. *albiflorum* A. Chev., *angustifolium* Engl., *kyimbilense* Poelln. = **C. macrophyllum**
macrophyllum var. *tenuifolium* Engl. = **C.** ? **comosum**
macrophyllum sensu Robyns & Tournay = **C. filipendulum**
macropodum K. Krause = **C. orchidastrum**
maculatum Dammer = **C. colubrinum**
magnificum Weim. = **C. bowkeri**
magnum Poelln. = **C. comosum**
mahengense Poelln. = **C. geophilum**
mannii Baker = **C. orchidastrum**
marginatum Rendle, incl. var. *hispidulum* Poelln. = **C. africanum** var. **africanum**
massaicum K. Krause = **C. macrophyllum**
melanocarpum (Chiov.) Marais & Reilly = **C. macrophyllum**
menyharthii Schinz ex Baker = **C. stenopetalum** var. **stenopetalum**
micans Engl. & K. Krause = **C. pusillum**
micranthum Baker 1878 = **C. gallabatense** var. **micranthum**
micranthum sensu Kuchar 1988 (S Ethiopia), non Baker = **C. bifolium**
minutiflorum Poelln. = **C. lancifolium** subsp. **lancifolium**
miserum Rendle = **C. comosum**

moniliforme Rendle = **C. subpetiolatum** var. **subpetiolatum**
montanum Poelln. = **C. fischeri**
mossicum A. Chev., p.p. = **C. pusillum**
nebulosum Poelln. = **C. lancifolium** subsp. **lancifolium**
nemorosum Poelln. = **C. comosum**
nguluense Poelln. = **C. colubrinum**
nigericum A. Chev. = **C. limosum**
nigericum (Hepper) Nordal 1993 = **C. angustissimum**
nigrescens De Wild. = **C. blepharophyllum** var. **blepharophyllum**
nigricans Baker = **C. bowkeri**
norlindhii Weim. = **C. galpinii** var. **norlindhii**
pachyrrhizum Poelln. = **C. collinum**
paludicolum Poelln. = **C. comosum**
palustre Engl. & K. Krause = **C. polystachys**
paniculosum Poelln. = **C. pubiflorum**
papilliferum Poelln. = **C. africanum** var. **silvaticum**
papillososcapum Poelln. = **C. puberulum**
papillosum Rendle = **C. longifolium** var. **longifolium**
pauciflorum Dammer = **C. somaliense**
pedunculosum Peter ex Poelln. = **C. andongense**
pergracile Poelln. = **C. africanum** var. **silvaticum**
perlongibracteatum Poelln. = **C. bowkeri**
peteri Poelln. = **C. lancifolium** subsp. **lancifolium**
petiolatum Baker = **C. orchidastrum**
petiolatum sensu Baker, FTA, p.p. = **C. sparsiflorum** var. **bipindense**
pilosissimum Engl. & K. Krause = **C. vestitum** subsp. **pilosissimum**
pilosum Dammer = **Trachyandra saltii** *(Asphodelaceae)*
pleiophyllum Peter ex Poelln. = **Chlorophytum longifolium** var. **longifolium**
pleiostachyum (Baker) T. Durand & Schinz = **C. colubrinum**
pleiostachyum Chiov. = **C. nubicum**
pleiophyllum Chiov. = **C. nubicum**
poggei Engl. ex Poelln. = **C. colubrinum** var. **colubrinum**
polyphyllum (Baker) Kativu = **C. recurvifolium**
polyphyllum (Baker) Poelln. = **C. suffruticosum**
polyrhizon Baker = ? **C. subpetiolatum** var. **subpetiolatum**
polyscapum Peter ex Poelln. = **C. gallabatense**
poricolum Poelln. = **C. longifolium** var. **longifolium**
psammophilum Engl. & Gilg = **C. gallabatense** var. **gallabatense**
pterocaulon (Baker) Kativu = **C. cameronii** var. **pterocaulon**
pubescens Peter ex Poelln. = **C. affine** var. **affine**
pulverulentum Poelln. = **C. holstii**
purpuratum (Rendle) Nordal = **C. cameronii** var. **pterocaulon**
pusillum sensu Raimondo & al. 1981 = **C. littorale**
pusillum sensu Troupin 1956 = **C. geophilum**
ramiferum Rendle = **C. comosum**
ramulosum De Wild. = **C. gallabatense** var. **gallabatense**
rhizomatosum Baker = **C. suffruticosum**

rhodesianum E. Phillips = **C. macrosporum**
riparium Poelln. = **C. gallabatense**
rivae Engl. = **C. gallabatense**
robustum Poelln. = **C. africanum** var. **silvaticum**
rubromarginatum Poelln. = **C. colubrinum**
rugosum Poelln. = **C. comosum**
russii Chiov. = **C. tuberosum**
ruwenzoriense Rendle = **C. subpetiolatum** var. **subpetiolatum**
saxicola Poelln. = **C. blepharophyllum** subsp. **blepharophyllum**
scabrirachis A. Chev., nom. nud. = **?**
schimperi Engl. = **C. tetraphyllum**
schlechterianum Poelln. = **C. krookianum**
schweinfurthii Baker = **C. stenopetalum** var. **stenopetalum**
schweinfurthii sensu Cufod. 1971 (Somalia) = **C. gallabatense** var. **gallabatense**
semlikiense De Wild. = **sparsiflorum** var. **sparsiflorum**
seretii De Wild., incl. var. *likimense* De Wild. = **C. orchidastrum**
setosum Poelln. = **C. africanum** var. **africanum**
silvaticum Dammer = **C. africanum** var. **silvaticum**
socialis Poelln. = **C. gallabatense**
sp. A sensu Fl. Trop. E. Afr., Antheric.: 62, 1997 = **C. hirsutum**
sp. B sensu Fl. Trop. E. Afr., Antheric.: 62, 1997 = **C. occultum**
sparsiflorum sensu Fl. W. Trop. Afr., ed. 2, p.p. = **C. sparsiflorum** var. **sparsiflorum** and var**. bipindense** and var. **sparsiflorum**, **C. petrophilum**
sphacelatum (Baker) Kativu subsp. *hockii* (De Wild.) Kativu = **C. sphacelatum**
sphacelatum var. *latifolium* ined. (Kew Gard.) = **C. sphacelatum**
sphacelatum subsp. *milanjianum* (Rendle) Kativu = **C. sphacelatum**
stenophyllum (R. E. Fries) Marais & Reilly = **C. colubrinum**
sternbergianum (Schult. & Schult. f.) Steud. = **C. comosum**
stipitatum Poelln. = **C. blepharophyllum** var. **blepharophyllum**
stolzii (K. Krause) Weim., nom. invalid. = **C. stolzii** (K. Krause) Kativu
stramineum Zahlbr. = **C. bowkeri**
strictum Baker = **C. bowkeri**
subcapitatum Hutch. = **C. geophilum**
subhispidum Poelln., incl. var. *glabrum* Poelln. = **C. subpetiolatum** var. **subpetiolatum**
subpapillosum Poelln. = **C. colubrinum** var. **colubrinum**
subrugosum Poelln. = **C. polystachys**
subulatum Peter ex Poelln. = **C. subpetiolatum** var. **subpetiolatum**
sudanicum A. Chev. = **C. gallabatense**
talbotii Rendle = **C. orchidastrum**
tenellum Poelln. = **C. leptoneurum** var. **katangense**
tenuifolium Baker = **C. somaliense**

CHLOROPHYTUM

tertalense Chiov. = **C. somaliense**
thollonianum Hua = **C. sparsiflorum** var. **sparsiflorum**
tinneae Baker = **C. nubicum**
togoense Engl. = **C. lancifolium** subsp. **togoense**
tordense Chiov. and sensu Berhaut = **C. affine** var. **curviscapum**
tordense sensu Fl. Yemen = **C. nervosum**
toumodiense A. Chev. = **C. lancifolium** subsp. **togoense**
trachycarpum Oberm. = **C. brachystachyum**
trichocraspedum Peter ex Poelln. = **C. blepharophyllum** var. **blepharophyllum**
tsumebense Dinter = **C. longifolium** var. **longifolium**
tuberigenum Peter ex Poelln. = **C. polystachys**
turritum Peter ex Poelln. = **C. comosum**
turuense Poelln., incl. var. *micranthum* = **C. africanum** var. **africanum**
uhamense Poelln. = **C. lancifolium** subsp. **togoense**
ukambense Baker = **C. gallabatense**
umbraticola Poelln. = **C. gallabatense**
unifolium Malaisse & Bamps = **C. cordifolium**
unyikense Engl. = **C. subpetiolatum** var. **pilosifolium**
usambarense Engl. ex Poelln. = **C. comosum**
uvinsense Poelln. = **C. holstii**
uvinsense sensu Agnew & Agnew 1994, non Poelln. = **C. affine** var. **affine**
vaginatum Hua = **?**
variegatum Schweinf. ex Poelln. = **C. subpetiolatum** var. **subpetiolatum** fa. **variegatum**
verdickii (De Wild.) Poelln. = **C. colubrinum**
viridescens Engl. var. *majus* Poelln. = **C. andongense**
viriduliflorum Poelln. = **C. blepharophyllum** var. **blepharophyllum**
viviparum A. Chev., incl. var. *maritimum* A. Chev. = **C. sparsiflorum**
welwitschii Poelln. = **C. longifolium** var. **longifolium**
wilmsii Engl. & K. Krause = **C. bowkeri**
zanguebaricum (Baker) Nordal = **C. cameronii** var. **pterocaulon**
zenkeri Engl. = **C. orchidastrum**

(CORDYLINE, Agavaceae)

See also Volume 7: **Agavaceae**

Cordyline vivipara Steud. = **Chlorophytum comosum** *(Anthericaceae)*

(DASYSTACHYS)

Dasystachys africana (Baker) T. Durand & H. Durand = **Chlorophytum africanum**
atacorensis A. Chev. = **C. longifolium** var. **aureum**
aurea (Engl.) Baker = **C. longifolium** var. **aureum**
bequaertii De Wild. = **C. colubrinum** var. **colubrinum**
campanulata Baker = **C. colubrinum** var. **colubrinum**
colubrina Baker = **C. colubrinum** var. **colubrinum**
crassifolia Baker = **C. colubrinum** var. **colubrinum**
debilis Baker = **C. africanum** var. **silvaticum**
decorata Baker = **C. colubrinum** var. **colubrinum**

DASYSTACHYS

densiflora Baker ex Engl. = **C. densiflorum**
drimiopsis (Baker) Benth. = **C. longifolium** var. **longifolium**
falcata Baker = **C. longifolium** var. **longifolium**
gracilis Baker = **C. africanum** var. **silvaticum**
graminea A. Chev., nom. = **C. affine** var. **curviscapum**
grantii Benth. = **C. colubrinum** var. **colubrinum**
grantii Benth., incl. var. *engleri* Baker = **C. colubrinum** var. **colubrinum**
hockii De Wild. = **C. colubrinum** var. **colubrinum**
leptoneura C. H. Wright = **C. leptoneurum**
macensis A. Chev. sphalm. = **C. senegalense**
macinensis A. Chev., nom. = **C. senegalense**
marginata (Rendle) Baker = **C. africanum** var. **africanum**
melanocarpa Chiov. = **C. macrophyllum**
minima A. Chev., nom. nud. (Chad, Lake Iro region, Chevalier 8770, 8947, 8949 bis) = **?**
nervata C. H. Wright = **C. nervatum**
papillosa (Rendle) Baker = **C. longifolium** var. **longifolium**
pleiostachya Baker = **C. colubrinum** var. **colubrinum**
polyphylla Baker = **C. suffruticosum**
pulchella P. A. Duvign. & Dewit = **C. colubrinum** var. **colubrinum**
senegalensis Baker = **C. senegalense**
sombae A. Chev., nom. nud. = **C. longifolium** var. **aureum**
stenophylla R. E. Fr. = **C. colubrinum** var. **colubrinum**
verdickii De Wild. = **C. colubrinum** var. **colubrinum**

(DEBESIA)

Debesia asphodeloides (Welw. ex Baker) Kuntze = **Chlorophytum stolzii**
contorta Lebrun & Touss., nom. nud. = **C. subpetiolatum** var. **subpetiolatum**
minor (De Wild.) Robyns & Tournay = **C. subpetiolatum** var. **subpetiolatum**

(HARTWEGIA)

Hartwegia comosa (Thunb.) Nees = **Chlorophytum comosum**

(HOLLIA)

Hollia comosa (Thunb.) Heynh. = **Chlorophytum comosum**

(LILIAGO)

Liliago abyssinica (Kunth) C. Presl = **Chlorophytum tetraphyllum**
nivea (Poir.) C. Presl = **C. tuberosum**
tuberosa (Roxb.) C. Presl = **C. tuberosum**

(PHALANGIUM)

Phalangium abyssinicum Kunth = **Chlorophytum tetraphyllum**
angustifolium (Hochst. ex A. Rich.) Schweinf. = **Anthericum angustifolium**
comosum (Thunb.) Poir. = **Chlorophytum comosum**

PHALANGIUM

humile (Hochst. ex A. Rich.) Schweinf. = **Anthericum angustifolium**

indicum (Roxb.) Kunth = **Chlorophytum tuberosum**

niveum Poir. = **C. tuberosum**

oligospermum Wight = **C. orchidastrum**

ornithogaloides (Hochst. ex A. Rich.) Schweinf. = **C. tuberosum**

tuberosum (Roxb.) Kunth = **C. tuberosum**

viviparum Reinv. ex Kunth = **C. comosum**

(VERDICKIA)

Verdickia katangensis De Wild. = **Chlorophytum leptoneurum** var. **katangense**

HYACINTHACEAE / *12* g. / *84 + 24* ? (+*3* ?) spp.

Family of 700-900 species and some 40 to 67 genera with centres of diversity in both S. Africa and the Mediterranean, extending to N Europe and SW Asia. A single New World genus, *Oziroe*, in S. America with 5 species.

Mostly deciduous bulbous geophytes; flowers usually not articulated from the pedicel; tepals 3+3, free or ± connate; fruit a capsule; seeds black, sometimes winged.

Hyacinthaceae used to be included in a broad *Liliaceae*. It has been divided into 4 subfamilies, viz. *Oziroeoideae*, *Urgineoideae*, *Ornithogaloideae*, and *Hyacinthoideae* (Pl. Ecol. Evol. 145: 65, 2012). APGIII system (2009): *Asparagaceae*, subfamily *Scilloideae* (Phytotaxa 85: 1, 2013). As to subdivisions and their geographical distributions, see Goldblatt & al. in S. Afric. J. Bot. 83: 135 (2012).

Many species have been described in *Ornithogalum*, *Scilla* and *Urginea*. A part of these is poorly understood, or even of uncertain taxonomic status. We have retained a certain number of taxa in the family in spite of insufficient knowledge, others are listed as "uncertain" and/or "in need of further study". Among the species figuring in our compilation we note that: the leaves are lacking in 1 species, the fruit is unknown in 7 (+1) + 9 ? species (= c. 9%), the ecology not recorded for 4 (+1) species (= c. 5%), 3 (+6 ?) species (= c. 4%) are known only from the type.

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(ADENOTHECA)

Adenotheca aphylla Welw. ex Baker = **Schizobasis angolensis**

ALBUCA / *18 + 11* ?

Genus of some 150 species in Africa (Algeria, Libya, S of the Sahara), Saudi Arabia, Yemen, Madagascar; the highest diversity in southern Africa (c. 75 species).

"The taxonomy of the *Albuca* alliance remains one of the least understood in the Hyacinthaceae" (Manning & Goldblatt in Bothalia 36: 86, 2006). A definition of the genus is presented by Manning & Condy in Flow. Pl. Africa 62: 30-32, 2011.

Albuca L. as traditionally circumscribed includes about 60 species…Recently, very different circumscriptions of *Albuca* have been presented based on molecular studies…Manning et al. (2004) synonymised *Albuca* in *Ornithogalum*, but later Manning et al. (2009) accepted *Albuca* as an enlarged genus to include other groups such as *Stellarioides* Medik., *Coilonox* Raf., and *Ornithogalum* subg. *Urophyllon* (Salisb.) Baker pro parte, reaching a total of 110-140 species. On the other hand, Martínez-Azorín et al. (2011a) presented results recovering the monophyly of *Albuca* as traditionally circumscribed, and allowing easy differentiation from other related genera…" (Martínez-Azorín & al. in Nord. J. Bot. 29: 465, 2011).

Bulbous plants with solitary lax raceme on terete scape with large bracts; capsule ovoid; seeds black, flattened.

Many taxa described from our area are of uncertain status, often known only from the type and herbarium material incomplete. Among the taxa retained by us the fruit is lacking in 2 (+4 ?) species; the ecology is not recorded for 1 (+1 ?) species and 3 species are probably known only from the type.

MÜLLER-DOBLIES, U. (2006). Enumeratio Albucarum (Hyacinthaceae) Austro-Africanarum adhuc cognitarum 3. Additions and additional notes to Albuca subgenus. Falconera and A. subgenus. Albuca. *Feddes Repert.* 117: 96-138.

SPETA, F. (2001). Die Echte und die Falsche Meerzwiebel: Charybdis Speta und Stellarioides Medicus (Hyacinthaceae) mit Neubeschreibungen und Neukombinationen im Anhang. *Stapfia* 75: 139-176.

ALBUCA

Albuca abyssinica Jacq.; Nord. J. Bot. 15: 599, 1995; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 516, 1995; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 200, 2001; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 486, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 108, 2006; Figueiredo & Smith, Pl. Angola: 185, 2008; Gereau & al., Lake Nyasa florist. checklist: 65, 2012; Lachenaud & al. in Pl. Ecol. Evol. 146: 124, 123 (photo. flower), 2013. – Icon.: Saunders, Refug. Bot. 5: pl. 336, 1872 (as *A. angolensis*); Bot. Mag 105: pl. 6429, 1879 (as *A. wakefieldii*); Norweg. J. Bot. 24: 76, 1977 (as *A. wakefieldii*); Nord. J. Bot. 6: 777, 1986 (details); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 146, 1994; Thulin, Fl. Somalia 4: 51, 1995; Fl. Trop. E. Afr., Hyacinthaceae: 23, 1996; Fl. Eth. & Eritrea 6: 146, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea, aloes & other lilies: 123, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 202, 2010; Puff & Sileshi, Pl. Simen: 223, 2005; Burrows & Willis, Pl. Nyika Plateau, Malawi: 306, 2005; Salter & Davenport, Orchids & wildflowers Kitulo Plateau: 22, 2011; Pickering & Roe, Wild. flow. Victoria Falls area: 64, 2009; Scripta Bot. Belg. 50: 306, 2013.

syn.: *Asphodelus abyssinicus* (Jacq.) Schult. & Schult. f.; *Pallastema abyssinica* (Jacq.) Salisb., nom. inval.; *Asphodelus africanus* Lam.; *Scilla petitiana* A. Rich.; ? *S. quartiniana* A. Rich.; *Urginea petitiana* (A. Rich.) Solms; *U. beccarii* Baker; *U. acinacifolia* Schinz; *Ornithogalum monteiroi* Baker; *Albuca elastica* Salis.; *A. abyssinica* Welw. ex Baker 1872, nom. illegit.; *A. bainesii* Baker; *A. melleri* (Baker) Baker; *A. allenae* Baker; *A. tayloriana* Rendle; *A. fibrillosa* De Wild.; *A. blepharophylla* Cufod.; *A. capitata* Gilli; *A. elwesii* Regel; *A. wakefieldii* Baker; *A. fischeri* Engl.; *A. purpurascens* Engl.; *A. fleckii* Schinz; *A. lugardii* Baker; *A. erlangeriana* Engl.; *A. parviflora* Perkins, nom. illegit., non Chiov. ex Chiarr. (= *A. virens*); *A. praecox* Engl. & K. Krause; *A. hysterantha* Chiov.; *A. nemorosa* Chiov.; *A. chaetopoda* Chiov.; *A. asclepiadea* Chiov.; *A. beguinotii* Cufod.; *Urginea quartiniana* (A. Rich.) Solms; *Ornithogalum quartinianum* (A. Rich.) Lanza; *O. fleckii* (Schinz) J. C. Manning & Goldblatt; *O. abyssinicum* (Jacq.) J. C. Manning & Goldblatt; *O. melleri* Baker; *Albuca angolensis* Welw.; *A. subspicata* Baker in Chiovenda, Result. Sci. Miss. Stefanini-Paoli: 175, 1916 (a narrow-leaved form).

Probable syn.: *A. angolensis* sensu De Wild., Ann. Mus. Congo Belge, 5/1: 225, 1906 (Gentil s. n., Zaire, Kanda Kanda, 6°56'Sx23°37'E, 1902); *A. steudneri* Schweinf. & Engl. (see below).

Herb 0,1-1,5 m tall; bulbs to 8 cm Ø; scales with or without fibrous apex; leaves lanceolate, ± flat, to 1 m × 5 cm, ± ciliate/pubescent; raceme relatively lax, of 5-110 pendulous flowers; tepals 8-35 mm long, cream to yellow with a green midrib; capsule 1-2 cm long.

Usually in grassland; bushland; deeply herb-grown rather damp meadows; bare soil amongst rocks; inselbergs; sandy or silty soils; dry *Combretum* woodland; burnt *Loudetia arundinacea* grassland with scattered trees; red or brown loamy soil; 0-3240 m alt.

Very variable, in size, robustness, width and pubescence of leaves (forms with pubescent leaves were described as *A. blepharophylla*).

Botswana; Saudi Arabia, Yemen.

ALBUCA

(**A. bracteata** (Thunb.) J. C. Manning & Goldblatt)

bas.: *Ornithogalum bracteatum* Thunb. 1794.

syn.: *O. longibracteatum* Jacq. 1777, non *Albuca longibracteata* Engl. (= *A. virens*); *Ornithogalum caudatum* Aiton; *O. massonii* J. F. Gmel.; *O. scilloides* Jacq.; *Urophyllum caudatum* (Aiton) Salisb.; *Eliokarmos caudatum* (Aiton) Raf.; *Loncomelos caudatum* (Aiton) Dostál; *Fenelonia bracteata* (Thunb.) Raf.; *Urginea mouretii* Batt. & Trab.; *Stellarioides longibracteata* (Jacq.) Speta

The following illustrations are available, i.a., Jacquin, Hort. bot. 3: pl. 29, 1776; Redouté, Liliacées 2: pl. 120, 1805; Loddiges, Bot. Cabinet 18: pl. 1789, 1831; Ker Gawler in Bot. Mag. 21: pl. 805, 1805 (as *O. caudatum*); Baker in Refug. Bot. 4: pl. 262, 1871 (idem); Maire, Fl. Afr. N. 5: 185, 1958 (idem); Smith & al. in Fl. Pl. Africa 58: pl. 2185 p. 23, 2003 (as *O. longibracteatum*); Speta in Stapfia 75: 143-145, 155, 158-159, 2001.

Herb 0,5-1,5 m tall; bulb globose to ovoid, 3-8 cm Ø, with numerous bulbils; leaves 8-12, bases sheathing, linear, 0,5-1 m × 2-5 cm, glabrous, apex acuminate; inflorescence racemose, densely multi-flowered, containing immature bud to mature fruit stages simultaneously; rachis to 0,5-1 m long; scape 0,6 m long, c. 7 mm Ø at base; bracts lanceolate, c. 1,5 cm long, green, margins membranous; flowers c. 1,3-1,5 cm Ø, closely packed, greenish white; *pedicels c. 7 mm long* (to 1,5 cm in fruit); tepals narrowly ovate, 8-9 mm long, pubescent at tip, with a light green central band 1 mm wide; capsule globose, c. 1 cm long, obtuse-trigonous.

Reported by Smith & al. (l.c.) from S. Africa, Swaziland, Mozambique, Tanzania, Kenya. In S. Africa: warm moist habitats; rock ledges in semi-shade.

The distribution area is probably only S. Africa (map in G. F. Smith & N. R. Crouch, Guide to succulents of South Africa: 106, 2009 (as *Ornithogalum longibracteatum*). The distribution given in Mozambique and N Zambia seems doubtful – confusion with another *Albuca* ?, e.g. *A. pulchra*, *A. virens*. – See map *Albuca longibracteata* p. 000

Toxicity – fact or fancy ? (see Crouch & Symmonds in Plantlife 20: 27-29, 1999).

Cultivated (described from Morocco as *Urginea mouretii* Batt. & Trab.; treated by Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 138, 2010, under *Ornithogalum caudatum* Aiton).

A. buchananii Baker

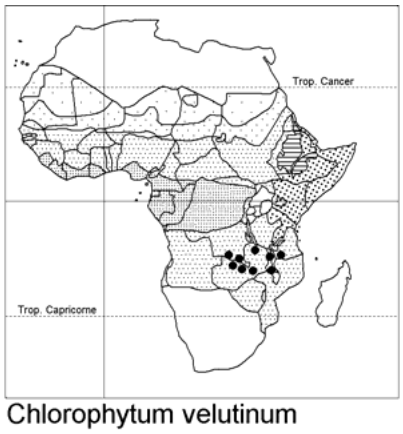
Bulbous herb; leaves c. 4, erect, acuminate, *linear*, 30-45 cm long, margins obscurely ciliate; peduncle as long as leaves; raceme lax, 7,5-10 cm long; pedicels ascending, 0,6-1,4 cm long; perianth 1,2 cm long; segments, yellow with a broad green keel; fruit unknown ?

Ecology not recorded: Shire Highlands, probably Chikala Hills, > 915 m alt.

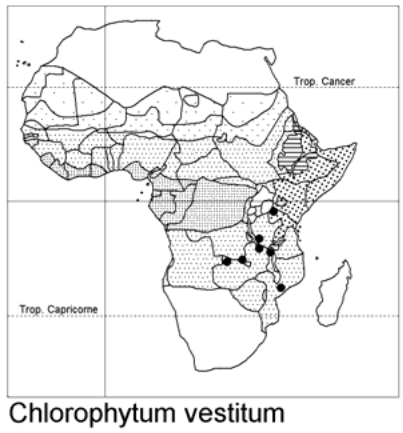
A. chlorantha Welw. ex Baker, non *Urginea chlorantha* Welw. ex Baker; Figueiredo & Smith, Pl. Angola: 185, 2008.

Herb with globose bulb, 3,5 cm Ø, outer tunics brown; leaves several, ensiform, 45-60 × > 1 cm low down, tapering gradually into a long point; peduncle 60-90 cm long; raceme moderately dense, cylindric, 30 cm long; pedicels very short; perianth c. 2,5 cm long; tepals fleshy, yellow, with a broad green keel; fruit unknown ?

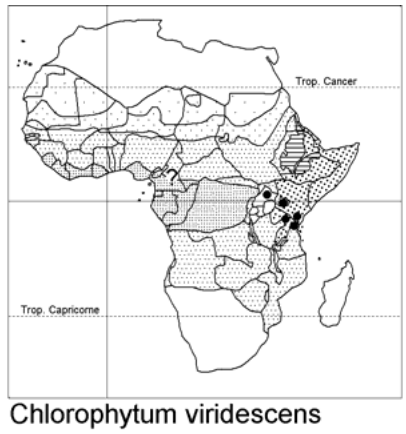
River thickets; grassy thickets.



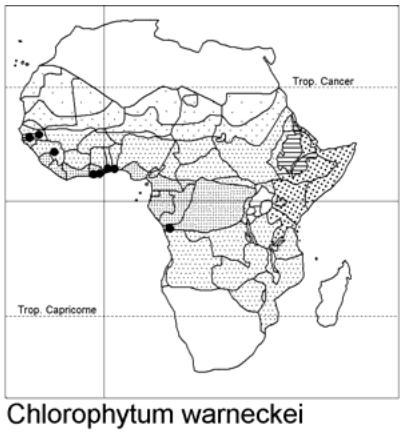
Chlorophytum velutinum



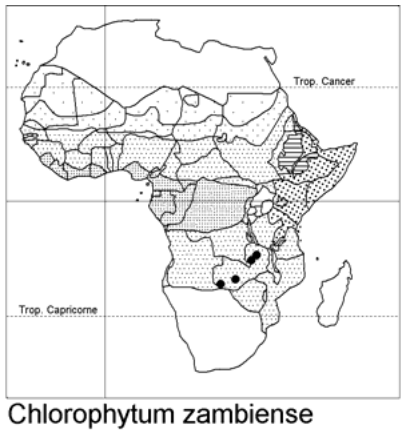
Chlorophytum vestitum



Chlorophytum viridescens

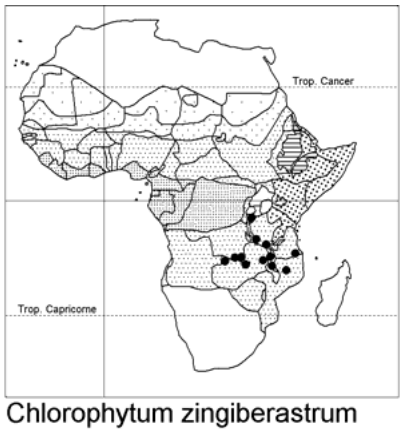


Chlorophytum warneckei

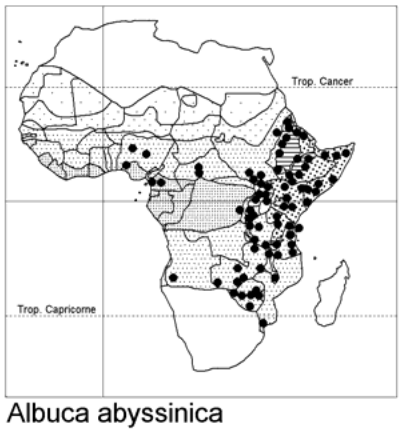


Chlorophytum zambiense

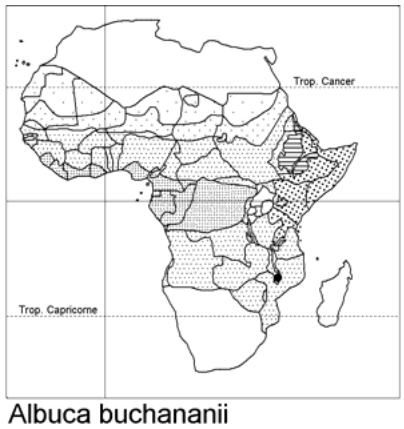
Chlorophytum zavattarii



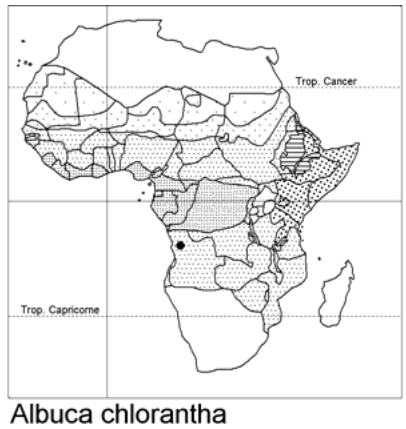
Chlorophytum zingiberastrum



Albuca abyssinica



Albuca buchananii



Albuca chlorantha

ALBUCA

A. donaldsonii Rendle; (cited under *Ornithogalum*) Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 320, 1994; Nord. J. Bot. 15: 600, 1995; Fl. Trop. E. Afr., Hyacinth.: 25, 27, 1996; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 125-126, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 204, 2010; Goldblatt & Manning in S. Afric. J. Bot. 77: 583, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011. – Icon.: Thulin, Fl. Somalia 4: 53, 1995; Fl. Eth. & Eritrea 6: 147, 1997.

syn.: *Ornithogalum donaldsonii* (Rendle) Greenway; *Stellarioides donaldsonii* (Rendle) Speta; *Urginea somalensis* Chiov.

Herb 0,15-1,5 m tall; bulb to 7,5 cm Ø; scape erect, 0,35-1,2 m long, leaves to c. 60 × 5 cm; inflorescence with 50-300 flowers; pedicels *2,5-4,5 cm long;* perianth segments oblong, *1-2-1,7 cm long* with *3 or 5 green bundles* in the middle; capsule 1,2-2,6 cm long.

Woodland; bushland; wooded grassland; on black or red clayish soils; often on sand; 50-1520 m alt.

A. fibrotunicata Gledhill & Oyewole; Onana, Vascul. pl. Cameroon…: 165, 2011. – Icon.: Bol. Soc. Brot., Sér. 2, 46: 99, (1972) 1973 (details).

syn.: *A. paradoxa* A. Chev., nom. nud. quoad specim. Chevalier 8567 bis (? and 8180, 8214, 8215).

Herb; bulb ovoid to conical with conspicuously long neck; outer scales dark brown, *dry* and *brittle*, with the *exposed fibres above;* scape 15-60 cm tall; leaves 60-90 × 1,5-3,3 cm, apex acute, widely V-shaped in cross-section, glabrous, margins slightly irregular, mottled purple on both surfaces towards base; raceme 5-20 cm long; pedicels 3-16 mm long; flowers 12-20 mm long; inner 3 tepals with hooded apices, pale greenish yellow, 1,2-2 cm long; capsule to 2,1 cm long, 4 cm circumference.

Common in open fields; sand.

A. galeata Welw. ex Baker; Figueiredo & Smith, Pl. Angola: 185, 2008.

Herb with ovate-conical bulb, scales dark-coloured, marcescent; radical leaves erect, long-sheathing, channelled, *linear-lanceolate*, 45-60 × 0,6-0,8 cm, apex acuminate; scape 30-60-75 cm tall; raceme lax, 7,5-12,5 cm long; pedicels erecto-patent, lower ones 1,2 cm long; perianth 1,2-1,5 cm long; tepals white with a broad green keel, the 3 upper sub-helmet-shaped; fruit unknown ?

Rocky mountain thickets.

? Only known from the type collected in 1857.

(**A. garuensis** Engl. & K. Krause; Onana, Vascul. pl. Cameroon…: 165, 2011)

Herb; bulb ovoid, 3 × 2,5 cm, yellowish white; leaves dark, glaucous, linear, 15-20 × 1,8 cm, base slightly widened; scape erect, sulcate, 25-40 cm tall; bracts brownish, to 2 cm long; pedicels to 8 mm long; tepals oblong, greenish white with a green midrib, 1-1,4 cm × 3-4 mm; fruit unknown.

Stony savanna with bush; 300 m alt.

? Only known from the type (Ledermann 5004) collected in 1909; Cameroon, Garoua (9°17'Nx13°22'E). – Not mapped.

Taxonomic status uncertain.

ALBUCA

(**A. gentilii** De Wild.)

Said to be near *A. kirkii* but inflorescence with more than 60 flowers and bracts longer; differs from *A. virens* by: bracts shorter; 3 stamens with lanceolate filaments and 3 with very broad filaments (not lanceolate).

Ecology unknown.

? Known only from the type (Gentil, s. n.) collected in 1902; Zaire, Kanda-Kanda (6°56'S × 23°37'E).

Taxonomic status uncertain. Not mapped.

(**A. homblei** De Wild.)

Bulbous herb; basal leaves 2-4, linear, glabrous, 20-37 × 0,7-1,1 cm, apex acute, margin slightly scabrous; scape to 45 cm tall, cylindrical, 3,5 mm Ø; raceme 6-12 cm long, 8-10-flowered; pedicels erect, to 7 mm long, glabrous, articulated at apex, bracts 0,8-2,2 cm long, 4-6 mm wide; perianth yellow, 2-2,5 cm long; outer tepals 5-6 mm long, inner ones to 8 mm long.

Ecology not recorded. Rare.

Said to be near *A. abyssinica* but lengths of scape and raceme different; also near *A. nigritana* but length of flower bracts different.

? Known only from the type (Homblé 1235); Zaire, Kapiri Valley (c. 10°17'S × 26°11'E). Not mapped.

(**A. kassneri** Engl. & K. Krause ex De Wild., nomen)

Zaire, Luisi River (c. 9°20'Sx27°24'E), humid plains.

Type: Kassner 2671 collected in 1908. Not mapped.

(**A. katangensis** De Wild.)

Herb with white bulb. Said to be near *A. nigritana*, but leaves broader (0,8-1,4 cm, not 0,8 cm), however, *A. nigritana* has leaves 1-4 cm wide; perianth longer than c. 3,1 cm (not 1-2 cm), and style 2 cm long (not 0,8-1,6 cm); tepals yellowish.

Ecology unknown.

Known from the type (Verdick 479) collected in 1900; Zaire, Lukafu (10°31'S × 27°33'E), and specimen Quarré 193, Kafubu farm (c. 11°45'S × 27°25'E), collected in 1927 (De Wildeman, Contrib. Fl. Katanga, Suppl. 3: 42, 1930). Not mapped.

A. kirkii (Baker) Brenan; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 319, 1994; Nord. J. Bot. 15: 598-599, 1995; Fl. Trop. E. Afr., Hyacinth.: 21-22, 1996; Burrows & Willis, Pl. Nyika Plateau, Malawi: 307, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 108, 2006; Figueiredo & Smith, Pl. Angola: 185, 2008. – Icon.: Norweg. J. Bot. 24: 74-76, 1977; Nord. J. Bot. 6: 777, 1986.

bas.: *Ornithogalum kirkii* Baker

syn.: *Albuca myogaloides* Welw. ex Baker; *A. caudata* sensu Baker 1898, non Jacq. 1786-1793; *A. nykensis* Baker; *A. pachychlamys* sensu Polhill, Agnew, Cribb & Leedal, non Baker; *A.* sp. B sensu Agnew, Upl. Kenya wild flow., ed. 1: 693, 1974.

Herb to 1,5 m tall, flowering with or before leaves; bulb scales with or without fibrous apex; leaves glabrous, narrowly lanceolate, to 55x0,6-1,5 cm; raceme 5-40-flowered; pedicels 1,5-10 cm long; flowers erect; tepals 1,2-2,1 cm long, white to cream with a green midrib, inner strongly cucullate and connivent, outer weakly cucullate and ± spreading; capsule 1-1,8 cm long.

ALBUCA KIRKII

Grassland; open bushland; *Brachystegia* woodland in shallow soil over rock; pioneer vegetation with *Aeollanthus heliotropioides*, *Icomum lineare*, *Coleochloa setifera*, *Andropogon fastigiata*, *Antherothoma naudinii*, etc., on dome-shaped granitic outcrop; bushed grassland with *Combretum apiculatum*, *C. fragrans*, *Terminalia stenostachya*, etc., on shallow gravelly truncated soil, covered with quartz stones, annually burned (vide Norweg. J. Bot. 24: 74-75, 1977); 1000-2700 m alt.

Variable species, e.g. in size.

Distribution disjunct.

(**A. kundelungensis** De Wild); Repert. Spec. Nov. Regn. Veg. 11: 507, January 1913; Ann. Mus. Congo Belge, Bot., Sér. 4, 2/1: 15, September 1913.

Herb; bulb c. 2 cm Ø; leaves glabrous, linear, 35 × 0,7-1,2 cm, base widened; scape glabrous, to 80 cm tall, cylindrical, striate; flowers c. 6, bracts 2 cm long, 6 mm wide; pedicels c. 5 mm long; tepals c. 3,5 cm long, 7 mm wide; fruit unknown.

Swamps, humid places.

? Known only from the type (Kassner 2612) collected in 1908; Zaire, Haut-Katanga, Kundelungu Mts (9°20'-10°40'Sx27°40'-28°00'E). Not mapped.

Said to be related to *A. abyssinica.*

(**A. lebaensis** (Van Jaarsv.) J. C. Manning & Goldblatt, Bothalia 41: 297, 2011. – Icon.: Herbertia 64: 95-96, 100-103, 2010)

bas.: *Ornithogalum lebaense* Van Jaarsv.

syn.: *Stellarioides lebaensis* (Van Jaarsv.) Mart.-Azorín & M. B. Crespo (Nord. J. Bot. 31: 220, 2013).

Herb; bulb globose-ovoid, 3-4 × 2-3 cm, solitary or dividing and forming smaller clusters to 10 cm Ø; *deciduous* in winter; leaves 4-5, produced with the flowers (synanthous), *70-82 × 2,5*-3,5 *cm*, pendent, *spirally curved*, *semi-succulent*, soft, *flaccid*, *glaucous*; inflorescences *20-30 cm* long, 1-2 per plant; raceme *conical*, 8-14 × 5,5-7 cm, dense, 35-50-flowered; scape 12-15 cm long, c. 0,5 cm Ø (to 1-1,5 cm); bracts conspicuous, long acuminate, white; perianth stellate, white, 2 cm Ø; tepals spreading, white with a greenish median band, 8-11 × 4-5 mm; capsule 7-9 mm long and broad, trilobate.

Exposed vertical quartzitic sandstone cliffs, with cremnophilous plants: *Albuca* sp., *Aloe mendesii*, *A. vallaris*, *Crassula lanceolata*, *Kalanchoe lanceolata;* c. 1800 m alt.

Discovered in 2009; cultivated at Kristenbosch (S. Africa) National Botanic Gardens where it flowered in 2010.

Van Jaarsveld commented on the placement of the species within *Ornithogalum* s.l. The species belongs to subgen. *Urophyllum* (Salisb.) Baker, "now accomodated within…*Albuca*"; but "the author decided to follow earlier works…as to avoid further confusion…". The genus *Stellarioides* was "reinstated" by Martínez-Azorín & Crespo and *O. lebaense* transferred there. The taxonomy of *Stellarioides* was further discussed by Martínez-Azorín & al. in Phytotaxa 85: 1-8, 2013.

(**A. longibracteata**, based on *Ornithogalum longibracteatum* Jacq.). See above under **A. bracteata.**

ALBUCA

A. malangensis Baker; Figueiredo & Smith, Pl. Angola: 185, 2008.

Herb; bulb unknown; leaves linear, glabrous, c. 60 × 7,5-1 cm; scape rounded, glabrous; inflorescence subdense, 15 cm long; perianth cylindric, c. 2,5 cm long; tepals linear-oblong, pale yellow with a brown keel, many-nerved; fruit unknown.

Ecology unknown.

? Only known from the type, von Mechow 482.

Near *A. nigritana*.

A. monophylla Baker, non *Ornithogalum monophyllum* Baker; U. Müll.-Doblies in Feddes Repert. 117: 98-99, 2006; Bothalia 36: 87, 2006; Figueiredo & Smith, Pl. Angola: 185, 2008.

syn.: *Ornithogalum angolense* J. C. Manning & Goldblatt; *Albuca juncifolia* Welw. ex Baker

Herb 0,3-1 m tall; bulb white inside, < 2,5 cm Ø, outer tunics brown; leaf *usually solitary*, erect, sheathing, not surrounded by fibres at bulb neck, deeply channelled at base, *from middle to apex cylindrical subulate*, 30 cm long, <2,5 cm Ø, scape cylindric, c. half as long as leaf; raceme lax, 2-6-flowered, 17-22 cm long; pedicels ascending, 0,6-1,2 cm long; perianth 1,2 cm long; tepals yellow, with a broad green keel; ovary short, subglobose with style at least twice as long; fruit unknown ?

Rocky heights; rather rare; c. 600 m alt. (Namibia).

Namibia (discovered by Hardy in 1978).

A. nigritana (Baker) Troupin; Bol. Soc. Brot., Sér. 2, 46: 102, 1972; Brunel & al., Fl. analyt. Togo in Englera 4: 653, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 516, 1995; Cheek & al., Pl. Mt. Oku…: 184, 2000; Akoegninou & al., Fl. analyt. Bénin: 133-134, 2006, Lisowski, Fl. Rép. Guinée 1: 420, 2009; S. Afric. J. Bot. 77: 584, 2011; Onana, Vascul. pl. Cameroon…: 165, 2011; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 231, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 34, 2012.

bas.: *Urginea nigritana* Baker

syn.: *Albuca schweinfurthii* Engl.; *A. gilletii* De Wild.; *A. ledermannii* Engl. & K. Krause; *A. seretii* De Wild.; *A. bequaertii* De Wild.

Herb; bulb 8-10 cm high, to 13 cm Ø; leaves ascending, variously straight, twisted or channelled, 0,5-1,2 m × 2-4 cm, glabrous, margins smooth; scape 1-2 m tall; raceme lax; pedicels 0,6-1,6 cm long; tepals 1,5-2,7 cm long, pale yellowish-green; fruit broadly ovoid, 1,5-2 cm long, 4,5 Ø. Leaves developping during or after flowering.

Wooded savanna; open forests; grassland-gallery forest boundary; clayey to sandy soils; muddy hollows; humid sands; steppe with *Acacia*; grassy savanna; xerophyllous thickets; to > 2250 m alt.

Albuca pulchra (Schinz) J. C. Manning & Goldblatt; Bothalia 12: 363, 1978. – Icon.: ibid.: 364.

bas.: *Ornithogalum pulchrum* Schinz

syn.: *Urginea pulchra* (Schinz) Sölch; *U. dimorphantha* Baker; *U. comosa* Welw. ex Baker; *Ornithogalum longibracteatum* sensu Baker, Fl. Trop. Afr. 7: 545, 1898 and sensu Agnew, Upl. Kenya wild flow.: 697, 1974, and sensu Kokwaro, Medicin. pl. E. Africa, ed. 2: 260, 1993, non Jacq. [in Fl. Trop. E. Africa, Hyacinth.: 27, 1996 considered synonyms of *O. tenuifolium* (= *Albuca virens)*: Taxon 58: 93, 2009], see also above under **Albuca bracteata**.

ALBUCA PULCHRA

Herb to 1,5-2 m tall; bulb ovoid, c. 8 cm Ø, without neck; leaves c. 13, rosulate, erect, folded, linear-acuminate, 90 × 6 cm, base tubular, often with dark green speckles below; inflorescences 1-2, to 1,5-2 m long, dense, pyramidal at first, elongating during anthesis, the heavy apical plumose part pendulous; *pedicels to 4 cm long;* perianth segments oblong, c. 1,3 × 0,4 cm, white with a broad green 3-5-nerved midrib, margin white or yellow; capsule broadly *cordate*, deeply 3-lobed, broader than long, c. 1,5 cm broad, *apex emarginate*.

Wooded thicket-grown hills; sandy places near river; sporadic; c. 200-1500 m alt.

Namibia, S. Africa, Botswana.

Doubtfully present in E. Africa – probably confusion with *A.virens* (syn.: *Ornithogalum tenuifolium* F. Delaroche); see that species below.

The complex *Ornithogalum longibracteatum-O. pulchrum* (*Albuca bracteata-A. pulchra*) is in need of further study.

A. scabromarginata De Wild. (emend. Gledhill & Oyewole, nom. inval.). – Icon.: Bol. Soc. Brot., Sér. 2, 46: 99-100, 1972 (details).

Bulb ovoid to almost spherical, c. 5 cm broad, outer scales yellowish-cream, dry, membranous; leaves *lanceolate-linear*, to 70 cm × *2,5 cm*, glabrous, *erecto-patent*, *deeply channelled* towards base, apex acute, margins *scabrid;* scape erect, 30-80 cm long (including raceme), pinkish to greenish; raceme 10-40 cm long, lax; pedicels erect or erect-spreading, to 1 cm long; tepals 1-2 × 0,6 cm, lanceolate-oblong, dull yellowish-green with a buff central band; capsule 1,3-2 cm long, valves c. 5 mm broad.

Grassy savanna.

Very close to *A. sudanica*, *A. fibrotunicata*. According to Goldblatt & Manning in S. Afric. J. Bot. 77: 584, 2011, a synonym of *A. nigritana*.

The geographical distribution is in need of further investigation; a difficult group.

A. seineri (Engl. & K. Krause) J. C. Manning & Goldblatt; Bothalia 7: 481, 1961; Taxon 58: 92, 2009.

bas.: *Bulbine seineri* Engl. & K. Krause

syn.: *Ornithogalum seineri* (Engl. & K. Krause) Oberm.; *O. filibracteatum* Oberm.; *O. wilmaniae* F. M. Leight.; *Anthericum seineri* (Engl. & K. Krause) Poelln.; *Urginea langii* Bremek.

Herb to c. 60 cm tall; bulb ovoid, c. 8 cm Ø, outer scales grey-brown; leaves erect, lanceolate, to c. 60 × 1-2,5 cm, sometimes dark speckled at base; inflorescence subcorymbose, dense, 5-15 cm long; bracts 0,7-3 cm long, filiform from a broad base; pedicels 2-4,5 cm long; perianth segments oblong, 1,2-1,8 cm long, white with 3-5 prominent central green nerves; capsule broadly 3-lobed, 1,2 × 2 cm.

In S. Africa, Botswana and Namibia in sandy or shallow soils; wooded grassland, mopane woodland; limestone outcrops; grey humus-rich soil between calcareous gravel; 800-1000 m alt.

Reaching our area in S Zimbabwe.

(**A. steudneri** Schweinf. & Engl.)

Near *A. abyssinica* but basal leaves narrower and tepals slightly shorter.

Ecology unknown.

? Known only from the type (Steudner 449) collected in 1862; Sudan, Gallabat. Not mapped.

Probably a synonym of *A. abyssinica*.

ALBUCA

(**A. stricta** Engl. & K. Krause); Onana, Vascul. pl. Cameroon…: 165, 2011.

Bulb ovoid-oblong, 3,5-2 cm; leaves glabrous, linear or linear-lanceolate, 10-15 × 1,8 cm near base, gradually narrowed towards the acute apex, dilated below, sheathing the contracted lowest part at the base; scape 40-60 cm tall, grooved, flowering part only 10-14 cm long; pedicels 5-8 mm long, erect or ± spreading; tepals white with a green midrib, 1-1,2 cm × 3-3,5 mm; fruit 8-10 × 5-6 mm.

Poor steppe with trees; 500 m alt.

? Only known from the type (Ledermann 3055) collected in 1909; N Cameroon, Kontscha (7°58'N/02°14'E).

Not mapped.

A. subspicata Baker; Figueiredo & Smith, Pl. Angola: 185, 2008.

Bulbs subglobose, 1,2-1,8 cm Ø, with outer tunics membranous, dull brown; leaves 3-4, erect, *subulate*, 0,15-0,3 cm long, 0,22 cm Ø low down; scape flexuose, 10-15 cm long; raceme 4-12-flowered, 5-10 cm long; pedicels short, ascending, lower ones 0,4-0,6 cm long; perianth 1,2 cm long; tepals white with a broad green keel; fruit unknown.

Lofty rocks; rather rare.

? Only known from the type (Welwitsch 3839).

A. sudanica A. Chev., incl. var. *gracilis* A. Chev., nomen; Brunel & al., Fl. analyt. Togo in Englera 4: 653, 1984; Akoegninou & al., Fl. analyt. Bénin: 134, 2006; Lisowski, Fl. Rép. Guinée 1: 420, 2009; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 128, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011; S. Afric. J. Bot. 77: 584, 2011. – Icon.: Bol. Soc. Brot., Sér. 2, 46: 99-100, 1972 (details).

syn.: *A. septentrionalis* Quézel; *A. mankonensis* A. Chev., nom. nud.; *A. sasssandrensis* A. Chev., nom. nud.; *Urginea mankonensis* (A. Chev.) Hutch. 1936, nom. inval.; *Urginea narcissifolia* (A. Chev.) Hutch. 1936, nom. invalid., p.p.; *Albuca narcissifolia* A. Chev. 1920, non 1907.

Bulbous herb with leaves spreading horizontally, tapering from near base to a broadly acuminate apex, 38-65 × 3-4 cm, margin smooth, undulate; scape green, 50-80 cm tall; raceme lax 15-25 cm long; pedicels c. 4 mm long; tepals dull yellowish-green, 1-1,4 cm long; fruit ovoid, c. 1 cm long.

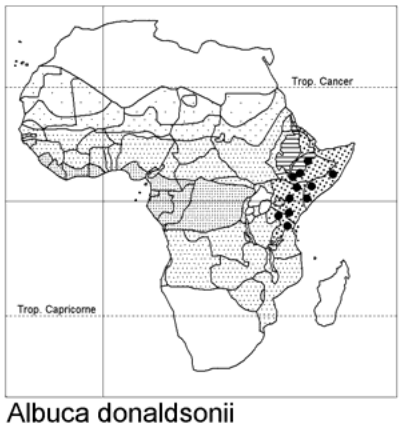
Savanna; humid earthy bank with *Tripogon multiflorus*; to 2500 m alt.

According to Dobignard & Chatelain, l.c., also in Algeria, Libya.

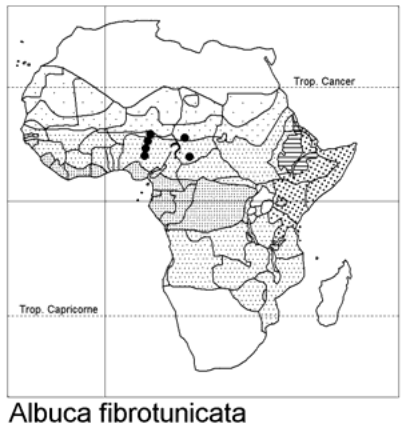
Not in Gabon (Fl. Gabon 40, 2010; but cited by Sosef & al., Check-list pl. vascul. Gabon: 250, 2006).

A. tenuis Knudtzon; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 319, 1994; Nord. J. Bot. 15: 599, 1995; Fl. Trop. E. Afr., Hyacinth.: 24, 1996; Fl. Eth. & Eritrea 6: 145-146, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 124, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 202-203, 2010; S. Afric. J. Bot. 77: 584, 2011. – Icon.: Nord. J. Bot. 6: 777, 1986.

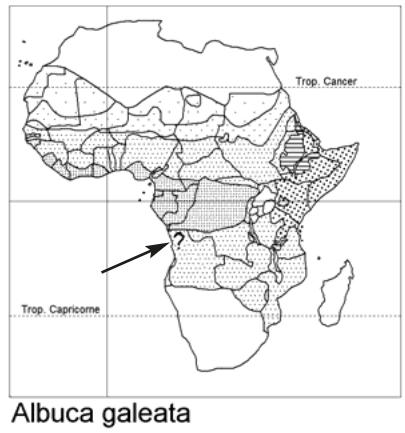
syn.: *Ornithogalum tenuis* (Knudtzon) J. C. Manning & Goldblatt



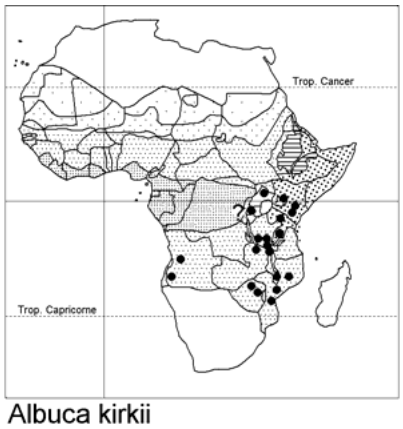
Albuca donaldsonii



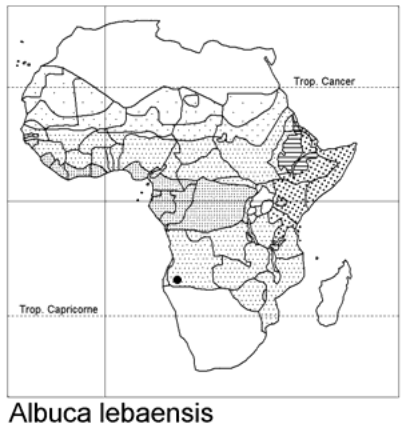
Albuca fibrotunicata



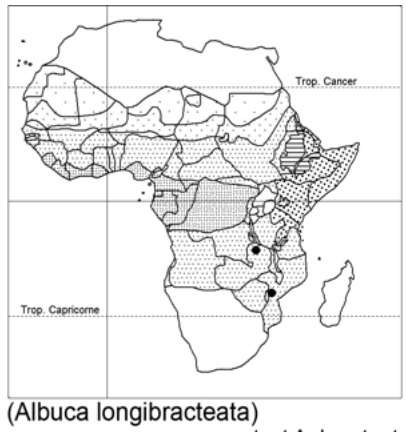
Albuca galeata



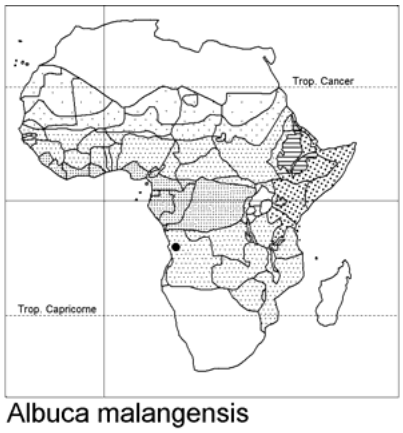
Albuca kirkii



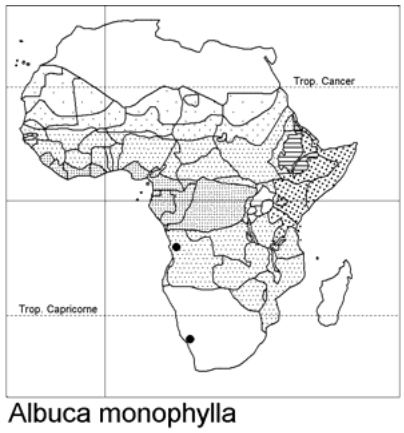
Albuca lebaensis



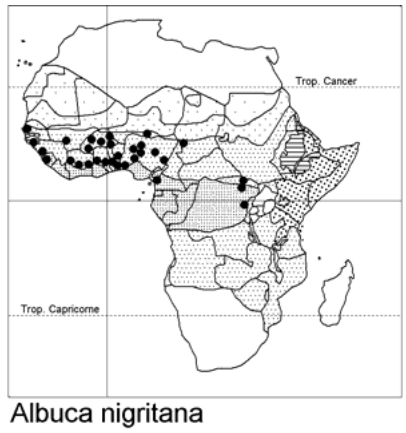
(Albuca longibracteata)
see text A. bracteata



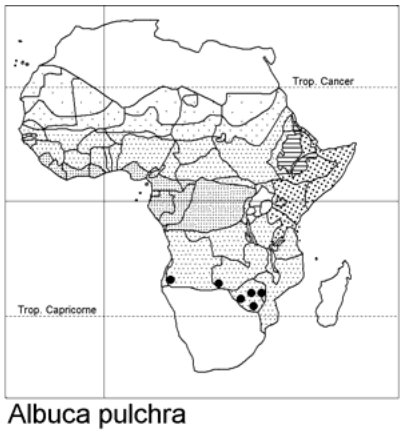
Albuca malangensis



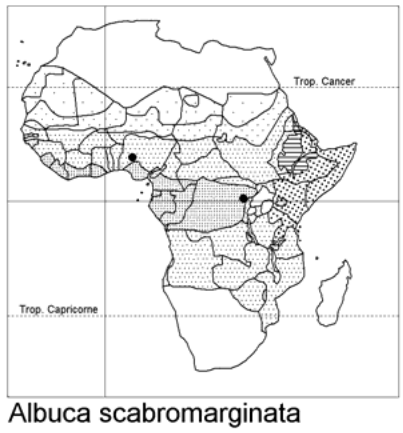
Albuca monophylla



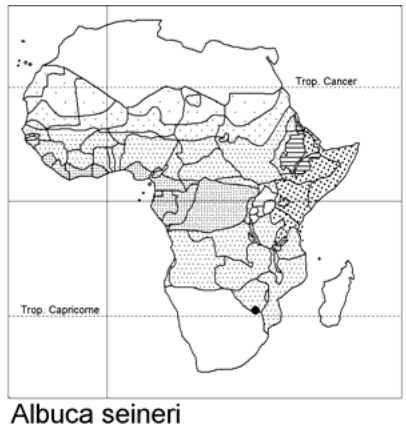
Albuca nigritana



Albuca pulchra



Albuca scabromarginata



Albuca seineri

ALBUCA TENUIS

Herb 8-15 cm tall, with bulb c. 2 cm across, with or without fibrous apex; leaves filiform, often spirally twisted, often pubescent; raceme relatively lax, 3-10-flowered; pedicels c. 1 cm long; tepals 8-11 mm long, cream to yellowish with a green midrib; style longer than ovary; capsule c. 10 mm long.

Grassland; disturbed or eroded *Acacia* bushland or woodland; seasonally waterlogged grassland; 420-2000 m alt.

Status uncertain; two collections from Kenya represent a form with spirally twisted leaves. An individual from Kenya has been proved to be interfertile with *A. abyssinica*.

(**A. variegata** De Wild.)

Said to be near *A. kirkiii*, but raceme much denser; and near *A. virens* but stouter.

? Known only from the type (Gillet 3217); Zaire, Moanda (5°56'Sx12°21'E), seashore. Not mapped. Taxonomic status uncertain.

A. virens (Lindl.) J. C. Manning & Goldblatt; (in floras and lists often cited as *Ornithogalum tenuifolium*) Thulin, Fl. Somalia 4: 53, 1995; Fl. Trop. E. Afr., Hyacinth.: 27-28, 1996; Fl. Eth. & Eritrea 6: 147, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 125 (map), 126, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 204-205, 2010; Figueiredo & Smith, Pl. Angola: 185, 2008. – Icon.: P. J. Redouté, Liliac. 6: pl. 312, 1811 (as *Ornithgalum tenuifolium*); Lindley, Bot. Reg. 10: pl. 814, 1824 (as *O. virens*); Baker in Refug. Bot. 3: pl. 177, 1870 (as *O. acuminatum*, nom. illegit.); Robyns, Fl. spermat. Parc Natl. Albert 3: 363, 1955 (as *Albuca angustibracteata*); Bothalia 12: 361, 1978; Nord. J. Bot. 4: 758, figs. 3, 13 c, 1984; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 147, 1994 (as *Ornithogalum tenuifolium*); Manning & al. in Taxon 58: 84-85, 2009; Fl. Gabon 40, Hyacinth.: 29, 2010.

Subsp. **virens**, incl. *A. virens* subsp. *robusta* (Stedje) J. C. Manning & Goldblatt and subsp. *sordida* (Baker) J. C. Manning & Goldblatt (these subspecies are difficult to distinguish).

bas.: *Ornithogalum virens* (according to Manning & al. in Taxon 58: 93, 2009, the author is Ker Gawl. and the name misattributed to Lindl. in Bot. Reg. 10, l. c.; however, the description is signed by Lindley), non *Urginea virens* Schltr. [= *Drimia virens* (Schltr.) J. C. Manning & Goldblatt, S. Africa].

syn.: *O. tenuifolium* F. Delaroche in Redouté 1811, non Guss. 1827, nec *Albuca tenuifolia* Baker 1872; *O. ecklonii* Fisch. & C. A. Mey. 1840, and Schltdl. 1852, nom. illegit.; *O. acuminatum* Baker, nom. illegit.; *O. aciphyllum* Baker; *O. flavovirens* Baker; *O. chloranthum* Baker, nom. illegit.; *O. viriduliflorum* Poelln.; *O. albovirens* Baker; *O. cepifolium* Baker; ? *O. bosniacum* Beck; *O. sordidum* Baker; *O. tenuifolium* subsp. *sordidum* (Baker) Stedje and subsp. *robustum* Stedje; *O. galpinii* Baker, nom. illegit.; *O. subspicatum* Baker; *O. inconspicuum* Baker; *O. saltmarshei* Baker; *O. pretoriense* Baker; *O. umgenense* Baker; *O. otavense* K. Krause; *O. longivaginatum* N. E. Br.; *O. breviscapum* F. M. Leight.; *Albuca longibracteata* Engl., non *Ornithogalum longibracteatum* Jacq., nec sensu Baker 1898; *Albuca angustibracteata* De Wild.; *A. parviflora* Chiov. ex Chiarugi 1951, non Perkins 1907 *(= A. abyssinica); Stellarioides tenuifolia* (F. Delaroche in Redouté) Speta; *S. virens* (Lindl.) Speta; *S. ecklonii* (Fisch. & C. A. Mey.) Speta; *S. acuminata* Speta; *S. aciphylla* (Baker) Speta; *S. flavovirens* (Baker) Speta; *S. viriduliflora* (Poelln.) Speta; *S. albovirens* (Baker) Speta; *S. cepifolia* (Baker) Speta; *S. sordida*

ALBUCA VIRENS

(Baker) Speta; *S. subspicata* (Baker) Speta; *S. inconspicua* (Baker) Speta; *S. saltmarshei* (Baker) Speta; *S. pretoriensis* (Baker) Speta; *S. umgenensis* (Baker) Speta; *S. otavensis* (K. Krause) Speta; *S. longivaginata* (N. E. Br.) Speta; *S. robusta* (Stedje) Speta; *Tomoxis virens* (Lindl.) Raf.; *Urginea flavovirens* (Baker) Weim.; *U. cepifolia* (Baker) Welw. ex Rendle; *U. tayloriana* Rendle; *U. bakeri* Chiov.; *Ornithogalum longibracteatum* sensu auctt., e.g., ? Baker in Fl. Trop. Afr. 7: 545, 1898; Agnew, Upl. Kenya wild flow.: 697, 1974; Kokwaro, Medicin. pl. E. Africa, ed. 2: 260, 1993; Cufod. 1971; G. F. Smith & al. in Flow. Pl. Africa 58: 22-29, 2003, p.p.; etc., non Jacq. 1776.

Herb glabrous, 0,1-2 m tall; bulb globose to ovoid, 2-3 cm Ø, outer tunics thin and brownish grey, leaves usually c. 5 per flowering shoot, linear-acuminate, to 1,3 m × 2-8 mm, or many and filiform, broadly sheathing at base, erect; peduncle firm, slightly sinuate; pedicels erect, 2-15 mm long; flowers close together in 15-300-flowered subspicate racemes 1-3 per shoot, about as long as leaves or sometimes a few-flowered, subcorymbose raceme; tepals 5-12 mm long, with a broad green central band and white membranous sides; capsule ovoid-acute, deeply 3-lobed, 5-13 mm long (Icon.: Taxon 58: 85, 2009).

Bushland, woodland and edges of woodland; on black, sometimes rocky soil; sometimes in extensively grazed areas; grassland; sandy or clayish soils; frequently in areas that are wet or swampy during the rainy season; 0-3000 m alt.

Very variable. U. & D. Müll.-Doblies (Feddes Repert. 107: 488, 1996) remark: "…whereas the typical subspecies includes more than 16 synonyms at the species level, some of which could turn out to be a good species on a closer investigation".

Namibia, S. Africa, Botswana, Swaziland, Lesotho.

Subsp. **arida** (Oberm.) J. C. Manning & Goldblatt in Namibia, S. Africa. [bas.: *Ornithogalum tenuifolium* subsp. *aridum* Oberm.; syn.: *Stellarioides arida* (Oberm.) Speta].

Confused with *Albuca bracteata*, *A. pulchra*, both in S part of Africa.

(**A. zenkeri** Engl.); Onana, Vascul. pl. Cameroon…: 65, 2011.

Herb to 1 m tall; leaves linear; scape long; raceme densely flowered, 40-50 cm long; bracts 2-3 cm long, 3-5 mm wide at base; pedicels 5 mm long; flowers campanulate; tepals 2,5-2,7 × 0,6-0,8 cm, yellow with a green keel; fruit 1,8 cm long, 1,5 cm wide.

Meadows on slope of rock, in sunny places wet in the rainy season; 900-1000 m alt.

? Known only from the type (Zenker 1507). Cameroon: Yaounde. Not mapped.

Said to be near (*A. angolensis* Welw. =) *A. abyssinica*, but with longer and less dense raceme, and with wider and obtuse tepals. Taxonomic status uncertain.

IN NEED OF FURTHER STUDY:

Albuca noubae A. Chev., nom. nud.; Chad, Lake Iro region, Koulfé on granitic gravel; Chevalier 8771, 8826.

Albuca paradoxa A. Chev. 1913, nom. nud., quoad specim. Chevalier 8180, 8214, 8215; Central African Rep., Ndellé, bush, sandy ground, non Dinter 1923.

DOUBTFULLY PRESENT IN TANZANIA:

Albuca secunda (Jacq.) J. C. Manning & Goldblatt (bas.: *Ornithogalum secundum* Jacq.), Taxon 58: 94, 2009. Cited as a synonym of *Albuca micrantha* Baker by Gilli.

ALBUCA

SYNONYMS:

Albuca abyssinica Welw. ex Bak. 1872 = **Albuca abyssinica** Jacq. 1783
allenae Baker = **A. abyssinica**
angolensis sensu De Wild. = ? **A. abyssinica**
angolensis Welw. = **A. abyssinica**
angustibracteata De Wild. = **A. virens** subsp. **virens**
asclepiadea Chiov. = **A. abyssinica**
bainesii Baker = **A. abyssinica**
beguinotii Cufod. = **A. abyssinica**
bequaertii De Wild. = **A. nigritana**
blepharophylla Cufod. = **A. abyssinica**
capitata Gilli = **A. abyssinica**
caudata sensu Baker, non Jacq. = **A. kirkii**
chaetopoda Chiov.= **A. abyssinica**
elastica Salisb. = **A. abyssinica**
elwesii Regel = **A. abyssinica**
erlangeriana Engl. = **A. abyssinica**
fibrillosa De Wild. = **A. abyssinica**
fischeri Engl. = **A. abyssinica**
fleckii Schinz = **A. abyssinica**
gilletii De Wild. = **A. nigritana**
hyacinthoides Chiov. ex Chiarugi = **Dipcadi viride**
hysterantha Chiov. = **Albuca abyssinica**
juncifolia Welw. ex Baker = **A. monophylla**
ledermannii Engl. & K. Krause = **A. nigritana**
longibracteata Engl. = **A. virens** subsp. **virens**
lugardii Baker = **A. abyssinica**
mankonensis A. Chev. = **A. sudanica**
melleri (Baker) Baker = **A. abyssinica**
myogaloides Welw. ex Baker = **A. kirkii**
narcissifolia A. Chev. 1920 = **A. sudanica**
nemorosa Chiov. = **A. abyssinica**
nyikensis Baker = **A. kirkii**
pachychlamys sensu Polhill, Agnew, Cribb & Leedal, non Baker = **A. kirkii**
paradoxa A. Chev., nom. nud., quoad specim. Chevalier 8657 bis = **A. fibrotunicata**
parviflora Chiov. ex Chiarugi 1951 = **A. virens** subsp. **virens**
parviflora Perkins = **A. abyssinica**
praecox Engl. & K. Krause = **A. abyssinica**
purpurascens Engl. = **A. abyssinica**
reflexa K. Krause & Dinter = **Drimia indica**
sassandrensis A. Chev. = **Albuca sudanica**
schweinfurthii Engl. = **A. nigritana**
septentrionalis Quézel = **A. sudanica**
seretii De Wild. = **A. nigritana**
sp. B sensu Hanid in Agnew 1974 = **A. kirkii**
steudneri Schweinf. & Engl. = ? **A. abyssinica**
stolzii K. Krause = **Chlorophytum stolzii** *(Anthericaceae)*
subspicata Baker in Chiov. 1916 = **Albuca abyssinica**
tayloriana Rendle = **A. abyssinica**

ALBUCA

virens (Ker Gawl.) J. C. Manning & Goldblatt subsp. *robusta* (Stedje) J. C. Manning & Goldblatt and subsp. *sordida* (Baker) J. C Manning & Goldblatt = **A. virens** subsp. **virens**
wakefieldii Baker = **A. abyssinica**

(ALETRIS)

Aletris littoralis J. König ex Steud. = **Drimia indica**

(ASPHODELUS, Asphodelaceae)

Asphodelus abyssinicus (Jacq.) Schult. & Schult. f. = **Albuca abyssinica**
africanus Lam. = **A. abyssinica**

(BARNARDIA)

Barnardia indica Wight = **Ledebouria revoluta**

(BASILAEA)

Basilaea undulata (Aiton) Mirb. = **Eucomis automnalis** subsp. **autumnalis**

BOWIEA / *1*

Monospecific African genus.

STEDJE, B. (2000). The evolutionary relationships of the genera Drimia, Thuranthos, Bowiea and Schizobasis discussed in the light of morphology and chloroplast DNA sequence data. *In:* WILSON, K. L. & D. A. MORRISON, eds., *Monocots: Systematics and Evolution:* 414-417.

SYMMONDS, R. & al. (1997). Bulb scaling and seed success with Bowiea volubilis. *Plantlife* 17(1): 25-26.

Bowiea volubilis Harv. ex Hook. f. subsp. **volubilis**; Nord. J. Bot. 15: 601, 1995; Van Jaarsveld in Eggli, Ill. handb. succ. pl., Monocot.: 276-277, 2001; L. Newton, A check-list Kenyan succ. pl. 30, 2003; Figueiredo & Smith, Pl. Angola: 185, 2008; idem in Haseltonia 15 (Succ. pl. Angola): 75, 2009. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 146, 1994; Fl. Trop. E. Afr., Hyacinth.: 29, 1996; Pfosser & Speta in Stapfia 75: 187 (reproduction of Bot. Mag. 93: pl. 5619, 1867), 188 (flower), 2001; Smith & Crouch, Guide succ. south. Afr.: 105, 2009.

syn.: *B. kilimandscharica* Mildbr.; *Ophiobostryx volubilis* (Harv. ex Hook f.) Skeels; *Schizobasopsis volubilis* (Harv. ex Hook. f.) J. F. Macbr.; *Schizobasis volubilis* (Harv. ex Hook. f.) Van Jaarsv.; *Schizobasopsis kilimandscharica* (Mildbr.) Barschus 1954.

Deciduous herb; bulb above ground, spherical, 1,5-30 cm Ø, sometimes with paper-thin brownish skins, like an onion ("looks like a globe of green jade resting on the ground, sometimes camouflaged by a paper-thin, brownish covering resembling onion skins", Handbook 184, Brooklyn Bot. Gard.: 40, 2006); leaves 1-2, short, linear, produced from the middle of the bulb and perishing early; inflorescence twining and climbing, 0,5-0,6 m long, much-branched, with green branches, leafless, bracts narrow, 3-5 mm long, with a short spur; flowers single; pedicels 2-10 cm long; tepals free, triangular with a rounded apex, 5-9 × 3,5 mm, green, whitish or yellowish green, reflexed or spreading, persistent in fruit; capsule ellipsoid, 8-25 mm long, apex pointed. All parts of the plant poisonous.

BOWIEA VOLUBILIS

Evergreen bushland and woodland on rocky soils; rocky places with grass in soil pockets; slopes with *Brachystegia;* riverine forest; 300-2320 m alt. – The stems surround shrubby support; the bulbs grow in shade of bushes, partially covered with leaf litter, on steep rocky slopes.

Namibia, S. Africa.

Subsp. **gariepensis** (Van Jaarsv.) Bruyns, with larger, white flowers, in S Namibia, S. Africa.

Plant sought after by succulent enthusiasts. Near-threatened. Known as the climbing onion or Zulu potato. Herbalists use the bulb and bulb scales to treat diverse ailments, also as an antimalarial medicine. Collected in the wild and sold in shops, by street traders and healers (see, e.g., Ann. Review Natl. Bot. Inst. 2002-2003: 21, 2003; Aloe 43/4: 89-90, 2006; Masondo & al. in S. Afric. J. Bot. 86: 135-138, 2013).

SYNONYM (in another genus):

Bowiea myriacantha Haw. = **Aloe myriacantha** *(Aloaceae)*

(BULBINE, Asphodelaceae)

Bulbine seineri Engl. & K. Krause = **Albuca seineri**

(BULBINELLA)

Bulbinella ? *ornithogaloides* Kunth = **Ornithogalum flexuosum**

(CHARYBDIS)

Charybdis simensis (Hochst. ex A. Rich.) Speta = **Drimia simensis**

DIPCADI / *12 + 6* ?

Some 25 species in S Europe/W Mediterranean through to India, and in Africa, Socotra, Madagascar, with centre in S. Africa. Sunk by Manning & al. (Edinb. J. Bot. 60: 551-552, 2004) under *Ornithogalum*, then reinstated (see Kew Scientist 34: 3, 2008; Taxon 58: 99, 2009).

Herbs with small bulbs; flowers tubular (tepals fused 1/4-1/2 of their length) with anthers included; capsule mostly sessile; seeds subcircular, flattened, black.

Insufficiently known in our area: fruit unknown in 2 species; 2 species known only from the type. Several species are of uncertain taxonomic status.

Dipcadi dekindtianum Engl.; Figueiredo & Smith, Pl. Angola: 185, 2008.

Herb with oblong bulb c. 1,5-2 × 1 cm; leaves 5-8, linear, 4-10 cm × 1 mm; scape 15-25 cm long, slender; inflorescence lax, one-sided, 3-5 cm long, 2-5-flowered; pedicels 6 mm long; tepals to 1,2 mm long; fruit unknown.

Dry sandy pastures; 1770 m alt.

Only known from the type collected in 1899.

Near *D. marlothii* Engl.

DIPCADI

(**D. fesoghlense** (Solms) Baker)

bas.: *Uropetalon fesoghlense* Solms

Bulb unknown; leaves 2, narrowly linear, 15-20 × 0,5 cm; scape 10 cm long; raceme laxly many-flowered; pedicels very short; perianth green, c. 1,3 cm long; inner segments as long as tube; outer ± equal with an appendage c. 0,5 cm long.

Ecology unknown.

Said to be near *D. longifolium* but peduncle very short.

? Known only from the type (Cienkowsky); Sudan, Fazokl (= Fazughli; 11°17'N × 34°46'E).

Taxonomic status uncertain. Not mapped.

(**D. garuense** Engl. & K. Krause); Onana, Vascul. pl. Cameroon…: 165, 2011.

Herb with ovoid bulb c. 3 × 2 cm; leaf *one* per plant, *narrowly linear-lanceolate*, to 20 cm × near 5 mm, apex acute, somewhat narrowed at base, at last sheathing; scape erect, slender, to 50 cm tall; pedicels *5-8 mm long;* perianth segments brownish green, 3-4 mm long, inner lobes 5 mm long, outer 8-10 mm long; fruit unknown.

Sandy, partly stony or rocky bushed savanna.

? Only known from the type (Ledermann 3293); Cameroon, Garoua (9°17'N × 13°22'E).

Taxonomic status uncertain. Not mapped.

D. glaucum (Burch. ex Ker Gawl.) Baker – Icon.: Bot. Reg. 2: pl. 156, 1816 (as *Uropetalon*); Vahrmeijer & al., Poisonous plants south. Africa…: 33, 1981.

bas.: *Uropetalon glaucum* Burch. ex Ker Gawl.

syn.: ? *Lachenalia speciosa* F. Dietr.; *Ornithogalum magnum* (Baker) J. C. Manning & Goldblatt; *Dipcadi magnum* Baker e descr.; *D. longibracteatum* Schinz; *D. gracilipes* K. Krause; *Urginea lorata* Baker

Herb to 1,2 m tall with ovoid bulb, flattened at base, 3-6 cm Ø; leaves 4-9, *rosulate*, ± fleshy, grey-green, narrowly lanceolate, to 49 × 10 cm, tapering and clasping at base, apex acute or acuminate; raceme with flowers spirally arranged, congested becoming lax, with up to 40 flowers; scape terete, to 60 cm long; pedicels to *8 cm long;* flowers 1,5-2,5 cm long, green with a brownish margin; segments fused above halfway, outer with caudate appendages (4-8 mm long), inner lingulate with a yellowish to orange margin along the slightly recurved tips; capsule globose, 1,5-2 cm Ø.

Around pans and depressions; peat depressions; in brackish soil near salt pans; in large communities in over-grazed or flood-damaged areas; in exposed sunny places but also under trees; on alluvial soils, deep sand, wet sandy clay soils; 1000-1400 m alt.

S. Africa, Namibia, Botswana.

The plant, "poison onion", is poisonous to cattle.

D. gracillimum Baker, non *Ornithogalum gracillimum* R. E. Fr.; Nord. J. Bot. 15: 593, 1995; Fl. Trop. E. Afr., Hyacinth.: 5-6, 1996.

syn.: *D. polyphyllum* Baker 1904, non 1897 (= *D. marlothii*); *Ornithogalum dipcadoides* Baker; *Dipcadi involutum* Suess.

Herb 5-30 cm tall with ovoid bulb, 1,3-2,4 cm Ø; leaves *8-18*, *glabrous*, *filiform* to linear, margin inrolled, to 35 cm × 1-1,5 mm; scapes 1-3, 15-25 cm long; raceme 5-12-flowered, one-sided; pedicels 3-7 mm (10 in fruit); flowers yellowish or green; segments 10-12 mm long; capsule 8-11 mm long, 12-15 mm Ø.

DIPCADI GRACILLIMUM

Bushed grassland on sandy or sandy clay soils; pans; open grassland; on shallow soils overlying rocks with *Coleochloa setifera;* dry areas; 900-1400 m alt.

S. Africa, Botswana, Namibia, Lesotho, Swaziland.

(**D. ledermannii** Engl. & K. Krause); Onana, Vascul. pl. Cameroon…: 165, 2011.

Herb with ovoid bulb 2 × 1,5 cm; leaves glabrous, narrowly linear, 20-30 cm × 6-8 mm, base amplexicaul, folded; scape to 60 cm tall, slender; pedicels 4-7 mm long; perianth segments yellowish brown, fused on 4-5 mm length, outer and inner appendages c. 1 cm long; fruit unknown.

Pool in marshy short grass savanna.

? Only known from the type (Ledermann 4257) collected in 1910; Cameroon, near Godi River (8°52'N × 13°54'E).

Taxonomic status uncertain. Not mapped.

D. longifolium (Lindl.) Baker; Nord. J. Bot. 15: 593, 1995; Fl. Trop. E. Afr., Hyacinth.: 5, 1996; Figueiredo & Smith, Pl. Angola: 185, 2008; Bothalia 39: 196, 2009 (Kunene Exp.); Taxon 58: 99, 2009. – Icon.: Bot. Reg. 12: pl. 974, 1826 (under *Uropetalon*).

bas.: *Uropetalon longifolium* Lindl. (according to Manning & al. in Taxon 58: 99, 2009, the author is Ker Gawl., misattributed to Lindl.; however, Lindley signed the description in Bot. Reg., l.c.).

syn.: *Dipcadi sansibaricum* Engl.; *D. venenatum* Schinz; *D. zambesiacum* Baker; *D. firmifolium* Baker; *D. antericoides* Engl. & Gilg; *Ornithogalum longifolium* (Lindl.) J. C. Manning & Goldblatt

Herb 20-90 cm tall, glabrous, with ovoid bulb 1-4 cm Ø, occasionally bulbiferous; leaves *2-7*, *linear*, to 75 cm × 3-9 mm; scapes 1-3; raceme 4-15-flowered; pedicels 3-9 mm long (to 11 in fruit); flowers yellowish green or green to brown; segments 10-15 mm long, without caudate appendages; capsule 3-angled, 8-15 mm long, 13-18 mm Ø.

Coastal sand; grassland on sand inland; seasonally inundated places; on sodic soils; damp ground; weed of wetland agricultural areas; 0-1800 m alt.

Botswana, Namibia, S. Africa. The presence in N Chad (Tibesti) is doubtful; as well as records from W Africa. Perhaps confusion with *D. viride* present on Djebel Marra (Sudan); references: Quézel in Bull. Soc. Hist. Nat. Afrique N. 50: 22, 1959; Mém. Inst. Rech. Sahar. 4: 124, 1958 (Miss. Bot. Tibesti).

D. marlothii Engl.; Nord. J. Bot. 15: 593, 1995; Fl. Trop. E. Afr., Hyacinth.: 5, 1996; Fl. Eth. & Eritrea 6: 139, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 114-115, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 188, 2010; S. Afric. J. Bot. 77: 585, 2011.

syn.: *Ornithogalum durandianum* (Schinz) J. C. Manning & Goldblatt; *Dipcadi polyphyllum* Baker 1897, non 1904 *(= D. gracillimum); D. oligotrichum* Baker; *D. bakerianum* Schinz 1890, non Bolus 1881; *D. durandianum* Schinz; *D. ernesti-ruschii* Dinter

Herb with globose bulb c. 1,6 cm Ø; leaves to 30, filiform, 12 cm × 1 mm, with *hairs 1 mm long;* scape 1, to 30 cm tall; raceme 6-11-flowered, longer than leaves; pedicels c. 4 mm long; perianth segments 11-15 mm long, *without caudate appendages;* capsule oblong to globose, dorsally ridged, c. 12 mm long.

DIPCADI MARLOTHII

Bushland on thin soil or red, sandy soil; woodland by dambo; usually on rocky ground; 400-1800 m alt.

Botswana, Namibia, N S. Africa.

The presence (identity) of this plant in Ethiopia is not quite certain.

(**D. mechowii** Engl.)

Tall, very beautiful herb; leaves linear, c. 50 × 2-3,5 cm; scape 60-70 cm tall, 5 mm Ø; raceme c. 20-flowered; bracts c. 2 cm long, base 3 mm wide; pedicels 2 cm long; flowers yellowish green, tepals fused half-way; outer tepals lanceolate, caudate, 4 mm longer than the inner ones which are 1,5 cm long and 4 mm wide; fruit unknown.

Probably collected on the Quango/Kuango/Kwango (Zaire-Angola, 4°-8°S × 17°-20°E), by v. Mechow who introduced it to the "Royal Botanic Garden" (Berlin) where it flowered in 1886.

Said to be near *D. glaucum* but raceme shorter, bracts larger and stamens longer.

Taxonomic status uncertain. Not mapped.

(**D. ndellense** A. Chev.)

Bulb depressed-globose, 3,5-6 cm Ø, tunics white; leaves 3-6, linear, glaucous, 10-25 × 1,2-1,4 cm; scape 30-50 cm long incl. raceme; raceme lax, one-sided; flowers 12-20, nodding; pedicels 4-5 mm long, first erect later curved; bracts lanceolate, acuminate, 8-10 mm long; perianth green, c. 1,5 cm long, tube 6 mm long; outer tepals with a 3 mm long appendage; fruit unknown.

Ecology not recorded.

Said to be near *D. viride*.

Syntypes: Centr. Afr. Rep., Ndellé (Chevalier 8124 bis, 8178, 8179); Chad, Baguirmi, Tcheckna (Chevalier 9536, 9574). All collected in 1903.

Taxonomic status uncertain. Not mapped.

D. oxylobum Welw. ex Baker; Figueiredo & Smith, Pl. Angola: 185, 2008.

Herb with bulb 1,2-1,8 cm Ø, outer tunics pale; leaves 2, narrowly linear, complicate, glabrous, 10-15 cm long; peduncle 15-22,5 cm long; raceme lax, subsecund, 5-10-flowered; pedicels short; perianth green tinged cinnamon-red; tube oblong, 0,4 cm long; inner segments flat, rather longer than tube; outer complicate, falcate, 0,3-0,4 cm longer than inner; fruit unknown.

Slopes bearing short herbage with huge rocks; 720-1140 m alt.

Only known from the type collected in 1856.

(**D. papillatum** Oberm.); Taxon 58: 99, 2009.

syn.: *Ornithogalum papillatum* (Oberm.) J. C. Manning & Goldblatt

Description from S. African plants:

Herb to 40 cm tall with bulb c. 2 cm broad with thin brown outer skins, produced into a neck; leaves 4-6 per shoot, rosulate, lamina in *lax spirals*, becoming straight, *margin yellow*, minutely ciliate, occasionally dorsally minutely *papillate on ribs;* with several terete papillate scapes per bulb; raceme to 40 cm tall, 4-7-flowered; flowers green, 1 cm long, segments fused about 1/3 of the way, equal; outer recurved; capsule round, trigonous, 7 mm long.

Ecology unknown in Zimbabwe. Usually in sand; common.

S. Africa, Namibia.

Presence in SW-most Zimbabwe doubtful. Perhaps confusion with *D. viride*. Not mapped.

DIPCADI

D. platyphyllum Baker 1898, non *Ornithogalum platyphyllum* Boiss. 1844; Taxon 58: 99, 2009; Fl. Trop. E. Afr., Hyacinth.: 5, 1996. – Icon.: Pickering & Roe, Wild flow. Victoria falls area: 64, 2009.

syn.: *D. monophyllum* K. Krause & Dinter; *Ornithogalum planifolium* J. C.Manning & Goldblatt; *Dipcadi ciliatum* Engl. & K. Krause

Herb 7-35 cm tall; bulb round, 1-2,5 cm Ø, with leathery, thin light brown tunics; leaf 1(-2), clasping the base of scape; blade *flat on the ground*, ovate-*lanceolate* to linear-lanceolate, 5-25 × 1-4 cm; margin *crisped*, *ciliate;* blade with short bristles on ribs below, apex acute, base obtuse; raceme to 20 cm long, secund, 4-20-flowered, dense; scape densely pubescent (short patent bristles); pedicels to 1 cm long, pubescent as the scape; flowers green to brownish-green, to yellowish-green, c. 14 mm long; segments fused nearly half way, outer with *caudate appendages c. 3 mm long;* inner ligulate, cucullate; capsule rounded, trigonous, c. 1,5 cm long, thin-walled.

Brachystegia boehmii woodland; open woodland; grassland; seasonal pans; on poorly drained soils; 350-1400 m alt.

S. Africa, Botswana, Namibia.

D. rigidifolium Baker; Taxon 58: 99, 2009. – Icon.: Weimarck in Bot. Not. 1937: 441, 1937 (as *D. rhodesianum*, sphalm.).

syn.: *Ornithogalum rigidifolium* (Baker) J. C. Manning & Goldblatt; *Dipcadi rhodesiacum* Weim.

Herb 20-80 cm tall; bulb globose, 2-5 cm Ø, outer tunics thin, light coloured; leaves 2-3 per shoot, linear-lanceolate, to 30 × 2,5 cm, glabrous, *coriaceous*, margin *prominent*, *yellow*, apex acute, base clasping; scape arcuate at base; raceme to 50 cm long, secund, lax, 8-20-flowered; flowers c. 1,5 cm long, green; segments fused about half way, outer spreading, or recurved in upper half with caudate appendages 0,5-1,4 cm long; inner ones obtuse, cucullate; capsule broadly oblong, 3-angled, c. 1,8 cm long.

Dambo grassland, on sandy soils; 1000-1400 m alt.

S. Africa, Botswana.

D. serotinum (L.) Medik. var. **serotinum**; Taxon 58: 99, 2009; S. Afric. J. Bot. 77: 585, 2011; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 166, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 132, 2010. – Icon.: Kew Bull. 51: 804, 1996.

bas.: *Hyacinthus serotinus* L. 1753, non Forssk. 1775.

syn.: *Hyacinthus monomotapensis* Desf. ex Poir.; *Scilla sordida* Salisb.; *S. serotina* (L.) Ker Gawl.; *Hyacinthus lividus* Pers.; *H. sulphureus* Poir.; *Dipcadi serotinum* subsp. *lividum* (Pers.) Maire & Weiller; *Uropetalon hysudricum* Edgew.; *U. serotinum* (L.) Ker Gawl.; *U. bourgaei* Nyman; *Dipcadi hysudricum* (Edgew.) Baker; *Ornithogalum serotinum* (L.) J. C. Manning & Goldblatt; *Lachenalia serotina* (L.) Willd.; *Zuccagnia serotina* (L.) Dennst.; *Tricharis serotina* (L.) Salisb.

Herb with ovoid bulb to 6 cm Ø, tunics papery, whitish, brownish or brownish black; scape 0,1-1 m tall; leaves basal, rosulate, erect or spreading, linear, to 40 × 5 cm; raceme lax, one-sided, 3-20-flowered; pedicels 5-8 mm long (to 15 in fruit); flowers *greenish*, *dirty orange*, *red-brown*, etc., 14-18 mm long; tepals fused on 1/4-1/2 of the length, linear-oblong, 5-nerved; outer recurved near the base; inner spreading only at apex; capsule subglobose or depressed-trilobate, to 1,5-2 cm.

Clayey grara with *Euphorbia echinus*, *E. balsamifera*.

SW Europe; Canary Isl.; Morocco to Libya; Arabia to India [incl. var. **fulvum** (Cav.) Ball; var. **pruinosum** Gattef. & Weiller in Morocco].

DIPCADI SEROTINUM

Dipcadi fulvum (Cav.) Webb & Berthel. [bas.: *Hyacinthus fulvus* Cav.; syn.: *Dipcadi serotinum* subsp. *fulvum* (Cav.) K. Richt.; *D. serotinum* var. *pruinosum* Gattef. & Weiller] is sometimes considered as a distinct species.

D. vaginatum Baker; Fl. Trop. E. Afr., Hyacinth.: 2, 1996; Figueiredo & Smith, Pl. Angola: 185, 2008; idem in Bothalia 39: 196, 2009 (Kunene Exp.); Taxon 58: 99, 2009.

syn.: *Ornithogalum vaginatum* (Baker) J. C. Manning & Goldblatt; *Dipcadi baumii* Engl. & Gilg; ? *D. thollonianum* Hua

Herb 10-55 cm tall; bulb ovoid, 1-2,5 cm Ø; leaf single, linear, 12-20 × 0,3-1 cm long, lower third *clasping the scape*, pubescent in lower parts; scape one, *ciliate;* raceme 3-10-flowered; pedicels 0,5-2 cm long, *pubescent;* flowers green; perianth segments to 10-12 mm long, outer with caudate appendages 5-20 mm long; fruit obovate, c. 1,5 cm long.

Wooded grassland; c. 125-1150 m alt.

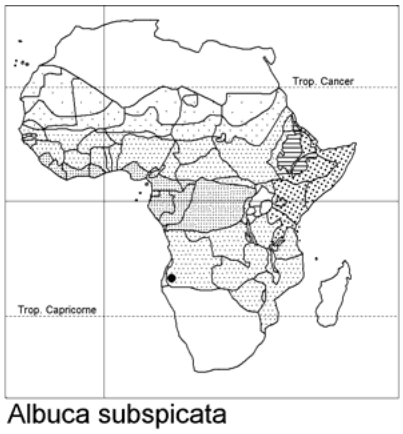
Botswana, Namibia, S. Africa.

D. thollonianum Hua is perhaps a synonym. According to the descripton (Bull. Soc. Hist. Nat. Autun 10: 675: 1897) it is a plant with a single leaf, narrow, 30 × 0,6 cm; the inflorescence bears c. 10 flowers in the upper quarter; the pedicels are erect, as long as the bracts and articulated just below the perianth, the latter tubular, the outer segments reddish-blackish with a long papillose appendage. Collected in meadows ("prairies") along the River Djoué (Thollon 4076; Brazzaville region, c. 4°14'S × 15°14'E), Congo, in 1891. The plant is also cited by M. Renier, Flore du Kwango 1: 92, 1948.

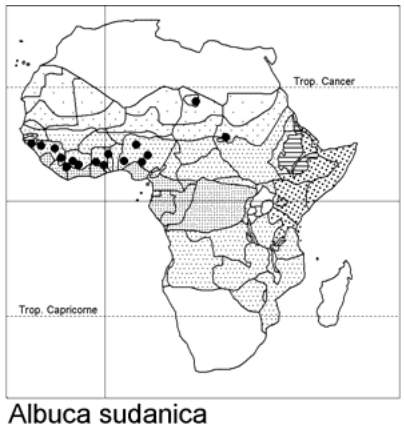
D. viride (L.) Moench; Brunel & al., Fl. analyt. Togo in Englera 4: 658, 1984 (as *D. longifolium*, *D. tacazzeanum*); Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 516-517, 1995 (idem); Nord. J. Bot. 15: 592, 1995; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c50, 2001; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 486, 2005; Boulos, Fl. Egypt 4: 46, 2005; Figueiredo & Smith, Pl. Angola: 185, 2008; Bothalia 39: 196, 2009 (Kunene Exp.); Taxon 58: 99, 2009; S. Afric. J. Bot. 77: 585, 2011; Lisowski, Fl. Rép. Guinée 1: 423, 2009 (as *D. longifolium*, *D. tacazzeanum*); Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 132, 2010 (as *D. longifolium*, *D. viride*); Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 232, 2011 (idem); Thiombiano & al., Cat. pl. vascul. Burkina Faso: 35, 2012 (idem). – Icon.: Tredgold & Biegel, Rhodes. wild flow.: pl. 4, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 147, 1994; Thulin, Fl. Somalia 4: 51, 1995; Fl. Trop. E. Afr., Hyacinth.: 4, 1996; Kew Bull. 51: 804, 1996; Fl. Eth. & Eritrea 6: 140, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 205, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 114, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 187, 2010; Burrows & Willis, Pl. Nyika Plateau, Malawi: 306, 2005; Akoegninou & al., Fl. analyt. Bénin: 134, 2006; Fl. Gabon 40: 23, 2010.

bas.: *Hyacinthus viridis* L.

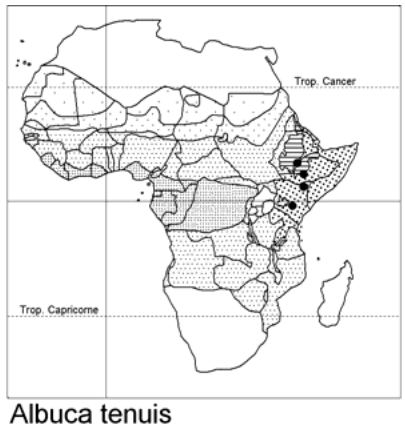
syn.: *Dipcadi filamentosum* Medik.; *D. umbonatum* (Baker) Baker; *D. comosum* Welw. ex Baker; *D. lateritium* Welw. ex Baker; *D. elatum* Baker; *D. lividescens* Engl. & Gilg; *D. palustre* Baker; *D. conrathii* Baker; *D. longicauda* Engl. & K. Krause; *D. helenae* Beauverd; *D. stenophyllum* Dinter; *D. cinnabarinum* Suess.; *D. sulcatum* Suess.; *D. geniculatum* Dinter ex Suess.; *D. occidentale* Baker; *D. dahomense* A. Chev., nom. nud.; *D. gourmaense* A. Chev. ex Hutch., nom. invalid.; *D. tacazzeanum* (Hochst. ex A. Rich.) Baker; *D. minimum* (Steud. ex



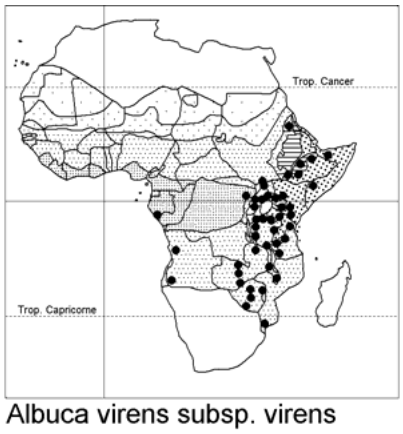
Albuca subspicata



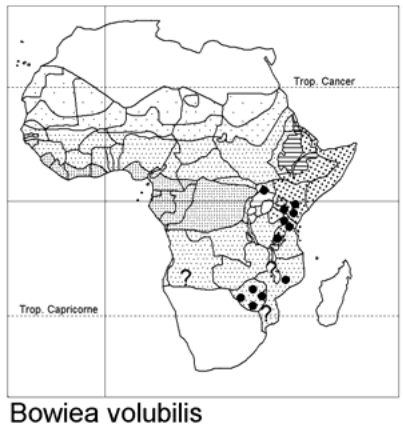
Albuca sudanica



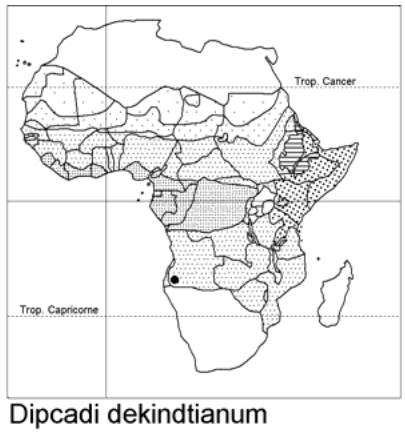
Albuca tenuis



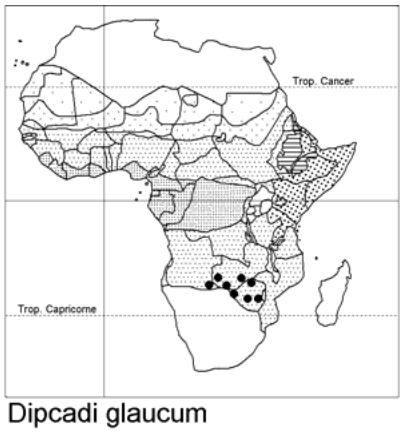
Albuca virens subsp. virens



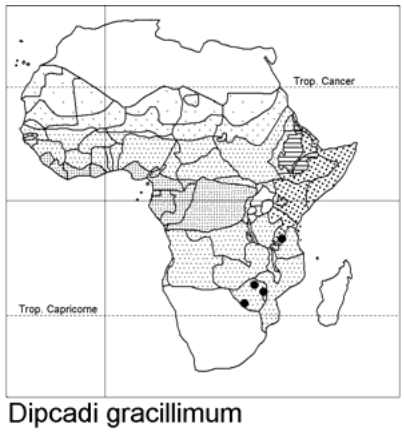
Bowiea volubilis



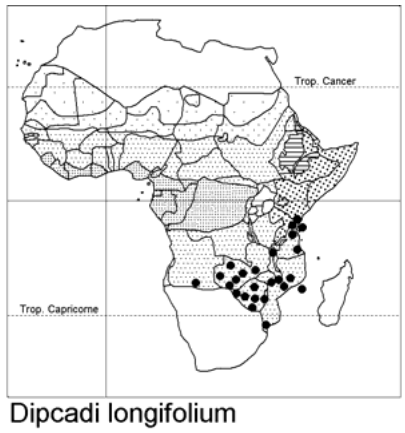
Dipcadi dekindtianum



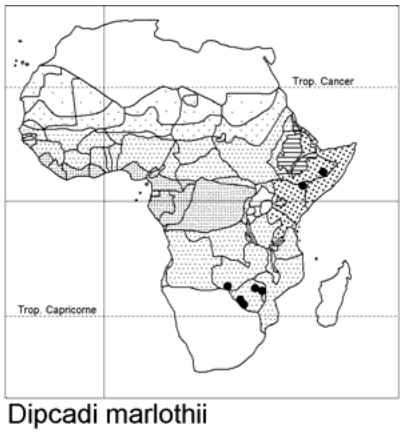
Dipcadi glaucum



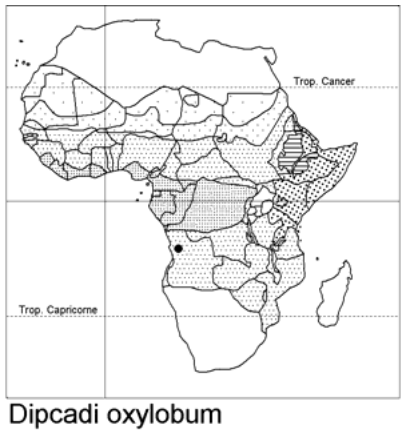
Dipcadi gracillimum



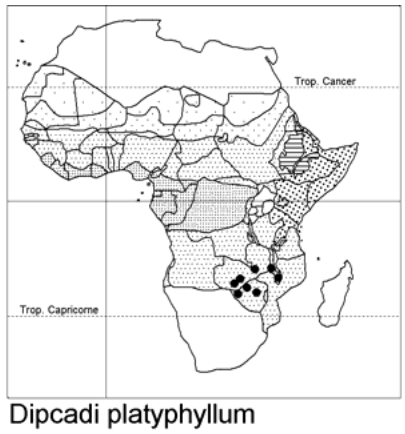
Dipcadi longifolium



Dipcadi marlothii



Dipcadi oxylobum



Dipcadi platyphyllum

DIPCADI VIRIDE

A. Rich.) Baker; *D. unifolium* Baker; *D. filifolium* Baker; *D. lanceolatum* Baker; *D. arenarium* Baker; *D. wentzelianum* Engl.; *D. kelleri* Baker; *D. bussei* Dammer; *D. erlangeri* Dammer; *D. kerstingii* Dammer; *D. glaucescens* Engl. & K. Krause; *D. nitens* K. Krause; *D. rupicola* Chiov.; *D. hockii* De Wild.; *Lachenalia viridis* (L.) Thunb.; *Scilla viridis* (L.) Salisb.; *Uropetalon viride* (L.) Ker Gawl.; *U. depressum* A. Rich.; *U. minimum* Steud. ex A. Rich.; *U. tacazzeanum* Hochst. ex A. Rich; *U. becazzeanum* Dammann (in Gartenflora 41: p. 611, and fig. 610 p. 127, 1892, reported as "Neue Zwiebelgewächse von"/New bulbous plants from/Dammann & Co. in San Giovanni a Teduccio"); *U. umbonatum* Baker; *Ornithogalum viride* (L.) J. C.Manning & Goldblatt; *Zuccagnia viridis* (L.) Thunb.; *Albuca hyacinthoides* Chiov. ex Chiarugi; *Dipcadi longifolium* sensu Fl. W. Trop. Afr., ed. 2, 3: 104, 1968, and other publications, non (Lindl.) Baker (W Africa).

Herb 0,15-1,2-2 m tall, glabrous, with scaly bulb, occasionally bulbiferous or with runners; leaves 1-4-15 per shoot (occasionally after the flowers), linear to linear-lanceolate, 6-60-100 × 0,3-2-3 cm, usually clasping at base, apex acuminate; scapes 1-3; raceme 0,15-1,2 m long, few- to many-flowered; pedicels 8-18 mm; flowers with perianth-segments fused 1/3 of the way; outer ones green with a cream, orange, reddish or brown tinge, usually recurved from the middle, linear-lanceolate, with a filiform appendage, 2-30 mm long; inner forming a tube with tips curved outwards; capsule oblong, 14 × 9 mm, trigonous.

Dry *Combretum* woodland; grassland; bushland; wooded grassland; often on shallow soil over rocks; temporarily very humid sands; sometimes near salty ground; hollows in littoral dunes; savanna; degraded soils (muddy or sandy); sometimes very common; stony or blackish soil; earthy talwegs; banks in *Acacia seyal* zone; 10-3200 m alt.

Extremely variable especially regarding width of leaves, and there is a tendency towards dividing the taxon into 3 groups: 1-3 mm width, 4-7 mm, > 8 mm (Nord. J. Bot. 15: 592, 1995). But there are no clear discontinuities, and correlation with other features prevent subspecific delimitation.

S. Africa, Namibia, Botswana, Swaziland; Egypt (Gebel Elba); Saudi Arabia, Oman, Yemen.

D. welwitschii (Baker) Baker; Figueiredo & Smith, Pl. Angola: 185, 2008. – Icon.: Saunders, Refug. Bot. 1: pl. 16, 1868.

bas.: *Uropetalon welwitschii* Baker

"A herb with the habit of a Hyacinth…" (Rendle in Welwitsch's Afric. Pl. 2/1: 56, 1899); bulb globose, 2,5 cm Ø, outer tunics pale; leaves 2 per shoot, narrowly linear, complicate, glabrous, <15 cm long; scape slender, *15-30 cm tall;* raceme lax, 6-8-flowered; pedicels ascending, 0,3-0,6 cm long; perianth green; tube 0,3 cm long; inner segments linear, as long as the tube; outer complicate, 0,3 cm longer than the inner; capsule sessile, globose, 0,6 cm long.

Rocky places or on poor soil; rather damp places; herb-grown thickets; c. 1160-1800 m alt.

Very near *D. oxylobum*.

IN NEED OF FURTHER STUDY:

Dipcadi tenuifolium A. Chev., nom. nud., Centr. Afric. Rep., Ndellé, sandy ground, Chevalier 8233; between Gouzamer and Koubou, Chevalier 8379; Kom, Chevalier 8569.

D. sp., Centr. Afric. Rep., Conrabali, Chevalier 8358, cultivated grounds.

DIPCADI

SYNONYMS:

Dipcadi anthericoides Engl. & Gilg = **Dipcadi longifolium**

arenarium Baker = **D. viride**

bakerianum Schinz = **D. marlothii**

baumii Engl. & Gilg = **D. vaginatum**

bussei Dammer = **D. viride**

ciliatum Engl. & K. Krause = **D. platyphyllum**

cinnabarinum Suess. = **D. viride**

comosum Welw. ex Baker = **D. viride**

conrathii Baker = **D. viride**

dahomense A. Chev. = **D. viride**

durandianum Schinz = **D. marlothii**

elatum Baker = **D. viride**

erlangeri Dammer = **D. viride**

ernesti-ruschii Dinter = **D. marlothii**

filamentosum Medik. = **D. viride**

filifolium Baker = **D. viride**

firmifolium Baker = **D. longifolium**

fulvum (Cav.) Webb & Berthel. = **Dipcadi serotinum** var. **fulvum**

geniculatum Dinter ex Suess. = **D. viride**

glaucescens Engl. & K. Krause = **D. viride**

gourmaense A. Chev. ex Hutch. = **D. viride**

gracilipes K. Krause = **D. glaucum**

helenae Beauverd = **D. viride**

hockii De Wild. = **D. viride**

hysudricum (Edgew.) Baker = **D. serotinum** var. **serotinum**

involutum Suess. = **D. gracillimum**

kelleri Baker = **D. viride**

kerstingii Dammer = **D. viride**

lanceolatum Baker = **D. viride**

lateritium Welw. ex Baker = **D. viride**

lividescens Engl. & Gilg = **D. viride**

longibracteatum Schinz = **D. glaucum**

longicauda Engl. & K. Krause = **D. viride**

longifolium sensu Fl. W. Trop. Afr., ed. 2, 3: 104, 1968, and other publications (W. Africa) = **D. viride**

magnum Baker e descr. = **D. glaucum**

minimum (Steud. ex A. Rich.) Baker = **D. viride**

monophyllum K. Krause & Dinter = **D. platyphyllum**

nitens K. Krause = **D. viride**

occidentale Baker = **D. viride**

oligotrichum Baker = **D. marlothii**

palustre Baker = **D. viride**

polyphyllum Baker, 1897 = **D. marlothii**

polyphyllum Baker, 1904 = **D. gracillimum**

rhodesiacum Weim. = **D. rigidifolium**

rupicola Chiov. = **D. viride**

sansibaricum Engl. = **D. longifolium**

serotinum (L.) Medik. subsp. *fulvum* (Cav.) K. Richt. = **D. serotinum** var. **fulvum**

serotinum subsp. *lividum* (Pers.) Maire & Weiller = **D. serotinum** var. **serotinum**

stenophyllum Dinter = **D. viride**

sulcatum Suess. = **D. viride**

tacazzeanum (Hochst. ex A. Rich.) Baker = **D. viride**

tenuifolium A. Chev., nom. nud. = **?**

thollonianum Hua = ? **D. vaginatum**

umbonatum (Baker) Baker = **D. viride**

unifolium Baker = **D. viride**

venenatum Schinz = **D. longifolium**

wentzelianum Engl. = **D. viride**

zambesiacum Baker = **D. longifolium**

DRIMIA / *18 + 2 ? + 3 ?*

A genus, as broadly circumscribed by Manning & al. (Edinb. J. Bot. 60: 533-568, 2004) of 95-100-115 species in the Mediterranean Region, Asia to Myanmar, Africa, Madagascar; with a marked centre of diversity in southern Africa. Their treatment is more inclusive than those of Jessop (J. S. Afric. Bot. 43: 265-319, 1977) and Stedje (Nord. J. Bot. 7: 655-666, 1987; and Fl. Trop. E. Afr., Hyacinth.: 1-32, 1996). A comment on the different treatments of the genus is given by Stedje (Syst. Geogr. Pl. 71: 450-451, 2002).

The genus is characterised by the wiry mostly simple inflorescence, *spurred* small bracts, short-lived flowers (one day); tepals ± united at base, desiccating and cohering above when flowers fade; seeds often flattened and winged [cf. G. Williamson in Cactus Succ. J. (U.S.) 83: 286, 2011].

Several species insufficiently known in our area. Leaves unknown in 1 species, the mature fruit in the same species, and the fruit unknown ? in an other species.

SPETA, F. (1998). Systematische Analyse der Gattung Scilla L. s. l. (Hyacinthaceae). *Phyton (Horn)* 38: 1-141 [*Drimia* p. 61-65].

Drimia altissima (L.f.) Ker Gawl. 1808, non Hook. f.; Nord. J. Bot. 15: 598, 1995; Harvey & al., Pl. Bali Ngemba…: 140, 2004. Sosef & al., Check-list pl. vascul. Gabon: 253, 2006; Figueiredo & Smith, Pl. Angola: 185, 2008; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 152, 2010; Onana, Vascul. pl. Cameroon…: 165, 2011; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 232, 2011; Salter & Davenport, Orchids & wildflowers Kitulo Plateau: 23, 23, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 35, 2012; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Bot. Mag. 27: pl. 1074, 1808 (reproduction in Stapfia 75: 218, 2001); Fl. Pl. Africa 26: pl. 1027, 1947; Nord. J. Bot. 7: 656, 660, 1987; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 146, 1994; Thulin, Fl. Somalia 4: 52, 1995; Fl. Trop. E. Afr., Hyacinth.: 20, 1996; Fl. Eth; & Eritrea 6: 145, 1997; Stapfia 75: 217-218, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 122, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 2000, 2010; Puff & Sileshi, Pl. Simen: 223, 2005; Akoegninou & al., Fl. analyt. Bénin: 135, 2006; Fl. Gabon 40, Hyacinth.: 25, 2010.

bas.: *Ornithogalum altissimum* L. f.

syn.: *Drimia paolii* Chiov.; *D. uitenhagensis* Eckl.; *D. barteri* Baker, non *Drimiopsis barteri* Baker; *Idothea barteri* (Baker) Kuntze; *I. altissima* (L. f.) Kuntze; *Ornithogalum giganteum* Jacq.; *Scilla micrantha* A. Rich.; *Urginavia epigea* (R. A. Dyer) Speta; *U. micrantha* (A. Rich.) Speta; *U. altissima* (L. f.) Speta; *Urginea altissima* (L. f.) Baker; *U. brevipes* Baker; *U. gigantea* (Jacq.) Oyewole; *U. micrantha* (A. Rich.) Solms; *U. epigea* R. A. Dyer; *Drimia incerta* A. Chev., Explor. Bot. Afr. Occid. Franç. 1: 653, 1920, nom. nud.; Hutch. in Hutchinson & Dalziel, Fl. W. Trop. Afr., ed. 1, 2/2: 351, 1936, nom. inval., *syn. nov.* (the specimen Chevalier 21656 bis is cited by Aké Assi in Boissiera 58: 248, 2002, as well as 21656 from the same locality; also figuring in Fl. W. Trop. Afr., ed. 2, 3/1: 102, 1968; however, the specimen Chevalier 21733 is not cited in the latter two publications.

Herb 0,35-2 m tall, usually flowering before the leaves; bulb ovoid, 7-15 cm Ø, sometimes exposed on soil surface, with a neck; leaves lanceolate, 20-50 × 2-7,5 cm; scape erect, to 1 cm Ø; *raceme* ± dense, *to 80 cm long*, of up to 700 flowers; pedicels 0,8-3 cm long, spreading; perianth-segments free or united up to 2 mm, 0,5-1,1 cm long, white or greenish white with a green abaxial band; filaments linear to slightly triangular, free or united with the perianth-segment, free part 4-7 mm long; capsule subglobose, sometimes with an emarginate apex, 0,8-1,5 cm long, 0,9-1,5 cm Ø.

Usually in grassland; bushland; open woodland; wet or arid places in sandy or clayish soils; sometimes on very rocky ground; sometimes very common; savanna; ferruginous ground; often in overgrazed or recently burnt places; black loamy soil; 0-2700 m alt.

Very variable.

Caprivi Strip (Namibia), S. Africa, Botswana, Swaziland.

Leaves and bulbs very poisonous to livestock, can cause significant losses. The bulbs have been sold as a substitute of squill, *Urginea maritima*, in Europe (S. Afric. J. Bot. 65: 291, 1999), used for its digitalis-like effect.

D. basutica (E. Phillips) ined., World Checklist Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew. – Icon.: Bothalia 13: 139 (1980).

bas.: *Urginea basutica* E. Phillips

syn.: *Drimia angustifolia* Baker 1897, non Kunth 1843; *Thuranthos basuticum* (E. Phillips) Oberm.; *T. macranthum* "(Baker) C. H. Wright" sensu Kativu & Drummond in Kirkia 15: 113, 1994.

Herb to 80 cm tall, flowering before leaves; bulb of thick pinkish loose scales; leaves linear, 16 × 0,7-1,3 cm; inflorescence an erect, very lax raceme of up to 12 flowers, to 12 cm long; pedicels c. 5,5 cm long in fruit; perianth segments free or united at base, c. 2 cm long, linear, yellowish green to purplish brown, base expanded, reflexed from near base; filaments united with perianth segments at base, flattened below, terete above; capsule oblong, 2,5-3 × 1,5 cm, apex truncate.

Seasonally flooded soils; 1200-1400 m alt.

S. Africa, Lesotho.

D. brachystachys (Baker) Stedje; Nord. J. Bot. 15: 598, 1995; Fl. Trop. E. Afr., Hyacinth.: 19, 1996; Fl. Eth. & Eritrea 6: 144, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 120, 2003 (in key); idem, Aloes & lilies Eth. & Eritrea, ed. 2: 120 (idem). – Icon.: Nord. J. Bot. 7: 660, 1987 (details).

bas.: *Urginea brachystachys* Baker

syn.: *Urginavia brachystachys* (Baker) Speta

Herb 5-13 cm tall, usually flowering before leaves; bulb often *extended into a neck;* leaves *linear*, 10-30 × 0,3-1,8 cm; raceme dense, subglobose, with 25-75 flowers; pedicels 0,5-1,1 cm, spreading; perianth segments free or united up to 1,5 mm, white

DRIMIA BRACHYSTACHYS

with a greenish or brownish abaxial band, 5-8 mm long; filaments linear or triangular, free or united with the perianth segments, free part 3-4 mm long; capsule subglobose, 0,5-1,2 × 0,4-1,1 cm.

Grassland and wooded grassland; often on burnt ground; open stony places; 175- c. 2000 m alt.

Bulb very poisonous.

Closely related to *Urginea johnstonii* (Angola); cf. Nord. J. Bot. 7: 665, 1987.

D. calcarata (Baker) Stedje; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 319, 1994; Nord. J. Bot. 15: 597, 1995; Fl. Trop. E. Afr., Hyacinth.: 16-17, 1996; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Nord. J. Bot. 7: 659, 1987.

bas.: *Ornithogalum calcaratum* Baker

syn.: *Drimia modesta* (Baker) Jessop; *Fusifilum gracile* (A. V. Duthie) Speta; *Urginea modesta* Baker; *U. natalensis* Baker; *U. riparia* Baker; *U. rubella* Baker; *U. tenella* Baker; *U. mandalensis* Baker; *U. pauciflora* Baker 1901; *U. umgeniensis* Poelln.; *U. pretoriensis* Baker; *U. gracilis* A. V. Duthie; *U. calcarata* (Baker) Hilliard & B. L. Burtt; *U. arenosa* Adamson; *U. pedunculata* Adamson

Herb slender, 8-35 cm tall, usually flowering before the leaves; bulb ovoid, 1,5-3 cm Ø; leaves filiform, to 2 mm wide; *scape 1-2 mm Ø*, erect, glabrous; raceme lax, with 20-30 flowers; pedicels 1-8 mm long; perianth segments free, oblong, white with a green or brown abaxial band, *3-4 mm long;* capsule narrowly ovoid-ellipsoid, 4-5 mm long; *seeds not winged*.

Grasslands; rocky outcrops; on tufts of sedge; often in dambos; 1200-3350 m alt.

S. Africa, Swaziland.

D. congesta Bullock 1932, non (Wight) Stearn 1978 (bas.: *Urginea congesta* Wight = *D. wightii* Lakshmin., India, in Kew Bull. 58: 507-508, 2003); Nord. J. Bot. 7: 664, 1987; idem 15: 597, 1995; Fl. Trop. E. Afr., Hyacinth.: 17, 1996.

Herb, robust, to 1 m tall, flowering before the leaves; leaves lanceolate, ciliate; *raceme extremely dense* with *100-140 flowers per 10 cm;* pedicels 4-8 mm long; perianth segments 1,3-1,9 cm long, united 3-4 mm, pinkish or cream with mauve lines; filaments narrowly triangular and united with the perianth segments, free part to 1,2 cm long; capsule ovoid, 1-1,4 cm long, apex cuspidate.

Grassland; rocky outcrops; 2800-3000 m alt.

D. delagoensis (Baker) Jessop; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Cactus Succ. J. (U.S.) 78: 83, 2006 (details); Piante Grasse 26/4: 139, 2006 (idem).

bas.: *Urginea delagoensis* Baker

syn.: *Sekanama delagoensis* (Baker) Speta; *Urginea ubomboensis* R. A. Dyer ex errore *U. delagoensis; U. lydenburgensis* R. A. Dyer

Herb with a succulent above-ground bulb, usually growing in small groups; bulb ovoid, 2,5-15 cm long, scales thick, fleshy, loose-packed, *red*, or *pink;* leaves 3-8, cylindrical or channelled adaxially, 13-45 × 0,2-1,5 cm; scape 20-60 cm long, 10-60-flowered in ± elongated raceme; pedicels 1,5-6 mm long; perianth light brown, creamy white or pale mauve, with or without a darker area or stripe above, 3-5,5 mm long, segments spreading; capsule narrowly ellipsoid, 7-10 mm long.

DRIMIA DELAGOENSIS

Rocky areas.

S. Africa, Swaziland.

Grown as a succulent ornamental. In S. Africa traded in ethnomedicinal plant markets (Biochem. Syst. Ecol. 33: 743-748, 2005).

D. elata Jacq.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 517, 1995; Nord. J. Bot. 15: 597, 1995; Fl. Trop. E. Afr., Hyacinth.: 17-18, 1996; Stedje in Pl. Syst. Evol. 211: 3, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c50, 2001; Friis & Vollesen, Fl. Sudan-Uganda border area…: 487, 2005; Burrows & Willis, Pl. Nyika Plateau, Malawi: 307, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 108, 2006 (as *D. robusta*); Figueiredo & Smith, Pl. Angola: 185, 2008; Lisowski, Fl. Rép; Guinée 1: 423, 2009 (as *D. zombensis*); Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 232, 2011; Gereau & al., Lake Nyasa florist. checklist: 65, 2012; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Jacquin, Icon. pl. rar. 2/15: pl. 373, 1794 (reproduction in Stapfia 75: 191, 2001; lectotype); idem, Ecl. pl. rar.: pl. 30, 1812 (as *D. purpurascens* J. Jacq.); Edwards's Bot. Reg. 16: pl. 1346, 1830 (as *D. villosa* Lindl.); Bot. Mag. 91: pl. 5522, 1865 (as *D. altissima* Hook. f.); Fl. Pl. S. Africa 23: pl. 890, 1943 (as *D. alta* R. A. Dyer); Nord. J. Bot. 7: 656, 659, 1987 (details); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 147, 1994; Speta in Phyton (Horn) 38: 62-63, 1998 (details); B.-E. Van Wyk & al., Medicin. pl. S. Africa, ed. 2: 127, 2009; Burrows & Willis, Pl. Nyika Plateau, Malawi: 308, 2005.

syn.: *D. ciliaris* Jacq. ex Willd.; *D. purpurascens* J. Jacq.; *D. villosa* Lindl.; *D. concolor* Baker; *D. rigidifolia* Baker; *D. burchellii* Baker; *D. rutadisii* Schltr.; *D. zombensis* Baker; *D. elgonica* Bullock; *D. altissima* Hook. f., non (L. f.) Baker, nom. illegit.; *D. alta* R. A. Dyer; *D. robusta* Baker; *Hyacinthus elatus* (Jacq.) Poir.; *H. ciliaris* (Jacq. ex Willd.) Poir.; *Idothea elata* (Jacq.) Kunth; *I. ciliaris* (Jacq. ex Willd.) Kunth; *I. purpurascens* (J. Jacq.) Kunth; *I. villosa* (Lindl.) Kunth; *I. concolor* (Baker) Kuntze; *I. rigidifolia* (Baker) Kuntze; *I. robusta* (Baker) Kuntze; *I. burchellii* (Baker) Kuntze; *Idothearia elata* (Jacq.) C. Presl; *I. ciliaris* (Jacq. ex Willd.) C. Presl; *I. purpurascens* (J. Jacq.) C. Presl; *I. villosa* (Lindl.) C. Presl; *Strepsiphyla villosa* (Lindl.) Raf.

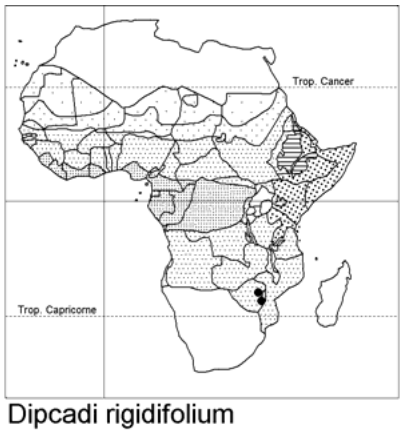
Herb 0,08-1 m tall, flowering before leaves; bulb often reddish, sometimes ± above-ground, 3-12 cm long, 1,5-6 cm Ø; leaves linear, 0,3-1,2 m × 1-7 cm; scape erect, glabrous, 0,2-1 m tall; *raceme lax to dense*, 4-25 cm long, with *10-40 flowers per 10 cm* (with up to 150 flowers); pedicels 0,2-1 cm long; perianth segments 1-2,3 cm long, united 3-7 mm, whitish eventually tinged brownish purple; filaments narrowly triangular, united with the perianth segments, free part 0,7-1 cm long; capsule ovoid-ellipsoid, c. 1 cm long, apex cuspidate.

Grassland, burnt grassland; miombo and open woodland; *Loudetia arundinacea* grassland with scattered trees, recently burnt; also in crevices in rocky outcrops; 10-2500 m alt.

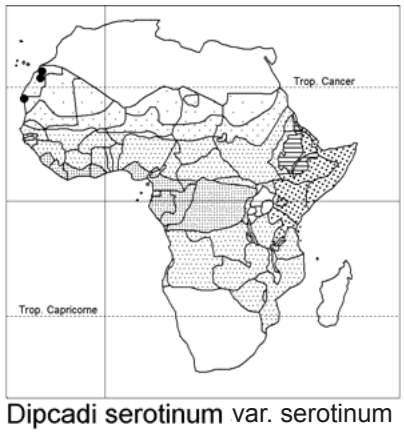
Very variable, and very difficult to subdivide.

S. Africa, Swaziland, Botswana.

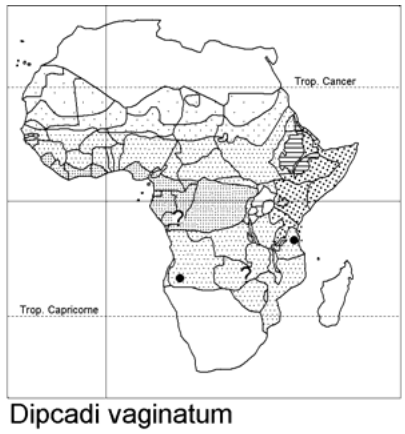
Used in traditional medicine (often as *D. robusta*). Reported toxic to stock (S. Afric. J. Bot. 65: 291-294, 1999; for propagation in vitro, see Ngugi & al. in S. Afric. J. Bot. 64: 266-268, 1998).



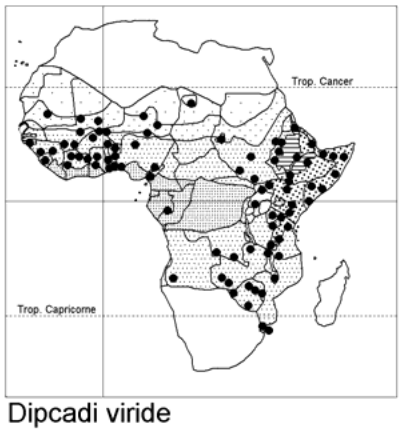
Dipcadi rigidifolium



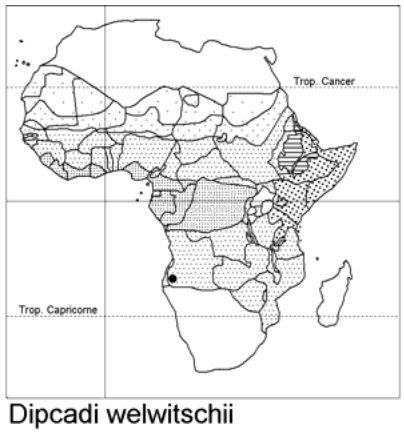
Dipcadi serotinum var. serotinum



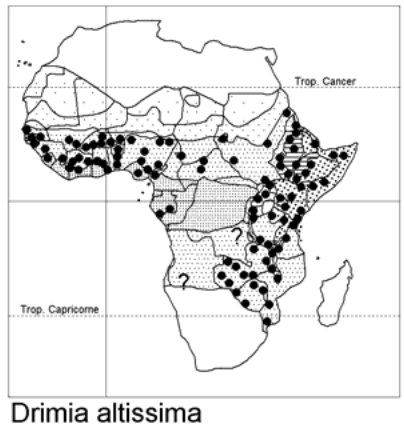
Dipcadi vaginatum



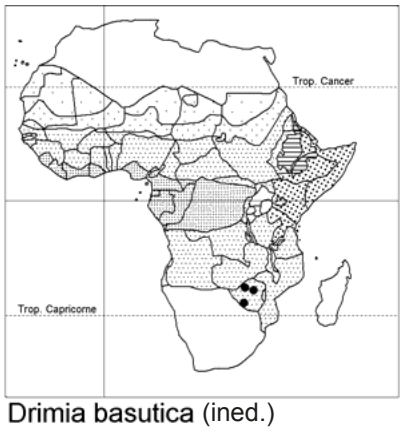
Dipcadi viride



Dipcadi welwitschii

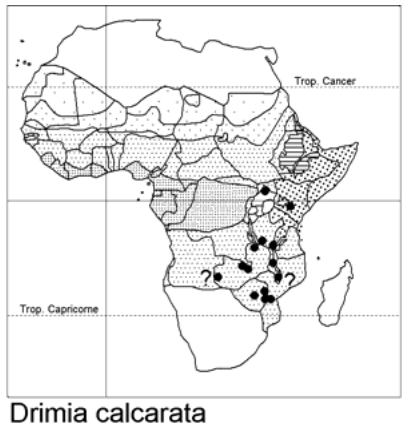


Drimia altissima

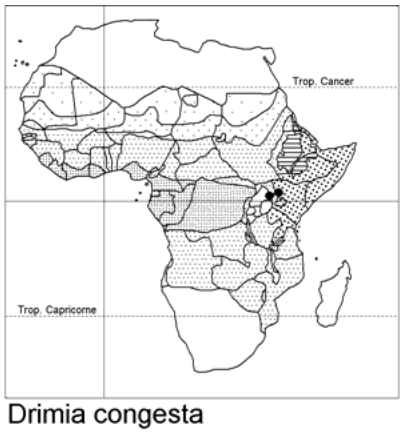


Drimia basutica (ined.)

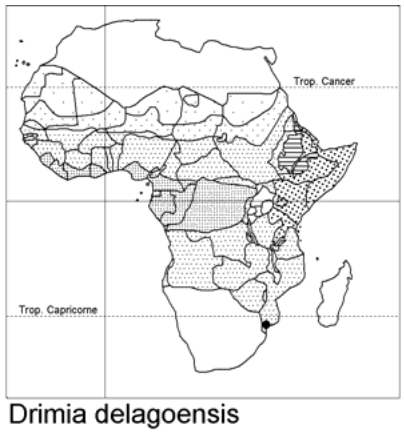
Drimia brachystachys



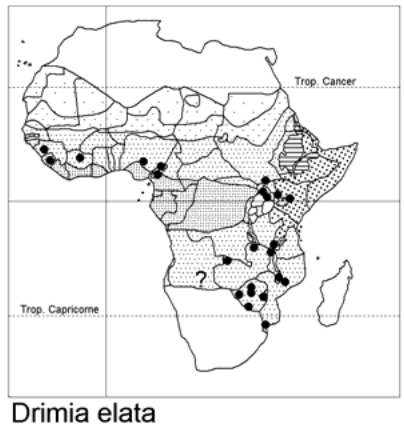
Drimia calcarata



Drimia congesta



Drimia delagoensis



Drimia elata

DRIMIA

D. exigua Stedje; Nord. J. Bot. 15: 597, 1995; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 121, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 197-198, 2010; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Fl. Eth. & Eritrea 6: 144, 1997.

Herb slender, c. 23 cm tall; bulb egg-shaped, white, c. 5 × 4 cm; scape yellowish green with brownish purple tiny spots; leaves linear, produced later that the flowers, base red spotted, c. 25 × 0,8 cm; raceme c. 7-15 cm long, c. 20-30-flowered; pedicels 2-5 mm long; perianth segments c. 5 mm long, united for c. 1 mm; filaments filiform, white and united with the perianth segment c. 1 mm, free part c. 3 mm; capsule subglobose, to 1,1 × 1 cm, emarginate.

Recently burnt open savanna woodland; 1400-1600 m alt.

D. glaucescens (Engl. & K. Krause) H. Scholz; Akoegninou & al., Fl. analyt. Bénin: 135, 2006; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 232, 2011; Onana, Vascul pl. Cameroon…: 165, 2011. – Icon.: Morton, W. Afric. lilies & orch.: pl. 1 fig. 2, 1961.

bas.: *Urginea glaucescens* Engl. & K. Krause

syn.: *U. ensifolia* (Thonn.) Hepper, non *Drimia ensifolia* Eckl.; *Ornithogalum ensifolium* Thonn.; *O. ndellense* A. Chev., nom. nud.

Herb with leaves commencing growth at flowering time, linear, deeply channelled, c. 1,5 cm wide; inflorescence 30-60 cm tall, with rather numerous flowers in the upper third; flowers white, with a broad green median stripe on each tepal and broad hyaline margins; tepals c. 6 mm long; capsule deeply 3-lobed, transversely veined, 1 × 1 cm, base truncate.

Common in seasonally wet grassland; in pockets of soil amongst rocks; wooded savanna; dry bed of brook; 300-320 m alt. (Cameroon).

(**D. hockii** De Wild.)

Herb; bulb globose to ovoid, to 3 cm Ø; leaves unknown; scape to 50 cm tall, not spotted; raceme 7-20 cm long, c. 10-flowered; pedicels to 6 cm long, erect; perianth reddish, 1,1-1,3 cm long, fused on 4-5 mm; segments curved back, linear, to 1,5 mm wide, 1-nerved; filaments violet.

? Known only from the types (Hock s. n., Bequaert 146), collected at Elisabethville (11°40'S × 27°28'E), and Bukama, Haut-Katanga, Zaire, in 1911. Ecology not recorded. – Not mapped.

Taxonomic status uncertain. Said to be near *Drimia coleae* Baker *(= Ledebouria somaliensis)*.

D. indica (Roxb.) Jessop; Nord. J. Bot. 15: 598, 1995; Thulin, Fl. Somalia 4: 52, 1995; Fl. Trop. E. Afr., Hyacinth.: 18, 1996; Fl. Eth. & Eritrea 6: 143, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 121, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 199, 2010; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 487, 2005; Akoegninou & al., Fl. analyt. Bénin: 136, 2006; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 154, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 232, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 35, 2012; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Nord. J. Bot. 7: 656, 659, 1987 (details); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 146, 1994; Stapfia 75: 201, 2001 (under *Indurgia*; reproduction of Wight, Icon. Pl. Indiae Orient. 6: pl. 2063, 1853, under *Urginea*).

DRIMIA INDICA

bas.: *Scilla indica* Roxb.

syn.: *Aletris littoralis* J. König ex Steud.; *Anthericum hyacinthoides* Willd. ex Kunth; *Albuca reflexa* K. Krause & Dinter; *Erythronium indicum* Rottler ex Spreng.; *Indurgia govindappae* (A. Boraiah & Fathima) Speta; *I. nagarjunae* (Hemadri & Swahari) Speta; *Drimia nagarjunae* (Hemadri & Swahari) Anand Kumar; *Erythronium hyacinthoides* Royle; *Indurgia coromandeliana* (Roxb.) Speta; *Ledebouria maculata* Dalzell; *Indurgia indica* (Roxb.) Speta; *Melanthium hyacinthoides* Royle; *Thuranthos coromandelianus* (Roxb.) Speta; *T. indicus* (Roxb.) Speta; *T. govindappae* (A. Boraiah & Fathima) Speta; *T. nagarjunae* (Hemadri & Swahari) Speta; *Scilla coromandeliana* Roxb.; *Urginea coromandeliana* Wight, 1853; *U. indica* (Roxb.) Kunth; *U. sebirei* Berhaut; *U. amboensis* Baker; *U. coromandeliana* Hook. f., 1892; *U. wightiana* Hook. f.; *U. govindappae* A. Boraiah & Fathima; *U. nagarjunae* Hemadri & Swahari; *Indurgia wightiana* (Hook. f.) Speta; *Thuranthos wightianus* (Hook. f.) Speta; *Drimia laxiflora* Baker; *Idothea laxiflora* (Baker) Kuntze; *Drimia zambesiaca* (Baker) J. C. Manning & Goldblatt; *Urginea zambesiaca* Baker; *Thuranthos zambesiacum* (Baker) Kativu in Kirkia 15: 113, 1994, p.p. quoad specim. Kirk s. n. (others = *D. macrocarpa*); *Anthericum articulatum* Hutch., p.p. (cf. *Chlorophytum nubicum*).

Herb to 50 cm tall; bulb subglobose, 6-8 cm Ø; leaves rosulate, appearing after flowering and fruiting, narrowly linear, 20-30 × 0,4-4 cm; inflorescence a very lax raceme, 5-25-flowered; *pedicels 1,8-2,5 cm long* at anthesis, slender, not jointed, arching in flower, erect in fruit; perianth segments free or united up to 2 mm, *c. 1 cm long*, brownish or greenish, shortly cuneate at base; filaments linear, free or united with perianth at base; capsule ellipsoid, 1,5-2 cm long.

Grassland; open forests; rocky savannas; woodland; sandy or stony soil; plateau with sandy-clayey soil; humid sands; *Acacia-Commiphora* bushland; shallow soil over rock in tall-grass formation; 0-2280 m alt.

S. Africa; Indian Subcontinent to Indo-China.

Differs from *D. macrocarpa* by shorter pedicels (not > 3 cm long) and shorter perianth segments (not > 1,4 cm long).

(**D. ledermannii** K. Krause); Onana, Vascul. pl. Cameroon…: 165, 2011.

Herb; bulb ± ovoid, 2-3 cm long, 1,5-2 cm Ø, pink; leaves unknown; scape tall, slender brownish white, 40-60 cm long, incl. raceme 10-18 cm long; pedicels 2-5 mm long; flowers white, 0,8-1 cm long, fused on 3-4 mm, segments reflexed; filaments very thin; fruit unknown.

Open wooded savanna in hilly landscape; 900-1420 m alt.

? Known only from the syntypes (Ledermann 1963, 2264, 2746) collected in 1908, 1909 and 1909, respectively. N Cameroon, between Bamessing and Babungo, between Lubare and Bakari, and on the Tschape Pass (i.e., in a region between 6°-7°23'N × 10°25'-12°05'E). Taxonomic status uncertain. Not mapped.

DRIMIA

D. macrocarpa Stedje; Nord. J. Bot. 15: 597, 1995; Fl. Trop. E. Afr., Hyacinth.: 18, 1996; Fl. Eth. & Eritrea 6: 143, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 120, 2003 (in key); idem, Aloes & lilies Eth. & Eritrea, ed. 2: 197, 2010 (idem); Bothalia 34: 112, 2004; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Nord. J. Bot. 7: 659, 1987 (details); Plantsman, N. S. 2/1: 18-20, 2003 (as *Ornithogalum laikipiense*).

syn.: *Ornithogalum laikipiense* L. E. Newton; *Duthiea macrocarpa* (Stedje) Speta; *Thuranthos macrocarpus* (Stedje) Speta; *T. zambesiacus* sensu Kativu in Kirkia 15: 113, 1994, p.p., excl. Kirk 128 *(= Drimia indica).*

Herb to 90 cm tall, flowering before leaves; bulb scales often thick and loosely packed; leaves linear, 30-38 × 0,8-0,9 cm; raceme very lax, to 30 cm long, 15- c. 50-flowered; pedicels *3-4,2 cm long;* perianth segments free or united up to 2 mm, yellowish-green to purplish brown, *1,5-2,4 cm long*, reflexed from near the base; capsule subglobose, emarginate, 2-2,5 cm long.

Grassland; grassland with scattered small trees and shrubs; burnt bushland; disturbed *Acacia drepanolobium* bushland; burnt, heavily grazed grassland; 35-1750 m alt.

N Botswana.

D. multisetosa (Baker) Jessop; Stedje in Wilson & Morrison, Monocots: Systematics & Evolution: 415, 2000; S. Afric. J. Bot. 83: 136, 2012.

bas.: *Urginea multisetosa* Baker

Herb 25-70 cm tall, flowering before leaves; bulb ovoid, 2-7 cm Ø, scales whitish each ending in a bundle of fibres; leaves linear, 40 × 0,5 cm, grooved; inflorescence erect, lax, 8-25 cm long; pedicels 2-4 mm long; perianth segments oblong, 5-6 mm long, spreading to reflexed, whitish with dark keels; filaments filiform; capsule round, c. 12 × 11 mm.

Grassland; woodland; rocky hillsides, often burnt; locally common; 1200-1800 m alt.

S. Africa, S Botswana.

D. noctiflora (Batt. & Trab.) Stearn; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 167, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 133, 2010. – Icon.: Fl. Afr. N. 5: 161, 1958.

bas.: *Urginea noctiflora* Batt. & Trab.

syn.: *Thuranthos noctiflorus* (Batt. & Trab.) Speta; *Duthiea noctiflora* (Batt. & Trab.) Speta; *Urginea noctiflora* Batt. & Trab. var. *helicophylla* Marie and subsp. *helicophylla* (Maire) Maire, but *excl.* var. *aurantiaca* (H. Lindb.) Maire and subsp. *aurantiaca (*H. Lindb.) Maire [synonym of *Drimia aurantiaca* (H. Lindb.) J. C. Manning & Goldblatt, syn. *Thuranthos aurantiacus* (H. Lindb.) Speta, based on *Urginea aurantiaca* H. Lindb.; endemic in Morocco, cf. Dobignard & Chatelain, o.c.: 132].

Herb with bulb to 6x4 cm covered with many whitish or brownish scales produced into a neck; scape erect, 15-40 cm long; leaves to 20 cm × 1-1,5 mm, semicylindric, spirally rolled or not, produced later than flowers; raceme very lax, 4-20-flowered; pedicels 0,6-1 cm long; flowers *night-flowering*, *grey-rosy* to *grey-fulvous*, 0,7-1 cm long; tepals nearly free, 0,7-1 cm × 2,5-3 mm, ± ciliate; capsule ovoid or subglobose 0,7-1 cm long.

Ecology unknown in Mauritania. Elsewhere: sandy and rocky pastures; rocks.

Morocco, Algeria, Tunisia.

DRIMIA

D. porphyrantha (Bullock) Stedje; Nord. J. Bot. 15: 598, 1995; Fl. Trop. E. Afr., Hyacinth.: 21, 1996. – Icon.: Nord. J. Bot. 7: 660, 1987.

bas.: *Urginea porphyrantha* Bullock

syn.: *Urginavia porphyrantha* (Bullock) Speta; *Scilla* sp. A sensu Agnew, Upl. Kenya wild flow.: 695, 1974, and Agnew & Agnew, ibid., ed. 2: 320, 1994.

Herb c. 10-15 cm tall, usually flowering before the leaves; leaves lanceolate, 7-15 × c. 2 cm; raceme 50-90-flowered; pedicels 0,9-1,5 cm, spreading; perianth segments free or united to 2 mm, whitish with a purple abaxial band, 6-8 mm long; capsule subglobose, c. 6 × 7 mm.

Grassland; 2000-2300 m alt.

D. sanguinea (Schinz) Jessop; Stedje in Wilson & Morrison, Monocots: Systematics & Evolution: 415, 2000; Speta in Stapfia 75: 207-209, 2001; S. Afric. J. Bot. 83: 136, 2012. – Icon.: Fl. Pl. S. Africa 4: pl. 138, 1924 (as *Urginea burkei*); Vahrmeijer, Poisonous plants of south. Africa: 49, 48 (map), 1981 (as *Urginea sanguinea*); Speta, o.c.: 208 (as *Sekanama burkei*).

bas.: *Urginea sanguinea* Schinz

syn.: *Sekanama sanguinea* (Schinz) Speta; *S. burkei* (Baker) Speta; *Urginea burkei* Baker; *U. rautanenii* Baker

Herb 6-60 cm tall, flowering before the leaves; bulb 4-9 cm long, scales tightly packed, red; leaves 3-8, linear-lanceolate, 25-35 × 0,3-1,4 cm; scape erect, 6-60 cm long; raceme dense, 40-80-flowered; pedicels 0,2-1,4 cm long, erect-spreading; perianth segments spreading, white with or without a brown dorsal stripe, ± free, 0,8-1,1 cm long; capsule ellipsoid to oblong, 1-2 cm long.

Open bushland or woodland, in sandy or rocky places; 100-1900 m alt.

Namibia, Botswana, S. Africa.

Plant very poisonous to livestock, responsible for significant losses near Harare (fide Vahrmeijer, l.c.; Speta, l.c.).

D. simensis (Hochst. ex A. Rich.) Stedje; Nord. J. Bot. 15: 597, 1995; Fl. Eth. & Eritrea 6: 143, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 121, 2003. – Icon.: Puff & Sileshi, Pl. Simen: 223, 2005; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2 : 198, 2010 (raceme, cultivated specimen).

bas.: *Scilla simensis* Hochst. ex A. Rich.

syn.: *Urginea simensis* (Hochst. ex A. Rich.) Schweinf.; *Charybdis simensis* (Hochst. ex A. Rich.) Speta

Herb to 60 cm tall growing in clusters; leaves produced after flowering, lanceolate, c. 33 × 3,5 cm; raceme dense, to 10 cm long; pedicels 5-8 mm long; perianth segments free, lanceolate, c. 1 × 0,3 cm, white with brownish mid-vein; capsule unknown ?

Heavily grazed rocky grassland; rare; 2880-3270 m alt.

D. sudanica Friis & Vollesen; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 487, 2005. – Icon.: Nord. J. Bot. 19: 210, 211 (map), 1999.

syn.: *Urginea pauciflora* Baker 1898, nom. illegit., non Baker 1901 *(= D. calcarata)* nec Baker 1892 (based on an Ecklon & Zeyher collection from the Cape); *Ebertia pauciflora* (Baker) Speta

Herb to c. 10 cm tall, flowering before the leaves; bulb ovoid to oblong, 2-3 cm Ø, outer scales membranous and white, neck moderately long; leaves unknown; inflorescence stiffly erect, to 5 cm long, with 2-4 flowers near apex; scape dark purple;

DRIMIA SUDANICA

pedicels 1-2,5 mm long, 0,5-1 mm Ø; perianth segments 5-7 mm long, fused on c. 1 mm length, white to pale greenish or slightly tinged with dark purple with a very prominent dark purple brown midrib; mature fruit unknown.

Bare and burnt places; burnt *Loudetia arundinacea* grassland on slopes of crystalline mountains; 1035-2000 m alt.

Only known from Guinea, Sierra Leone and S Sudan; perhaps overlooked. Disjunct area of c. 5000 km. Very rarely collected: 1892, 1905, (Jacques-Félix s. n., s.d.), 1982.

Note: Speta (Stapfia 75: 196, 2001) remarked on the publication of the name *D. sudanica* by Friis & Vollesen. He meant that these authors had overlooked an available name, viz. *Urginea nana* Oyewole, i.e. *Ebertia nana* (Oyewole) Speta [syn.: *Urginea pauciflora* Baker 1898; *Ebertia pauciflo*ra (Baker) Speta]. Speta also published drawings of the plant (o.c.: pp. 66-67). The habit of Speta's plant is similar to that of *D. sudanica*, but the pedicels of the flowers seem to be much longer in Speta's plant. – However, the World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew, enumerates "*Drimia pumila* ined.", with synonyms *Urginea nana* Oyewole; *Ebertia nana* (Oyewole) Speta; *Drimia nana* (Oyewole) J. C. Manning & Goldblatt; reported from Nigeria. See below under *D. pumila*.

D. uniflora J. C. Manning & Goldblatt; Edinb. J. Bot. 60: 554, 2004; Speta in Phyton 38: 71, 1998. – Icon. (as *Lithanthus pusillus*): J. Bot. (London) 3: pl. 9, 1844 (reproduced by Speta in Phyton 38: 72, 1998); Bot. Mag. 98: pl. 5995, 1872; Stapfia 75: 203, 2001 (cultivated plant).

syn.: *Lithanthus pusillus* Harv., non *Drimia pusilla* Jacq.

Herb 7-10-35 cm tall; bulb small, globose, to c. 1 cm long; leaves few, filiform, to 10 cm long, rolled, sheathing the scape at base; scape 1, terete, thin, to c. 7 cm long, 1-2-flowered at top; pedicel very short, nodding, erect in fruit; flower tubular, 4-5 mm long; segments connate at base, free part short, ovate, obtuse, ascending, white, conspicuously nerved; capsule subglobose, 3-angled, c. 3 mm long.

In S. Africa on pan floors, rocky ground, cliffs with shallow soils; 1000-1200(-3000) m alt.

S. Africa, Swaziland, Botswana, just reaching our area in the south.

IN NEED OF FURTHER STUDY:

Drimia guineensis (Speta) J. C. Manning & Goldblatt; bas.: *Ledurgia guineensis* Speta – Icon.: Stapfia 75: 202, 2001.

Bulb ovoid, compact, 2,5 cm long; inflorescence a raceme of c. 6 flowers on a short scape; pedicels erect, 3,5 mm long; perigon segments 7,5 mm long, fused on 2,5 mm at base, green with brown midrib, reflexed.

Collected in Guinea, between Pita and Hafia, and cultivated at the Botanical Garden, Wien, in 1997.

D. pumila ined. in World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew.; syn.: *Urginea nana* Oyewole, Ann. Missouri Bot. Gard. 76: 623, 1989; *Ebertia nana* (Oyewole) Speta; *Drimia nana* (Oyewole) J. C. Manning & Goldblatt, nom. illegit. – Icon.: Ann. Missouri Bot. Gard. 76: 624-625, 1989; Phyton (Horn) 38: 66-67, 1998. – Holotype: S. O. Oyewole 2111; iso.: idem 2121, 2229, 2230, 2231.

Oyewole's description of *Urginea nana* reads (summerised): Bulb ovoid, to 3 cm long, 4 cm Ø, usually with a neck 0,5-4 cm long, scales white; leaves filiform or linear-lanceolate, 8-20 ×

DRIMIA PUMILA

0,1-0,3 cm, appearing after the flowers; scape stiffly erect, 1,5-4 cm long; raceme compressed, 1-6-flowered; pedicels thick, reflexed in fruit (no length given); tepals pinkish with yellow margin, or greenish yellow with hyaline margin; segments 0,6-1 cm long, 0,1-0,2 cm wide, free to base, outer ones reflexed; fruit ovoid-spherical, 0,8-1,2 cm long and wide.

Rock outcrop in shallow soil, in low grassland with few small trees of *Entada africana*, *Erythrina pulcherrima*, etc., in an "unshaded area with low grass and forb cover", on brown latertic soil.

Collected in Nigeria, Ilorin (8°32'N × 4°34'E), in 1982-1983. Said to be near *Urginea pauciflora*, without author and date. *Urginea pauciflora* was published 3 times by Baker, viz. in 1892, 1898 and 1901, referring to 3 different species (see above under *Drimia sudanica*). As to Speta's discussion, see Phyton (Horn) 38: 65-68, 1998, and Stapfia 75: 196, 2001.

It is quite possible that Oyewole's *Urginea nana* is a form of *Drimia sudanica*, a plant also growing on rocks.

D. senegalensis (Kunth) J. C. Manning & Goldblatt; bas.: *Urginea senegalensis* Kunth; syn.: *Thuranthos senegalensis* (Kunth) Speta; *Duthiea senegalensis* (Kunth) Speta

Discussions (Speta) about the identity of this plant are found in Phyton (Horn) 38: 85-86, 1998, and Stapfia 75: 190, 192, 2001. Fig. 23 p. 82 in Phyton, l.c. refers to this plant (caption: "*Thuranthos indicum* aggr.").

In J. Berhaut, Fl. ill. Sénégal 9: 439, 1988, this plant is considered a synonym of *Urginea indica (= Drimia indica)*. The name *U. senegalensis* is not cited in Fl. W. Trop. Afr., ed. 2, 3/2, 1972.

SYNONYMS:

Drimia acuminata Lodd. = **Ledebouria revoluta**

alta R. A. Dyer = **Drimia elata**

altissima Hook. f. = **D. elata**

angustifolia Baker = **Drimia basutica**

angustitepala Engl. = **Ledebouria kirkii**

apertiflora Baker = **Ledebouria apertiflora**

barteri Baker = **Drimia altissima**

brevifolia Baker = **Ledebouria revoluta**

burchelii Baker = **Drimia elata**

ciliaris Jacq. ex Willd. = **D. elata**

coleae Baker = **Ledebouria somaliensis**

concolor Baker = **Drimia elata**

confertiflora Dammer = **Ledebouria somaliensis**

dregeana Kunth = **Schizocarphus nervosus**

elgonica Bullock = **Drimia elata**

fischeri Baker, 1898 = **Drimiopsis fischeri**

hildebrandtii Baker = **Ledebouria kirkii**

incerta A. Chev. = **Drimia altissima**

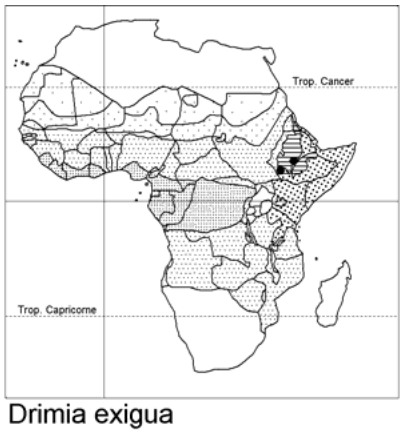
intricata (Baker) J. C. Manning & Goldblatt = **Schizobasis intricata**

lanceifolia (Jacq.) Ker Gawl. = **Ledebouria revoluta**

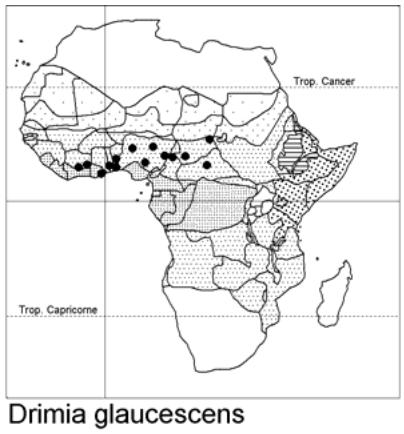
laxiflora Baker = **Drimia indica**

lilacina (Fenzl ex Kunth) Schweinf. = **Ledebouria lilacina**

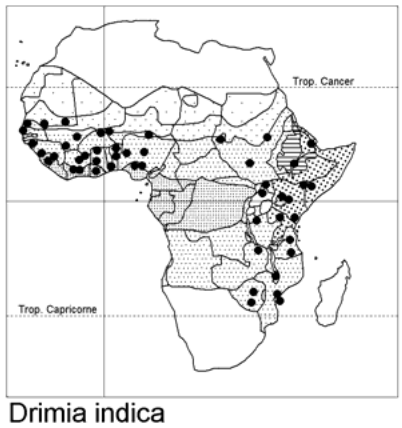
modesta (Baker) Jessop = **Drimia calcarata**



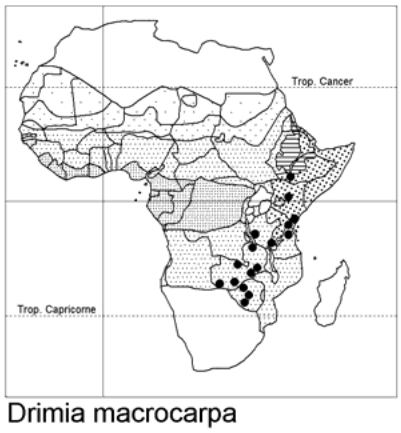
Drimia exigua



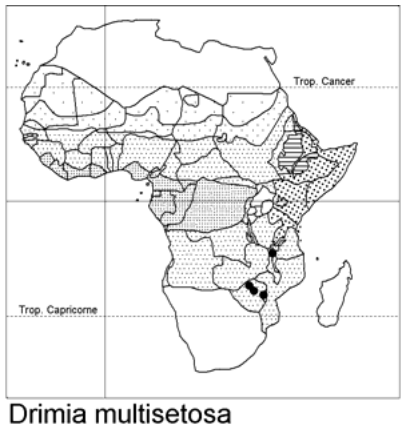
Drimia glaucescens



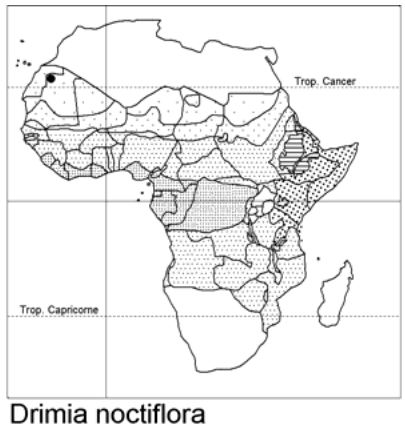
Drimia indica



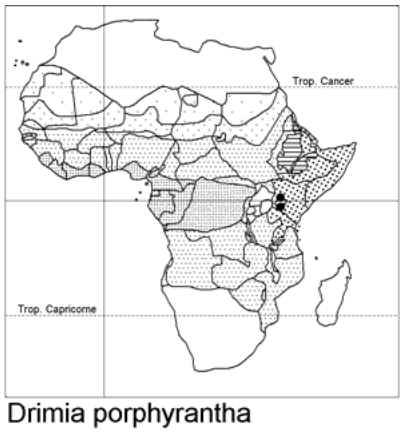
Drimia macrocarpa



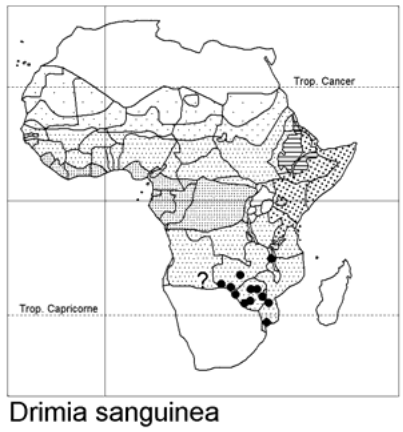
Drimia multisetosa



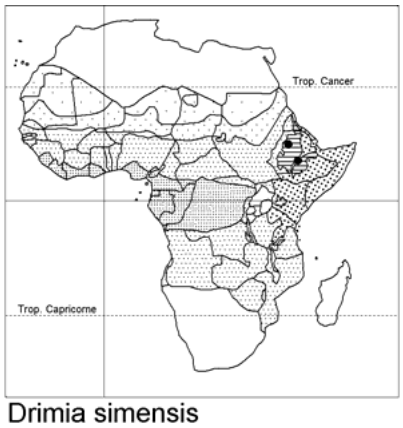
Drimia noctiflora



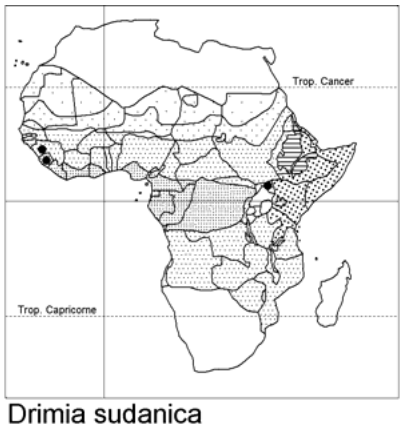
Drimia porphyrantha



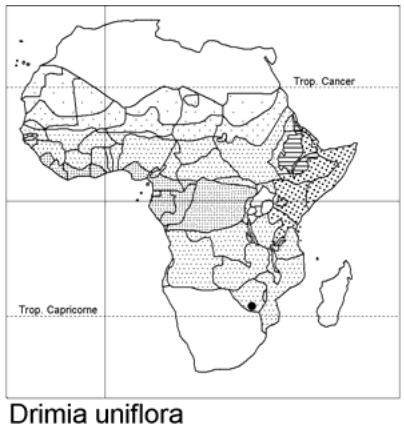
Drimia sanguinea



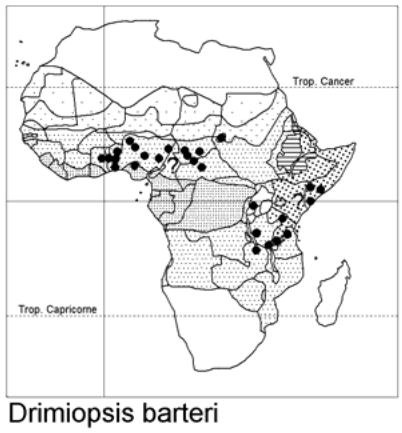
Drimia simensis



Drimia sudanica



Drimia uniflora



Drimiopsis barteri

nagarjunae (Hemadri & Swahari) Anand Kumar = **D. indica**

nana (Oyewole) J. C. Manning & Goldblatt = **D. pumila** ined.

nervosa (Burch.) Jessop = **Schizocarphus nervosus**

paolii Chiov. = **Drimia altissima**

pauciflora Baker, 1892 = **D. sudanica**

pendula Burch. ex Baker = **Ledebouria floribunda**

petiolata K. Koch & C. D. Bouché = **Drimiopsis maculata**

pubescens Baker = **Schizocarphus nervosus**

purpurascens J. Jacq. = **Drimia elata**

rigidifolia Baker = **D. elata**

rigidifolia var. *nervosa* (Burch.) Baker = **Schizocarphus nervosus**

robusta Baker = **Drimia elata**

rutadisii Schltr. = **D. elata**

villosa Lindl. = **D. elata**

uitenhagensis Eckl. = **D. altissima**

zambesiaca (Baker) J. C. Manning & Goldblatt = **D. indica**

zombensis Baker = **D. elata**

DRIMIOPSIS / *6 + 2* ?

Genus of 14 species in Tropical and S. Africa, but absent from Gabon S-wards in the W; with a centre of diversity in NE S. Africa (Mpumalanga Province). Closely related to *Ledebouria* and *Resnova*.

Bulbs usually bare as the old scales quickly disappear (in *Ledebouria* surrounded by a thick layer of papery dead scales); inflorescence bracts vestigial, not spurred; tepals of 2 shapes, the inner ones connate (in *Ledebouria* all similar); ovary not stalked (stalked in *Ledebouria*).

Lebatha & al. (2006: 643) stated: "A revised taxonomy of *Ledebouria, Resnova* and *Drimiopsis* is premature".

Some species in our area are insufficiently known: fruit unknown in 3 + 1 ? species, no ecology recorded for 1 species and 1 species known only from the type.

GLAVICH, T. (2012). Beginner's guide to Drimiopsis and Resnova. *To The Point* 84/3: 50-54.

KATIVU, S. (2001). Notes on the genus Drimiopsis Lindl. (Hyacinthaceae) of the Flora Zambesiaca area. *Kirkia* 17: 150-152.

LEBATHA, P. D. & M. H. BUYS (2006). The taxonomic significance of the floral morphology in the Ledebouriinae (Hyacinthaceae). *In:* GHAZANFAR, S. A. & H. J. BEENTJE, eds., *Taxonomy and ecology of African plants, their conservation and sustainable use*: 85-95. Royal Botanic Gardens, Kew.

LEBATHA, P. D. & al. (2003). Hyacinthaceae. Chromosome studies on African plants. 19. New chromosome counts for three Drimiopsis taxa. *Bothalia* 33: 135-137.

LEBATHA, P. [D.] & al. (2006). Ledebouria, Resnova and Drimiopsis: a tale of three genera. *Taxon* 55: 643-652.

MÜLLER-DOBLIES, U. & D. MÜLLER-DOBLIES (1997). A partial revision of the tribe Massonieae (Hyacinthaceae) 1. *Feddes Repert.* 108: 49-96 [*Drimiopsis* p. 61-65].

Drimiopsis barteri Baker, non *Drimia barteri* Baker; Brunel & al., Fl. analyt. Togo in Englera 4: 658, 1984; Nord. J. Bot. 15: 594, 1995; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 517, 1995; Fl. Trop. E. Afr., Hyacinth.: 7, 1996; Kativu (2001): 151; Onana, Vascul. pl. Cameroon…: 165, 2011. – Icon.: Morton, W. Afric. lilies & orchids: pl. 2, 1961; Thulin, Fl. Somalia 4: 54, 1995.

syn.: *Drimiopsis aroidastrum* A. Chev., incl. var. *kabarum* A. Chev.; *Ledebouria barteri* (Baker) J. C. Manning & Goldblatt

Herb 15-22-35 cm tall; bulb c. 5 cm long, giving rise to flowers and leaves at the same time; leaves narrowly lanceolate, without pseudo-petiole, to c. 17-34 × 2-3,7 cm, sometimes *purple* beneath and spotted above; raceme dense, 1,5-5,5 cm long, long-pedunculate; flowers subsessile; 1-2 per shoot; perianth segments green, 3,5-4 mm long, both inner and outer segments connivent; filaments flattened, triangular and united with the perianth segments at their base; capsule subglobose, c. 5 mm long. Flowers apparently cleistogamous (always ?).

Savanna (uncommon); wet marshes; annually flooded meadows near river banks, on black soil; fallows; bushland usually on sandy ground; dark clayish soil; damp woodland; 10-1600 m alt.

Not in Niger (confusion with Nigeria); not in Ethiopia *(= D. spicata).*

D. botryoides Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 320, 1994; Nord. J. Bot. 15: 594, 1995; Thulin, Fl. Somalia 4: 54, 1995; Bothalia 33: 135, 2003; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 116, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 190-191, 2010; Gereau & al., Lake Nyasa florist. checklist: 65, 2012. – Icon.: Fl. Trop. E. Afr., Hyacinth.: 8, 1996; Fl. Eth. & Eritrea 6: 141, 1997.

syn.: *Ledebouria botryoides* (Baker) J. C. Manning & Goldblatt

Herb to 60 cm tall; leaves *cordate or lanceolate*, spotted or not, to 45 × 1,5-7,5 cm; inflorescence spicate or racemose; pedicels *0-3 mm long;* perianth segments *white to greenish* white, to 6 mm long; outer segments *spreading*, inner ones *connivent* and usually wider than the outer; filaments flattened, triangular and united with the perianth segments at their base; capsule subglobose, c. 5 mm Ø.

Bushland and woodland on sandy soils; often among rocks; edges of cultivation; 0-1600 m alt.

Variable in width and shape of leaves (thus many synonyms).

Presence in NE Mozambique (Cabo Delgado) not confirmed.

Comprises 2 subspp.: – subsp. **botryoides** [syn.: *Drimiopsis* sp. A. sensu Stedje in Nord. J. Bot. 14: 49, 1994; *D. volkensii* (Engl.) Baker; *D. stuhlmannii* Baker; *D. bussei* Dammer; *D. erlangeri* Dammer; *D. holstii* Engl.; *D. kirkii* Baker; *Scilla volkensii* Engl.], a robust plant with erect leaves and raceme; – subsp. **prostrata** Stedje [syn.: *Ledebouria botryoides* subsp. *prostrata* (Stedje) J. C. Manning & Goldblatt], a smaller plant with broad leaves lying flat on the ground, flowers ± sessile, in Tanzania. *Drimiopsis perfoliata* Baker is perhaps a synonym.

DRIMIOPSIS

D. burkei Baker subsp. **burkei**; Kirkia 17: 151-152, 2001; Lebatha & Buys (2006): 86-87. – Icon.: Fl. Pl. S. Africa 25: pl. 975, 1946; Feddes Repert. 108: 60, 1997 (flower).

syn.: *D. woodii* Baker*; D. crenata* Van der Merwe; *Ledebouria burkei* (Baker) J. C. Manning & Goldblatt; *L. woodii* (Baker) J. C. Manning & Goldblatt

Herb with bulb 1,3-9 cm long; leaves 1-4, *narrowing towards base*, sometimes subpetiolate, glabrous or rarely pubescent, 1,5-27 × 1-5 cm; margins often finely crenate or undulate; inflorescence as long as leaves to several times as long; pedicels 1-2 mm long; flowers *green*, *white* or *pale pink* (in this last case, but with leaves with cuneate, not cordate base = *D. atropurpurea* N. E. Br. from S. Africa); perianth segments ascending with incurved cucullate apices, c. 2-3 mm long; fruit unknown.

Open woodland, sometimes under shade (in that case leaves larger, i.e. to 27 × > 3 cm); 500-1000 m alt.

Botswana, S. Africa.

Subsp. **stolonissima** U. Müll.-Doblies & D. Müll-Doblies [syn.: *Ledebouria burkei* subsp. *stolonissima* (U. Müll.-Doblies & D. Müll-Doblies) J. C. Manning & Goldblatt] in S. Africa.

D. fischeri (Engl.) Stedje; Nord. J. Bot. 15: 593, 1995; Fl. Trop. E. Afr., Hyacinth.: 6-7, 1996. – Icon.: Feddes Repert. 108: 62-63, 1997.

bas.: *Scilla fischeri* Engler 1895.

syn.: Enum. 4: 624, 1997; *Drimia fischeri* Baker 1898 (not based on the same sheet of Fischer 325 as *Scilla fischeri*); *Ledebouria fischeri* (Engl.) J. C. Manning & Goldblatt

Herb 35-40 cm tall; leaves lanceolate, c. 10 × 1,5 cm; raceme 20-45-flowered, pedicels *c. 4 mm long;* perianth segments greenish, c. 4 mm long, *united into a tube 2 mm long*, apices strongly cucullate; *filaments* short and *inserted at the top of the tube;* fruit unknown.

Ecology unknown.

Only known from the type(s) without locality in Tanzania. Not mapped.

D. maculata Lindl. & Paxton; Nord. J. Bot. 15: 594, 1995; Fl. Trop. E. Afr., Hyacinth.: 7, 1996; Kirkia 17: 151, 2001; Lebatha & Buys (2006): 87. – Icon.: Paxton, Fl. Gard. 2: fig. 172, 1851-1852; Refug. Bot. 3: pl. 191, pl. 192 (as *D. minor*), 1870; Feddes Repert. 108: 60, 1997 (flower).

syn.: *D. minor* Baker; *Drimia petiolata* K. Koch & C. D. Bouché; *Ledebouria petiolata* J. C. Manning & Goldblatt

Herb to at least 35 cm tall; bulb globose, 1,5-5 cm long; leaves 2-6, usually *cordate* above the distinctly petiole-like base, glabrous, shiny green above with *dark green blotches*, 5-30 × 2-8 cm; inflorescence much longer than the leaves; pedicels 1-2 mm long; flowers white or green, c. *3-5 mm long*, segments ascending with incurved cucullate apices; fruit unknown.

Valley grassland, in brown sandy clay; open places; forest fringes, near the coast; 0-990 m alt.

Reported as cultivated in the Canary Isl. (Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 133, 2010).

DRIMIOPSIS

(**D. rosea** A. Chev.)

Bulb ovoid or globose, 2,5-3 cm Ø, leaves developing after flowering (no leaves known); scape 4-5 cm long; raceme dense, 2-4 cm long; flowers sessile, 3 mm long (outer segments ?); inner segments fused at base, lanceolate, 4 × 1,5-2 mm, pale violet (not green) on the outside, apex bent inwards; fruit unknown.

In dry grass, on laterite.

? Known only from the type (Chevalier 8432), collected in 1903; Centr. Afric. Rep., village of Saboun (in the land of the Ndonkas and Kouti).

Perhaps a form of *D. spicata*.

(**D. seretii** De Wild.)

Bulb globose, c. 3 cm Ø; leaves lanceolate-linear, to 10 × 0,9 cm, base clasping to stem, not distinctly petiolate, apex cuneate; scape 10-15 cm long; raceme dense, cylindrical, c. 15 cm long; perianth segments oblong, 2,5-3 × 1 mm; fruit unknown.

? Known only from the type (Seret 543) collected in 1906; Zaire, around Gumbari (probably N Zaire).

Said to be near *D. barteri* but differes by its reduced raceme. Probably a form of *D. barteri*.

D. spicata (Baker) Sebsebe & Stedje, Biol. Skr. 55: 329, 324, 2005; Fl. Eth. & Eritrea 1: 247, 2009; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 115-116, 2003. – Icon.: Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 190, 2010.

bas.: *Scilla spicata* Baker

syn.: *Drimiopsis barteri* sensu Stedje in Fl. Eth. & Eritrea 6: 139, 1997, non Baker

Herb 15-22 cm tall; leaves narrowly lanceolate, c. 17 × 2 cm; inflorescence spike very dense; pedicels very short; *flowers purplish to bluish*, both outer and inner tepals connivent in upper parts at anthesis (closing the flowers); ovary sessile; fruit unknown ?

Grassland at margin of *Combretum*, *Terminalia* woodland in annually flooded meadows near river banks, on black soil; 550 m alt.

Easily recognized from all other species in the genus by its *purplish* to *bluish* flowers.

IN NEED OF FURTHER STUDY:

Drimiopsis perfoliata Baker Gard. Chron. 10/247 (21 September), 1878; Fl. Trop. E. Afr., Hyacinth.: 9-10, 2006; Kirkia 17: 152, 2001 (excluded name).

Herb to 15 cm tall; bulb globose, c. 2,5 cm Ø; leaves 2, contemporary with the flowers, subcircular with rounded imbricate basal lobes clasping the stem, glaucous green and spotted above, spreading horizontally; inflorescence spike dense, 2,5 cm long, 1,2-1,6 cm Ø; *bracts* minute; lower flowers with very short pedicels, upper ones sessile; perianth segments greenish white, oblong; fruit unknown.

Bulbs collected from mainland S Tanzania, around Lindi (9°50'S × 39°40'E).

It has been suggested either to exclude the name from *Drimiopsis* or consider it as a synonym of *D. botryoides* subsp. *prostrata* (World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew).

DRIMIOPSIS

SYNONYMS:

Drimiopsis aroidastrum A. Chev., incl. var. *kabarum* A. Chev. = **Drimiopsis barteri**

barteri sensu Stedje 1997, non Baker = **D. spicata**

bussei Dammer = **D. botryoides** subsp. **botryoides**

crenata Van der Merwe = **D. burkei** subsp. **burkei**

erlangeri Dammer = **D. botryoides** subsp. **botryoides**

holstii Engl. = **D. botryoides** subsp. **botryoides**

kirkii Baker = **D. botryoides** subsp. **botryoides**

minor Baker = **D. maculata**

sp. A. sensu Stedje 1994 = **D. botryoides** subsp. **botryoides**

stuhlmannii Baker = **D. botryoides** subsp. **botryoides**

volkensii (Engl.) Baker = **D. botryoides** subsp. **botryoides**

woodii Baker = **D. burkei** subsp. **burkei**

(DUTHIEA)

Duthiea macrocarpa (Stedje) Speta = **Drimia macrocarpa**

noctiflora (Batt. & Trab.) Speta = **D. noctiflora**

senegalensis (Kunth) Speta = **D. senegalensis**

(EBERTIA)

Ebertia nana (Oyewole) Speta = **Drimia pumila** ined.

pauciflora (Baker) Speta = **D. sudanica**

(ERATOBOTRYS)

Eratobotrys bifolia (Hochst. ex A. Rich.) = **Ledebouria revoluta**

lilacina Fenzl ex Kunth = **L. lilacina**

(ERYTHRONIUM)

Erythronium hyacinthoides Royle = **Drimia indica**

indicum Rottler ex Spreng. = **D. indica**

EUCOMIS / *2*

Genus of 11 species endemic in S. Africa with an extension to SE Tropical Africa.

Herbs with large bulbs, strap-shaped basal leaves, a pineapple-like ± dense inflorescence, raceme, on a stout scape and a tuft of bracts (coma) above the flowers; perianth lobes (6) fused together at base; flowers scented, varying from fragrant to offensive; capsule papyraceous, ± 3-winged; seeds round, black.

"Taxonomy is rather difficult as the flowers are very similar. The main useful characters are fragrance, plant size and leaf color" (Zonneveld & Duncan, 2010: 100).

Used, in particular *E. autumnalis*, in traditional medicine, to treat a number of diseases.

Attractive garden ornamentals; flowering heads last up to 2 weeks; they would be suitable as cut flowers. Only a few species are found in the bulb trade. Cultivated in Britian since the early 18th century; a plant growing in Oxford was described by Dillenius in his *Hortus Elthamensis* (1732).

EUCOMIS

DUNCAN, G. (2007). Lesser-known Eucomis. *Plantsman, N.S.* 6: 98-103.

DUNCAN, G. (2011). Eucomis vandermerwei. *Bot. Mag.* 28: pl. 712, pp. 176-189 [with a key to all species].

GOVENDER, D. & al. (2001). Eucomis – An elite éclat of excellence. *Herbertia* 55: 52-57.

HARTLEY, G. & A. A. DE HERTOGH (2001). Eucomis – A horticultural review of the genus. *Herbertia* 55: 58-63.

SHUTTLEWORTH, A. & S. D. JOHNSON (2009). A key role for floral scent in a wasp-pollination system in Eucomis (Hyacinthaceae). *Ann. Bot.* 103 715-725.

ZONNEVELD, B. J. M. & G. D. DUNCAN (2010). Genome sizes of Eucomis L'Hér. (Hyacinthaceae) and a description of the new species Eucomis grimshawii G. D. Duncan & Zonneveld. *Pl. Syst. Evol.* 284: 99-109.

Eucomis autumnalis (Mill.) Chitt.; S. Afric. J. Bot. 83: 137, 2012. – Icon.: Tredgold & Biegel, Rhodes. wild flow.: pl. 4, 1979; Burrows & Willis, Pl. Nyika Plateau, Malawi: 306, 2005; Ann. Bot. 103: 716, 2009; B.-E. Van Wyk & al., Medicin. pl. S. Afr., ed 2: 147, 2009.

bas.: *Fritillaria autumnalis* Mill.

Acaulescent herb 12-55 cm tall; bulb ± globose, 10 cm Ø, roots fleshy; leaves c. 12, linear to lanceolate or ovate, 15-55 × 6-13 cm, midrib distinct, margin undulate; inflorescence robust with a thick scape c. 15 cm long; raceme dense, cylindric, c. 11 cm long, 5 cm Ø, apex with a coma of 13-30 bracts 2-6,5 cm long; pedicels 0,2-1 cm long; perianth segments free almost to base, elliptic, 0,6-1,7 cm long; filaments 6 mm long, united at base into a saucer-shaped structure; capsule subglobose, c. 0,8 cm Ø. Flowers sweet-scented.

Open woodland, grassland; often among rocks; forest margins; 1000-2100 m alt.

Variable in appear and often similar to *E. zambesiaca*.

S. Africa, Botswana, Swaziland.

Comprises 3 subspp.: – subsp. **autumnalis** [syn.: *E. regia* L'Hér. 1789, nom. illegit., non (L.) Aiton (in S. Africa); *E. undulata* Aiton; *Ornithogalum undulatum* (Aiton) Thunb.; *Basilaea undulata* (Aiton) Mirb.; *Fritillaria longifolia* Hill] (tetraploid) with a cylindric scape and semi-erect leaves, also in NE S. Africa; – subsp. **amaryllidifolia** (Baker) Reyneke [bas.: *Eucomis amaryllidifolia* Baker, diploid, sometimes considered a distinct species], dwarf, 9-20 cm tall, with perianth segments 0,6-0,8 cm long [icon.: Bot. Mag. 30: pl. 755, 2013] in S. Africa, E. Cape; – subsp. **clavata** (Baker) Reyneke [bas.: *E. clavata* Baker; syn.: *E. robusta* Baker] with clavate scape, is the most widespread taxon, in N and NE S. Africa, Botswana, Swaziland, at high altitudes.

E. autumnalis is one of the most commonly used medicinal plants in south. Africa (cf. e.g., Taylor & van Staden in S. Afric. J. Bot. 68: 80-85, 2002; Ndhlala & al., ibid. 79: 1-8, 2012; Kulkarni & al., ibid. 72: 157-162, 2006). In the trade sometimes confused with *E. zambesiaca*.

Breeding experiments have shown that the species is self-incompatible; scent, not colour, attracts pollinators (Plantsman, N. S. 8: 145, 2009).

EUCOMIS

E. zambesiaca Baker; S. Afric. J. Bot. 83: 137, 2012. – Icon.: R. A. Martineau, Rhodes. wild flow.: pl. 1 facing p. 12, 1953; Plantsman 12: 137, 1990; Flow. Pl. Africa 61: pl. 2243, p. 21 (map), 2009.

Acaulescent herb c. 30 cm tall, often growing in dense clumps; bulb ovoid, 5 cm high, 3 cm Ø; leaves 3-6, sessile, lorate to ± narrowly obovate, 30-60 × 3,7-5 cm, narrowed gradually to base, apex subobtuse, margin undulate, scarcely crispate; scape terete, 15-23 cm long; raceme lax to moderately dense, oblong, 10-20 cm long, 1,5-5 cm Ø; pedicels 0,2-0,8 cm long; coma of 12-15 bracts 2,5-3,8 cm long; perianth greenish white to white, 1-1,3 cm long, segments narrowly obovate; filaments fused at base for 3,5 mm; capsule globose, obtusely 3-gonous, 0,8 cm Ø. Flowers sweet-scented. Diploid species.

Short grassland;1500-1800 m alt.

Variable in width of inflorescence.

S. Africa.

Easy to cultivate, the bulbs multiplying readily by offset formation (cf. Cheesman & al. in S. Afric. J. Bot. 76: 543-549, 2010). Sometimes wrongly sold as *E. autumnalis*.

According to Winter & Condy (Flow. Pl. Africa 61: 20, 2009) there is uncertainty regarding the typification of the species. They write: "While it is plausible that the type population of *E. zambesiaca*… could be accommodated under *E. autumnalis* subsp. *autumnalis*, it may be premature to treat some Chimanimani populations…in the same way".

SYNONYMS:

Eucomis amaryllidifolia Baker = **Eucomis autumnalis** subsp. **amaryllidifolia**

clavata Baker = **E. autumnalis** subsp. **clavata**

regia L'Hér., non (L.) Aiton = **E. autumnalis** subsp. **autumnalis**

robusta Baker = **E. autumnalis** subsp. **clavata**

undulata Aiton = **E. autumnalis** subsp. **autumnalis**

(FRITILLARIA)

Fritillaria autumnalis Mill. = **Eucomis autumnalis**

longifolia Hill = **E. autumnalis**

(**FUSIFILUM**)

Genus of 16 species in S. Africa, but may possibly radiate to (Botswana), Zimbabwe and Mozambique (U. Müll.-Doblies & al., o.c.: 473, 493).

MÜLLER-DOBLIES, U. & al. (2001). A revision of the genus Fusifilum Raf. 1837 (Hyacinthaceae of southern Africa). *Feddes Repert.* 112: 473-497.

SYNONYM:

Fusifilum gracile (A. V. Duthie) Speta = **Drimia calcarata**

(GALTONIA)

Galtonia clavata Baker ex Mast. = **Pseudogaltonia clavata**

(**HYACINTHUS**)

IN NEED OF FURTHER STUDY:

Hyacinthus ledebourioides Baker

Leaves 3-4, slightly fleshy, 2,5-3,8 × 0,6-1,2 cm, narrowed gradually toward the base; scape very thin, 5-7,5 cm long; raceme lax, 12-20-flowered, 2,5-3,8 cm long; pedicels c. 2 mm long, ascending; bracts minute, deltoid; perianth 4-4,5 mm long, white; segments lanceolate, cucullate, spreading; capsule sessile, depressed-globose, 3-lobed, c. 2 mm long; seed 1 in each locule.

Collected by Kirk: Mozambique, Sena, and Shupanga, dry places of tertiary hills; by Meller: Malawi: Zomba and E end of Lake Shirwa; and by Scott: Blantyre and Matope.

Said to be similar to a *Drimia* in having cucullate perianth segments.

Taxonomic status uncertain. Not mapped.

SYNONYMS:

Hyacinthus ciliaris (Jacq. ex Willd.) Poir. = **Drimia elata**

elatus (Jacq.) Poir. = **D. elata**

flexuosus Thunb. = **Ornithogalum flexuosum**

fulvus Cav. = **Dipcadi serotinum** var. **fulvum**

ledebourioides Baker = ? (see above)

lividus = **Dipcadi serotinum** var. **serotinum**

monomotapensis Desf. ex Poir. = **D. serotinum** var. **serotinum**

paradoxus Baker = **Ornithogalum flexuosum**

pechuelii Kuntze = **Pseudogaltonia clavata**

revolutus L. f. = **Ledebouria revoluta**

serotinus L. = **Dipcadi serotinum**

sulphureus Poir., non (Waldst. & Kit.) E. H. L. Krause = **D. serotinum** var. **serotinum**

viridis L. = **D. viride**

(IDOTHEA)

Idothea altissima (L. f.) Kuntze = **Drimia altissima**

barteri (Baker) Kuntze = **D. altissima**

burchelli (Baker) Kuntze = **D. elata**

ciliaris (Jacq. ex Willd.) Kunth = **D. elata**

concolor (Baker) Kuntze = **D. elata**

elata (Jacq.) Kunth = **D. elata**

laxiflora (Baker) Kuntze = **D. indica**

purpurascens (J. Jacq.) Kunth = **D. elata**

rigidifolia (Baker) Kuntze = **D. elata**

robusta (Baker) Kuntze = **D. elata**

villosa (Lindl.) Kunth = **D. elata**

(IDOTHEARIA)

Idothearia ciliaris (Jacq. ex Willd.) C. Presl = **Drimia elata**

elata (Jacq.) C. Presl = **D. elata**

purpurascens (J. Jacq.) C. Presl = **D. elata**

villosa (Lindl.) C. Presl = **D. elata**

(INDURGIA)

Indurgia coromandeliana (Roxb.) Speta = **Drimia indica**
govindappae (A. Boraiah & Fathima) Speta = **D. indica**
indica (Roxb.) Speta = **D. indica**
nagarjunae (Hemadri & Swahari) Speta = **D. indica**
wightiana (Hook. f.) Speta = **D. indica**

(LACHENALIA)

Lachenalia lanceifolia var. *maculata* Tratt. = **Ledebouria revoluta**
maculata Tratt. = **L. revoluta**
serotina (L.) Willd. = **Dipcadi serotinum**
speciosa F. Dietr. = ? **D. glaucum**
viridis (L.) Thunb. = **D. viride**

LEDEBOURIA / *16 + 3* ?

Genus of 54 species in Tropical and S. Africa, Arabia, Socotra, the northern tip of Madagascar, Nossi-Bé, Sri Lanka, southern tip of India (map in Venter, 2008 : 88).

Differs from *Scilla* by : leaves usually spotted, inflorescences ± flexuous (usually 2 or more), flowers usually purplish to greenish, *ovary stipitate*.

However, "the morphological distinction between *Ledebouria* and *Scilla*…becomes less clear when material from tropical Africa and the Mediterranean is included" (Stedje, 1998 : 4) ; "but as these small differences get support from the DNA sequence data I will suggest that *Ledebouria* and the sub-Saharan species of *Scilla* should be treated as two separate genera. *Ledebouria* is closest related to the tropical African species of *Scilla*, and appears to have a common ancestry" (Stedje, o.c.: 8).

Our compilation follows the recommendations and treatments published by Stedje (1998), Speta (Phyton 38 : 104-107, 1998), Venter (2008), and World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew.

The genus is very variable in leaf characters, chromosome numbers and karyotypes. The species boundaries are often obscure, and species delimitation has often been based on single characters.

LEBATHA, P. & al. (2006). See above under **Drimiopsis**.

PFOSSER, M. & al. (2012). Phylogenetic relationships of Malagasy Hyacinthaceae. *Pl. Ecol. Evol.* 145 : 65-72.

STEDJE, B. (1998). Phylogenetic relationships and generic delimitation of sub-Saharan Scilla (Hyacinthaceae) and allied African genera as inferred from morphological and DNA sequence data. *Pl. Syst. Evol.* 211 : 1-11.

VENTER, S. (2008). Synopsis of the genus Ledebouria Roth (Hyacinthaceae) in South Africa. *Herbertia* 62 : 85-155.

Ledebouria apertiflora (Baker) Jessop ; Speta (1998) : 105 ; S. Afric. J. Bot. 83 : 137, 2012. – Icon.: Refug. Bot. 1: pl. 19, 1868 (under *Drimia*) ; ibid. 3 : pl. 184, 1870 (as *Scilla linearifolia*) ; Herbertia 62 : 93, 2008.

bas.: *Drimia apertiflora* Baker

syn.: *Scilla lorata* Baker ; *S. linearifolia* Baker ; *S. apertiflora* (Baker) C. A. Sm.

Herb with subglobose bulb 2,5-6 cm long, scales *tightly arranged*, often *pink* towards the top ; bulb without threads when torn ; bulblets absent ; leaves 4-7, erect, *elliptic-linear*, 20-35 × < 2,5 cm, tapering almost from the base, upper surface *dichromatic;* inflorescence erect or flexuous, often with 50-150 flowers, of *same length or longer than leaves*, flowers c. 2,5 mm long, purple, tepals c. 0,8 mm wide, apices acute, style c. 1,2 mm long ; capsule not recorded.

Ecology in our area ?

S. Africa, Swaziland (map in Herbertia 62 : 95, 2008).

Included, erroneously, in *L. ensifolia* (Eckl.) S. Venter & T. J. Edwards in Bothalia 33 : 49, 2003 (fide Venter, 2008 : 92).

(**L. camerooniana** (Baker) Speta, 1998) ; Fl. Trop. Afr. 7 : 554, 1898 ; Akoegninou & al., Fl. analyt. Bénin : 136-137, 2006 ; Onana, Vascul. pl. Cameroon…: 165, 2011; S. Afric. J. Bot. 83 : 137, 2012. – Icon.: Fl. Gabon 40, Hyacinth.: 27, 2010.

bas.: *Scilla camerooniana* Baker 1870

syn.: *S. dybowskii* Hua ; *S. edulis* Hua 1898, non Engl. 1892 ; *S. huanica* Poelln. (see also below p. 99) ; *S. camerooniana* Baker var. *maculata* Hua 1898

Herb to 35 cm tall ; bulb 1-4 cm Ø ; leaves 3-5, linear-lanceolate, 10-18-30 × 0,2-1,4-3,5 cm, often purple spotted ; raceme simple, slender, 10-15 cm long ; pedicels 2-5 mm long ; flowers c. 6 mm long, tepals greenish or lilac, reflexed ; capsule 3-lobed, 3 × c. 6 mm.

Inselbergs, between rocks ; coastal savanna ; edges of pools ; on dry or humid soils ; cultivated fields at river bank ; 0-700 m alt.

Doubtfully distinct from *L. sudanica* (A. Chev. 1908) Burg 2006 (with broader leaves) ; intermediates between them exist (Fl. analyt. Bénin, l.c.).

Not mapped separately, but indicated on the map of *S. sudanica* outside that range. Distribution area : Bénin, (Nigeria), Cameroon, Congo, Equatorial Guinea, Centr. Afric. Rep.

(**L. ciliata** (Baker) Stedje ined.)

bas.: *Scilla ciliata* Baker

Herb with a small bulb ; leaves oblong-lanceolate, obtuse, 12,5-15 × c. 3 cm, reddish towards margins, finely ciliate at margin ; peduncle slender, flexuose, 10 cm long ; raceme oblong, lax, 5 cm long ; pedicels 6-8 mm long ; perianth campanulate, reddish purple, c. 3 mm long, segments linear-oblong with green stripe.

Hill, very common ; c. 1800-2100 m alt.

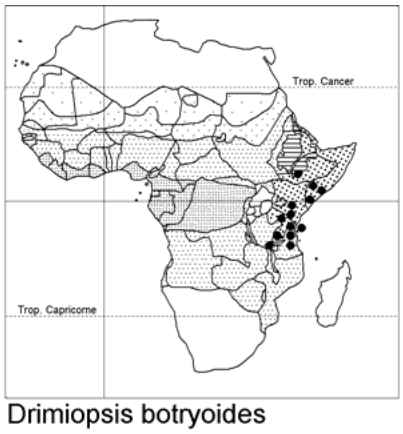
Zimbabwe ; Mashonaland (N & C Zimbabwe) and Inyanga (c. 18°13'Sx32°44'E). Not mapped.

Said to be near *L. sandersonii*.

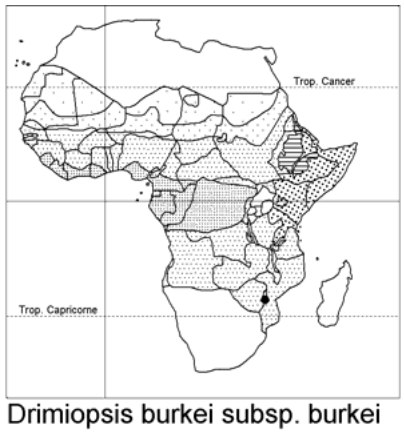
L. cooperi (Hook. f.) Jessop ; Venter (2008) : 100-101. – Icon.: Bot. Mag. 92 : pl. 5580, 1860 (as *Scilla cooperi*) ; Refug. Bot. 3 : pl. 186, 1870 (as *S. subglauca*) ; ibid. 4 : pl. 235, 1870 (as *S. concinna*) ; Flow. Pl. S. Africa 21 : pl. 827, 1941 (as *S. cinerascens*) ; ibid. 23 : pl. 912, 1943 (as *S. glaucescens*).

bas.: *Scilla cooperi* Hook. f.

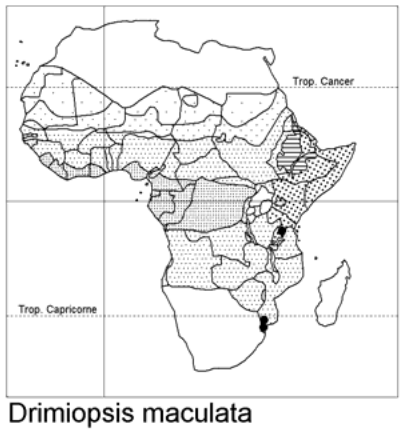
syn.: *S. subglauca* Baker ; *S. concinna* Baker ; *S. exigua* Baker ; *S. glaucescens* van der Merwe ; *S. cinerascens* van der Merwe ; for full synonymy, see Jessop in J. S. Afric. Bot. 36 : 247-249, 1970 ; Venter, l.c.; World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew.



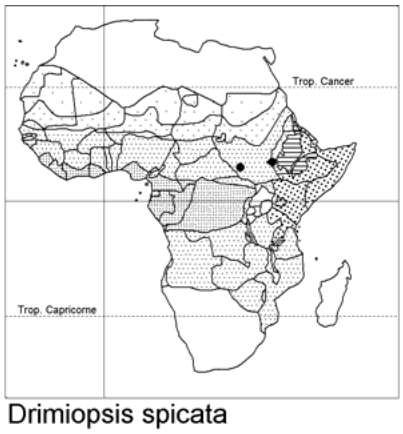
Drimiopsis botryoides



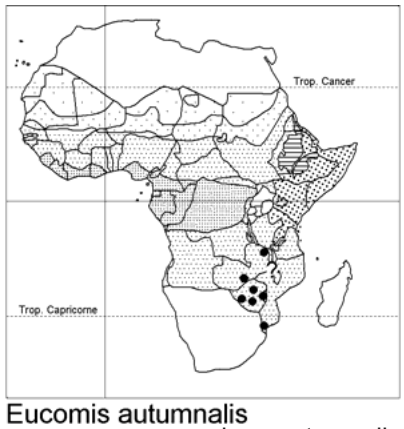
Drimiopsis burkei subsp. burkei



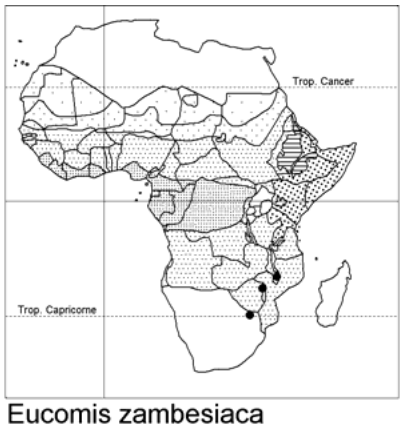
Drimiopsis maculata



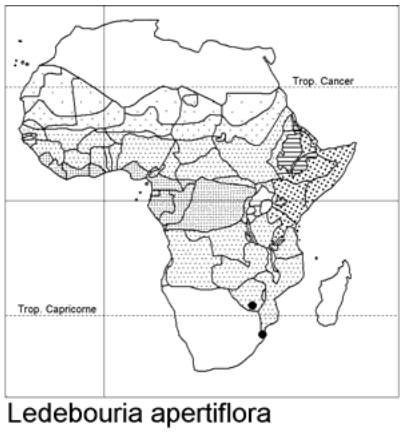
Drimiopsis spicata



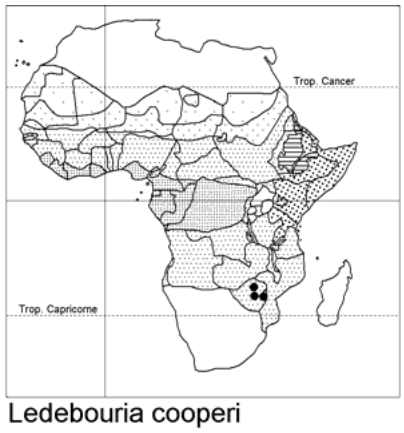
Eucomis autumnalis
subsp. autumnalis



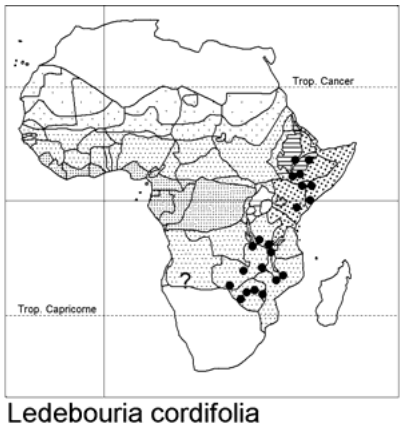
Eucomis zambesiaca



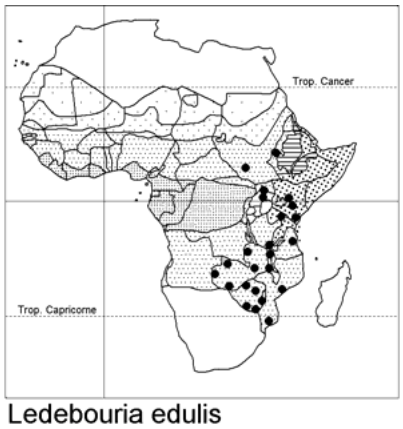
Ledebouria apertiflora



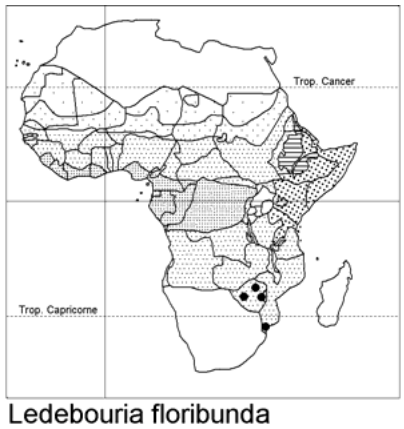
Ledebouria cooperi



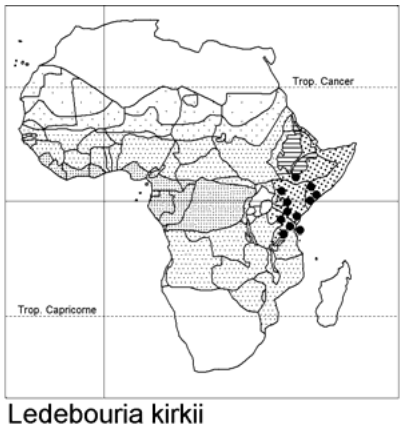
Ledebouria cordifolia



Ledebouria edulis



Ledebouria floribunda



Ledebouria kirkii

LEDEBOURIA COOPERI

Herb with bulb < *2,5 cm* long, with fewer, relatively lossely arranged scales with no threads when torn; bulblets present; leaves usually 1-3, 1-40x0,1-5 cm, erect, oblong, lanceolate, ovate or linear, often narrowing to the base; outermost leaf, clasping the bulb; inflorescence very compact, < 50 flowers; perianth segments uniformly pink, less often green or pink with a green keel, apices cucullate.

Ecology in Zimbabwe ?

Very variable, especially in the shape and coloration of the leaves.

Namibia, S. Africa, Swaziland (map: Herbertia 62: 97, 2008, partial).

L. cordifolia (Baker) Stedje & Thulin; Fl. Trop. Afr. 7: 555, 1898; Nord. J. Bot. 15: 595-596, 1995 ; Thulin, Fl. Somalia 4: 55-56, 1995; Fl. Trop. E. Afr., Hyacinth.: 14-15, 1996; Fl. Eth. & Eritrea 6: 141-142, 1997; Stedje in Pl. Syst. Evol. 211: 3, 1998; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 118 (map), 119, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 194-195, 2010; Figueiredo & Smith, Pl. Angola: 185, 2008.

bas.: *Scilla cordifolia* Baker

syn.: *Eriospermum somalense* Schinz, non *Ledebouria somalensis* (Baker) Stedje & Thulin; *Scilla carunculifera* Chiov., incl. var. *glandulosa* Chiov.; *S. glandulosa* (Chiov.) Chiov. ex Chiarugi, incl. fa. *major* Chiov.

Herb to 15 cm tall; bulb ovoid, to 4 cm high, outer scales dark and papery; leaves 1-2, *cordate* to *broadly lanceolate*, petiole 1-2-6 cm, often adpressed to the ground, 2-11 × 1-4,5 cm, often with purple spots or papillae above, or with stiff hairs; inflorescences 2-3, 2-10 cm long, with to 60 flowers; pedicels 2-6 mm long; flowers pink to purple; perianth segments 3-6 mm long, revolute; capsule depressed globose, 1,5-4 mm long !

Grassland, often in shallow soils over limestone; clearings in bushland or woodland; sandy plains; lateritic soils; sometimes on rocky ground; 10-2300 m alt.

Resembling *L. sandersonii*. Related to *L. revoluta*.

L. edulis (Engl.) Stedje; Nord. J. Bot. 15: 595, 1995; Fl. Trop. E. Afr., Hyacinth.: 14, 1996; Fl. Eth. & Eritrea 6: 141, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 118-119, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 193-194, 2010.

bas.: *Scilla edulis* Engl. 1892, non Hua 1898 *(= L. cameroonia)*.

Herb to 10 (-30) cm tall; bulb ovoid, to 7 cm high, outer scales dark and papery; leaves 3 to many, filiform to linear, 13-28 × 0,2-1,2 cm, erect, uniformly green or slightly spotted; infloresence 2-11 cm long, lax to dense, with up to 60 flowers; scape 4-25 cm long, erect or ± curved; pedicels 2-10 mm long; flowers greenish to pale purple; segments revolute, 2,5-5 mm long; capsule subglobose, 3-6 mm long.

Grassland, wooded grassland, woodland; often on shallow soil; 125-2000 m alt.

Botswana.

Very near *L. revoluta* but leaves narrower.

LEDEBOURIA

L. floribunda (Baker) Jessop; Venter (2008): 111, 112 (map). – Icon.: Refug. Bot. 3: pl. 188 (as *Scilla floribunda*), pl. 189 (as *Scilla princeps*), 1870.

bas.: *Scilla floribunda* Baker

syn.: *S. pendula* Baker; *S. princeps* Baker; *S. polyantha* Baker; *S. tricolor* Baker; *S. subsecunda* Baker; *S. lauta* N. E. Br.; *Drimia pendula* Burch. ex Baker

Herb with bulb *ovoid* 7-15 cm high; leaves often 4-5, 20-30 × 4-5 cm, linear-oblong to lanceolate, margin *smooth;* inflorescence often with *60-100* flowers; pedicels > 12 cm long; perianth segments greyish, greenish with pink, 2-4 mm long, apices cucullate.

Ecology in Zimbabwe ?

S. Africa, Swaziland (map: Herbertia 62: 112, 2008).

Can be confused with *L. revoluta* (perhaps such a confusion in our area).

L. kirkii (Baker) Stedje & Thulin; Nord. J. Bot. 15: 595, 1995; Thulin, Fl. Somalia 4: 54, 1995; Fl. Trop. E. Afr., Hyacinth.: 12, 1996; Fl. Eth. & Eritrea 6: 141, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 118, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 193, 2010.

bas.: *Scilla kirkii* Baker

syn.: *S. johnstonii* Baker ex Oliv.; *S. hildebrandtii* Baker; *Drimia hildebrandtii* Baker; *D. angustitepala* Engl.; *Urginea corradii* Chiov.; *Ledebouria hildebrandtii* (Baker) U. Müll.-Doblies & D. Müll-Doblies

Herb with bulb to 8 cm or more Ø; leaves lanceolate to ovate or elliptic, 30-40 × 9-12 cm, glabrous, often spotted purplish or dark green, sometimes with a petiole to 6 cm long; inflorescence 10-45 cm long (scape to 25 cm included), with up to 70 flowers; pedicels *0,5-1,6 cm* long, often purplish; perianth segments greenish, sometimes tinged purple, 0,8-1,5 cm long; capsule depressed-globose, deeply divided, 4-5 × c. 3 mm.

Grassland, bushland; occasionally in woodland, open woodland, deciduous bushland; sandy, rocky or black cotton soil; 0-1000 m alt.

Bulb poisonous.

L. leptophylla (Baker) Venter – Icon.: Flow. Pl. S. Africa 25: pl. 959, 1944 (as *Scilla stenophylla*); Venter (2008): 121, 117 (map).

bas.: *Scilla leptophylla* Baker

syn.: *S. graminifolia* Baker; *S. stenophylla* Van der Merwe; *Ledebouria graminifolia* (Baker) Jessop

Herb with bulb 3-5 cm long; leaves 10-20, linear, glaucous, with *dull purple spots* and *cross bars* at base, 4-8 × 0,1-0,4 cm, usually *spirally twisted*, *partly emerged* at anthesis, margin *concolorous* and papillate; inflorescence longer than leaves, rather dense, often with c. 30-70 flowers; tepals *linear*, c. 3 × 0,7 mm, stellate; capsule deeply divided.

Ecology in Zimbabwe ?

S. Africa, Swaziland.

Perhaps confused with *L. edulis* in our area.

(**L. lilacina** (Fenzl ex Kunth) Speta); Fl. Trop. Afr. 7: 556, 1898; Nord. J. Bot. 15: 596, 1995; Fl. Eth. & Eritrea 6: 142, 1997; Lebrun & Gaston, Bull. Soc. Bot. France, Lettres Bot. 1986 (415): 390.

bas.: *Eratobotrys lilacina* Fenzl ex Kunth

syn.: *Drimia lilacina* (Fenzl ex Kunth) Schweinf.; *Scilla lilacina* (Fenzl ex Kunth) Baker

Bulb ovoid, c. 3,5 cm long, 4-5 cm Ø, tunics brown; leaves 6-8, fleshy-herbaceous, suberect, oblong-lanceolate, acute, 7,5-15 × 2,4-3,5 cm, narrowed at base into a short petiole sheathing the base of the scape; scapes 1-3, 10-15 cm long; raceme lax, cylindrical, 7,5-12,5 cm long, 30-60-flowered; pedicels 5-8 mm long, the upper ones purplish; perianth tubular-campanulate, 5-6 mm long, bright mauve purple or purplish lilac with green tinge outside, segments spreading, ligulate.

Described from Sudan, Gallabat and Kordofan, Matamma (16°43'N × 33°22'E; Schweinfurth 13, 14, October 1868) and left side of the River Gendua; Kotschy 391, Pfund 299. Cited by Broun & Massey, Fl. Sudan: 383-384, 1929, from Bar El Ghazal, Okale. In Andrews, Pl. Anglo-Eg. Sudan 3: 274, 1956. In Chad: Audru 231, Goro-Koumogo, km 27, open forest; Also recorded from Ethiopia. – Not mapped.

Closely related to or perhaps a synonym of *L. revoluta*. Further studies needed.

L. luteola Jessop – Icon.: J. S. Afric. Bot. 36: 261, 1970.

Bulb 3,5-5 cm long with scales *usually yellow* especially when dried, except for the few brown membranous outer ones, longitudinally ridged and producing *copious threads when torn* – these threads usually seen even on herbarium material; leaves 4-10, erect, narrowly lanceolate, spotted, 8-13 cm long, *margin discolorous;* inflorescences 1-2, straight, 8-9 cm long, dense, with 30-60 flowers; capsule globose.

Ecology in Zimbabwe ?

S. Africa (map: Herbertia 62: 117, 2008).

Said to be difficult to distinguish from *L. cooperi*.

L. macowani (Baker) S. Venter – Icon.: Venter (2008): 123.

bas.: *Scilla macowanii* Baker

syn.: *S. nelsonii* Baker

Bulb 1,5-3 × 1,5-3-3 cm, ovoid; dead bulb scales tightly clasping, *lacking threads when torn;* bulb neck 0,5-1 cm; leaves *produced at the flowering time*, 3-4, spreading, linear-lanceolate, 7,5-10 × 0,6-0,8 cm, without threads when torn, fleshy, dull green, occasionally with purple spots in the lower half; inflorescences *1-2*, *lax*, cylindrical, 2,5-6 cm, 20-40-flowered; scape base terete, spotted, 4-10 cm long; pedicels 6-7 mm long, pink to purple; flowers stellate; tepals oblong, *slightly recurved*, 4 × 1,5 mm, green suffused with pink.

Ecology in Zimbabwe ? In S. Africa in damp lithosols (from quartzites, conglomerates, sandstone) in semi-shade.

S. Africa, Lesotho, Swaziland (maps: Bothalia 28: 181, 1998; Herbertia 62: 124, 2008).

Considered as a synonym of *L. cooperi* by Jessop (1970).

(**L. maesta** (Baker) Speta); J. Linn. Soc. 13: 249, 1873; Fl. Trop. Africa 7: 552, 1898.

bas.: *Scilla maesta* Baker

Bulb ovoid 2,5-3,7 cm Ø; leaves 5-6, erect, lanceolate, sessile, 10-15x1,2-0,8 cm, tapering gradually to the point, with a few purple spots; scapes 2-3 per bulb, nearly as long as the leaves; *raceme dense*, 2,5-5 cm long; lower pedicels slightly drooping, 0,6-0,8 cm long; perianth campanulate, green, 0,3 cm long; segments linear-oblong, spreading from below the middle; fruit unknown ?

Ecology unknown.

The type Kirk s.n. is from the Zambesi River delta, Luabo (Mozambique); not figuring in M. Calane da Silva & al., A preliminary checklist of the vascular plants of Mozambique, Sabonet Report 30, 2004. Cited from Tsavo (Kenya) in Fl. Trop. Afr. 7: 553, 1898, but not in Fl. Trop. E. Africa, Hyacinthaceae, 1996; also cited from Fort Young (Zambia) but not in P. S. M. Phiri, A checklist of Zambian vascular plants, Sabonet Report 32, 2005. Reported from Sudan by A. F. Broun & R. E. Massey, Fl. Sudan: 383, 1929; also by F. W. Andrews, The flow. pl. Sudan 3: 274, 1956, and by Wickens, The flora of Jebel Marra, 1976.

All known specimens need to be revised.

Not mapped.

L. marginata (Baker) Jessop – Icon.: Flow. Pl. S. Africa 22: pl. 865, 1942.

bas.: *Scilla marginata* Baker

syn.: *S. neglecta* Van der Merwe

Bulb obovoid, 4-8 cm long, 5 cm Ø, the outer scales often dark and glossy with pink markings; leaves c. 10, partly emerged at anthesis, glaucous, erect, *firm, spirally twisted*, to 16 × 1-3 cm, venation prominent, margin discolorous; inflorescences to 10, to 25 cm long, usually flexuose, with 50-150 flowers; pedicels to 10 mm long; flowers pale maroon; segments to 5 mm long, 1,5 mm wide, recurved, margin whitish, mid-nerve green beneath; capsule not described.

Ecology in Zimbabwe ?

S. Africa, Lesotho, Swaziland (map: Venter, 2008: 124).

L. revoluta (L. f.) Jessop; Nord. J. Bot. 15: 596, 1995; Fl. Trop. E. Afr., Hyacinth.: 15, 1996; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 119-120, 2003; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 487, 2005; Burrows & Willis, Pl. Nyika Plateau, Malawi: 307, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 108, 2006; Venter (2008): 143-144; Figueiredo & Smith, Pl. Angola: 185, 2008; idem in Bothalia 39: 196, 2009 (Kunene Exp.); Gereau & al., Lake Nyasa florist. checklist: 65-66, 2012; S. Afric. J. Bot. 83, 138, 2012. – Icon.: Jacquin, Icones pl. rar. 2: pl. 402, 1794 (as *Lachenalia lanceaefolia*); Bot. Mag. 34: pl. 1380, 1811 (as *Drimia lanceaefolia*); Arch. Gewächskunde 2: pl. 168, 1814 (as *Lachenalia lanceaefolia* var. *maculata*); Schrank, Pl. rar. hort. Monac. 2: fol. 100, pl. 100, 1820 (as *Scilla maculata*); Lodd., Bot. Cab. 11: pl. 1041, 1826 (as *Drimia acuminata*); Refug. Bot. 3: pl. 187, 1870 (as *Scilla spathulata*); Fl. Pl. S. Africa 24: pl. 958, 1944 (as *Scilla carnulosa*); Tredgold & Biegel, Rhodes. wild flowers: fig. 5, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 147, 1994 (as *Scilla hyacinthina*); Thulin, Fl. Somalia 4: 55, 1995; Fl. Eth. & Eritrea 6: 143, 1997; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 195, 2010 (cultivated plant).

bas.: *Hyacinthus revolutus* L. f.

LEDEBOURIA REVOLUTA

syn.: *Ledebouria hyacinthina* Roth; *Scilla indica* (Wight) Baker 1870, non Roxb. 1814 (= *Drimia*), nom. illegit.; *S. hyacinthina* (Roth) J. F. Macbride; *Drimia brevifolia* Baker; *Eratobotrys bifolia* Hochst. ex A. Rich.; *Scilla richardiana* Buchinger ex Baker; *S. neumannii* Engl.; *S. revoluta* (L. f.) Baker; *S. chiovendae* Cufod.; *S. lanceifolia* (Jacq.) Baker, incl. var. *longiracemosa* Engl. & Gilg; *S. carnosula* Van der Merwe; *Drimia lanceifolia* (Jacq.) Ker Gawl.; *Lachenalia lanceifolia* var. *maculata* Tratt.; *Scilla maculata* (Tratt.) Schrank; *Lachenalia maculata* Tratt.; *Drimia acuminata* Lodd.; *Barnardia indica* Wight; *Scilla spathulata* Baker; *S. carnosula* van der Merwe; *S. yemensis* Deflers; *Ledebouria yemensis* (Deflers) Speta; *L. ovatifolia* sensu Goldblatt & J. C. Manning, Cape Plants: 104, 2000), non (Baker) Jessop (see Taxon 56: 594, 2007); for further synonyms, see World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew (*http://apps.kew.org/wcsp/reportbuilder.do*).

Herb 6-45 cm tall; bulb ovoid, 2,5-7,5-12 cm high, outer scales dark and papery; leaves 4-8, not always fully developed at anthesis, narrowly to broadly *lanceolate*, 5-35 × 2-13 cm, often with *purple spots* or irregular blotches, or uniformly green, sometimes with a pseudopetiole to 7 cm long; inflorescence 3-25 cm long, ± lax to dense, with up to 100-150 flowers; scape 3-30 cm long, erect or slightly curved; pedicels 2-15 mm long, spreading; flowers greenish to pink or purple; tepals 3-8 mm long, revolute; capsule subglobose or sometimes schizocarpous, 4-6 mm long.

Grassland; bushland; woodland; often on sandy soils at rocky places; sporadic, but often abundant; clay soil; edges of cultivated fields; 0-2800 m alt.

Polymorphic species. Some S. African species recorded by, e.g. Jessop, from our area may belong here (due to confusion), perhaps also *L. zambesiaca* (see this species below).

S. Africa, Botswana, Namibia, Swaziland (map: Venter, 2008: 137); SW Arabian Peninsula, India, Sri Lanka.

Used in traditional medicine, but also suspected of causing mortality in sheep and cattle (Moodley & al. in S. Afric. J. Bot. 72: 517-520, 2006).

Scilla lilacina (Fenzl ex Kunth) Baker from Sudan and Ethiopia is closely related to or perhaps conspecific with *L. revoluta*. Further studies are needed.

L. sandersonii (Baker) S. Venter & T. J. Edwards; Bothalia 33: 50-51, 2003. – Icon.: Venter (2008): 147.

bas.: *Scilla sandersonii* Baker

syn.: *S. baurii* Baker; *S. tysonii* Baker; *S. oostachys* Baker; *S. diphylla* Baker; *S. bella* Markötter

Bulb ± globose, 0,8-2,5 cm Ø; scales *loosely arranged without threads* when torn; leaves 2-6, oblong to broadly lanceolate, 1,5-10 × *1,5-3* cm, fleshy, dull glaucous, *purple below*, *venation obscure*, *smooth above;* racemes 1-2, dense, oblong, 0,6-2-3,7 cm long, *12-20-flowered;* scape 2-4 cm long; perianth stellate, green or bright mauve purple; tepals oblong, c. 3 × 1 mm, recurved, apex acute; capsule globose, 3-lobed.

Montane grassland, in shallow soils overlying rock outcrops.

S. Africa, Swaziland (map: Bothalia, l.c.). Presence in our area doubtful.

Formerly placed within *L. cooperi*.

LEDEBOURIA

L. somaliensis (Baker) Stedje & Thulin; Nord. J. Bot. 15: 595, 1995; Thulin, Fl. Somalia 4: 55, 1995; Fl. Eth. & Eritrea 6: 141, 1997. – Icon.: Bot. Mag. 123: pl. 7565, 1897 (as *Drimia coleae*); Fl. Trop. E. Afr., Hyacinth.: 13, 1996; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 118, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 193, 2010.

bas.: *Scilla somaliensis* Baker

syn.: *Drimia coleae* Baker; *D. confertiflora* Dammer; *Ledebouria confertiflora* (Dammer) U. Müll.-Doblies & D. Müll.-Doblies

Bulb to 8 cm or more Ø; leaves several, ovate to oblanceolate or elliptic, to 20 × 7,5 cm, long-petiolate, often spotted purplish or dark green; inflorescence many-flowered, to 30 cm long (incl. to 15 cm long scape), ± dense; pedicels *2-3 mm* long, ± thick; tepals united at base, narrowly oblong, reflexed at anthesis for most of the length, greenish, sometimes tinged purple, 0,9-1,3 cm long, tip obtuse; capsule depressed-globose, c. 8 mm long.

Deciduous bushland; grassland; open woodland; on sandy or rocky ground, and in deep red sandy soil; 50-1800 m alt.

L. sudanica (A. Chev.) Burg 2006, non *Drimia sudanica* Friis & Vollesen nec *Albuca sudanica* A. Chev.; Akoegninou & al., Fl. analyt. Bénin: 137, 2006; Lisowski, Fl. Rép. Guinée 1: 424, 2009 (under *Scilla*); Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 232, 2011; Onana, Vascul. pl. Cameroon…: 165, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 35, 2012.

bas.: *Scilla sudanica* A. Chev., 1908.

syn.: *S. picta* A. Chev., 1920 (nom. subnud.) ex Hutch., 1939; *S. dahomensis* A. Chev., nom. nud.; *S. mankonensis* A. Chev., nom. nud.

Bulb 1,5-4 cm Ø; leaves 3-6, lanceolate-ovate, 8-15 × 2-3 cm, often purple mottled; scape 5-6 cm long, decumbent; raceme simple, to 30 cm long; pedicels 2-3 mm long; outer tepals greenish, inner greenish or purplish pink; fruit globose, 2-3 mm Ø.

Wooded savanna on hills; grassy ferruginous plateaux; humid hollows on laterite; amongst rocks; gravelly soils.

Difficult to distinguish from *L. camerooniana;* intermediate specimens exist. See above under that species. They are mapped together under *L. sudanica*. If they are considered conspecific *L. camerooniana* (Baker 1870) Speta 1998, is the older name.

L. urceolata Stedje; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 119, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 194, 2010. – Icon.: Nord. J. Bot. 15: 596, 1995; Fl. Eth. & Eritrea 6: 142, 1997.

Herb to 30 cm tall; bulb 2-4 cm Ø; leaves lanceolate, to 9 × 3 cm, ± spotted; raceme, 3-12 cm long with up to 50 flowers; pedicels 0,5-1 cm long; flowers pitcher-shaped, purple with the margin of tepals paler than the centre, ovate, 4-6 × c. 3 mm; capsule c. 5 mm long.

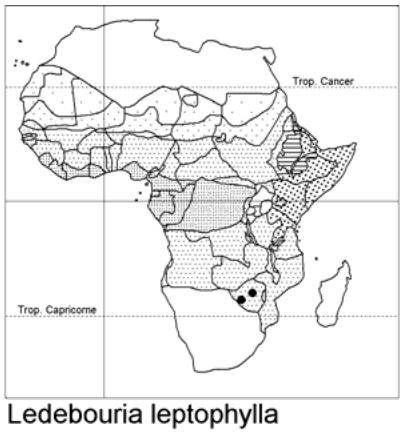
Rocky outcrops; grassland on thin soil; stony river banks; 2320-2750 m alt.

Resembling *L. revoluta* but flowers urceolate and tepals wider.

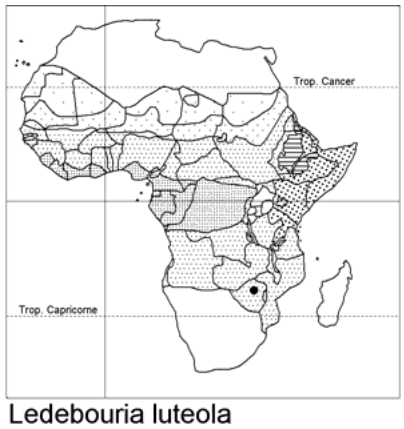
L. zambesiaca (Baker) Speta; Fl. Trop. Africa 7: 554, 1898 (as *Scilla zambesiaca*).

bas.: *Scilla zambesiaca* Baker, non *Urginea zambesiaca* Baker *(= Drimia zambesiaca)*.

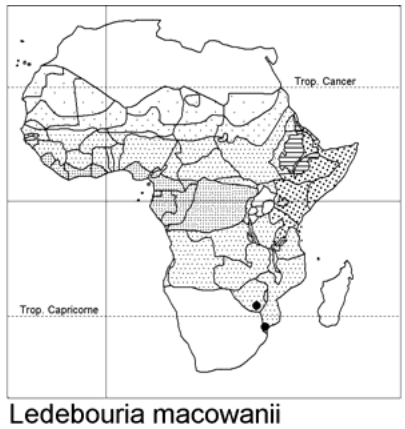
Bulb globose, 1,2 cm Ø; leaves 2-3, oblong or oblong-lanceolate, acute, 5-10 × 1,8-2,5 cm, with a long sheathing base; scape 5-7,5 cm long; raceme lax, oblong-cylindrical, 5-10 cm long; pedicels 0,3-0,4 cm long; perianth green, campanulate, 0,4 cm long, segments linear-oblong.



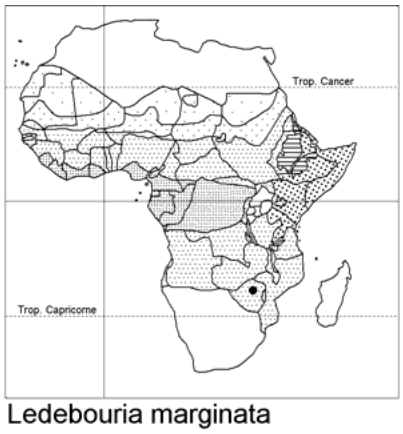
Ledebouria leptophylla



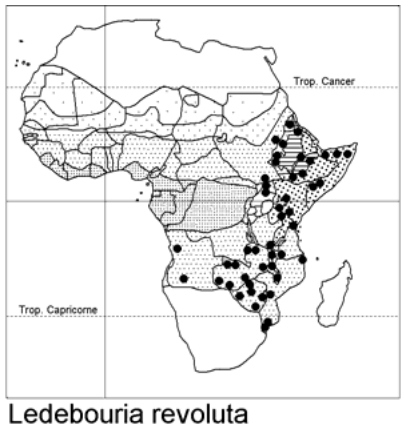
Ledebouria luteola



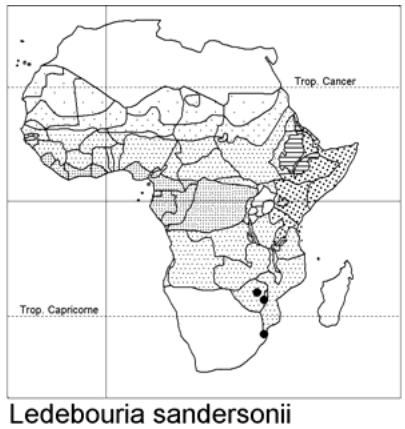
Ledebouria macowanii



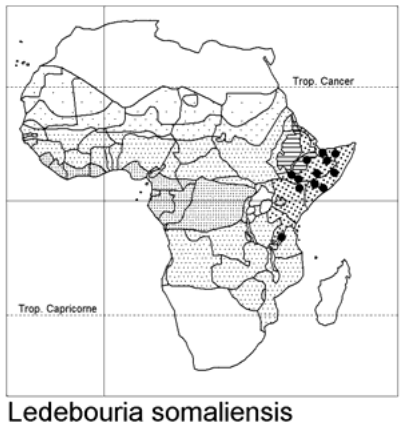
Ledebouria marginata



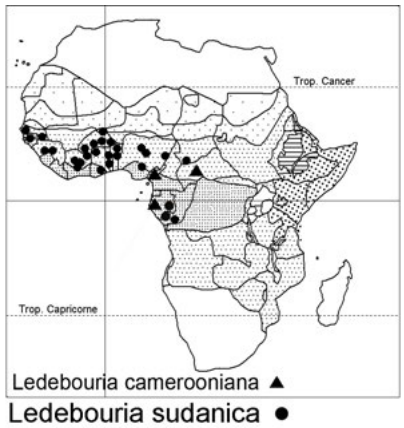
Ledebouria revoluta



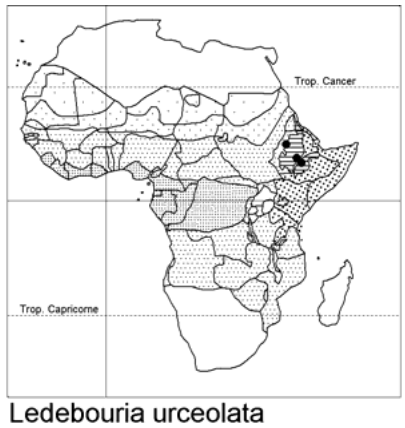
Ledebouria sandersonii



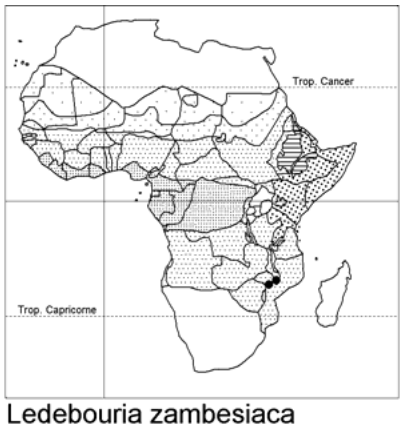
Ledebouria somaliensis



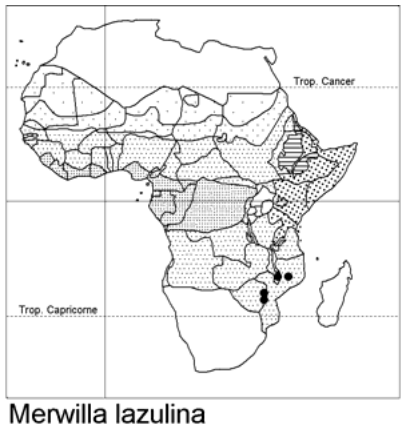
Ledebouria camerooniana ▲
Ledebouria sudanica ●



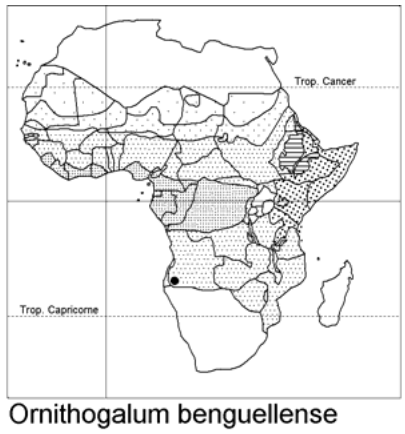
Ledebouria urceolata



Ledebouria zambesiaca



Merwilla lazulina



Ornithogalum benguellense

LEDEBOURIA ZAMBESIACA

Under shade of trees, after the first rains.

Reported with doubt from S Malawi by Strugnell, Checklist spermat. Mt. Mulanje: 108, 2006 (under *Scilla*), in stream-fringing bush, at 850 m alt. Also listed by Mapaura & Timberlake, Checklist Zimbabwean vascul. pl.: 91, 2004, and by Phiri, Checklist Zambian vascul. pl. 115, 2005. The plant pictured by Pickering & Roe, Wild. flow. Victoria Falls area: 65, 2009, as *L. zambesiaca* seems to be *L. revoluta*.

Although the bulb is reported as very small, *L. zambesiaca* may well be a form of the widespread and variable *L. revoluta*. Their distribution areas (see our maps) seem complementary.

SYNONYMS:

Ledebouria barteri (Baker) J. C. Manning & Goldblatt = **Drimiopsis barteri**

botryoides (Baker) J. C. Manning & Goldblatt = **D. botryoides** subsp. *prostrata* (Stedje) J. C. Manning & Goldblatt = **D. botryoides** subsp. **prostrata**

burkei (Baker) J. C. Manning & Goldblatt = **D. burkei**

subsp. *stolonissima* (U. Müll.-Doblies & D. Müll.-Doblies) J. C. Manning & Goldblatt = **D. burkei** subsp. **stolonissima**

confertiflora (Dammer) U. Müll.-Doblies & D. Müll.-Doblies = **Ledebouria somaliensis**

fischeri (Engl.) J. C. Manning & Goldblatt = **Drimiopsis fischeri**

graminifolia (Baker) Jessop = **Ledebouria leptophylla**

hildebrandtii (Baker) U. Müll.-Doblies & D. Müll.-Doblies = **L. kirkii**

hyacinthina Roth = **L. revoluta**

maculata Dalzell = **Drimia indica**

ovatifolia sensu Goldblatt & J. C. Manning 2000, non (Baker) Jessop = **Ledebouria revoluta**

petiolata J. C. Manning & Goldblatt = **Drimiopsis maculata**

woodii (Baker) J. C. Manning & Goldblatt = **D. burkei** subsp. **burkei**

yemensis (Deflers) Speta = **Ledebouria revoluta**

(LEDURGIA)

Ledurgia guineensis Speta = **Drimia guineensis**

(LINDNERIA)

Lindneria clavata (Baker) Speta = **Pseudogaltonia clavata**

fibrillosa T. Durand & Lubbers = **P. clavata**

pechuelii (Kuntze) T. Durand & Schinz = **P. clavata**

(LITANTHUS)

Litanthus pusillus Harv. = **Drimia uniflora**

(MELANTHIUM)

Melanthium hyacinthoides Royle = **Drimia indica**

MERWILLA / *1*

Genus of 3 species in S. Africa, SE Tropical Africa; with large bulbs, blue petals and flattened seeds [cf. Speta in Phyton (Horn) 38: 107-109, 1998; Manning & al. in Edinb. J. Bot. 60: 558-559, 2004].

WETSCHNIG, W. & M. PFOSSER (2003). The Scilla plumbea puzzle – present status of the genus Scilla sensu lato in southern Africa and description of Spetaea lachenaliiflora, a new genus and species of Massonieae (Hyacinthaceae). *Taxon* 52: 75-91.

Merwilla lazulina (Wild) Speta; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 108, 2006.

bas.: *Scilla lazulina* Wild, Kirkia 4: 163, 1964.

Glabrous herb to c. 40 cm tall; bulb ovoid, to 9 cm long and to 3,5 cm Ø, scales papery, brown, neck c. 2,5 cm long and c. 1,3 cm Ø; leaves 2-9 developed with the flowers, linear or oblong-triangular, 4-12 × 0,6 cm, erect, apex acuminate, margins white; raceme 1(-2) ramose, cylindric, to 13-17 × 2,2 cm, c. 35-75-flowered; scape to 22 cm long, deep blue upwards; pedicels with the same colour, 5-7 mm long, articulated at apex; perianth deep blue, campanulate, 4-5 mm long; tepals obovate or elliptic, c. 4,5- × 2,4 mm, minutely papillate, 1-nerved; capsule obovoid, c. 4 cm long, 6 mm Ø (?, 6 cm given), triangular.

Brachystegia woodland; cliffs; 1400-1950 m alt.

Often gregarious. Most attractive species well worth cultivation (fide Wild).

(OPHIOBOSTRYX)

Ophiobostryx volubilis (Harv. ex Hook. f.) Skeels = **Bowiea volubilis**

ORNITHOGALUM / *5*

Genus of 94 species (in its narrow circumscription) distributed from the Mediterranean Region E-wards to W Afghanistan; Africa, Madagascar. "In recent times, very different arrangements, almost opposite to one another, have been proposed" (Martínez-Azorín & Crespo in Pl. Syst. Evol. 289: 181, 2010).

In a generic revision of Hyacinthaceae (Edinb. J. Bot. 60: 544-553, 2004) Manning & al. lumped several genera into a single large genus *Ornithogalum* comprising 250-300 species. Manning & al. redefined the delimitation of the genus (Taxon 58: 77-107, 2009) and reinstated *Albuca, Dipcadi* and *Pseudogaltonia.* Thus the genus *Ornithogalum* (called "clade C", also including 2 species of *Stellarioides*) was reduced to c. 160 species.

In our compilation we had to choose a system and we follow the World Checklist of Selected Plant Families, Roy. Bot. Gard. Kew, *Ornithogalum (Asparagaceae),* that enumerates 94 species.

As to *Stellarioides* the genus was treated by Speta (Stapfia 75: 152-163, 2001). In a recent paper Martínez-Azorín & Crespo (Nord. J. Bot. 31: 213-221, 2013) discuss the circumscription of this genus the taxonomy of which "is far from satisfactory, and a comprehensive revision is still needed…" (o.c.: 213). We have not retained this genus, and the species concerned figure either in *Albuca* or *Ornithogalum*.

As defined here the taxa (glabrous plants) are characterized by having glabrous inner tepals; filaments free, not ligulate and narrowly triangular; ovary sessile, style and stigma inconspicuous.

Among the species listed below the fruit is perhaps unknown in 2 species, the ecology not recorded for the same 2 species and the same 2 species are probably known only from the type.

MARTÍNEZ-AZORÍN, M. & M. B. CRESPO (2013). What is Ornithogalum canaliculatum ? New data on the African genus Stellarioides (Hyacinthaceae). *Nord. J. Bot.* 31: 213-221.

ORNITHOGALUM

Ornithogalum benguellense Baker; Fl. Trop. Afr. 7: 547, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

Bulb subglobose, < 2,5 cm Ø; leaves 2-3, subterete, erect, fleshy, glabrous, 15 cm long, very narrow; scape 15-22 cm long; raceme lax, subcylindric, 7,5-10 cm long, pedicels short, *erecto-patent;* perianth 0,4 cm long; segments white, with a distinct red-brown keel; capsule small, oblong.

Sandy thickets; 1240-1650 m alt.

O. cernuum Baker; Fl. Trop. Afr. 7: 547, 1898.

Leaves linear, firm, glabrous, 30 cm or more long, 0,4 cm broad at the middle, with a distinct midrib; scape 15-22 cm long; raceme very lax, *15-30 cm long;* pedicels *slightly drooping,* lower ones 1,2 cm long; perianth 0,6 cm long; segments oblong, white with a distinct green keel; fruit unknown ?

Ecology unknown.

? Only known from the type (Buchanan 1337), Malawi, s. loc.

O. flexuosum (Thunb.) U. Müll.-Doublies & D. Müll.-Doblies; (our) Enum. 4: 625, 1997. – Icon.: Vahrmeijer & al., Poisonous plants of southern Africa that cause stock losses: 35, 34 (map), 1981 (as *Ornithogalum ornithogaloides*).

bas.: *Hyacinthus flexuosus* Thunb. 1794.

syn.: *Scilla flexuosa* (Thunb.) Baker; *Bulbinella* ? *ornithogaloides* Kunth 1843; *Anthericum ornithogaloides* (Kunth) Baker 1876; *Ornithogalum bulbinelloides* Baker 1897, nom. nov. illegit.; *O. ornithogaloides* (Kunth) Oberm.; *O. zeyheri* Baker; *Anthericum longipedicellatum* Poelln.; *Hyacinthus paradoxus* Baker 1874, nom. illegit.

Hygrophyte; bulb globose to cylindric, 0,6-2,5 cm Ø, *neck several cm long;* leaves 2-9, linear, 17,5-42 cm × 2-3,5 mm, base with an amplexicaul sheath; inflorescences 2-4, 16(-58) cm long; raceme subcorymbose, becoming *lax* and *cylindric;* pedicels patent, 2-2,5 cm long (to 3,8 in fruit); perianth segments narrowly ovate, *6-7 mm long,* white with a green vitta in the upper half below; capsule obovoid, 6-9 mm long.

Sandy dambos in shallow water; vlei in 5-7,5 cm deep water; marshes; riverbanks; 1400 m alt. (Malawi).

Namibia, S. Africa; Angola ?

O. gambosanum Baker; Fl. Trop. Afr. 7: 547, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

Bulb small; leaves 4, erect, linear, glabrous, 20-22,5 × 0,8-1,2 cm, tapering to the point, base clasping the stem; scape erect 12,5-15 cm long; raceme moderately dense, oblong-cylindric, *5 cm long;* pedicels, *slightly drooping,* the lower ones 0,4 cm long; perianth campanulate, 0,4 cm long; segments oblanceolate, obtuse, white with a pale brown keel; capsule ?

Ecology unknown.

? Only known from the type.

O. gracillimum R. E. Fries; Nord. J. Bot. 15: 600, 1995; Fl. Eth. & Eritrea 6: 146, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 125, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 203-204, 2010; S. Afric. J. Bot. 77: 589, 2011. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 147, 1994; Fl. Trop. E. Afr., Hyacinth.: 26, 1996.

Herb to 20 cm tall; bulb to 2 cm Ø; leaves filiform, to 17 cm long; scape to 10 cm tall; inflorescence with 2-12 white flowers; pedicels 0,2-3,5 cm; perianth segments obovate, 4-7 mm long, with few scattered vascular bundles; capsule 3-4 mm long.

ORNITHOGALUM GRACILLIMUM

Swampy places on shallow, stony soil; granite outcrop with much bare rock; 1450-3000 m alt.

In Fl. Trop. E. Africa, Eriospermaceae: 4, 1996, there is a note referring to a specimen (Eggeling 2813) collected in E Uganda, Mt Debasien (1°45'Nx c. 35° E), in alpine grassland at 3000 m alt. In Perry's revision (in Contrib. Bolus Herb. 17, 1994: 300) this sheet is attributed to *Eriospermum linearifolium.* However, the author, C. Whitehouse, considers this as probably *Ornithogalum gracillimum.*

(**O. longibracteatum** Jacq., non *Albuca longibracteata* Engl.) – See **Albuca bracteata**.

(**O. pulchrum** Schinz) – See **Albuca pulchra**.

(**O. seineri** (Engl. & K. Krause) Oberm.) – See **Albuca seineri**.

(**O. tenuifolium** F. Delaroche in Redouté) – See **Albuca virens**.

IN NEED OF FURTHER STUDY:

Ornithogalum abyssinicum Fresen., Index Seminum (FRT) 1834: 4. Ethiopia. Not in Fl. Eth. & Eritrea 6, 1997; non *O. abyssinicum* (Jacq.) J. C. Manning & Goldblatt in Edinb. J. Bot. 20: 546, 2004 (bas.: *Albuca abyssinica* Jacq.).

O. (Beryllis) tropicale Baker, J. Bot. (London) 12: 365, 1874. "Described from a drawing in the Lindley Library at Cambridge". Collected in Sierra Leone by G. Don.

SYNONYMS:

Ornithogalum abyssinicum (Jacq.) J. C. Manning & Goldblatt = **Albuca abyssinica**

aciphyllum Baker = **A. virens** subsp. **virens**

acuminatum Baker = **A. virens** subsp. **virens**

albovirens Baker = **A. virens** subsp. **virens**

altissimum L. f. = **Drimia altissima**

angolense J. C. Manning & Goldblatt = **Albuca monophylla**

bosniacum Beck = certainly not a synonym of *A. virens*, described from Bosnia-Hercegovina as a variation of *Ornithogalum tenuifolium* = **Albuca virens**

bracteatum Thunb. = **A. bracteata**

breviscapum F. M. Leight. = **A. virens** subsp. **virens**

bulbinelloides Baker = **Ornithogalum flexuosum**

calcaratum Baker = **Drimia calcarata**

caudatum Aiton = **Albuca bracteata**

cepifolium Baker = **A. virens** subsp. **virens**

chloranthum Baker = **A. virens** subsp. **virens**

clavatum (Baker) J. C. Manning & Goldblatt = **Pseudogaltonia clavata**

dipcadioides Baker = **Dipcadi gracillimum**

donaldsonii (Rendle) Greenway = **Albuca donaldsonii**

durandianum (Schinz) J. C. Manning & Goldblatt = **Dipcadi marlothii**

ecklonii Fisch. & C. A. Mey. 1840 and Schltdl. 1852 = **Albuca virens** subsp. **virens**

ensifolium Thonn. = **Drimia glaucescens**

filibracteatum Oberm. = **Albuca seineri**

flavovirens Baker = **A. virens** subsp. **virens**

flavum Forssk. 1775 = **Asphodelus tenuifolius** *(Asphodelaceae)*

fleckii (Schinz) J. C. Manning & Goldblatt = **Albuca abyssinica**

galpinii Baker = **A. virens** subsp. **virens**

giganteum Jacq. = **Drimia altissima**

inconspicuum Baker = **Albuca virens** subsp. **virens**

kirkii Baker = **A. kirkii**

laikipiense L. E. Newton = **Drimia macrocarpa**

longibracteatum Jacq. 1794 = **Albuca bracteata**

longibracteatum sensu auctt. (Afr. Orient.), non Jacq. = **A. pulchrum** or **A. virens** (see under these two species)

longifolium (Lindl.) J. C. Manning & Goldblatt = **Dipcadi longifolium**

longivaginatum N. E. Br. = **Albuca virens** subsp. **virens**

macranthum Baker = **Drimia macrantha**

magnum (Baker) J. C. Manning & Goldblatt = **Dipcadi glaucum**

massonii J. F. Gmel. = **Albuca bracteata**

melleri Baker = **A. abyssinica**

monteiroi Baker = **A. abyssinica**

ndellense A. Chev. = **Drimia glaucescens**

ornithogaloides (Kunth) Oberm. = **Ornithogalum flexuosum**

otavense K. Krause = **Albuca virens** subsp. **virens**

papillatum (Oberm.) J. C. Manning & Goldblatt = **Dipcadi papillatum**

planifolium J. C. Manning & Goldblatt = **D. platyphyllum**

pretoriense Baker = **Albuca virens** subsp. **virens**

pulchrum Schinz = **A. pulchra**

quartinianum (A. Rich.) Lanza = **A. abyssinica**

rigidifolium (Baker) J. C. Manning & Goldblatt = **Dipcadi rigidifolium**

saltmarshei Baker = **Albuca virens** subsp. **virens**

scilloides Jacq. = **A. bracteata**

seineri (Engl. & K. Krause) Oberm. = **A. seineri**

serotinum (L.) J. C. Manning & Goldblatt = **Dipcadi serotinum**

sordidum Baker = **Albuca virens** subsp. **virens**

stolzii K. Krause unpubl. = *Chlorophytum stolzii* (K. Krause) Weim., nom. inval. = **C. stolzii** (K. Krause) Kativu (*Anthericaceae*)

subspicatum Baker = **Albuca virens** subsp. **virens**

tenuifolium F. Delaroche in Redouté = **A. virens** subsp. **virens**

subsp. *aridum* Oberm. = **A. virens** subsp. **arida**

subsp. *robustum* Stedje = **A. virens** subsp. **virens**

subsp. *sordidum* (Baker) Stedje = **A. virens** subsp. **virens**

tenuis (Knudtzon) J. C. Manning & Goldblatt = **A. tenuis**

umgenense Baker = **A. virens** subsp. **virens**

undulatum (Aiton) Thunb. = **Eucomis autumnalis** subsp. **autumnalis**

vaginatum (Baker) J. C. Manning & Goldblatt = **Dipcadi vaginatum**

virens Lindl. = **Albuca virens**

viride (L.) J. C. Manning & Goldblatt = **Dipcadi viride**

viriduliflorum Poelln. = **Albuca virens** subsp. **virens**

wilmaniae F. M. Leight. = **A. seineri**

zeyheri Baker = **Ornithogalum flexuosum**

(PALLASTEMA)

Pallastema abyssinica (Jacq.) Salisb. = **Albuca abyssinica**

PSEUDOGALTONIA / *1*

Genus of 2 species in southern Africa (*P. liliiflora* J. C. Manning & Goldblatt in N Cape). Formerly included in *Ornithogalum*, reinstated.

DUNCAN, G. (2008). The desert coconut. Notes on the cultivation and propagation of Pseudogaltonia clavata. *Veld & Flora* 94: 200-201.

DUNCAN, G. (2009). Pseudogaltonia clavata. *Bulbs* 10-11: 292-295.

FORREST, L. L. & K. JONG (2004). Karyotype asymmetry in Galtonia and Pseudogaltonia (Hyacinthaceae). *Edinb. J. Bot*. 60: 569-579.

GOLDBLATT, P. & J. C. MANNING (2011). See above under the family.

Pseudogaltonia clavata (Baker ex Masters) E. Phillips; Fl. Trop. Afr. 7: 524, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008; S. Afric. J. Bot. 77: 588-589, 2011. – Icon.: Bot. Mag. 112: pl. 6885, 1886; Bull. Soc. Bot. France 36: pl. 18 opposite p. CCXVIII, 1889; Fl. Pl. S. Africa 15: pl. 580, 1935; Vahrmeijer & al., Poisonous plants of southern Africa that cause stock losses: 43, 42 (map), 1981; Duncan (2008): 200-201; Duncan (2009): 293, 295.

bas.: *Galtonia clavata* Baker ex Mast. 1884, ? nom. invalid. (a short description figures in Gard. Chron. N. S. 22/561: 401, 1884); validated by Baker 1886.

syn.: *Pseudogaltonia pechuelii* (Kuntze) Engl.; *P. subspicata* Baker; *Lindneria clavata* (Baker ex Masters) Speta; *L. fibrillosa* T. Durand & Lubbers; *L. pechuelii* (Kuntze) T. Durand & Schinz; *Ornithogalum clavatum* (Baker ex Masters) J. C. Manning & Goldblatt; *Hyacinthus pechuelii* Kuntze

Herb to 1,3 m tall; bulb 22 cm long, to 17 cm Ø; scales breaking up into course fibres; leaves 6-10, erect, ovate-lanceolate, 30 and more × 9 cm, acute; scape c. 24 cm long, 7 mm Ø; raceme 50-80-flowered; pedicels 2,2-2,7 cm long, articulated at apex; adult flowers slightly curved, to 3,5 cm long; tube 1,9 cm long, 5 mm Ø, slightly swollen at base; lobes oblong, 1,2 cm × 6 mm, white banded green; stamens inserted at throat of tube.

General ecology: Dry savanna on sandy and calcareous flats or near dry rivers and pans; c. 1000 m alt. (in Angola not recorded).

Namibia, S. Africa, Botswana.

Bulbs adapted to survive extremely harsh conditions. Bulbs very poisonous.

Easily grown in large containers and rock garden pockets in temperate climates, and in greenhouses with bright light in colder areas (Duncan, 2009: 294). Propagation best by seeds.

SCHIZOBASIS / *3*

Genus of 4 species in Tropical and S. Africa. Recently combined under a wide *Drimia* [cf. G. Williamson in Cactus Succ. J. (U.S.) 83 : 286, 2011]. Differs from *Bowiea* in the very thin inflorescences and minute nocturnal flowers.

Schizobasis angolensis Baker ; Figueiredo & Smith, Pl. Angola : 185, 2008.

syn.: *Adenotheca aphylla* Welw. ex Baker

Bulb globose, 2,5-3,7 cm Ø with outer tunics brown, membranous ; scape 30-60 cm tall, leafless, dichotomously branched above, bristle-like, generally hanging loosely on the cliffs, but ± erect when flowering ; flowers scattered ; peduncle articulated at apex, sheathed at base with whitish-reddish bracts ; perianth 6-partite to base, ovato-campanulate, narrowing and equal at mouth, greenish-white ; fruit unknown ?

A number of bulbs are generally crowded in crevices of rocks. Plentiful in rocky places near springs, with Orchids and Asclepiads ; 720-1240 m alt.

S. gracilis R. E. Fries

Bulb pear-shaped or subglobose, 1-1,8 cm Ø ; leaves filiform, 2-3 cm long, soon disappearing ; scape 1, erect, striate and scabrid, 6-15 cm tall, dichotomously divided at apex ; inflorescence subglobose or ovoid, 4-8 cm long ; pedicels slender, strongly divaricate, curved, 0,8-1,5 cm long ; perianth 3-3,5 mm long ; capsule subglobose, 3-3,5 mm long.

Rock crevices in dry forest.

Very near *S. intricata* but : plant more slender, bulb smaller, peduncles longer, and with slightly smaller flowers, fruits and seeds.

? Only known from the type (R. E. Fries 1157) collected in 1912.

S. intricata (Baker) Baker ; (our) Enum. 4 : 626, 1997 ; Nord. J. Bot. 15 : 600, 1995 ; Sebsebe Demissew & al., Flow. Eth. & Eritrea… : 113, 2003 ; idem, Aloes & lilies Eth. & Eritrea, ed. 2 : 185-186, 2010 ; Figueiredo & Smith, Pl. Angola : 185, 2008 ; idem in Haseltonia 15 : 75, 2009. – Icon.: Fl. Trop. E. Afr., Hyacinth.: 29, 1996 ; Fl. Eth. & Eritrea 6 : 139, 1997 ; Van Jaarsveld in Eggli, Ill. handbook succ. pl.: Monocot.: figs. 31g & h, 2001 ; the same photograph in Brit. Cactus Succ. J.: 22 : 81, 2004, and Cactus & Succ. J. (U.S.) 76 : 69, 2004, and Piante Grasse 24/2 : 51, 2004 ; Kew Bull. 61 : 147, 2006.

bas.: *Anthericum intricatum* Baker

syn.: *Drimia intricata* (Baker) J. C. Manning & Goldblatt ; *Schizobasis macowanii* Baker ; *S. dinteri* K. Krause

Bulb globose, 2,5-3,7 cm Ø ; leaves 4-10, terete, erect, 7,5-10 cm long, vanishing before the stems appear ; scape erect, 7,5-30 cm tall including the inflorescence ; peduncle as long as the panicle, sometimes spirally twisted ; panicle, 7,5-25 cm long and broad, very lax, corymbose, with zigzag rachis, slender, spreading, or ascending ; pedicels 1-2,5 cm long, articulated at apex ; perianth campanulate, 0,4 cm long ; segments oblong-obtuse, white or yellow, with a distinct brown keel ; capsule ellipsoid, 4-5 mm long.

Hillside among rocks ; steep shaded rocky bank in degraded bushland/low woodland ; 1400-1900 m alt.

Namibia, S. Africa, Swaziland, Botswana.

Rarely cultivated as an oddity.

SYNONYMS (in other genera) :

Schizobasis flagelliformis (Baker) Baker = **Eriospermum abyssinicum** *(Eriospermaceae)*

volubilis (Harv. ex Hook. f.) Van Jaarsv. = **Bowiea volubilis**

(SCHIZOBASOPSIS)

Schizobasopsis kilimandscharica (Mildbr.) Barschus = **Bowiea volubilis** subsp. **volubilis**

volubilis (Harv. ex Hook. f.) J. F. Macbr. = **B. volubilis**

SCHIZOCARPHUS / *1*

Monotypic genus in Tropical and S. Africa.

STEDJE, B. (1998). Phylogenetic relationships and generic delimitation of sub-Saharan Scilla (Hyacinthaceae) and allied genera as inferred from morphological and DNA sequence data. *Pl. Syst. Evol.* 211 : 1-11.

Schizocarphus nervosus (Burch.) van der Merwe ; (most often cited under *Scilla*) ; Nord. J. Bot. 15 : 594, 1995 ; Figueiredo & Smith, Pl. Angola : 185, 2008 ; idem in Bothalia 39 : 196, 2009 (Baum, Kunene Exp.) ; S. Afric. J. Bot. 83 : 138, 2012. – Icon.: Refug. Bot. 3 : pl. 179, 1870 (as *Scilla pallidiflora*) ; idem 5 : pl. 305, 1873 (as *Scilla versicolor*) ; Fl. Pl. S. Africa 21 : pl. 821, 1941 (as *Scilla rigidifolia* var. *nervosa*) ; idem 23 : pl. 904 (as *Schizocarphus nervosus*, *Sch. acerosus*), pl. 905 (as *Sch. rigidifolius*), pl. 906 (as *Sch. gerrardii*), 1943 ; S. Afric. J. Bot. 65 : 307, 1999 (as *Scilla nervosa*) ; Fl. Trop. E. Afr., Hyacinth.: 11, 1996 (idem) ; Taxon 52 : 77, 2003 ; Burrows & Willis, Pl. Nyika Plateau, Malawi : 308, 2005.

bas.: *Ornithogalum nervosum* Burch.

syn.: *Scilla eriospermoides* Engl. & Gilg ; *S. pallidiflora* Baker, 1870 ; *S. versicolor* Baker ; *S. bakeriana* Poelln. ; *S. rigidifolia* Kunth and var. *gerrardii* (Baker) Baker, and var. *nervosa* (Burch.) Baker 1873, and var. *nervosa* van der Merwe 1941, nom. illegit. ; *S. pubescens* Baker ; *S. setifera* Baker ; *S. gerrardii* Baker ; *S. hispidula* Baker ; *S. nervosa* (Burch.) J. P. Jessop ; *Drimia dregeana* Kunth ; *Schizocarphus setiferus* (Baker) Speta ; *S. gerrardii* (Baker) van der Merwe ; *S. acerosus* (van der Merwe) van der Merwe ; *S. rigidifolius* (Kunth) van der Merwe ; *S. hispidulus* (Baker) Speta

Herb to 50 cm tall ; bulb to 8 cm Ø, tunics fibrous ; leaves lanceolate, to 38 × 3,5 cm, with articulated vascular bundles ; scape and pedicels *pubescent*, pedicels 0,5-1,3 cm long (somewhat longer in fruit) ; perianth segments white, greenish-white, pink to blue, often with a green or dark midrib, 3-5 mm long ; capsule c. 4 mm high, 6 mm Ø ; seeds characteristic, ellipsoidal, folded, black, 2 mm long (fig. in Taxon 52 : 84, 2003).

Grassland, often on burnt ground, on black cotton soil or light loam soil with rocks ; gregarious ; sunny thicket-grown places on sandy-clayey soil ; 900-2570 m alt.

Botswana, S. Africa, Swaziland, Namibia.

Poisonous, although important in local pharmacopeias (S. Afric. J. Bot. 65 : 306-307, 1999).

The species complex was subdivided on the basis of leaf measurements (numerous synonyms) ; Jessop in J. S. Afric. Bot. 36 : 243, 1970.

(SCILLA)

In a narrow circumscription [Speta in Phyton (Horn) 38: 121-123, 1998, and Speta in Kubitzki, Fam. & genera vascul. pl., monocot., Lilianae…: 283-284, 1998] a genus of 30 species distributed in Europe-Siberia, Asia (Palestine, Lebanon, Syria, Iraq, Iran, Afghanistan, Pakistan, N India). Not present in Tropical Africa where other genera occur, i.e. *Drimiopsis, Ledebouria, Merwilla, Schizocarphus.*

The characters delimiting *Scilla* from *Ledebouria* are: leaves not spotted, inflorescence mostly solitary and ± rigid, flowers blue to white, ovary sessile, seeds globose and coloured yellow, brown or black.

SPETA, F. (1998). In *Phyton (Horn)* 38: l.c.

STEDJE, B. (1998). Phylogenetic relationships and generic delimitation of sub-Saharan Scilla (Hyacinthaceae) and allied African genera as inferred from morphological and DNA sequence data. *Pl. Syst. Evol.* 211: 1-11.

A number of species described under *Scilla* are in need of revision (cf. World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard. Kew). A list of such species is given by Figueiredo & Smith in Plants of Angola: 185, 2008.

(**Scilla achtenii** De Wild.)

Perhaps a synonym of *Ledebouria kirkii*.

? Only known from the types (Lode Achten 498, 501), collected in 1916; Zaire, Makala (4°23'S × 15°18'E).

Savanna.

(**S. antunesii** Engl.)

Probably near *Ledebouria revoluta*.

? Only known from the type (Antunes 178) from Angola, Huila, rock of Kihita, collected in 1899.

Hill, between rocks; 1250 m alt.

(**S. arenaria** Baker); Fl. Trop. Afr. 7: 550, 1898.

Probably near *Ledebouria edulis*.

? Only known from the type (Welwitsch 3823) from Angola, Pungo Andongo, near Condo and Quitage, collected in 1857.

Sandy wooded short-grassed pastures; in great quantity, covering wide areas.

(**S. baumiana** Engl. & Gilg); Figueiredo & Smith, l. c.

Confused with *S. rautanenii* Schinz [= *Ledebouria undulata* (Jacq.) J. P. Jessop]; Jessop suggests = *Urginea* sp. (J. S. Afric. Bot. 36: 266, 1970).

? Only known from the type (Baum 122) from Angola, between Löwenpan and Kunene, collected in 1899.

Dry sandy ground; 1100 m alt.

(**S. begoniifolia** A. Chev.)

Probably a *Ledebouria*.

? Only known from the type (Chevalier 8391), Centr. Afric. Rep., Kouti, near Kiokoro marigot, collected in 1903.

Humid places.

See below under *S. chlorantha*.

(**S. benguellensis** Baker); Fl. Trop. Africa 7: 551, 1898.

Probably a *Ledebouria*, near *L. edulis*.

? Only known from the type (Welwitsch 3831); Angola, Huila, Lopollo.

Dry pastures (fide Fl. Trop. Afr. 7: 551, 1898); 1140-1650 m alt.

In Rendle, Cat. Afric. Pl. Welwitsch 2/1: 61, 1899, the specimen Welwitsch 3831 is cited under *S. lanceifolia (= Ledebouria revoluta),* and the specimen Welwitsch 3825 figures under *S. benguellensis:* a social plant; sunny rather sandy pastures near Lopollo.

(**S. buchananii** Baker); Fl. Trop. Africa 7: 553, 1898.

Probably a *Ledebouria*.

? Only known from the type (Buchanan 193); Malawi, Shire highlands.

Ecology unknown.

Described from a plant that flowered at Kew in 1893.

(**S. bussei** Dammer)

? Only known from the type (Busse 855); ? N Mozambique, high Rovuma, Kwa-Lituno (River Rovuma: Mozambique: 11°35'S × 37°00E), collected in 1901.

Sunny place on road side, clayey-sandy soil, on hill.

(**S. chlorantha** Baker); Fl. Trop. Africa 7: 555, 1898; Lebrun & Gaston, Bull. Soc. Bot. France 133, Lettres Bot. 1986 (415): 390.

probable syn.: *S. begoniifolia* A. Chev. (= Chevalier 8391); Centr. Afr. Rep., Kouti, near Kiokoro swamp, humid places, collected in 1903 (see above under that species).

Probably a *Ledebouria*.

Known from the type (Schweinfurth 1795); Sudan, Jur Ghattas and from Chad, Audru 230, Goro-Koumogo, km 27.

Open forest on sand.

(**S. ciliata** Baker) – See above under **Ledebouria ciliata** p. 88.

Probably a *Ledebouria* near *L. sandersonii*.

? Only known from the type (Mrs Evelin Cecil 165) collected in Zimbabwe, Inyanga.

Very common; 1800-2100 m alt.

(**S. congesta** Baker); Fl. Trop. Africa 7: 557, 1898.

Probably a *Ledebouria*.

? Only known from the type (Welwitsch 3827); Angola, Huila, Lopollo district, collected in 1860.

Thicket-grown hillsides.

(**S. dualaensis** Poelln.); Onana, Vascul. pl. Cameroon…: 165, 2012.

A probable synonym of *Ledebouria sudanica*.

? Only known from the type (Winkler 717); Cameroon, Douala, on way to Yapoma, collected in 1904.

In Manihot cultivation.

SCILLA

(**S. engleri** T. Durand & Schinz)

syn.: *S. pallidiflora* Engl. 1892, nom. illegit., non 1870 *(= Schizocarphus nervosus); S. modesta* Baker

Probably a *Ledebouria*.

? Only known from the type (Schweinfurth 1848, 1908); Sudan, Jur, Abu Guron's Zeriba (= Abu Qurun, 7°28'N × 28°28'E).

(**S. flaccidula** Baker); Fl. Trop. Afr. 7: 553, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

Probably a *Ledebouria*.

? Only known from the type (Welwitsch 3820); Angola, Pungo Andongo, Pedra Pungo, collected in 1856.

Thickets at the side of rocks.

(**S. gabunensis** Baker); Fl. Trop. Afr. 7: 552, 1898.

Probably a *Ledebouria* near *L. camerooniana* (or *L. sudanica*).

? Only known from the type (Büttner 533); Gabon, Sibange Farm.

Ecology unknown.

Not cited in Fl. Gabon 40, Hyacinth., 2010, but *L. camerooniana* is recorded from N of Libreville.

(**S. gracillima** Engl.); Fl. Trop. Afr. 7: 558, 1898.

Imperfectly known.

? Only known from the type (Peters); Mozambique, Serra.

Sandy ground.

(**S. huanica** Poelln.)

syn.: *S. edulis* Hua 1898, non Engl. 1892 *(= Ledebouria edulis).*

In our list (p. 88) treated as a synonym of *Ledebouria camerooniana.*

Known from the syntypes (Thollon 311, 318), from Gabon, Franceville, and Congo, Brazzaville, collected in 1885 and 1888, respectively.

Cultivated in Gabon and Congo-Brazzaville.

(**S. jaegeri** K. Krause)

Probably a *Ledebouria* near *L. edulis*.

? Only known from the type (Jäger 338); Tanzania, Wembäre (= ? Wembere) and Ugogo (Uduke), collected in 1906.

Steppe, on a bare ridge covered only with grass; rather common.

Not in Fl. Trop. E. Africa, Hyacinthaceae, 1996.

(**S. katendensis** De Wild.)

Certainly a *Ledebouria* near *L. edulis*, but leaves seems to be wider. But the plant is perhaps not mature.

? Only known from the type (Lode Achten 608); Zaire, Katanga, Katende (6°19'S × 22°29'E), collected in 1921.

Waterfall, in thin sandy soil on rocks.

SCILLA

S. laxiflora Baker 1878), non 1891 [= ? *Ledebouria undulata* (Jacq.) J. P. Jessop from Namibia-S. Africa; cf. Jessop, J. S. Afric. Bot. 36: 258, 1970; said to be difficult to distinguish from *L. revoluta*]; Figueiredo & Smith, Pl. Angola: 185, 2008.

Proabably a *Ledebouria*. A synonym of *L. socialis* (Baker) J. P. Jessop from S. Africa ?

? Only known from the type (Welwitsch 3919); Angola, Luanda.

A specimen collected on short-grassed hills around ponds in sandy clay collected in 1854, flowered in 1858 under cultivation in a garden.

(**S. ledienii** Engl.); Fl. Trop. Africa 7: 557, 1898. – Icon.: Gartenflora 38: pl. 1294 opposite p. 153, 1889.

Probably a *Ledebouria*.

? Only known from the type (Fr. Ledien, Bratislava); Zaire, Musumbi, between Lukungo and Matadi, collected in 1886.

Marshy plain, c. 200 m alt., southern bank of the River Congo, with *Cyperaceae*, *Juncaceae*.

(**S. lilacina** (Fenzl ex Kunth) Baker) – See above under **Ledebouria lilacina** p. 91.

Type: Kotschy 391; Sudan, Kordofan.

(**S. oubanghiensis** Hua); Fl. Trop. Africa 7: 550, 1898.

Probably a *Ledebouria*, near *L. camerooniana (L. sudanica)* or *L. edulis* ("S. utilis" Hua sphalm.).

Probably Congo Brazzaville, but without locality and specimen cited.

(**S. petersii** Engl.); Fl. Trop. Africa 7: 553, 1898.

Probably a *Ledebouria*.

? Only known from the type (probably Peters); Mozambique, Tete and Beira, mouth of River Pungue.

Not in M. Calane da Silva & al., A preliminary checklist of the vascular plants of Mozambique (Sabonet Report 30, 2004).

(**S. platyphylla** Baker); Fl. Trop. Africa 7: 555, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

Probably a *Ledebouria*.

? Only known from the type (Welwitsch 3826); Angola, Huila, between Lopollo and Catumba, collected in 1859.

Thicket-grown hills, sparsely grassed.

(**S. religiosa** A. Chev., nom. nud.).

Probably a *Ledebouria*.

? Only known from the type (Chevalier 8373); Centr. Afric. Rep., between Télé and river Bangoran, collected in 1903.

Humid places, rather common.

(**S. schweinfurthii** Engl.); Fl. Trop. Africa 7: 552, 1898; Chevalier, Etudes Fl. Afr. Centr. 1: 322, 1913; Lebrun & Gaston, Bull. Soc. Bot. France 133, Lettres bot., 1986 (415): 390.

Probably a *Ledebouria*.

Known from the type (Schweinfurth 1898); Sudan, Jur, Ghattas's Zeriba (7°26'N × 28°32'E), collected in 1869. Also known in Chad, Chevalier 10530, 9181, 9238, s. n., 9142, 9061, 9447 (*Scilla paludosa* sp. nov. in sched.); Centr. Afric. Rep.: Chevalier 8429, 8687, all collected in 1903 (non 4487, collected in Bénin).

Ferruginous plateaux; bare plains on Bahr Sara River.

SCILLA

(**S. simiarum** Baker); Fl. Trop. Africa 7: 552, 1898; Hua in Bull. Soc. Hist. Nat. Autun 10: 677, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

Known from the type (Welwitsch 3821); Angola, Luanda, near Quicuxe, collected in 1854. And reported by Hua (l. c.) from Centr. Afric. Rep., Bangui (Dybowski 531).The same species ?

Sandy places flooded in summer, very dry in winter (Welwitsch); on rocks in the Oubangui River falls (Hua).

The specimen Welwitsch 3822 cited by Rendle, Cat. Afric. Pl. Welwitsch 2/1: 62, 1899, is perhaps another species. Specimen Welwitsch 3823 is the type of *Scilla arenaria*.

(**S. sodalicia** N. E. Br.); Lebrun & Gaston, o.c.: 391.

syn.: *S. socialis* A. Chev. 1908, non Baker 1870 [= **Ledebouria socialis** (Baker) J. P. Jessop from S. Africa].

Probably a *Ledebouria*.

Known from ? Centr. Afric. Rep.: Chevalier 8425, Ngara, cultivated as fetish; Chevalier 8607, Goundi, savanna; Chad, s. n., between Sahr and Makouïa: collected in 1903.

(**S. tayloriana** Rendle); Fl. Trop. Africa 7: 556, 1898.

Probably near *Ledebouria revoluta* but: leaves broader, papery, passing more suddenly into a narrower petiole; raceme less dense; flowers larger.

Ecology unknown.

? Only known from the type (Taylor W. E. s. n.); Kenya, near Mombassa, Rabai Hills (c. 3°56'S × 39°35'E), collected in 1885.

Not in Fl. Trop. E. Africa, Hyacinth., 1996.

(**S. textilis** Rendle); Fl. Trop. Africa 7: 558, 1898.

Probably a *Ledebouria* near or conspecific with *L. revoluta*.

? Only known from the type (W. E. Taylor s. n.); Tanzania, Uyui (4°55'S × 33°05'E), collected in 1887.

Ecology unknown.

Not in Fl. Trop. E. Africa, Hyacinth., 1996.

(**S. uyuiensis** Rendle); Fl. Trop. Africa 7: 555, 1898.

Probably a *Ledebouria* near or conspecific with *L. somaliensis*.

? Only known from the type (W. E. Taylor s. n.); Tanzania, Uyui, collected in 1886.

Ecology unknown.

Not in Fl. Trop. E. Africa, Hyacinth., 1996.

(**S. verdickii** De Wild.)

Probably a *Ledebouria*.

Known from the type (Verdick, s. n.); Zaire, Katanga, Lukafu. Also reported by De Wildeman & Staner (Flore du Katanga, Suppl. 4: 6-7, 1932) from Kafubu (Quarré 780), collected in 1927, and from Munama, Rosenhof (Quarré 1348), collected in 1928, and from Snelleghem (Elakat) (Quarré 1444), collected in 1928.

Ecology unknown.

SCILLA

(**S. welwitschii** Poelln.); Fl. Trop. Africa 7: 551, 1898, sub nom. *S. polyphylla*; Figueiredo & Smith, Pl. Angola: 185, 2008.

syn.: *S. polyphylla* Baker 1878, non Royle 1839.

Probably a *Ledebouria*.

? Only known from the type (Welwitsch 3832, type of *S. polypyhlla*); Angola, Pungo Andongo, near Candumba and Tunda Quilombo, collected in 1857.

Sandy places; densely crowded over very wide areas; rocky slopes.

(**S. werneri** De Wild.)

Probably a *Ledebouria*.

? Only known from the type (Werner, s. n.); Zaire, Anglo-American Company territory, collected in 1907.

Ecology unknown.

SYNONYMS:

Scilla apertiflora (Baker) C. A. Sm. = **Ledebouria apertiflora**

bakeriana Poelln. = **Schizocarphus nervosus**

baurii Baker = **Ledebouria sandersonii**

begoniifolia A. Chev. = ? **Scilla chlorantha** (insufficiently known)

bella Markötter = **Ledebouria sandersonii**

camerooniana Baker, incl. var. *maculata* Hua = **L. camerooniana**

carnosula van der Merwe = **L. revoluta**

carunculifera Chiov., incl. var. *glandulosa* Chiov. = **L. cordifolia**

chiovendae Cufod. = **L. revoluta**

ciliata Baker = **L. ciliata**

cinerascens van der Merwe = **L. cooperi**

concinna Baker = **L. cooperi**

cooperi Hook. f. = **L. cooperi**

cordifolia Baker = **L. cordifolia**

coromandeliana Roxb. = **Drimia indica**

currorii Baker = **Eriospermum currorii** *(Eriospermaceae)*

dahomensis A. Chev. = **Ledebouria sudanica**

diphylla Baker = **L. sandersonii**

dybowskii Hua = **L. camerooniana** (or **L. sudanica**)

edulis Engl. 1892 = **L. edulis**

edulis Hua, 1898 = **L. camerooniana** (or **L. sudanica**)

eriospermoides Engl. & Gilg = **Schizocarphus nervosus**

exigua Baker = **Ledebouria cooperi**

fischeri Engl. 1895 = **Drimiopsis fischeri**

flexuosa (Thunb.) Baker = **Ornithogalum flexuosum**

floribunda Baker = **Ledebouria floribunda**

gerrardii Baker = **Schizocarphus nervosus**

glandulosa (Chiov.) Chiov., incl. fa. *major* Chiov. = **Ledebouria cordifolia**

glaucescens van der Merwe = **L. cooperi**

graminifolia Baker = **L. leptophylla**

hildebrandtii Baker = **L. kirkii**

hispidula Baker = **Schizocarphus nervosus**
huanica Poelln. = **Ledebouria camerooniana** (or **L. sudanica**)
hyacinthina (Roth) J. F. Macbride = **L. revoluta**
indica (Wight) Baker 1870 = **L. revoluta**
indica Roxb. = **Drimia indica**
johnstonii Baker ex Oliv. = **Ledebouria kirkii**
kirkii Baker = **L. kirkii**
lanceifolia (Jacq.) Baker, incl. var. *longiracemosa* Engl. & Gilg = **L. revoluta**
lauta N. E. Br. = **L. floribunda**
lazulina Wild = **Merwilla lazulina**
leptophylla Baker = **Ledebouria leptophylla**
lilacina (Fenzl ex Kunth) Baker = **L. lilacina**
linearifolia Baker = **L. apertiflora**
lorata Baker = **L. apertiflora**
macowanii Baker = **L. macowanii**
maculata (Tratt.) Schrank = **L. revoluta**
maesta Baker = **L. maesta**
mankonensis A. Chev. = **L. sudanica**
marginata Baker = **L. marginata**
micrantha A. Rich. = **Drimia altissima**
modesta Baker = **Scilla engleri** (insufficiently known)
neglecta van der Merwe = **Ledebouria marginata**
nelsonii Baker = **L. macowanii**
nervosa (Burch.) J. P. Jessop = **Schizocarphus nervosus**
neumannii Engl. = **Ledebouria revoluta**
oostachys Baker = **L. sandersonii**
pallidiflora Engl., 1892 = **Scilla engleri** (insufficiently known)
pallidiflora Engl. 1870 = **Schizocarphus nervosus**
paludosa A. Chev., nom. in sched. = **Scilla schweinfurthii** (insufficiently known)
pendula Baker = **Ledebouria floribunda**
petitiana A. Rich. = **Albuca abyssinica**
picta A. Chev. ex Hutch. = **Ledebouria sudanica**
polyantha Baker = **L. floribunda**
polyphylla Baker = **Scilla welwitschii** (insufficently known)
princeps Baker = **Ledebouria floribunda**
pubescens Baker = **Schizocarphus nervosus**
quartiniana A. Rich. = ? **Albuca abyssinica**
revoluta (L. f.) Baker = **Ledebouria revoluta**
richardiana Buchinger ex Baker = **L. revoluta**
rigidifolia Baker, incl. var. *gerrardii* (Baker) Baker, var. *nervosa* (Burch.) Baker, *nervosa* van der Merwe = **Schizocarphus nervosus**
sandersonii Baker = **Ledebouria sandersonii**
serotina (L.) Ker Gawl. = **Dipcadi serotinum**
setifera Baker = **Schizocarphus nervosus**
simensis Hochst. ex A. Rich. = **Drimia simensis**
socialis A. Chev. = **Scilla sodalicia** (insufficiently known)
somaliensis Baker = **Ledebouria somaliensis**

sordida Salisb. = **Dipcadi serotinum** var. **serotinum**
sp. A sensu Agnew 1974 and 1994 = **Drimia porphyrantha**
spathulata Baker = **Ledebouria revoluta**
spicata Baker = **Drimiopsis spicata**
stenophylla van der Merwe = **Ledebouria leptophylla**
subglauca Baker = **L. cooperi**
subsecunda Baker = **L. floribunda**
sudanica A. Chev. 1908 = **L. sudanica**
tetraphylla L. f. = **Chlorophytum tetraphyllum** *(Anthericaceae)*
tricolor Baker = **Ledebouria floribunda**
tysonii Baker = **L. sandersonii**
"*utilis*" (Hua) sphalm. = **L. edulis**
versicolor Baker = **Schizocarphus nervosus**
viridis (L.) Salisb. = **Dipcadi viride**
volkensii Engl. 1895 = **Drimiopsis fischeri**
yemensis Deflers = **Ledebouria revoluta**
zambesiaca Baker = **L. zambesiaca**

(SEKANAMA)

Sekanama burkei (Baker) Speta = **Drimia sanguinea**
delagoensis (Baker) Speta = **D. delagoensis**
sanguinea (Schinz) Speta = **D. sanguinea**

(STELLARIOIDES)

Stellarioides aciphylla (Baker) Speta = **Albuca virens** subsp. **virens**
acuminata Speta = **A. virens** subsp. **virens**
albovirens (Baker) Speta = **A. virens** subsp. **virens**
arida (Oberm.) Speta = **A. virens** subsp. **arida**
cepifolia (Baker) Speta = **A. virens** subsp. **virens**
donaldsonii (Rendle) Speta = **A. donaldsonii**
ecklonii (Fisch. & C. A. Mey.) Speta = **A. virens**
flavovirens (Baker) Speta = **A. virens** subsp. **virens**
inconspicua (Baker) Speta = **A. virens** subsp. **virens**
longibractreata (Jacq.) Speta = **A. bracteata**
longivaginata (N. E. Br.) Speta = **A. virens** subsp. **virens**
otavensis (K. Krause) Speta = **A. virens** subsp. **virens**
pretoriensis (Baker) Speta = **A. virens** subsp. **virens**
robusta (Stedje) Speta = **A. virens** subsp. **virens**
saltmarshei (Baker) Speta = **A. virens** subsp. **virens**
sordida (Baker) Speta = **A. virens** subsp. **virens**
subspicata (Baker) Speta = **A. virens** subsp. **virens**
tenuifolia (F. Delaroche in Redouté) Speta = **A. virens** subsp. **virens**
umgenensis (Baker) Speta = **A. virens** subsp. **virens**
virens (Lindl.) Speta = **A. virens**
viriduliflora (Poelln.) Speta = **A. virens** subsp. **virens**

(STREPSIPHYLLA)

Strepsiphylla villosa (Lindl.) Raf. = **Drimia elata**

(THURANTHOS)

Thuranthos was described by C. H. Wright in 1916 [type: *T. macranthum* (Baker) C. H. Wright]. Its circumscription was later discussed by, e.g. Speta (Phyton 38: 80-86, 1998). For a discussion on the separation between *Urginea, Drimia, Ornithogalum* and *Thuranthos*, see Kirkia 15: 112-113, 1994, and Syst. Geogr. Pl. 71: 451, 2002 (Stedje). See also Speta in Kubitzki, Fam. & genera vascul. pl. 3...: 273, 1998.

SYNONYMS:

Thuranthos basuticum (E. Phillips) Oberm. = **Drimia basutica**

coromandelianus (Roxb.) Speta = **D. indica**

govindappae (A. Boraiah & Fathima) Speta = **D. indica**

indicus (Roxb.) Speta = **D. indica**

macranthum sensu Kativu & Drummond 1994, non C. H. Wright = **D. basutica**

macrocarpus (Stedje) Speta = **D. macrocarpa**

nagarjunae (Hemadri & Swahari) Speta = **D. indica**

noctiflorus (Batt. & Trab.) Speta = **D. noctiflora**

senegalensis (Kunth) Speta = **D. senegalensis** (= **D. indica** ?)

wightianus (Hook. f.) Speta = **D. indica**

zambesiacus (Baker) Kativu, p.p. = **D. indica**, **D. macrocarpa**

(TOMOXIS)

Tomoxis virens (Lindl.) Raf. = **Albuca virens**

(TRICHARIS)

Tricharis serotina (L.) Salisb. = **Dipcadi serotinum**

(URGINAVIA)

Urginavia altissima (L. f.) Speta = **Drimia altissima**

brachystachys (Baker) Speta = **D. brachystachys**

epigea (R. A. Dyer) Speta = **D. altissima**

micrantha (A. Rich.) Speta = **D. altissima**

porphyrantha (Bullock) Speta = **D. porphyrantha**

viridula (Baker) Speta = **Urginea viridula** (insufficiently known)

(**URGINEA**)

"Some authors unite *Urginia* [Steinh.] and *Drimia* Jacq. under *Drimia*, others maintain the two as distinct genera" [*Urginea* = c. 10 spp. in the Mediterranean region, Africa, SW Asia to India] sensu Boulos in Fl. Egypt 4: 42, 2005.

"*Urginea*… is a heterogeneous, poorly understood genus in which major rearrangements are to be expected" (Speta in Kubitzki, Fam. & genera vascul. pl. 3…: 274, 1998).

URGINEA

In a narrow circumscription (Speta in Stapfia 75: 220, 227, 2001) a genus of 2 species in NW Africa and the W and C Mediterranean region (map in Speta, o.c.: 228): *Urginea fugax* (Moris) Steinh. and *U. ollivieri* Maire. Not in Tropical Africa.

DEB, D. B. & S. DASGUPTA (1982). Generic status of Urginea Steinheil (Liliaceae). *J. Econ. Taxon. Bot.* 3: 819-825.

IN NEED OF FURTHER STUDY:

(**Urginea angolensis** Baker); Fl. Trop. Africa 7: 541, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

syn.: ? *U. chlorantha* Welw. ex Baker

? Only known from the syntypes (Welwitsch 3810, 3812, Monteiro s. n.); Angola: Luanda, Pungo Andongo and Golungo Alto.

(**U. bequaertii** De Wild.)

? Only known from the type (Bequaert 2768); Zaire, Irumu, collected in 1914.

Grassy savanna.

Near *U. angolensis*.

(**U. bragae** Engl.); Fl. Trop. Africa 7: 539, 1898.

? Only known from the type (Braga s. n.); Mozambique, Beira.

Ecology unknown.

Near *Drimia brachystachys.*

(**U. garuensis** Engl. & K. Krause)

? Only known from the type Ledermann 3489); Cameroon, Garoua, collected in 1909.

On hill, stony to rocky, open wooded savanna; 320 m alt.

Near *Drimia glaucescens*.

(**U. grandiflora** Baker); Andrews, Flower. pl. Sudan 3: 275, 1956.

? Only known from the type (Lord s. n.); Sudan, Red Sea Hills, Khor Tamabib; 180 m alt.

Near *Albuca nigritana* but leaf margins densely, softly white-ciliate.

(**U. insignis** Engl. & K. Krause)

? Only known from the syntypes (Ledermann 3302, 3350); Cameroon, Garoua, collected in 1903.

Sandy, partly stony and rocky bushy savanna.

(**U. johnstonii** Baker); Fl. Trop. Africa 7: 539, 1898; Figueiredo & Smith, Pl. Angola: 185, 2008.

? Only known from the type (Johnston s. n.); Angola, near River Cunene, collected in 1883.

Near *Drimia brachystachys*.

(**U. ledermannii** Engl. & K. Krause)

? Only known from the type (Ledermann 2637); Cameroon, between Mao (= River) Jim (7°15'N × 11°50'E), and Mao Barakesch (7°20'N × 11°58'E).

Bank of rivulet in savanna; 1160 m alt.

Near *Drimia altissima*.

(**U. nyasae** Rendle); Fl. Trop. Africa 7: 537, 1898; Burrows & Willis, Pl. Nyika Plateau, Malawi: 309, 2005; Strugnell, Check-list spermat. Mt. Mulanje, Malawi: 108, 2006; Scripta Bot. Belg. 34: 108, 2006.

Known from: A. Whyte s. n., Buchanan s. n., McClounie 72, Strugnell AM & al. 68, Mill 1979. Malawi: Nyika Natl. Park sine loc. (Mill 1979); Mt. Mulanje: burnt grassland, 1800- c. 2100 m alt.

Near *Drimia calcarata*.

(**U. paludosa** Engl. & K. Krause)

? Only known from the type (Ledermann 3531); Cameroon, River Schuari near Garoua (9°18'N × 13°24'E), collected in 1909.

Swampy depression.

Near *Albuca virens* and *Urginea angolensis*.

(**U. psilostachya** Welw. ex Baker); Fl. Trop. Africa 7: 537, 1898; Hua in Bull. Soc. Hist. Nat. Autun 10: 676, 1898; Sosef & al., Check-list pl. vascul. Gabon: 253, 2006; Figueiredo & Smith, Pl. Angola: 185, 2008.

Known from the type (Welwitsch 3807); Angola, Cazengo, River Luinha, collected in 1854 (fruit in 1855): dry thickets in sandy soil on the right of the river.

Also known from Congo-Brazzaville, Loango (Thollon 1310): common near the sea (but disappears at less than 20 km inland); J. de Brazza 184: Ganciù.

Near *Drimia altissima*. However, in Flore du Gabon 40, Hyacinth.: 24, 2010, the species (Le Testu 1105) is not cited under *Drimia altissima* which occurs in the S part of Gabon, up to 600 m alt. in savanna, dry or humid places, sandy or clayey or rocky soils.

(**U. salmonea** Berhaut)

? Only known from the type (Berhaut 1682 bis, 5260); Senegal, Mbao, ecology unknown, collected in 1954; also Berhaut 1682.

Near *Drimia indica* but: leaves 30-40 cm × c. 15-20 mm, with apex long-attenuate and cone-shaped; bracts salmon-pink at first.

(**U. viridula** Baker); Fl. Trop. Africa 7: 538, 1898; emend. S. O. Oyewole, Bol. Soc. Brot. Sér. 2: 49, 1969, 1975. – Icon.: Oyewole, o.c.: 166 (habit: vegetative morphology), 215, 216 (chromosomes).

syn.: *Urginavia viridula* (Baker) Speta

A cultivated specimen flowered in September 1886: from ? Zaire ("Congo").

Near *Drimia altissima* but: a dwarfish plant; leaves shorter and narrower, appressed to the ground; pedicels articulated at the base of the receptacle (Oyewole 2095, 160, Nigeria, Malumfashi); seeds smaller. Other collections cited are from Rep. of Guinea, Ivory Coast, Ghana, Togo.

Inselbergs with shallow organic soil or in gravelly soils.

SYNONYMS:

Urginea acinacifolia Schinz = **Albuca abyssinica**

altissima (L. f.) Baker = **Drimia altissima**

altissima Hook. f. = **D. elata**

amboensis Baker = **D. indica**

arenosa Adamson = **D. calcarata**

bakeri Chiov. = **Albuca virens** subsp. **virens**

basutica E. Phillips = **Drimia basutica**

beccarii Baker = **Albuca abyssinica**

brachystachys Baker = **Drimia brachystachys**

brevipes Baker = **D. altissima**

burkei Baker = **D. sanguinea**

calcarata (Baker) Hilliard & B. L. Burtt = **D. calcarata**

cepifolia (Baker) Welw. ex Rendle = **Albuca virens** subsp. **virens**

chlorantha Welw. ex Bak. = ? **Urginea angolensis** (insufficiently known)

comosa Welw. ex Baker = **Albuca pulchra**

coromandeliana Wight 1853 = **Drimia indica**

coromandeliana Hook. f. 1892 = **D. indica**

corradii Chiov. = **Ledebouria kirkii**

delagoensis Baker = **Drimia delagoensis**

dimorphanta Baker = **Albuca pulchra**

ensifolia (Thonn.) Hepper = **Drimia glaucescens**

epigea R. A. Dyer = **D. altissima**

flavovirens (Baker) Weim. = **Albuca virens** subsp. **virens**

gigantea (Jacq.) Oyewole = **Drimia altissima**

glaucescens Engl. & K. Krause = **D. glaucescens**

govindappae Boraiah & Fathima = **D. indica**

gracilis A. V. Duthie = **D. calcarata**

*indica (*Roxb.) Kunth = **D. indica**

langii Bremek. = **Albuca seineri**

lorata Baker = **Dipcadi glaucum**

lydenburgensis R. A. Dyer = **Drimia delagoensis**

macrantha (Baker) Phill. = **D. macrantha**

mandalensis Baker = **D. calcarata**

mankonensis (A. Chev.) Hutch. = **Albuca sudanica**

micrantha (A. Rich.) Solms = **Drimia altissima**

modesta Baker = **D. calcarata**

mouretii Batt. & Trab. = **Albuca bracteata**

multisetosa Baker = **Drimia multisetosa**

nagarjunae Hemadri & Swahari = **D. indica**

nana Oyewole = **D. pumila** ined.

narcissifolia (A. Chev.) Hutch., p.p. = **Albuca sudanica**

natalensis Baker = **Drimia calcarata**

nigritana Baker = **Albuca nigritana**

noctiflora Batt. & Trab. = **Drimia noctiflora**

noctiflora var. *aurantiaca* (H. Lindb.) Maire and subsp. *aurantiaca* H. Lindb.) Maire = **D. aurantiaca** (Morocco)

noctiflora var. *helicophylla* Maire and subsp. *helicophylla* (Maire) Maire = **Drimia noctiflora**

pauciflora Baker, 1898 = **D. sudanica**

pauciflora Baker, 1901 = **D. calcarata**

pedunculata Adamson = **D. calcarata**

petitiana (A. Rich.) Solms = **Albuca abyssinica**

pilosula Engl. = **Trachyandra saltii** *(Asphodelaceae)*

porphyrantha Bullock = **Drimia porphyrantha**

pretoriensis Baker = **D. calcarata**

pulchra (Schinz) Sölch = **Albuca pulchra**

URGINEA

quartiniana (A. Rich.) Solms = **A. abyssinica**
rautanenii Baker = **Drimia sanguinea**
riparia Baker = **D. calcarata**
rubella Baker = **D. calcarata**
sanguinea Schinz = **Drimia sanguinea**
sebirei Berhaut = **D. indica**
senegalensis Kunth = **D. senegalensis** (= ? **D. indica)**
simensis (Hochst. ex A. Rich.) Schweinf. = **D. simensis**
somalensis Chiov. = **Albuca donaldsonii**
tayloriana Rendle = **A. virens** subsp. **virens**
tenella Baker = **Drimia calcarata**
«*ubomboensis*» R. A. Dyer, errore = **D. delagoensis**
umgeniensis Poelln. = **D. calcarata**
virens Schltr. = **D. virens**
wightiana Hook. f. = **D. indica**
zambesiaca Baker = **D. indica**

(UROPETALON)

Uropetalon becazzeanum Dammann = **Dipcadi viride**
bourgaei Nyman = **D. serotinum** var. **serotinum**
depressum A. Rich. = **D. viride**
fesoghlense Solms = **D. fesoghlense**
glaucum Burch. ex Ker Gawl. = **D. glaucum**
hysudricum Edgew. = **D. serotinum** var. **serotinum**
longifolium Lindl. = **D. longifolium**
minimum Steud. ex A. Rich. = **D. viride**
serotinum (L.) Ker Gawl. = **D. serotinum**
tacazzeanum Hochst. ex A. Rich. = **D. viride**
umbonatum Baker = **D. viride**
viride (L.) Ker Gawl. = **D. viride**
welwitschii Baker = **D. welwitschii**

(UROPHYLLUM)

Urophyllum caudatum Salisb. = **Albuca bracteata**

(VELTHEIMIA)

Veltheimia abyssinica DC. = **Kniphofia pumila** *(Asphodelaceae)*

(VERDICKIA)

Verdickia katangensis De Wild. = **Chlorophytum leptoneuron** (*Anthericaceae*)

(ZUCCAGNIA)

Zuccagnia serotina (L.) Dennst. = **Dipcadi serotinum**
viridis (L.) Thunb. = **D. viride**

ERIOSPERMACEAE *1* g. / *8 + 9* ? spp.

Family of one genus, *Eriospermum,* confined to the African continent and Socotra. Affinities obscure. Formerly in *Liliaceae* s. lat. Has been associated with various families, e.g., *Tecophilaeaceae*, *Asphodelaceae*, and *Ruscaceae/Convallariaceae*. *Eriospermum* is extraordinary in several aspects: leaves with peculiar appendages and seeds hairy (Perry & Rudall, o.c.). APG III family *Asparagaceae* Juss. subfam. *Nolinoideae* Burnett

Many species are insufficiently known in our area (taxa listed below within brackets). For the others: no tuber seen in one species, fruit unknown in 2 species (= 25%).

GEERINCK, D. & F. MALAISSE (2009). Révision du genre Eriospermum Endl. (Asparagaceae, Eriospermaceae ou Liliaceae sensu lato) en Afrique centrale. *Taxonoman*. 28: 1-5.

OPEL, M. & S. HAMMER (2001). Elusive eriospermums. *Cactus Succ. J.* (*U.S.*) 73: 187-193.

PERRY, P. L. & P. J. RUDALL (1998). Eriospermaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants*. 3. *Flowering plants: Monocotyledons. Lilianae (except Orchidaceae)*: 241-244. Springer, Berlin, etc.

THIEDE, J. (2002). Eriospermaceae. Validation of two sectional names in Eriospermum. *Bothalia* 32: 76.

ERIOSPERMUM / *8 + 9* ?

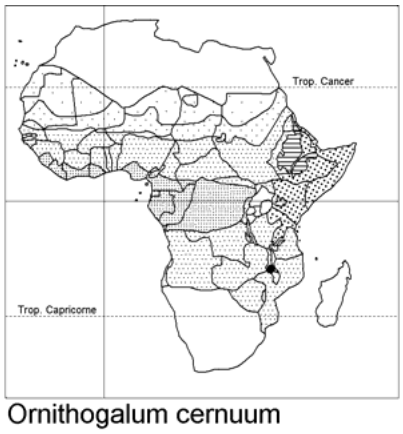
"The genus *Eriospermum* Jacq. ex Willd. is as fascinating as it is obscure" (Opel & Hammer, o.c.: 187).

Tuberous perennial herbs, tuber hypocotyledonary in origin; leaves with petiole-like leaf sheath, with age forming a fibrous or membranous neck; scape erect with a sheathing subterranean or green aerial cataphyll; flowers hermaphrodite, in a simple raceme; perianth persistent; tepals 6, connate shortly at base; stamens 6; ovary superior; fruit a capsule.

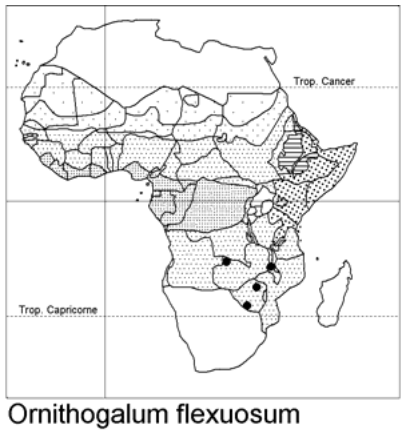
Some 111 species in sub-Saharan Africa, most of them in the winter rainfall area of southern Africa.

Eriospermum abyssinicum Baker (in the literature mentioned below often cited as *E. flagelliforme*); Fl. Trop. E. Afr., Eriospermaceae: 4, 6, 1996; Geerinck & Malaisse, o.c.: 2-3, 5 (map); Fl. Zambes. 12/2: 9-10, 2010; Faucon & al. in Pl. Ecol. Evol. 143: 10, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 232, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 35, 2012 (as *E. flagelliforme*); Gereau & al., Lake Nyasa florist. checklist: 50, 2012. – Icon.: Berhaut, Fl. ill. Sénégal 9: 431, 1988; Perry in Contr. Bolus Herb. 17: 84, 1994; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 142, 1994; Fl. Eth. & Eritrea 6: 137, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 176, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 272, 2010; Lisowski, Fl. Rép. Guinée 2: fig. 504, 2009; Akoegninou & al., Fl. anal. Bénin: 132, 2006.

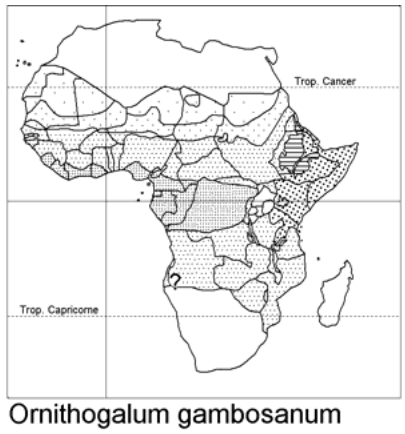
syn.: *Bulbine unifolia* Schweinf., nom. nud.; *Eriospermum burchellii* Baker; *E. fleckii* Schinz; *E. luteorubrum* Baker; *E. schinzii* Engl. & K. Krause, nom. illegit.; *E. elatum* Baker; ? *E. togoense* Dammer (name with untraced type, Kersting 310, fide Perry, 1994: 303); *E. longipetiolatum* Dammer; *E. seineri* Engl. & K. Krause; *E. bakerianum* Schinz var. *seineri* (Engl. & K. Krause) Poelln.; ? *A. bussei* Dammer – As to the nomenclatural problem *E. flagelliforme* (Baker) J. C. Manning, *E. abyssinicum* Baker, *Anthericum flagelliforme* Baker, *Schizobasis flagelliformis* (Baker) Baker, see Bothalia 30: 157, 2000, and 32: 76, 2002 (Manning's new combination), as well as Taxon 59: 979, 2010, and 60: 1207, 2011 (proposal and recommendation to reject the name *Anthericum flagelliforme*, respectively).



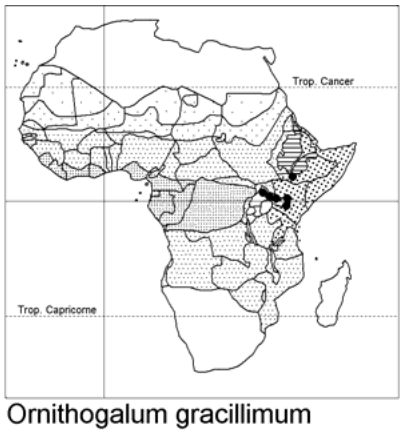
Ornithogalum cernuum



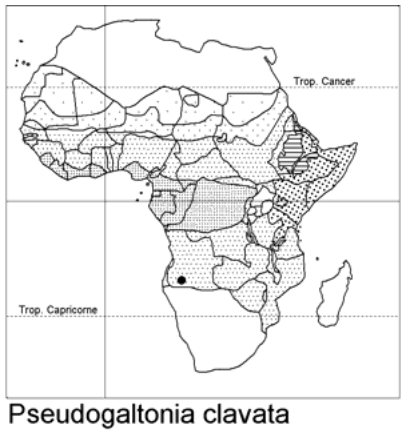
Ornithogalum flexuosum



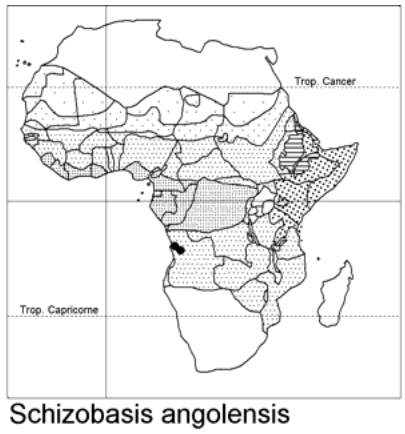
Ornithogalum gambosanum



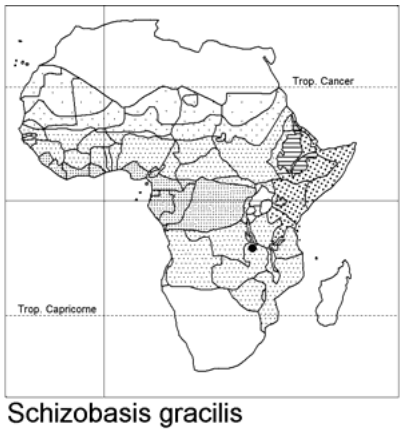
Ornithogalum gracillimum



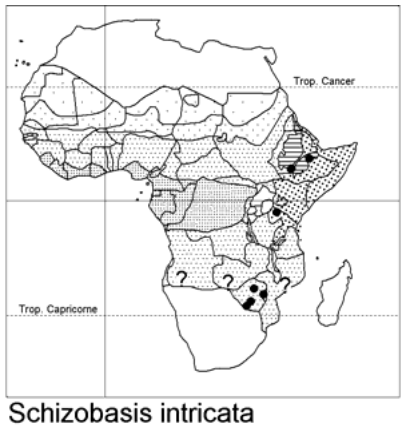
Pseudogaltonia clavata



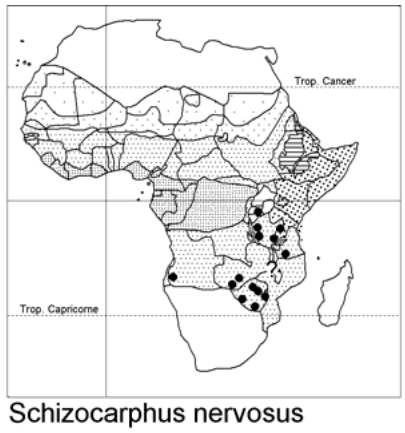
Schizobasis angolensis



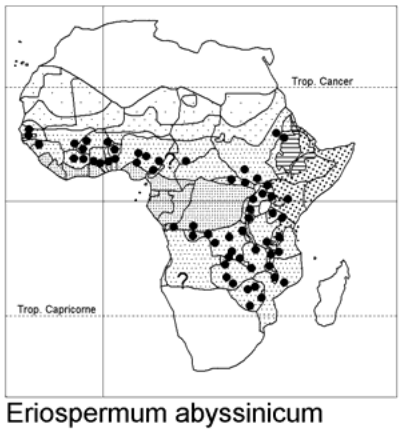
Schizobasis gracilis



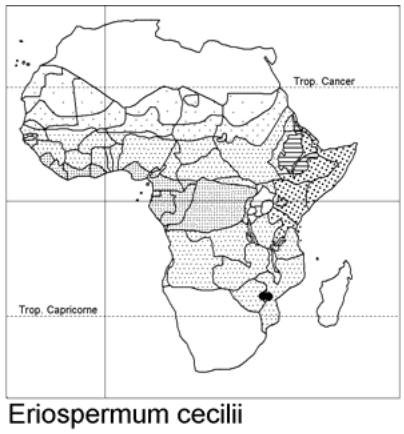
Schizobasis intricata



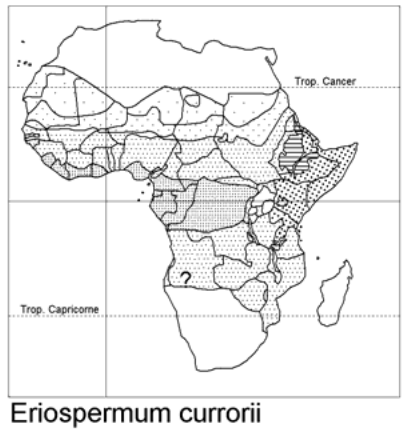
Schizocarphus nervosus



Eriospermum abyssinicum



Eriospermum cecilii



Eriospermum currorii

ERIOSPERMUM ABYSSINICUM

Herb 1-62 cm tall; tuber globose, 2-4,5 cm Ø, crowned with copious fibers; leaf solitary (or 2-3), lanceolate, leathery, glabrous, 9,5-20x0,8-3,5 cm, not found at same time as flowers; scape 2,5-40 cm long, dark red towards base; raceme 7-40 × to 10 cm, conical to corymbose, with 10-50 well-spaced flowers; *lower pedicels* (1,5-)*5-18 cm long*, upper ones often much shorter; flowers 0,3-1,4 cm Ø, campanulate to spreading or recurved; tepals 0,3-1 cm long, lemon to bright yellow with a red-streaked green midnerve; capsule turbinate, 0,6-1x0,5-0,7 cm.

Rocky soil in grassland or open woodland; often in damp areas; cleared areas near stream; arid hill; sandy places; miombo and mopane woodland; well drained soils among rocks; supposed Cu-endemic in Katanga (Pl. Ecol. Evol. 143: 10, 2010); clayey-sandy soils; cobalt or manganese soils; rocky outcrop with wet flushes and thin soil with *Selaginella njamnjamensis*, *Aeollanthus* spp., *Aloe* sp., *Loudetia arundinacea* grassland on shallow soil, recently burnt; 50-2500 m alt.

Very variable in height, leaf not always solitary. With local variants.

Namibia, S. Africa, Botswana, Swaziland; Socotra.

The most common and widespread *Eriospermum*.

(**E. andongense** Welw. ex Baker); Fl. Trop. Afr. 7: 472, 1898; Perry (1994): 298; Figueiredo & Smith, Pl. Angola: 184, 2008.

Tuber depressed, globose, 2,5-3,5 cm Ø, red-fleshed inside, skin rough; leaf solitary, not contemporary with flowers (appearing after anthesis), suberect, glabrous, oblanceolate, 15-20 × 2,5-3,5 cm, fleshy-leathery; peduncle wiry, 20-30 cm long; raceme lax, 7,5-10 cm long; perianth campanulate, 4 cm long; tepals sulphur-yellow, keel purple.

Known only from the type (Welwitsch 3757): Angola, Pungo Andongo; plentiful in thickets and open woods near Caghuy and elsewhere (tuber and leaves, November 1856); plentiful in sandy-clayey thickets between the streams Casalale and Miege (leaf, December 1856). Flowers examined in November 1857, plants cultivated in Welwitsch's garden in Loanda. However, Rendle writes: "I have looked in vain for the flowering scape in the herbarium", 1899).

Not in Zimbabwe according to Fl. Zambes; 13/2: 12, 2010.

Insufficiently known. Not mapped.

(**E. bussei** Dammer); Perry (1994): 302; Fl. Zambes. 13/2: 12, 2010.

Tuber and leaves unknown; scape 5-7 cm long; raceme lax, 5-6 cm long, pedicels 3-15 mm long; perianth yellow, 5 mm long.

In sunny places.

Known only from the type (Busse 714), collected in 1900. E Nyassaland (Malawi): Melingoti.

"This may be a species with hysteranthus leaves…There is nothing in the description of the flower to relate it to a particular known species or specimen." Probably a member of subgen. *Ligulatum* (Perry, l.c.), to which *E. abyssinicum* belongs.

E. cecilii Baker; Perry (1994): 42; Fl. Zambes. 13/2: 5, 2010.

Herb with leaves and flowers together; tuber unknown; old leaf sheaths to 6,5 × 1,3 cm, softly fibrous; leaves 1-2 erect; contemporary leaf sheaths exserted to 2 cm; lamina narrowly elliptic to lanceolate, to 4,7 × 1,2 cm, glabrous; scape to 8 cm long, 1,5 mm Ø; raceme subcorymbose, 4,5 × 4 cm, 8-16-flowered; pedicels spreading-erect, to 2 cm long; flowers bell-shaped; tepals 6-7 × 1,5-2 mm, yellow; capsule unknown.

ERIOSPERMUM CECILII

Wet rocks; open grassland; 1800-2300 m alt.

Present in E Zimbabwe, and probably in neighbouring Mozambique.

(**E. cooperi** Baker); Fl. Zambes. 13/2: 12, 2010. – Icon.: Perry (1994): 126 (var. **cooperi**).

Herb with hysteranthous leaves and inflorescence to 60 cm tall; flowers cyathiform; tepals 4-6 mm long, white to pale green or green to brown.

S. Africa, Swaziland: mainly in grassland at higher altitudes. May occur in Zimbabwe, but no specimens known. – Not mapped.

E. currorii (Baker) Baker (in literature cited under *E. rautanenii*); Perry (1994): 61, 64, 65 (map); Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/2: 8-9, 2010. – Icon.: Perry, o.c.: 66.

bas.: *Scilla currorii* Baker

syn.: *Eriospermum rautanenii* Schinz (treated as a distinct taxon by Figueiredo & Smith, l.c.); *E. sphaerophyllum* Baker; *E. brevipes* Baker 1904, nom. illegit., non Baker 1876 (a S. African species); *E. rubromarginatum* Dinter ex Poelln.

Tuber subglobose to turbinate, or multiple, to 3 × 4,5 cm, skin brown, flesh white, growing point apical; leaves contemporary with the flowers (fide Fl. Trop. Afr. 7: 472, 474, 1898) or appearing after flowers (Perry, l.c.); leaf solitary, erect; contemporary leaf sheath exserted to 2 cm, reddish-green, glabrous; lamina ovate to orbicular, to 6 × 4 cm, green to glaucous, coriaceous, glabrous, margins with a distinct white rim sometimes crisped; peduncular bract leaf-like, sheathing part 3 cm long, blade ovate to orbicular-cordate, coriaceous, to c. 6 × 8,5 cm, glabrous, green to glaucous above and beneath; scape to 1,5 cm long; raceme compact, sub-corymbose, 3,5 × 4,5 cm, 15-35-flowered; lowest pedicels 2,6 cm long, upper c. 1 cm long; flowers spreading to recurved, to 1 cm Ø; tepals ± equal, white with green mid-nerve and faint red streaking; capsule to 9 mm long, with uneven locule development.

Pebbly quartz or clay soils; 1100 m alt. (Botswana).

Namibia, Botswana.

Scilla currorii (Curror 26) from Angola, known only from the type, without precise locality.

May be confused with *E. roseum* (Namibia).

(**E. flexuosum** Welw. ex Baker); Fl. Trop. Afr. 7: 472, 1898; Perry (1994): 298; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/2: 13, 2010.

Tuber globose, c. 1,5-2,5 cm Ø; leaf unknown, not produced with the flowers; scape slender, 15-23 cm long, flexuose; raceme lax, 15-23 cm long, rachis flexuose; pedicels ascending; bracts minute; perianth campanulate, c. 5 mm long; segments linear, white, keel red-brown, capsule unknown.

Type (Welwitsch 3760) collected in 1859, from Angola: Huilla, between Humpata and Lopollo, in rather damp pastures; c. 1200-1850 m alt.

Perry in Fl. Zambes., l.c., states that the name *E. flexuosum* has also been used for herbarium specimens from Zimbabwe, and Zambia (N = Mbala Distr., rocky hills above Ndundo, 1500 m alt., and C = Mkushi, c. 1500 m alt.). – She also suggests that this plant could be a variant of *E. abyssinicum*.

Insufficiently known. Not mapped.

ERIOSPERMUM

E. kiboense K. Krause – Icon.: Perry (1994): 143; Fl. Trop. E. Afr., Eriosperm.: 5, 1996; Perry & Rudall (1998): 242; Fl. Zambes. 13/2: 11, 2010.

syn.: *E. erectum* Suess.

Herb 16-55 cm tall, flowering before leaves; tuber pyriform to irregular, to 5 × 3,5 cm; skin fawn, smooth, flesh white; old leaf-sheaths to 9 cm long; leaf 1, suberect; sheath exserted to 6 cm, 3 mm Ø, reddish purple; blade broadly elliptic to lanceolate, to 14 × 9 cm; scape 14-45 cm long, 2-3 mm Ø, red tinged towards base; raceme cylindrical to narrowly conical, 3-16 × 3 cm, 10-50-flowered; flowers 3-10 mm Ø, rotate; tepals 3-6 × 2 mm, white to very pale green with a darker green to brown midnerve; capsule to 9 × 9 mm.

Grassland or semi-shade in open woodland; 1000-2250 m alt.

E. kirkii Baker – Icon.: Perry (1994): 47; Fl. Zambes. 13/2: 7, 2010.

Herb flowering with the leaves; tuber globose, c. 0,3 × 2,8 or 2 × 4,5 cm, skin rough, darkish brown, flesh red; old leaf sheaths to 6,5 × 2 cm, chestnut-brown; leaves 1-2, erect; contemporary leaf sheaths exserted to 5 cm, 0,5-2 mm Ø, dark red becoming lighter towards lamina; blade elliptic to lanceolate, to 10 × 3,8 cm; scape to 20 cm long, 2 mm Ø, basal 2 cm mottled maroon, bright green above; racemes 1-2, 5,5-8 × 2-5 cm, 12-15 flowers; pedicels to 2 cm long, mottled red; flowers urn-shaped, c. 1-1,2 cm long; tepals recurved, united for 2 mm, ligulate, acute, white to pale pink with a broad red-streaked mid-nerve; outer ones 0,8-9 × 0,2, inner c. 1 cm × 2 mm; capsule ovoid, emarginate, 6 × 8 mm.

Poor dry, sandy soils on grassy flats; open mopane or miombo woodland; wet *Acacia* woodland; 50-1000 m alt.

E. mackenii (Hook. f.) Baker; Perry (1994): 300 *(E. homblei);* Fl. Trop. E. Afr., Eriosperm.: 2-3, 1996; Geerinck in Taxonom. 28: 3-5, 2009 [with map]. – Icon.: Bot. Mag. 28: pl. 5955, 1872 (sub gen. *Bulbine*); Perry (1994): 37, 38 (subspp. **mackenii** and **galpinii**, respectively); Fl. Zambes. 13/2: 3, 2010 (subsp. **mackenii**).

bas.: *Bulbine mackenii* Hook. f.

Herb 20-50 cm tall, flowering with the leaves; tuber ± globose, simple, to 4 × 4,5 cm; skin rough, dark brown, flesh pink to red, growing point apical; old leaf-sheaths to 6,5 cm long, forming a fibrous neck; leaves 2-5, ± erect; leaf-sheaths barely exserted; blade narrowly to broadly ovate, 4-15 × 1,5-6,2 cm, basally channelled and clasping the inner sheaths; scape to 40 cm long, 4 mm Ø; raceme to 24 × 3,5 cm, cylindrical to narrowly conical, to 50-flowered; flowers to 2,1 cm Ø, campanulate; tepals ligulate, 5-10 mm long, bright yellow with a green midnerve; capsule obovoid, to 8 × 7 mm.

Grassland in damp places; copper-poisoned dembos; mixed savanna or grassland; rocky grassland; quartzite grassland above the level of *Brachystegia tamarinoides* vegetation; 50-2000 m alt.

Namibia, S. Africa, Swaziland.

Comprises 3 subspp.: – subsp. **mackenii** [syn.: *E. junodii* Baker 1901 (type Junod 149) and 1904 (type Junod 1735), both described from S. Africa; *E. transvaalense* Poelln. 1943; *E. veratriforme* Peter ex Poelln.; *E. homblei* De Wild. & Ledoux; *Bulbine platyphylla* Baker; *Anthericum unyamweziense* Poelln.], plants entirely glabrous; – subsp. **galpinii** (Schinz) P. L. Perry [bas.: *E. galpinii* (Schinz); syn.: *E. reflexum* Schinz; *E. omahekense* Engl. & K. Krause; *E. pilosopetiolatum* Dinter; *E. convallariifolium* Dinter; *E. subpilosum* Poelln.], plants with contemporary leaf sheath, base of lamina and base of scape with short hairs; – subsp. **phippsii** (Wild) P. L. Perry [bas.: *E. phippsii* Wild], plants with contemporary leaf sheath, entire lamina and scape with short or longer hairs; in E Zimbabwe, Chimanimani Mts.

Sometimes difficult to distinguish from *E. triphyllum:* robust plants in E. Africa rather belong to *E. triphyllum*, but difference in leaf-shape seems to be more important than robustness to distinguish the two species (Fl. Trop. E. Afr., Eriosperm.: 3, 1996).

(**E. ophioglossoides** Welw. ex Baker 1878, non Schltr. 1897 = *E. corymbosum* Baker from Namibia, S. Africa); Fl. Trop. Afr. 7: 473, 1898; Perry (1994): 298-299; Figueiredo & Smith, Pl. Angola: 184, 2008.

Tuber globose, flesh red, crowned with long (4-5 cm) matted fibrous remains of old leaves; leaves 1-2, short-petiolate; lamina oblong-lanceolate, glabrous, subcoriaceous, 2,5-7,5 × 1,4-2 cm, base rounded; scape stiffly erect, 12,5-15 cm long; raceme lax, oblong, 7,5-10 cm long, 18-20-flowered; pedicels erecto-patent, lower ones c. 1-2 cm long; perianth campanulate, c. 1 cm long; tepals white or yellow ?, keel bright red-brown.

Damp pastures with short herbage.

Insufficiently known. Type: Welwitsch 3759; Angola: Huilla. Welwitsch 3763 (cited in Fl. Trop. Afr., l.c., under *E. paludosum* !) from near Humpata and Lopollo collected in 1859, seems to be the same species (Perry, l.c.). – Not mapped.

Close to *E. mackenii*.

(**E. paludosum** Welw. ex Baker); Fl. Trop. Afr. 7: 473-474, 1898; Perry (1994): 299; Figueiredo & Smith, Pl. Angola: 184, 2008.

Tuber oblong or globose, c. 2-2,5 cm Ø, flesh red, crowned with copious fibrous remains of old leaves; leaves 2-3, contemporary with flowers, short-petiolate; lamina oblong, acute, subcoriaceous, glabrous, 2,5-5 × 1-1,8 cm; scape 10-15 cm long; raceme lax, 7,5-15 cm long, 15-30-flowered, rachis flexuose; pedicels ascending, lower ones in fruit 2,5 cm long; perianth c. 1 cm long; tepals white, or yellow ?, keel red-brown.

Frequent in swamps.

Insufficiently known. Type: Welwitsch 3761 (also "2761" which seems to be a wrong transcript, fide Perry, l.c.); Angola: Pungo Andongo, from Candumba and Mutollo to Quisonde, collected in 1857. – Not mapped.

Welwitsch 3763 also cited in Fl. Trop. Afr., l.c., but Perry (1994: 299) treats this specimen under *E. ophioglossoides*.

Close to *E. mackenii*.

(**E. peteri** Poelln.); Perry (1994): 302; Fl. Zambes. 13/2: 12, 2010.

Leaf 1, appearing with flowers; blade cordate-ovate, c. 2-2,5 × 1,2 cm, glabrous; scape erect, thick, c. 20-35 cm long above leaf base; raceme erect, many-flowered, 15-20 cm long in fruit, c. 4 cm wide; lower pedicels (in fruit) 0,6-1,5 cm long; perianth 5 mm long; tepals brownish when dried; capsule long-lanceolate, 4 mm long.

Type (Peter, s.n., in fruit, XII. 1913) not traced by Perry, probably lost (B); W Zimbabwe: between Forest Wall at Bulawayo (20°10'S × 28°42'E) and Pasipas (20°04'S × 28°26'E); ecology unknown. – Not mapped.

"Not possible to identify from the description" (Fl. Zambes., l.c.).

ERIOSPERMUM

E. porphyrovalve Baker; Fl. Zambes. 13/2: 5-6, 2010. – Icon.: Perry (1994): 45-46.

syn.: *E. tenellum* Baker; *E. dissitiflorum* Baker; *E. brevipetiolatum* Poelln.; *E. pilosum* Poelln.

Herb with flowers and leaves together; tuber globose, 10-15 × 1-18 mm, multiple with age, flesh white to pinkish; old leaf sheaths to 5 × 0,5 cm, coarsely fibrous; leaves 2 per growing point, (sub-)erect; sheaths not exserted, or to 1,5 cm long; lamina linear, 6 × 0,4 cm or elliptic, 1 × 0,5 cm, glabrous or basally hairy; scape to 10 cm long; racemes 2-3 per growing point, lax, 4,5 × 4 cm, 8-10-flowered; pedicels to 3,5 cm long, arcuate; flowers bell-shaped, to 1,2 cm Ø; tepals 5 × 2 mm, bright yellow, mid-nerve green, apex red streaked; capsule unknown.

Seasonally wet or marshy areas in annual grassland; shallow sandy granite soils; 900-1500 m alt.

Botswana, S. Africa.

(**E. rautanenii** Schinz) – See above under **E. currorii**.

(**E. roseum** Schinz); Fl. Zambes. 13/2: 8, 2010. – Icon.: Perry 1994: 57, 56 (map).

syn.: *E. majanthemifolium* E. H. L. Krause & Dinter

Tuber solitary or multiple, globose, c. 7 cm long, 4 cm Ø, skin leathery, flesh bright yellow; leaves appearing after flowers; old leaf sheaths greyish-brown, 8 × 1 cm; leaf solitary, spreading-erect; contemporary leaf sheath exserted c. 1,5 cm, with groove on adaxial side, whitish, with dense short white hairs; peduncular bract leaf-like, to 5 × 8,5 cm, green with silvery shine beneath; scape 17 cm long, finely pilose at base; raceme cylindrical, compact, 14 × 3 cm, c. 50-flowered; pedicels to 0,7 cm long; flowers bell-shaped to spreading, 1,3 cm Ø; tepals (sub-)equal, 9 × 2,5 mm, white, mid-nerve violet to brownish; capsule emarginate, 12 × 9 mm.

Recorded from Namibia (just S of SW Angola border), SW Botswana (probably), S. Africa: in flat open areas of sandy soil; c. 1000 m alt.

(**Eriospermum somalense** Schinz; Perry, 1994: 300-301) = **Ledebouria cordifolia** *(Hyacinthaceae).*

(**E. stenophyllum** Welw. ex Baker); Fl. Trop. Afr. 7: 471, 1898; Perry (1994): 299-300; Figueiredo & Smith, Pl. Angola: 184, 2008.

"This is one of the instances when Baker's description and the notes from Welwitsch's Catalogue of African Plants do not agree [1899]…It may be synonymous with the ubiquitous *E. abyssinicum*" (Perry l.c.).

Tuber depressed-globose, flesh white; old leaf sheaths short, bristly at base, inner longer and more membranous; contemporary leaf sheath c. 4 cm long, merging into lamina, this falcate, 22 cm long; scape c. 10 cm long; raceme to 17 cm long, 5 cm wide, 18-30-flowered; pedicels to 6 cm long; tepals 5 mm long.

Type Welwitsch 3758; Angola: Pungo Andongo, Cadumba; in sandy ground on the banks of the River Cuanza. – Not mapped.

E. triphyllum Baker; Fl. Trop. E. Afr., Eriosperm.: 3-4, 1996; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/2: 4-5, 2010. – Icon.: Chiovenda & al., Miss. Biol. Borana, Racc. Bot. 4: 315, 1939; Perry (1994): 40, 41 (map); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 142, 1994; Fl. Eth. & Eritrea 6: 137, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 176, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 273, 2010.

ERIOSPERMUM TRIPHYLLUM

syn.: *E. linearifolium* Baker; *E. heterophyllum* Cufod. (location of type unknown, ? WU).

Herb 4-38 cm tall, flowering with leaves; tuber to 3 × 3 cm, skin rough, flesh pink; old leaf-sheaths to 5,5 cm long; leaves 1-7, ± erect; contemporary leaf sheath exserted to 1,5 cm, green or mottled with maroon towards the base; blade linear to lanceolate, somewhat falcate, 1,5-15 × to 1-2,5-3,5 cm, slightly fleshy, glabrous, base cuneate and folded inwards, apex acute; scape 3,5-20 cm long; raceme 2-20,5 × to 3 cm, suberect, lax, to 50-flowered; pedicels to 2,5 cm long, lower longer than upper; flowers 0,3-1,6 cm Ø, campanulate; tepals ligulate, 4-8 mm long, yellow with red stippling on the midnerve; capsule 0,6-1 × 0,4-0,7 cm.

Rocky soil in grassland or mixed scrub; often in dampish depressions; open *Combretum, Terminalia, Acacia* woodland; locally frequent; 160-2150 m alt.

Also in Malawi ?

Close to *E. mackenii*, and herbarium material not always easily distinguished from the latter.

Note on *E. linearifolium* Baker: Whitehouse (in Fl. Trop. E. Afr., Eriosperm.: 4, 1996) considers *E. linearifolium* as a synonym of *E. triphyllum* (specim. Scott-Elliot 6203, Kenya, Teita Distr.). The other specimen cited by Perry in her revision (1994: 300), viz. Eggeling 2813, from E Uganda, in alpine grasslands at 3000 m alt., seems to be *Ornithogalum gracillimum (Hyacinthaceae).*

(**E. tulbaghioides** Baker); Perry (1994): 303.

Species described (Bull. Misc. Inform. Kew 139: 164, July 1898) from plants cultivated from tubers sent by Charles Howlett of Uitenhage, S. Africa, to Kew in 1985. "It is doubtful if a type exists…It is difficult to fit the description to any known specimens" (Perry, l.c.).

SYNONYMS:

Bulbine (Asphodelaceae) mackenii Hook. f. = **Eriospermum mackenii**

platyphylla Baker = **E. mackenii** subsp. **mackenii**

unifolia Schweinf., nom. nud. = **E. abyssinicum**

Eriospermum bakerianum Schinz var. *seineri* (Engl. & K. Krause) Poelln. = **Eriospermum abyssinicum**

brevipes Baker, 1904 = **E. currorii**

brevipetiolatum Poelln. = **E. porphyrovalve**

burchellii Baker = **E. abyssinicum**

bussei Dammer = ? **E. abyssinicum**

convallariifolium Dinter = **E. mackenii** subsp. **galpinii**

dissitiflorum Baker = **E. porphyrovalve**

elatum Baker = **E. abyssinicum**

erectum Suess. = **E. kiboense**

flagelliforme (Baker) J. C. Manning = **E. abyssinicum**

fleckii Schinz = **E. abyssinicum**

galpinii Schinz = **E. mackenii** subsp. **galpinii**

heterophyllum Cufod. = **E. triphyllum**

homblei De Wild. & Ledoux = **E. mackenii** subsp. **mackenii**

junodii Baker, 1901 and 1904 = **E. mackenii** subsp. **mackenii**

linearifolium Baker = **E. triphyllum** (and p.p. = ? **Ornithogalum gracillimum**, *Hyacinthaceae)*

longipetiolatum Dammer = **E. abyssinicum**

ERIOSPERMUM

luteoalbum Baker = **E. abyssinicum**

luteorubrum Baker = **E. abyssinicum**

majanthemifolium E. H. L. Krause & Dinter = **E. roseum**

omahekense Engl. & K. Krause = **E. mackenii** subsp. **galpinii**

phippsii Wild = **E. mackenii** subsp. **phippsii**

pilosopetiolatum Dinter = **E. mackenii** subsp. **galpinii**

pilosum Poelln. = **E. porphyrovalve**

rautanenii Schinz = **E. currorii**

reflexum Schinz = **E. mackenii** subsp. **galpinii**

rubromarginatum Dinter ex Poelln. = **E. currorii**

schinzii Engl. & K. Krause = **E. abyssinicum**

seineri Engl. & K. Krause = **E. abyssinicum**

somalense Schinz = **Ledebouria cordifolia** *(Hyacinthaceae)*

sphaerophyllum Baker = **Eriospermum currorii**

subpilosum Poelln. = **E. mackenii** subsp. **galpinii**

tenellum Baker = **E. porphyrovalve**

togoense Dammer = ? **E. abyssinicum**

transvaalense Poelln., 1943 = **E. mackenii** subsp. **mackenii**

veratriforme Poelln. = **E. mackenii** subsp. **mackenii**

[RUSCACEAE]

Previously included in *Liliaceae*. The APG III (2009) system recommends its inclusion in *Asparagaceae* but allows for its optional recognition as a monophyletic family (Manchester & O'Leary in Bot. Rev. 76 : 52, 2010).

JOO-Hwan KIM & al. (2010). Molecular phylogenetics of Ruscaceae sensu lato and related families (Asparagales) based on plastid and nuclear DNA sequences. *Ann. Bot.* 106 : 775-790.

[RUSCUS]

Four species figure in Flora of Ethiopia and Eritrea 6 : 74-75, 1997 : *R. aculeatus* L., *R. hypoglossum* L., *R. hypophyllum* L., and *R. microglossus* Bertol. (supposed to be a hybrid, *R. hypoglossum* L. × *R. hypophyllum* L.). They are cultivated as ornamentals. Cf. also J. Cullen & al., eds., The European Garden Flora, ed. 2, 1: 168-170, 2011.

SYNONYMS :

Ruscus reticulatus Thunb. = **Behnia reticulata** *(Behniaceae)*

volubilis Thunb. = **Asparagus asparagoides** *(Asparagaceae)*

SMILACACEAE / *1* g. / *2* spp.

Monogeneric family of some 350 species mostly in tropical, subtropical, and temperate areas (incl. *Heterosmilax*, *Pseudosmilax*, *Ripogonum*). Its members have a "reasonable phytosociological dominance in a great variety of ecosystems, the seeds are very exigent : germination occurs only after many weeks to months under imbibition in a narrow range of optimal temperatures" (Palhares & al. in Phyton/Horn : 117-130, 2009 ; cf. Seed Abstracts 33 : Nr. 81, 2010).

SMILACACEAE

Smilax is taxonomically difficult, "because the plants are dioecious and show wide phenotypic variation" (Ferrufino-Acosta in Willdenowia 40 : 227, 2010). In addition, many specimens in herbaria lack flowers or fruits (fleshy berries).

The leaf stipules are modified to form 2 tendrils arising from a persistent leaf-sheath at base of petiole. The inflorescence is a peduncle of 1-many-flowered axillary or terminal umbels ; flowers unisexual, 3-merous, actinomorphic ; tepals 6 ; stamens 3-6(-15) in male flowers ; staminodes 1-6 in female flowers ; ovary superior.

CONRAN, J. G. (1998). Smilacaceae. *In :* KUBITZKI, K. ed., *Families and Genera of Vascular Plants* 3. *Flowering plants : Monocotyledons, Lilianae (except Orchidaceae) :* 417-422.

SMILAX / *2*

Type of subord. *Smilacineae* Reveal, *Smilacales* (Kew Bull. 66 : 48, 2011).

Smilax anceps Willd. (based on a sterile specimen from Mauritius) ; Fl. Trop. E. Afr., Smilac. : 2, 1989 ; Agnew & Agnew, Upl. Kenya wild flow., ed. 2 : 310, 1994 ; Cable & Cheek, Pl. Mt Cameroon : 180, 1998 ; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria : c54, 2001 ; Cheek & al., Pl. Kupe... : 473, 2004 ; Harris, Vascul. Pl. Dzanga-Sangha Res., Centr. Afr. Rep. : 244, 2002 ; Sebsebe Demissew & al., Flow. Eth. & Eritrea… : 209-210, 2002 ; Harvey & al., Pl. Bali Ngemba… : 150, 2004 ; Burrows & Willis, Pl. Nyika Plateau, Malawi : 368, 2005 ; Hawthorne & Jongkind, Woody pl. west. Afric. for. : 366, 2006 ; Sosef & al., Check-list pl. vascul. Gabon : 253, 2006 ; Figueiredo & Smith, Pl. Angola : 207, 2008 ; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30 : 276, 2010 (as *S. kraussiana*) ; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon : 154, 2010 ; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon : 232, 2011 ; Onana, Vascul. pl. Cameroon… : 187, 2011 ; Fischer & al., Annot. checklist vascul. pl. Kakamega For. : 222, 2011 ; Chatelain & al., Cartes distr. pl. Côte d'Ivoire : 260, 2011 ; M. Renier, Flore du Kwango 1 : 93, 1948 ; Thiombiano & al., Cat. pl. vasc. Burkina Faso : 28, 2012. – Icon. : Fl. W. Trop. Afr., ed. 2, 3/1 : 111, 1968 (as *S. kraussiana*) ; Fl. Mascaraignes 183 : 3, 1978 ; Fl. Eth. & Eritrea 6 : 66, 1997 ; White & al., Evergreen for. fl. Malawi : 94, 2001 ; Akoegninou & al., Fl. anal. Bénin : 253, 2006 ; Latham & Konda, Pl. utiles Bas-Congo, ed. 2 : 275, 2007 ; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda : 329, 2008 ; Fl. Zambes. 12/2 : 199, 2009 ; Lisowski, Fl. Rép. Guinée 2 : fig. 568, 2009 ; Fl. Gabon 38, Smilac. : 47, 2009 ; Malaisse, Guide florist. Parc. Natl. Cantanhez (Guinée-Bissau) : pl. 866, photos. 866 a-c, 2010 ; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2 : 322, 2010.

syn. : Enum. 3 : 75, 1995 ; *S. morsaniana* ! Kunth (non *S. morsiana*) ; *S. kraussiana* Meisn., incl. var. *dregei* A. DC., var. *morsaniana* (Kunth) A. DC., var. *senegambiae* A. DC. ; *S. herbacea* Thunb. ; for full synonymy, see World Checklist of Selected Plant Families, Roy. Bot. Gard., Kew (Smilacaceae).

Climbing glabrous shrub with stems to 5 m long, flexuose, basally often with prickles 1-3 mm long ; leaves alternate, with petiole 0,5-2,5 cm long, with a pair of spirally curled tendrils at base ; blade *circular* to *oblong*, 4-17 × 1,5-12 cm, *rounded* or *subcordate* at base, margins thickened ; umbels *axillary*, dense, solitary, many-flowered, peduncle 0,8-2 cm long ; pedicels 0,4-1,2 cm long ; perianth segments 3-5 mm long, greenish white, brownish or yellowish ; berry purple or black, 0,8-1 cm wide.

SMILAX ANCEPS

Forest edges; clearings; secondary associations of bushland and thicket, commonly along rivers, lakesides, marshes; savanna; wet evergreen forest; rain-forest with *Albizia*, *Macaranga*, *Croton*, *Ocotea*, at edge; tall-grass grassland; sandy flooded soils; road sides; sometimes on metalliferous soils; c. 0-2400 m alt.

Bioko/Fernando Poo; S. Africa, Swaziland; Madagascar, Mauritius, Réunion, Comoro Isl., Seychelles.

Leaves edible; the compact rhizome is a source of starch.

S. aspera L.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 310, 1994; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 210, 2003; Burrows & Willis, Pl. Nyika Plateau, Malawi: 368, 2005; Fl. Zambes. 12/2: 200-201, 2009; Ibn Tattou & Fenane, Fl. vascul. Maroc 2: 307, 2008; Le Floc'h & al., Fl. Tunisie…: 419, 2010; Dobignard & Chatelain, Index syn. fl. Afr. N. 1: 389, 2010; Gereau & al., Lake Nyasa florist. checklist: 107, 2012. – Icon.: Bot. Jahrb. Syst. 30: pl. VI, 1902; Fl. Trop. E. Afr., Smilac.: 1989. Fl. Eth. & Eritrea 6: 66, 1997; White & al., Evergreen for. fl. Malawi : 94, 2001; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 323, 2010.

syn.: *S. goetzeana* Engl.; *S. aspera* var. *altissima* Moris & De Not., var. *balearica* Willk. ex A. DC., var. *mauritanica* (Poir.) Gren. & Godr., var. *ochrocarpa* A. DC., var. *perrottetiana* A. DC.; for full synonymy, see World Checklist…, l.c.

Near *S. anceps* but: leaf blades lanceolate to triangular, usually truncate or cordate or hastate or sagittate at base, widest much below middle; inflorescence of several ± sessile umbels along an extended flexuose rhachis 1,5-15 cm long; flowers fragrant.

Scrambling over shrubs or trees in forest or forest edges; sometimes on road sides; forest clearings; rocky places of evergreen forest and associated bushland or thicket; often in damp places near rivers, marshes; lava plain; 1450-3200 m alt.

Canary Isl.; W. Europe; widespread in the Mediterranean area: Morocco, Algeria, Tunisia, Libya; Cyprus, Turkey, Israel, Jordan, Syria; Pakistan, India, Sri Lanka, Myanmar, China. – Uncertain in N Malawi.

Also cultivated (Cullen & al., Europ. Gard. Fl., ed. 2, 1: 173, 2011).

COLCHICACEAE / *7* g. / *17 + 2* ? spp.

Previously included in *Liliaceae* s. lat.

In its present circumscription comprising 13-16-19 genera and some 250 species in temperate to tropical zones of Africa, Europe, Asia, Australia, New Zealand and N. America.

Herbs with underground corm or rhizome; flowers hypogynous, bisexual or rarely unisexual; stamens 6; fruit usually a capsule.

Some species in our area are incompletely known: the fruit not seen in 4 species (= >23%) and one species probably known only from one population (type gathering).

GEERINCK, D. (2012). Contribution à la Flore d'Afrique centrale: Colchicaceae et Flagellariaceae. *Taxonoman*. 33: 1-6.

MAROYI, A. (2002). Colchicaceae in Zimbabwe. *Kirkia* 18: 1-10.

[MATTHEW, B.] (1995). A short review of Colchicaceae. *Bulb Newsl.* 11: 3.

NGUYEN, T. P. A. & al. (2013). Molecular phylogenetic relationships and implications for the circumscription of Colchicaceae (Liliales). *Bot. J. Linn. Soc.* 172: 255-269.

NORDENSTAM, B. (1998). Colchicaceae. *In:* KUBITZKI, K., ed., *The Families and Genera of Vascular Plants.* 3. *Flowering plants. Monocotyledons: Lilianae (except Orchidaceae):* 175-185. Springer-Verlag, Berlin, etc.

COLCHICACEAE

PERSSON, K. (2007). Nomenclatural synopsis of the genus Cochicum (Colchicaceae), with some new species and combinations. *Bot. Jahrb. Syst.* 127: 165-242 [99 spp., 2 hybrids].

VINNERSTEN, A. & S. LARSSON (2010). Colchicine is still a chemical marker for the expanded Colchicaceae. *Biochem. Syst. Ecol.* 38: 1193-1198.

VINNERSTEN, A. & J. MANNING (2007). A new classification of Colchicaceae. *Taxon* 56: 171-178.

VINNERSTEN, A. & G. REEVES (2003). Phylogenetic relationships within Colchicaceae. *Amer. J. Bot.* 90: 1455-1462.

ANDROCYMBIUM / *5*

Vinnersten & Manning (o.c.: 174) and Manning & al. (2007) include the genus *Androcymbium* (c. 60 species) in an expanded circumscription of the genus *Colchicum* (c. 90 species), incl. *Bulbocodium* and *Merendera.* The material studied was rather small regarding the number of taxa. However, Persson (o.c.: 166) investigated c. 35 species of *Androcymbium* and "next to all *Colchicum* species hitherto recognized". She shows that "taxonomic decisions to change the delimitation of the genus *Colchicum* to include *Androcymbium* were premature". Already Hoyo & Pedrola-Monfort (2008) stated that "there is no reason to expand *Colchium* to include *Androcymbium*, but we support the inclusion of *Bulbocodium* and *Merendera* within *Colchicum*".

Hoyo & Pedrola-Monfort (2008) recognized 57 species of *Androcymbium* (map p. 156), but figures vary considerably between authors. The plants are "hermaphroditic, cormose, with androecial nectaries that pioneer open arid or semi-arid habitats in Africa" (Caujapé-Castells & al., 1999: 581). Other authors recognize c. 45 species: c. 35 spp. in W southern Africa, 2 spp. in N southern Africa and E Africa, 6 spp. in the Mediterranean area, and 2 spp. in the Canary Islands [map by, e.g. Membrives & al., 2002a: 91]. The species from the Mediterranean and the southwest Cape are winter-growers…dormant in summer, while those from tropical Africa and the eastern Cape can be treated as summer growers…dried off for the winter (Mathew, 1995).

CAUJAPÉ-CASTELLS, J. & al. (1999). Chloroplast DNA restriction site phylogeny of the genus Androcymbium (Colchicaceae). *Syst. Bot.* 211: 581-597.

CAUJAPÉ-CASTELLS, J. & al. (2001). Historical biogeography of Androcymbium. Willd. (Colchicaceae) in Africa: evidence from cpDNA RFLPs. *Bot. J. Linn. Soc.* 136: 379-392.

HOYO, A. DEL & J. PEDROLA-MONFORT (2006). Missing links between disjunct populations of Androcymbium (Colchicaceae) in Africa using chloroplast DNA noncoding sequences. *Aliso* 22: 606-618.

HOYO, A. DEL & J. PEDROLA-MONFORT (2008). Phylogency of Androcymbium (Colchicaceae) based on morphology and DNA sequences. *Plant Syst. Evol.* 273: 151-167.

MANNING, J. & al. (2007). The genus Colchicum L. redefined to include Androcymbium Willd. based on molecular evidence. *Taxon* 56: 872-882.

MEMBRIVES, N. & al. (2001). Relative influence of biological versus historical factors on isozyme variation of the genus Androcymbium (Colchicaceae) in Africa. *Pl. Syst. Evol.* 229: 237-260.

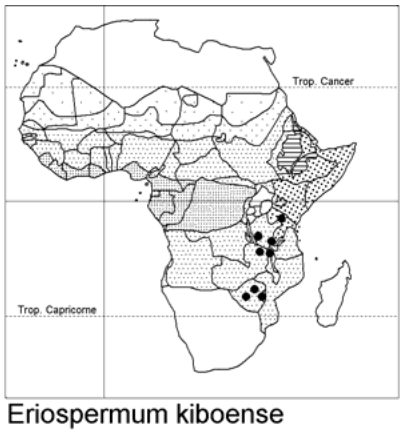
MEMBRIVES, N. & al. (2002a). Pollen morphology and biometry of the genus Androcymbium (Colchicaceae) in southern Africa: taxonomic and biogeographic considerations. *Bothalia* 32: 91-96.

MEMBRIVES, N. & al. (2002b). Reproductive biology of the genus Androcymbium (Colchicaceae) in western southern Africa. *Orsis* 17: 37-59.

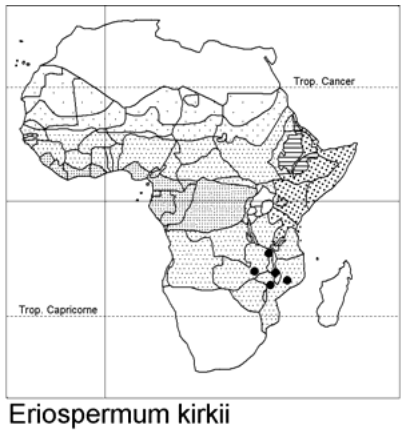
MEMBRIVES, N. & al. (2003a). Leaf morphology and anatomy of genus Androcymbium (Colchicaceae) in Southwest Africa. *Collect. Bot. (Barcelona)* 26: 83-99.

MEMBRIVES, N. & al. (2003b). Morphological seed studies of Southwest African Androcymbium (Colchicaceae). *Bot. Macaronés*. 24: 87-106.

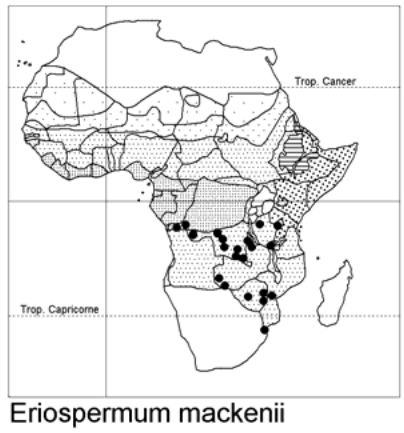
MÜLLER-DOBLIES, U. & D. MÜLLER-DOBLIES (1998 & 2002). De Liliifloris Notulae 6. De decuria prima specierum novarum generis Androcymbium sect. Androcymbium (Colchicaceae) in Africa Australi s.l.…*Feddes Repert*. 109: 551-572 (1998). – Idem 7. De decuria altera… *Ibid*. 113: 545-599 (2002).



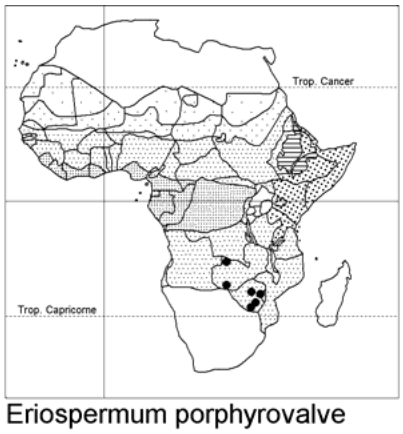
Eriospermum kiboense



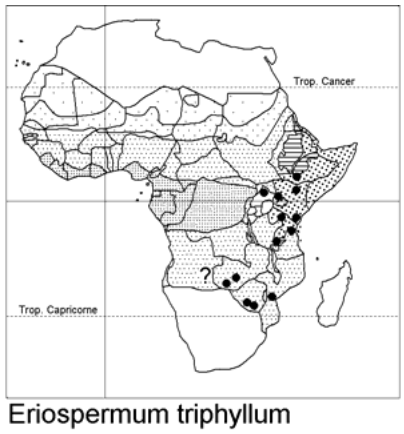
Eriospermum kirkii



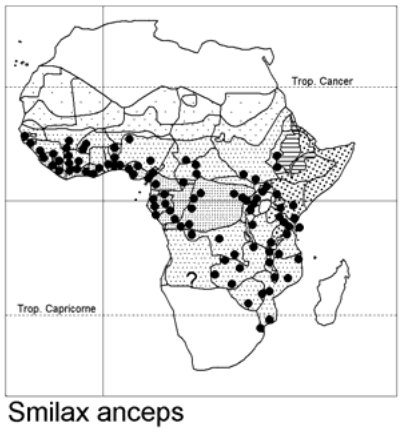
Eriospermum mackenii



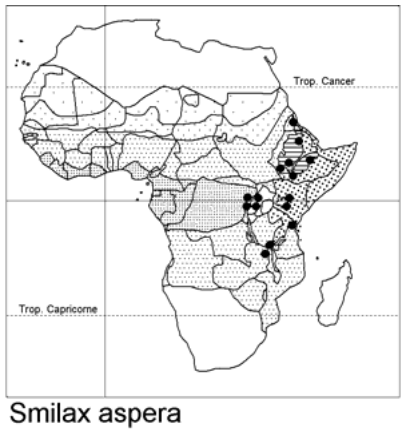
Eriospermum porphyrovalve



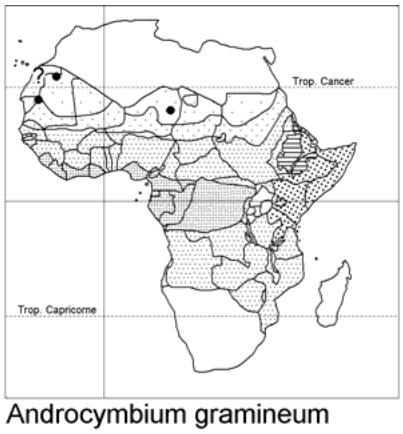
Eriospermum triphyllum



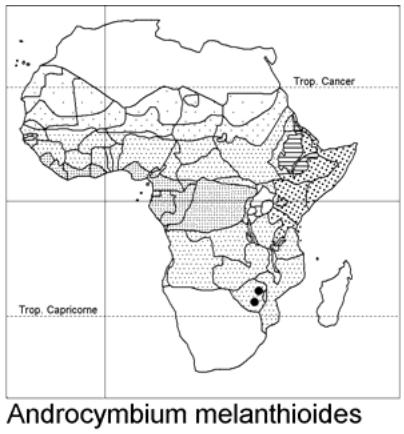
Smilax anceps



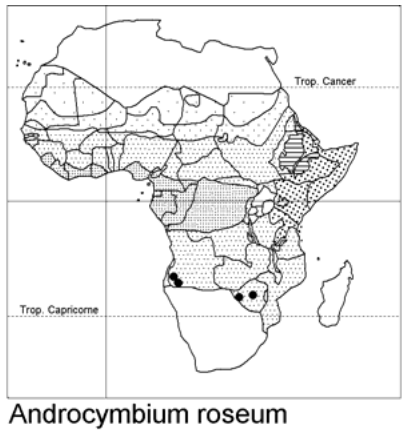
Smilax aspera



Androcymbium gramineum



Androcymbium melanthioides



Androcymbium roseum

ANDROCYMBIUM

PEDROLA-MONFORT, J. & al. (2003). Systematic relationships of some species of the genus Androcymbium Willd. (Colchicaceae) in western South Africa. *Bot. Macaronés*. 24: 107-126.

PERSSON, K. (2007). See above under the family.

PERSSON, K. & al. (2011). A phylogenetic analysis of the genus Colchicum L. (Colchicaceae) based on sequences from six plastid regions. *Taxon* 60: 1349-1365.

Androcymbium gramineum (Cav.) J. F. Macbr., incl. var. *punicum* (Maire) Maire, var. *intermedium* Batt. & Maire, and var. *saharae* (Maire) Maire, but excl. var. *palaestinum* (Baker) Maire (= *A. palaestinum* Baker, from Libya E-wards to Palestine), and excl. subsp. *psammophilum* (Svent.) G. Kunkel (= *A. psammophilum* Svent., in the Canary Isl.); Hoyo & Pedrola-Monfort (2008): 153, 155; idem in Willdenowia 40: 47-53, 2010; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 147, 2008; Le Floc'h & Boulos, Fl. Tunisie…: 312, 2008; Dobignard & Chatelain, Index syn. fl. Afr. N. 1: 97-98, 2010. – Icon.: Anales Ci. Nat. 3: pl. 27 fig. 1, 1801 (as *Melanthium gramineum*), and pl. 26 fig. 1 (as *M. punctatum*); Maire, Fl. Afr. N. 5: 22, 1958; Fl. Libya 57: 7, 1978: Willdenowia 40: 50, 2010 (fruit).

syn.: Enum. 3: 62-63, 1995; *A. punctatum* (Schltdl.) Baker var. *gramineum* (Cav.) T. Durand & Schinz; *Colchicum gramineum* (Cav.) J. C. Manning & Vinn.; *Melanthium graminifolium* Steud.; *Androcymbium punctatum* var. *punicum* Maire and var. *saharae* Maire; *A. wyssianum* Beauverd & Turrett.; *Colchicum wyssianum* (Beauverd & Turrett.) J. C. Manning & Vinn.

Herb with ovoid corm, 1-2 cm Ø; leaves 1-5, linear, acuminate, to 10 × 1 cm at base, margins membranous, ± dentate; scape thread-like, 3-12 cm long, 2-8-flowered; flowers white, inner side of tepals with dark violaceous striations; tepals 6, to 2,5 × 0,7 cm; capsule ovoid-subglobular, c. 1,5-1,3 cm, *dehiscent* [indehiscent = *A. europaeum* (Lange) K. Richt., in ? Morocco, Spain].

Reg; source; clayey grara with *Euphorbia balsamifera*, *E. echinus*; sometimes very abundant in coastal graras; rocky pasture.

Morocco, Algeria, Tunisia, Libya; S Spain [Hoyo & Pedrola-Monfort (1998): 153, Almería].

Has been confused with *A. palaestinum* in Egypt (syn.: *A. gramineum* sensu Täckholm & Drar 1954, Täckholm 1974, Boulos 1995; cf. Boulos, Fl. Egypt 4: 33, 2005).

A. melanthioides Willd., excl. var. *striatum* (Hochst. ex A. Rich.) Baker (= *A. striatum*); Müller-Doblies & Müller-Doblies (1998): 569-571; Maroyi (2002): 5-6; Hoyo & Pedrola-Monfort (2008): 154; Fl. Zambes. 12/2: 177, 2009. – Icon.: Fl. Pl. S. Africa 2: pl. 53, 1922; Tredgold & Biegel, Rhodes. wild flow.: pl. 4/8, 1979; Nordenstam (1998): 176.

syn.: *Colchicum melanthioides* (Willd.) J. C. Manning & Vinn.

Subsp. **melanthioides**:

syn.: *A. melanthioides* var. *acaule* Baker

Herb to 30 cm tall; corm conical to subglobose, 1,4-2x1,2-1,5 cm; *scape* virtually *absent* above ground; leaves 2-3, *lying on ground*, 13-30 cm long, base (on c. 7 cm) ovate 1-2,6 cm wide, narrowing abruptly to become linear 2-4 mm wide; bracts several, showy, ovate, white or purplish, 6-13x1-5,5 cm, hiding a congested head of c. 10 flowers; flowers purple to mauve-pink, sometimes striped violet; tepals 1-1,5 cm long, as long as claw; fruit unknown.

Moist sandy soils; moist grassland.

Namibia, S. Africa, Botswana.

ANDROCYMBIUM MELANTHIOIDES

Two other subspecies are recognized: – subsp. **australe** U. Müll.-Doblies & D. Müll.-Doblies [syn.: *Colchicum melanthioides* subsp. *australe* (U. Müll.-Doblies & D. Müll.-Doblies) J. C. Manning & Vinn.]; – subsp. **transvaalense** U. Müll.-Doblies & D. Müll.-Doblies [syn.: *A. subulatum* Baker; *Colchicum melanthioides* subsp. *transvaalense* (U. Müll.-Doblies & D. Müll.-Doblies) J. C. Manning & Vinn.]; both only in S. Africa.

A. roseum Engl.; U. Müller-Doblies & D. Müller-Doblies (2002): 555-557; Hoyo & Pedrola-Monfort (2006): 614; idem (2008): 155; Figueiredo & Smith, Pl. Angola: 175, 2008. – Icon.: Fl. Pl. Africa 31: pl. 1225, 1956; Fl. Zambes. 12/2: 179, 2009.

syn.: *Colchicum roseum* J. C. Manning & Vinn.

Subsp. **roseum**:

Herb with subglobose corm 1,2-1,8 × 0,8-1,6 cm; scape ± absent above ground; *leaves to c. 20*, rosulate, 8-20 cm long, base ovate 1-2,2 cm wide, becoming linear 5-7 mm wide, tapering to become long acuminate; bracts ovate-lanceolate, leaf-like, 2,4-4 × 0,7 cm, whitish mauve, pinkish when dry; flowers c. 4 in a congested head inside bracts, lilac-pink, with deeper pink dots near base; tepals 2,2-2,8 cm long; *stamens half the length of tepal blade;* fruit unknown.

Seasonally flooded grassland; short grass on swampy or waterlogged soil; 850-1200 m alt.

Namibia, Caprivi Strip, S. Africa, Botswana.

Subsp. **albiflorum** U. Müll.-Doblies, Raus, Weiglin & D. Müll.-Doblies [syn.: *A. asteroides* J. C. Manning & Goldblatt; *Colchicum asteroides* (J. C. Manning & Goldblatt) J. C. Manning & Vinn.] in S. Africa, N Cape.

A. schimperianum (Hochst.) K. Perss. & Del Hoyo in Persson (2007): 228. – Icon. (mostly cited under *Merendera*): Thulin, Fl. Somalia 4: pl. 3 E, 1995; Fl. Eth. & Eritrea 6: 188, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 137, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 219, 2010; Puff & Sileshi, Pl. Simen: 229, 2005 (as *Merendera abyssinica*).

bas.: *Merendera schimperiana* Hochst.

syn.: *M. longispatha* Hochst.; *M. abyssinica* A. Rich., nom. superfl.; *M. longifolia* Hutch.; *Androcymbium abyssinicum* (A. Rich.) Stef.; *Colchicum schimperianum* (Hochst.) C. Archer, non *C. schimperi* Janka (Egypt, Arabia to Iran).

Herb with globose corm 1-3,5 × 1-3 cm; leaves 2-6, produced with the flowers, linear, 5-85 × 0,3-1 cm, acute, sometimes with scabrid-serrulate margins; flowers 1-2, pinkish-purple; tepals to c. 5 cm long; capsule c. 1,5 cm long.

Semi-evergreen bushland or woodland, in sandy soil or limestone gravel; open grazed grassland; wasteland; open hillside in ericaceous belt; 1200-3880 m alt.

Yemen.

A. striatum Hochst. ex A. Rich.; Fl. Eth. & Eritrea 6: 186-187, 1997; U. Müller-Doblies & D. Müller-Doblies (1998): 571; idem (2002): 579; Maroyi (2002): 6; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 136, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 217-218, 2010; Puff & Sileshi, Pl. Simen: 228, 2005; Figueiredo & Smith, Pl. Angola: 175, 2008; Fl. Zambes. 12/2: 177, 179, 2009. – Icon.: Tredgold & Biegel, Rhodes. wild flow.: pl. 4/7, 1979; Fl. Trop. E. Afr., Colchic.: 3, 2005.

syn.: *A. melanthioides* var. *striatum* (Hochst. ex A. Rich.) Baker; *Colchicum striatum* (Hochst. ex A. Rich.) J. C. Manning & Vinn.

ANDROCYMBIUM STRIATUM

Herb 10-30 cm tall; corm oblong-ovoid, 1,5-2,5 cm long, 1-1,8 cm Ø; *stem* to 15 cm long, *above ground;* leaves 2-3, *along stem,* narrowly elliptic to linear, 9-32 × 0,5-1 cm; bracts showy, ovate, 2,7-4,5 × 1-1,8 cm, white with green or green and mauve veins; flowers several in a subumbellate head within the bracts, yellow-green or whitish; tepals 0,5-1 × 0,3-0,4 cm, stamens longer than blade; capsule ovoid, 0,9-1,3 cm long, with persistent style 3-5,5 mm long.

Short grassland, often grazed or fire-swept, on shallow soil over rock; sometimes in bushland; open grassland with scattered *Acacia abyssinica; Euclea* scrub; degraded *Juniperus*, *Olea* forest remnants; open shallow, bare gravely soil; *Acacia drepanolobium* dominated grassland on black clay soil; moist grassland and depressions; seepage rocks; 600-3400 m alt.

S. Africa, Namibia, Lesotho, Swaziland.

SYNONYMS:

Androcymbium asteroides J. C. Manning & Goldblatt = **Androcymbium roseum** subsp. **albiflorum**

melanthioides Willd. var. *acaule* Baker = **A. melanthioides** subsp. **melanthioides**

var. *striatum* (Hochst. ex A. Rich.) Baker = **A. striatum**

punctatum (Schltdl.) Baker, 1879, incl. var. *gramineum* (Cav.) T. Durand & Schinz, var. *punicum* Maire and var. *saharae* Maire = **A. gramineum**

subulatum Baker = **A. melanthioides** subsp. **transvaalense**

wyssianum Beauverd & Turrett. = **A. gramineum**

(BULBOCODIUM)

Bulbocodium cameroonianum (Baker) Kuntze = **Romulea camerooniana** (*Iridaceae*)

CAMPTORRHIZA / *1*

Two species with a disjunct area: 1 in S tropical Africa and S. Africa, 1 in India.

Camptorrhiza strumosa (Baker) Oberm.; Maroyi (2002): 9; Figueiredo & Smith, Pl. Angola: 175, 2008 (as *Iphigenia guineensis*). – Icon.: Fl. Pl. S. Africa 15: pl. 575, 1935 (as *C. schlechteri*); Fl. Zambes. 12/2: 194, 2009.

bas.: *Iphigenia strumosa* Baker

syn.: *Iphigenia guineensis* Baker; *I. junodii* Schinz; *I. schlechteri* Engl.; *I. flexuosa* Baker; *I. dinteri* Dammer ex Schinz; *Iphigeniopsis strumosa* (Baker) Buxb.; *I. junodii* (Schinz) Buxb.; *I. schlechteri* (Engl.) Buxb.; *I. flexuosa* (Baker) Buxb.; *Camptorrhiza flexuosa* (Baker) Sterling; *C. junodii* (Schinz) Sterling; *Melanthium guineense* Welw. ex Baker

Herb to 40 cm tall; new corm small, ovoid, attached to knee-shaped tuber from the previous season, c. 2,5 × 1,8 cm; stem 22-35 cm long, sinuous with basal, membranous scale-like leaf; leaves several to numerous, starting halfway up stem, grading into bracts, linear, 7-14 × 0,1-0,8 cm, folded, acute, suberect; inflorescence a raceme-like scorpioid cyme; pedicels arising opposite leaves, slender, 2-3 cm long (c. 4 cm in fruit); flowers green and russet, green with a purple-black swelling at filament base, yellow-green or brown and green; tepals 2,5-4 × 1-1,5 mm; capsule pendent, globose or pear-shaped, 1-2 × 0,9-1,2 cm.

CAMPTORRHIZA STRUMOSA

Various types of dry woodland on sandy soils; stony pastures with short grass among rocks; in somewhat damp meadows on lake; on herbaceous thicket-grown slopes near river; open *Brachystegia-Julbernardia* woodland on sandy soil or light clay soils; grassland near pans; 50-1100 m alt.

Namibia, Caprivi Strip, Botswana, S. Africa.

(CLINOSTYLIS)

Clinostylis speciosa Hochst. = **Gloriosa superba**

(COLCHICUM)

Colchicum asteroides (J. C. Manning & Goldblatt) J. C. Manning & Vinn. = **Androcymbium roseum** subsp. **albiflorum**

gramineum (Cav.) J. C. Manning & Vinn. = **A. gramineum**

melanthioides (Willd.) J. C. Manning & Vinn. = **A. melanthioides**

subsp. *australe* (U. Müll.-Doblies & D. Müll.-Doblies) J. C. Manning & Vinn. = **A. melanthioides** subsp. **australe**

subsp. *transvaalense* (U. Müll.-Doblies & D. Müll.-Doblies) J. C. Manning & Vinn. = **A. melanthioides** subsp. **transvaalense**

schimperianum (Hochst.) C. Archer = **A. schimperianum**

striatum (Hochst. ex A. Rich.) J. C. Manning & Vinn. = **A. striatum**

wyssianum (Beauverd & Turrett.) J. C. Manning & Vinn. = **A. gramineum**

(ERYTHROSTICTUS)

Erythrostictus gramineus (Cav.) Schltdl. = **Androcymbium gramineum**

punctatus Schltdl. = **A. gramineum**

(EUGONE)

Eugone superba (L.) Salisb. = **Gloriosa superba**

GLORIOSA / *2*

In tropical Africa, warmer regions of southern Africa, Madagascar, India, tropical SE Asia (Malesia). "Probably only one sp., although more than a dozen have been described" (Nordenstam, 1998: 183). Or 2 species (perhaps 3) in tropical Africa and Asia. A genus of "1 to several species, depending upon taxonomic opinion; some say all variants are forms of *G. superba*" (Mathew, 1995: 4). The variation is well summerized by I. la Croix in Flora Zambesiaca 12/2: 183-185. She states that "the variation applies to all parts – habit, size and shape of leaves, size, shape and colour of flowers. Plants described as *G carsonii* have short, erect stems and leaves lacking tendrils. However, there are specimens…at Kew which fit this description but where the upper leaves have short tendrils…Plants known as *G. virescens* and *G. simplex* have tepals with plain rather than undulate margins. The name *G. rotschildiana* was applied to plants with large, red and yellow flowers. The type of *G. lutea* was a plant with large, yellow flowers with very undulate tepals… All this variation is continuous and the variables do not seem to be consistently correlated. Specimens from the same area can differ considerably in

flower colour and leaf shape, while leaf shape can often vary on a single plant…". I. la Croix notes in another publication (Sensevieria 10 : 20, 2004) : "*Gloriosa superba* is a useful example of the pitfalls of describing new species."

Different African flora authors relate the regional situation. Thus Thulin in his Flora of Somalia (4 : 68, 1995) distinguishes 3 forms in Somalia : – a scandent, ± broad-leaved and large-flowered plant agreeing with typical *G. superba ;* – a ± erect, narrow-leaved and small-flowered plant agreeing with *G. baudii* and *G. minor;* – and an erect, fairly broad-leaved and large-flowered plant agreeing with *G. aurea*. But this subdivision breaks down outside Somalia.

Hoenselaar in Flora of Tropical East Africa (Colchicaceae : 4-7, 2005) divides *G. superba* into 2 varieties : – var. *superba* also found in the Flora Zambesiaca area, is widespread ; – var. *graminifolia* (Franch.) Hoenselaar is an erect short plant with short flower pedicels present in N Kenya, S Ethiopia and Somalia. And for Ethiopia, Sebsebe Demissew retains *G. baudiii* as distinct (treated as a synonym of var. *graminifolia* by Hoenselaar).

"It seems more satisfactory to consider *Gloriosa superba* as a single, very variable species. In this it resembles the widespread orchid *Ansellia africana*…" with "a continuous and uncorrelated variation in several characters" (la Croix in Fl. Zambes., l.c.). However, she recognizes *G. sessiliflora* as a distinct species, which "seems to occupy an intermediate position between *Gloriosa* and *Littonia ;* it is possible that the two genera should be united…".

Maroyi & al. (2013) present a morphological study of the *G. superba* complex. They conclude that there are 4 phetic species based on habit, inflorescence characters and distribution. *G. baudii* (Terracc.) Chiov. (included in *G.superba* var. *graminifolia* in Fl. Trop. E. Afr., Colchicaceae) represents short erect plants, to 40 cm tall, with crowded leaves 0,2-1,5 cm wide and anther filaments < 2,2 cm long, occurring in arid regions of N Kenya, Ethiopia, Somalia.

G. carsonii Baker (included in *G. superba* var. *superba* in Fl. Trop. E. Afr., l.c.) represents short erect plants 40-60 cm tall, with lower leaves alternate, > 2cm wide, occurring in miombo woodland, wooded and open grassland and on dry scrubby roadsides in C to E and S tropical Africa, extending to W Africa. *G. simplex* L. (syn.: *G. virescens* Lindl.) represents climbing plants c. 2,5 cm tall with wide, not crisped tepals with straight or slightly undulate margins, widespread in tropical Africa. *G. superba* L. s. str. represents climbing plants to c. 2,5 m tall, with narrow tepals <1,5 cm wide, with ± heavily crisped margins, the most widespread taxon occuring in tropical Africa, S. Africa and Asia.

"Species of *Gloriosa* and *Littonia* share a similar vegetative morphology…" they are separated from each other "only by the strongly reflexed tepals and sharply flexed style" (in *Gloriosa*)… "although Nordal & Bingham (1998) strongly suggested the merging of the two genera they refrained from making the formal combinations because of lack of information on fruit and seed characters" (Vinnersten & Manning, 2007 : 174). However, later on Geerinck (2012 : 3-6 transferred *Littonia lindenii* Baker to *Gloriosa*.

GROSSI, A. (2004). Gloriosa superba. *Bulbs* 5/2 : 4-6 [translation by A. Porcelli].

MAROYI, A. & al. (2013). Systematic studies in the Gloriosa superba complex (Colchicaceae) : a re-assessment of species boundaries. *Pl. Ecol. Evol*. 146 : 212-218.

NORDAL, I. & M. G. BINGHAM (1998). Description of a new species, Gloriosa sessiliflora (Colchicaceae), with notes on the relationship between Gloriosa and Littonia. *Kew Bull.* 53 : 479-482.

Gloriosa sessiliflora Nordal & Bingham ; Mathew in Bulb Newsl. 23 : 2, 1998 ; Grossi, l.c.; Fl. Zambes. 12/2 : 185, 2009. – Icon.: Kew Bull. 53 : 481, 1998.

Erect herb 0,6-1 m tall with a stoloniferous corm ; stem unbranched, but with growth continuing from lateral buds below inflorescence ; leaves numerous, in whorls on upper 2/3 of stem, narrowly lanceolate, 7-10 × 1,5-2 cm, base clasping the stem, apex forming a tendril ; flowers 2-4 per stem, 1 or in pairs in the upper leaf axils, *funnel-* or *bell-shaped*, sessile or on short pedicels, reddish-orange, yellowish-orange towards base ; tepals c. 4 × 1-1,5 cm, slightly undulate ; *style forming a slight angle to ovary*; fruit unknown.

Known from a single population (numerous individuals) on the great Bulozi flood-plain in open woodland of stunted *Faidherbia albida* near a large termite mound ; c. 1000 m alt.

? Known only from the type collected in 1995. "There is an unconfirmed record from the Caprivi Strip" (Fl. Zambes., l.c.).

G. superba L. (Glory Lily, Flame Lily), incl. var. *angustifolia* Baker 1879, and fa. *angustifolia* Kuntze 1898, nom. illegit., fa. *doniana* (Schult. & Schult. f.) T. Durand & Schinz, fa. *grandiflora* (Hook.) Kuntze, and var. *graminifolia* (Franch.) Hoenselaar ; Cable & Cheek, Pl. Mt Cameroon : 149-150, 1998 ; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 222, 2002 ; Maroyi (2002) : 3 ; Cheek & al., Pl. Kupe…: 430, 2004 ; Strugnell, Checklist spermat. Mt. Mulanje, Malawi : 69, 2006 ; Sosef & al., Check-list pl. vascul. Gabon : 253, 2006 ; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 864, 2006 ; Figueiredo & Smith, Pl. Angola : 175, 2008 ; Lisowski, Fl. Rép. Guinée 1: 423-424, 2009 ; Harvey & al., Pl. Lebialem Highl., Cameroon : 151, 2010 ; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 172, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire : 232, 2011; Onana, Vascul. pl. Cameroon…: 157, 2011; Geerinck (2012) : 4-5 ; Thiombiano & al., Cat. pl. vasc. Burkina Faso : 36, 2012. – Icon.: Bot. Mag. 52 : pl. 2539, 1825 (as *G. virescens*) ; Tredgold & Biegel, Rhodes wild flow.: frontispiece, 1979 ; Berhaut, Fl. ill. Sénégal 9 : 433-435, 1988 ; Thulin, Fl. Somalia 4 : 68, 1995 ; Fl. Eth. & Eritrea 6 : 185, 1997 (as *G. baudii*) ; Sebsebe Demissew & al., Flow Eth. & Eritrea…: 133-134, 2003 ; idem, Aloes & lilies Eth. & Eritrea, ed. 2 : 213-214, 2010 ; Bulbs 5/2 : 4-6, 2004 (different forms = "species") ; Fl. Trop. E. Afr., Colchic.: 5, 2005 (var. *superba*) ; Settesoldi & al., Esploratori italiani nell'Africa Orientale 1870-1930 : 55, 2005 (as *Littonia baudii*) ; Akoegninou & al., Fl. anal. Bénin : 68, 2006 (as *G. simplex*) ; R. Raistrick, African Violets…: 134, 2006 ; Fl. Zambes. 12/2 : 184, 2009 ; Pickering & Roe, Wild flow. Victoria Falls area : 49, 2009 ; Fl. Gabon 41, Colchicaceae : pl. 7, 2010 ; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau) : photo. 707, 2011; Salter & Davenport, Orchids & wildflowers Kitulo Plateau : 21, 2011. – The oldest illustration known figures in De Codex Regius Honselaerdicensis : p. 56, (?) 1688 (B. Groen in Kastelenstichting Holland en Zeeland Jaarboek 2003 : 80). Also among the earlier illustrations : a watercolour on paper by the German artist G. D. Ehret (1708-1770) reprinted as cover page of the catalogue *Pasión por las flores*, Leiden 2012 (Horticultural Exhibition Floriade).

syn.: *Methonica superba* (L.) Crantz ; *Eugone superba* (L.) Salisb.; *Gloriosa virescens* Lindl., incl. var. *grandiflora* (Hook.) Baker, var. *leopoldii* (Van Houtte ex Lem.) T. Durand & Schinz, var. *petersiana* (Klotzsch ex Garcke) T. Durand & Schinz, var. *plantii* (Planch.) T. Durand & Schinz, and var. *platyphylla* (Klotzsch) T. Durand & Schinz ; *G. simplex* L. (nom. incert. sedis fide Field in Kew Bull. 25 : 243-244, 1971) ; *G. abyssinica* A. Rich.; *G. carsonii* Baker ; *Methonica grandiflora* Hook. (ill.:

Bot. Mag. 86: pl. 5216, 1860); *M. gloriosa* Salisb.; *M. doniana* (Schult. & Schult. f.) Kunth; *Gloriosa doniana* Schult. & Schult. f.; *G. speciosa* (Hochst.) Engl.; *G. lutea* Anon. (hort.); *G. rothschildiana* O'Brien; *G. grandiflora* (Hook.) O'Brien; *G. homblei* De Wild.; *G. angulata* Schumach.; *G. sudanica* A. Chev., nom. nud.; *Methonica petersiana* Klotzsch ex Garcke; *M. platyphylla* Klotzsch; *Gloriosa sampiana* Pires de Lima; *G. verschurii* Hoog; *Clinostylis speciosa* Hochst. (see Friis in Fragm. Flor. Geobot., Suppl. 2/1: 194, 1993); the following synonyms are cited in Fl. Trop. E. Afr., Colch.: 7, 2005 under var. *graminifolia* Hoenselaar: *G. abyssinica* A. Rich. var. *graminifolia* Franch.; *G. baudii* (Terracc.) Chiov.; *G. graminifolia* (Franch.) Chiov., ? incl. var. *heterophylla* Chiov.; *G. minor* Rendle; *Littonia baudii* Terracc. For other synonyms, see World Checklist Selected Plant Families, Colchicaceae, Roy. Bot. Gard., Kew.

Herb erect, simple or branched, sometimes less than 40 cm tall, or scandent or climbing to c. 3 m long; corm to 7 × 1,5 cm, elongated, often forked; leaves alternate, sometimes opposite or verticillate and somewhat clustered; blade from linear to ovate, 6-17,5 × 0,4-5 cm, apex acute, falcate, or ending in a tendril to 7 cm long; flowers axillary, sometimes terminal, solitary, cream, yellow, red, red or purple-brown with yellow margin, etc.; pedicel erect, recurved apically, 3,5-18 cm long; perianth segments reflexed, narrowly elliptic-linear to ovate, 2,9-8,5 × 0,4-3,8 cm, margins sometimes crisped, apex acuminate to acute, sometimes falcate; capsule 3,7-5 × 1-1,4 cm; seeds many, red.

Open sandy plains, fully exposed; stony or rocky grounds; farmbush; open bushland *(Commiphora, Acacia);* roadsides; forest edges; thickets; woodland; cultivated land; semi-desert plains; short grassland; rain-forest; dry bush; *Combretum*, *Terminalia* woodland; along ditches; open places in forest; deep-grassed wooded meadows on river banks with *Epilobium*, *Salix*, *Faurea;* weed in garden; wooded rather damp slopes; savannas; forest edges; riparian and inundated forests; on volcanic ashes; often abundant; marigots; fallows; sandy-clayey hollows; 5-c. 2300 m alt.

Extremely variable (see introductory discussion of *Gloriosa* above). Mathew gives a summary of various "species" in Bulb. Newsl. 13: 9-12, 1996.

Bioko/Fernando Poo; Namibia-Caprivi Strip, Botswana, S. Africa, Swaziland; Madagascar, Seychelles; Yemen, India to Lesser Sunda Isl.

"The loveliest queen of tropical African Liliaceae (Rendle, Cat. Afr. pl. Welwitsch 2/1: 65, 1899." *G. superba* was first introduced into cultivation in Europe in 1687 (Hortus Botanicus, Amsterdam), and is thought to have been brought from India by Dutch botanists (Duncan in Plantsman, N. S., 7/2: 100, 2008). It is a decorative well-known greenhouse plant (sometimes also cultivated in its native range); it can be invasive and considered as a weed. It is very adaptable to a wide range of alkaline and acid soils, but prefers a well-drained slightly acid mix. Many cultivars are known, e.g., 'Lemon King', 'Lavender Lady', 'Mauve Beauty', 'White Queen' (Bulb Newsl. 28: 2-3, 1999).

The view of a field "pastoralist" working in the Central African Republic: "Il y aura l'époque des Gloriosa, dont les fleuristes d'Europe n'offrent que des exemplaires rachitiques, alors qu'il s'agit ici d'un vigoureux lys grimpant, aux immenses pétales, récurvés,…" (J.-C. Bille, Réparateur de pâturages, 1994).

All parts of the plant are extremely poisonous when ingested. It is grown commercially for extraction of alkaloids, e.g. colchicine, used in medicine.

MAROYI, A. & VAN DER MAESEN (2013). Gloriosa superba (Colchicaceae): ethnobotany and economic importance. *Scripta Bot. Belg*. 50: 408-416.

G. gloriosa, the flame lily, is Zimbabwe's national flower, and is protected in this country (L. Mileson in Ingens Bull. 20: 33-35, 1999).

Confusion possible with *Flagellaria guineensis (Flagellariaceae).*

SYNONYMS (only names referrable to another genus):

Gloriosa flavovirens (Dammer) J. C. Manning & Vinn. = **Littonia flavovirens**

lindenii (Baker) J. C. Manning & Vinn. = **L. lindenii**

littonioides (Welw. ex Baker) J. C. Manning & Vinn. = **L. littonioides**

modesta (Hook.) J. C. Manning & Vinn. = **L. modesta**

revoilii (Franch.) J. C. Manning & Vinn. = **L. revoilii**

(HELONIAS)

Helonias guineensis Thonn. = **Iphigenia pauciflora**

IPHIGENIA / *2*

Some 15 species in Africa, Socotra, Yemen, S Asia (India), Australia, New Zealand.

Plants with tunicated bulb-like corm; leaves spirally arranged, sessile, basally sheathing the stem; inflorescence: usually racemes or cymes of small spidery flowers with very narrow tepals; tepals free, falling early; fruit a capsule (Mathew in Bulb Newsl. 11: 4-5, 1995).

Iphigenia oliveri Engl.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 322, 1994; Maroyi (2002): 8 (as *I. bechuanica*). – Icon.: Engler, Nat. Pflanzenfam., ed. 2, 15a: 271, 1930; Thulin, Fl. Somalia 4: 69, 1995; Nordenstam (1998): 177; Fl. Eth. & Eritrea 6: 189, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 139, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 221, 2010; Fl. Trop. E. Afr., Colchic.: 8, 2005.

syn.: *I. somaliensis* C. B. Clarke; *I. bechuanica* Baker; *I. stenotepala* K. Krause

Herb to 30 cm tall; corm globose-ovoid, c. 1,2 long, c. 0,7 cm Ø; leaves linear, 6-15,5 × 0,1-0,3 cm, apex acute; flowers solitary, axillary in upper leaves or in a raceme; pedicel *recurved*, *1,3-2,3 cm long;* flowers ranging from yellow to dark maroon, sometimes bicoloured; tepals linear *0,6-1,2 cm* × 0,5-1 mm, apex acute; capsule 0,6-2 cm long, 0,4-0,8 cm Ø.

Grassland, bushland in rock crevices; rocky ground, sometimes in pockets of soil in holes of limestone rocks; *Acacia*, *Commiphora*, *Terminalia* bushland or woodland on limestone slopes with sandy soil; dambos; 0-1650 m alt.

? Djibouti; Botswana, Namibia, S. Africa; Yemen (discovered in 2002, Willdenowia 32: 263, 2002).

Probably overlooked.

I. pauciflora Martelli; Fl. Eth. & Eritrea 6: 187-189, 1997; Fl. Trop. E. Afr., Colchic.: 7, 9, 2005; Thulin, Fl. Somal. 3: 584-585, 2006; Akoegninou & al., Fl. anal. Bénin: 69, 2006 (as *I. ledermannii*); Fl. Zambes. 12/2: 193, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 232, 2011; Onana, Vascul. pl. Cameroon…: 157, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 36, 2012. – Icon.: J. K. Morton, W Afric. lilies: pl. III, 1961 (as *I. ledermannii*); Sebsebe Demissew & al., Flow. Eth. &

Eritrea…: 138, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 220, 2010.

syn.: *Helonias guineensis* Thonn., non *Iphigenia guineensis* Baker *(= Camptorrhiza strumosa); I. ledermannii* Engl. & K. Krause; *I. abyssinica* Chiov.; *I. sudanica* A. Chev., nom. nud.

Herb to 35 cm tall, slender, near *I. oliveri* but: pedicel erect, 2-2,5 cm long; perianth segments 3,5-6 mm long.

Shallow soil over rock; moist hollows in savanna, bushland or woodland; quite common in low-lying seasonally-marshy grassland, but overlooked; often on laterite outcrops; sand; flat open area with *Euclea*, *Dodonaea*; *Acacia*, *Dichrostachys*, *Anogeissus* scrub in open bare land; eroded area of volcanic ash near gullies with exposed subsoil; rocky outcrops in *Acacia*, *Commiphora*, *Terminalia* woodland on limestone slopes with sandy soil; in short grass near rivers; dambos; *Brachystegia* woodland; abandoned cultivations in very stony bush; 350 (? and less)-2000 m alt.

SYNONYMS (referrable to another genus):

Iphigenia dinteri Dammer ex Schinz = **Camptorrhiza strumosa**

flexuosa Baker = **C. strumosa**

guineensis Baker = **C. strumosa**

junodii Schinz = **C. strumosa**

schlechteri Engl. = **C. strumosa**

strumosa Baker = **C. strumosa**

(IPHIGENIOPSIS)

Iphigeniopsis flexuosa (Baker) Buxb. = **Camptorrhiza strumosa**

junodii (Schinz) Buxb. = **C. strumosa**

schlechteri (Engl.) Buxb. = **C. strumosa**

strumosa (Baker) Buxb. = **C. strumosa**

LITTONIA / *4 + 2* ?

"The generic limitation between *Gloriosa* and *Littonia* is not clear, and further studies are needed" (Nordal in Symb. Bot. Upsal. 35/2: 103, 2011). *Littonia* "has a very similar habit to the smaller forms of *Gloriosa*" (D. V. Field, Lilies and other Liliaceae: 95, 1973). Both genera have mis-shapen corms but *Littonia* have pendent, bell-shaped flowers. The tepals are basally saccate. Cf. comments above under *Gloriosa*.

(**Littonia flavovirens** Dammer); Figueiredo & Smith, Pl. Angola: 175, 2008.

syn.: *Gloriosa flavovirens* (Dammer) J. C. Manning & Vinn.

Stem c. 30 cm tall, ± angulate; leaves sessile, ovate-lanceolate, 4,5-6 × 1,2-2,5 cm, base oblique, apex acute, recurved, "similar to the base of *Gloriosa* tendril"; flowers single; pedicels 4-4,5 cm long, triangular, glabrous, apex recurved; bracts absent; tepals yellowish-green, lanceolate, 1,5 × 0,5 cm, crested outside towards base; fruit unknown.

Ecology unknown.

Known only from the type (Mechow 371); Angola: Malange. Not mapped.

Said to be near *L. littonioides (L. welwitschii).*

(**L. grandiflora** De Wild. & T. Durand, non *Methonica grandiflora* Hook. = *Gloriosa grandiflora* (Hook.) O'Brien = *G. superba*).

Leafy herb; leaves sessile, oblong, glabrous, 13-17 × 0,2-3 cm, subcoriaceous, apex hooked; flowers borne above leaf axils; pedicels c. 8 cm long, ebracteate, apex recurved; perianth 4-5 cm long, white when dried; fruit unknown.

Edges of water.

Known only from the type (Verdick 288) collected in 1899; Zaire: Lukafu (10°31'S × 27°33'E). Not mapped.

Said to be near *L. littonioides (L. welwitschii)* and *L. lindenii,* but tepals whitish.

L. lindenii Baker; De Wildeman, Contr. fl. Katanga, suppl. 3: 89, 1930; Fl. Zambes. 12/2: 188, 2009; Geerinck in Taxonom. 33: 5-6, 2012 (sub *Gloriosa*). – Icon.: Fl. Trop. E. Afr., Colchic.:11, 2005.

syn.: *Gloriosa lindenii* (Baker) J. C. Manning & Vinn.

Herb to 65 cm tall; corm globose, 0,5-0,8 long, 0,6-0,7 cm Ø; leaves narrowly elliptic-lanceolate to ovate, 5,5-13 × 1,5-2,5 cm, apex acute; flowers axillary; pedicels to 4,5 cm long; perianth green at base, segments orange, vermillion, light red to red outside, yellow to orange inside; tepals 2,8-4 × 0,3-0,6 cm; capsule 1,3 cm long, 0,4 cm Ø.

Chipya woodland; *Brachystegia, Uapaca* woodland; *Brachystegia* woodland; bush savanna sometimes cupriferous; grassland; moist miombo; rocky soil; sometimes abundant; particularly common in Western Province of Zambia; 750-1650 m alt.

L. littonioides (Welw. ex Baker) K. Krause; Fl. Trop. E. Afr., Colchic.: 12, 2005; Figueiredo & Smith, Pl. Angola: 175, 2008. – Icon.: Fl. Zambes. 12/2: 187, 2009.

bas.: *Sandersonia littonioides* Welw. ex Baker

syn.: *Littonia welwitschii* Benth. & Hook. f., nom. superfl.; *Gloriosa littonioides* (Welw. ex Baker) J. C. Manning & Vinn.

Resembling *L. lindenii* but stem usually leafy ± to base (not leaves only in upper half of stem); flowers green or greenish-yellow; tepals 1,3-2,3 cm long.

Miombo woodland, sometimes in open areas, sandy soils; rather open sandy damp woods by streams, but *in few places only;* on the other hand, in Tanzania: "although its distribution is limited, the habitat in which it occurs is fairly common" (Fl. Trop. E. Afr., Colchic.: 12, 2005); 1000-1500 m alt.

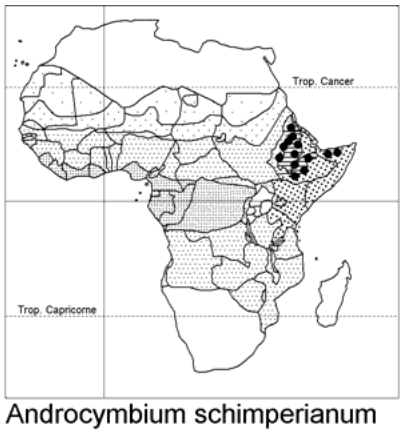
L. modesta Hook.; Vinnersten & Manning in Taxon 56: 174, 2007; Fl. Zambes. 12/2: 188, 2009. – Icon.: Bot. Mag. 79: pl. 4723, 1853; Plantsman, N. S. 7/2: 102-103, 2008.

syn.: *L. keitii* Leichtlin; *Gloriosa modesta* (Hook.) J. C. Manning & Vinn.

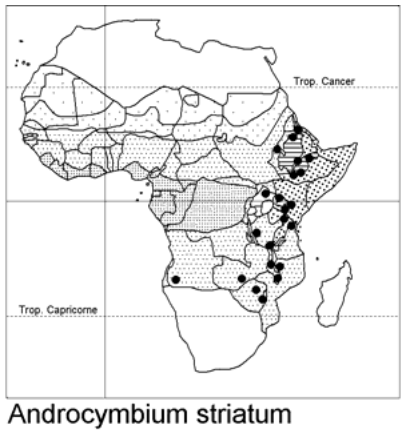
Herb 0,6-2 m tall, vigorous; corm 5-6 × c. 2 cm; stem scandent, basal part lacking leaves; leaves numerous, closely set, in whorls of 3-4, variable in shape on the same plant, lanceolate or linear-lanceolate, 10-17 × 0,5-3,5 cm, decreasing in size upwards stem, tip drawn out into tendril c. 2 cm long; flowers axillary, bright yellow or orange; pedicel 2-5,5 cm long, recurved (= flower nodding); tepals lanceolate, acute, united at base, 1,7-4 × 0,4-1 cm; capsule loculicidal resembling *Gloriosa* (fide Vinnersten & Manning, l.c.), not septicidal *(= Littonia).*

Woodland; grassland; (coastal) scrub; 800-1500 m alt.

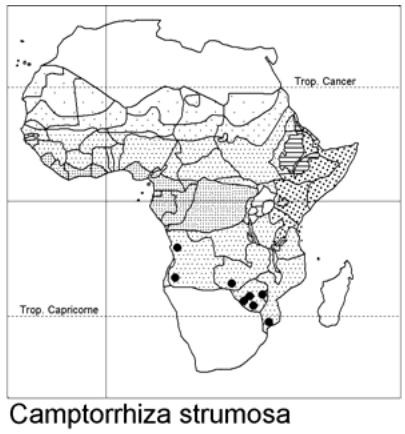
S. Africa, Swaziland.



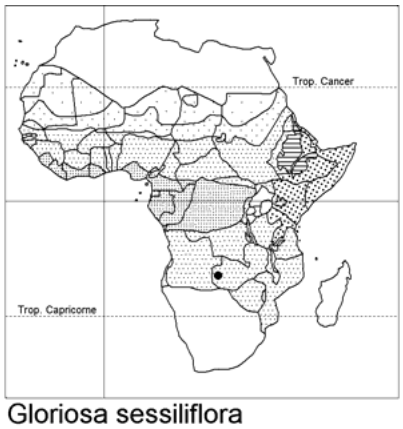
Androcymbium schimperianum



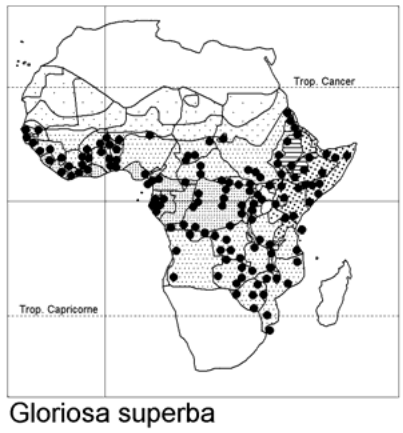
Androcymbium striatum



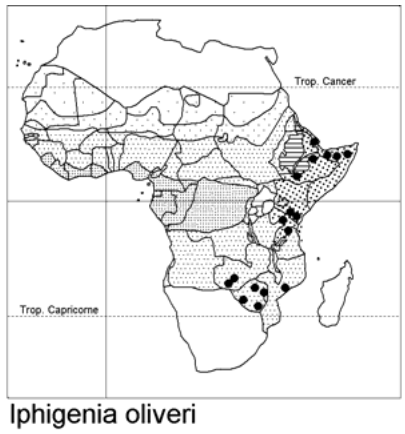
Camptorrhiza strumosa



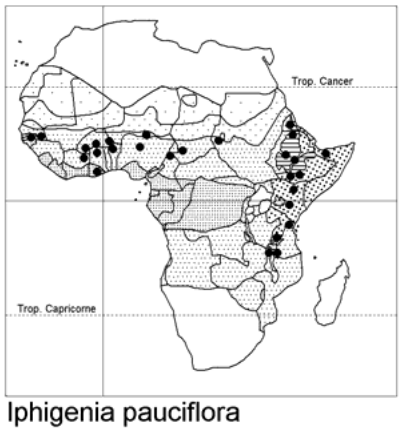
Gloriosa sessiliflora



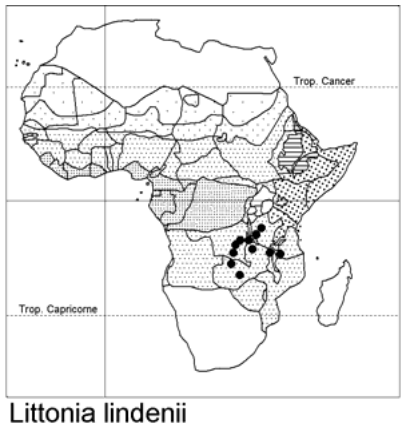
Gloriosa superba



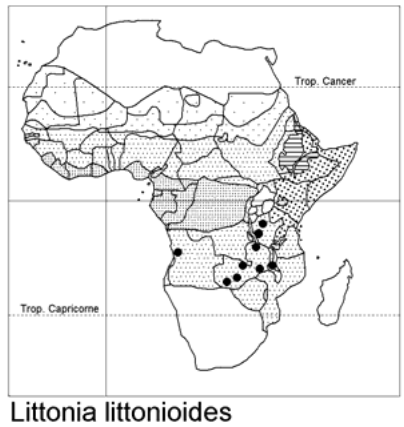
Iphigenia oliveri



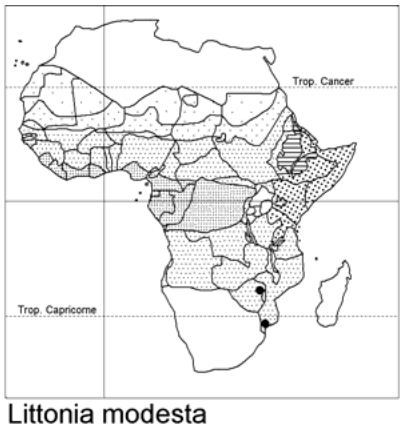
Iphigenia pauciflora



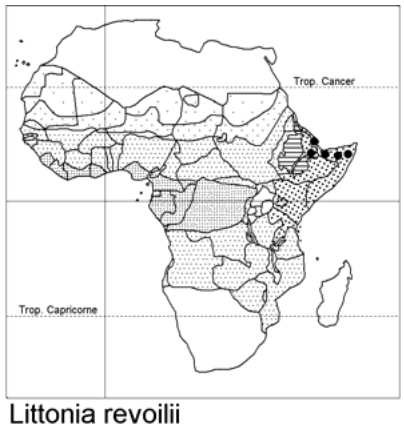
Littonia lindenii



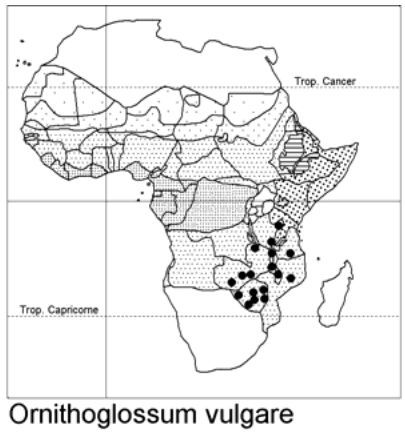
Littonia littonioides



Littonia modesta



Littonia revoilii



Ornithoglossum vulgare

The only *Littonia* grown to any extent. ? Native in Zimbabwe (Harare, Mt Pleasant): according to the collector (Drummond) found in what seemed to be an abandoned garden.

L. revoilii Franch. – Icon.: Hook. Ic. Pl. 24: pl. 2365, 1895 (as *L. obscura*); Audru & al., Pl. vascul. Djibouti 2/2 : 789, 1994 (as *L. hardeggeri*); Thulin, Fl. Somalia 4: pl. 3 D, 1995; Fl. Eth. & Eritrea 6: 186, 1997; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 216, 2010.

syn.: *Gloriosa revoilii* (Franch.) J. C. Manning & Vinn.; *Littonia minor* Deflers; *L. hardeggeri* Beck; *L. obscura* Baker ex Oliv.

Herb glabrous to densely papillose-pubescent to c. 30 cm tall; corm ovoid to globose, 1,7 × 1,5 cm; leaves spreading, linear, to 10 × 0,6 cm, tip recurved; flowers solitary, yellow or cream, often flushed purplish or brownish; pedicels 2-4 cm long; tepals c. 1,5-4 cm × 2-5 mm, acute; capsule to 1,7 × 1,1 cm.

Sandy or stony ground; steppe on plateaux; 10-570 m alt.

Length of style remarkably variable: long- and short-styled flowers found both in NE Africa and in Yemen (Fl. Somal., l.c.).

SYNONYMS:

Littonia baudiii A. Terracc. = **Gloriosa superba**

hardeggeri Beck = **Littonia revoilii**

keitii Leichtlin = **L. modesta**

minor Deflers = **L. revoilii**

obscura Baker ex Oliv. = **L. revoilii**

paludosa A. Chev., Etudes Fl. Afr. Centr. Franç. 1: 323, 1913, nomen (Chari; Chevalier 8769, 9182, 9577, 9670) = **?**

welwitschii Benth. & Hook. f. = **L. littonioides**

(MELANTHIUM)

Melanthium angustifolium Willd. = **Androcymbium gramineum**

gramineum Cav. = **A. gramineum**

graminifolium Steud. = **A. gramineum**

guineense Welw. ex Baker = **Camptorrhiza strumosa**

punctatum Cav. = **Androcymbium gramineum**

tenue Hook. f. = **Wurmbea tenuis**

(MERENDERA)

Merendera abyssinica A. Rich. = **Androcymbium schimperianum**

longifolia Hutch. = **A. schimperianum**

longispatha Hochst. = **A. schimperianum**

schimperiana Hochst. = **A. schimperianum**

(METHONICA)

Methonica abyssinica (A. Rich.) Walp. = **Gloriosa superba**

doniana (Schult. & Schult. f.) Kunth = **G. superba**

gloriosa Salisb. = **G. superba**

grandiflora Hook. = **G. superba**

leopoldii Van Houtte ex Lem. = **G. superba**

petersiana Klotzsch ex Garcke = **G. superba**

plantii Planch. = **G. superba**

platyphylla Klotzsch = **G. superba**

superba (L.) Crantz = **G. superba**

virescens (Lindl.) Kunth = **G. superba**

ORNITHOGLOSSUM / *1*

Eight species in tropical and southern Africa. Very poisonous to stock due to presence of alkaloids, colchicine and related compounds.

Ornithoglossum vulgare B. Nord.; Maroyi (2002): 7. – Icon.: Fl. Trop. E. Afr., Colchic.: 16, 2005; Fl. Zambes. 12/2: 190, 2009.

syn.: *O. glaucum* auctt. mult., non Salisb. [= *O. viride* (L.f.) Dryand. ex W. T. Aiton, S. Africa].

Herb 7-70 cm tall; corm oblong-ovoid, sometimes lobed, to 4 cm long, 2,5-4 cm Ø, very deep (to 30 cm below ground); stem simple or 2-3-branched; leaves 2-12, ± erect, lanceolate, 10-35 × 1-5 cm; raceme 5-30 cm long, with up to 25 flowers; pedicels 1,5-7 cm long; perianth dark brownish, olive-green or sometimes pale lemon-yellow, often with red or purple margins and nectary region; tepals linear, 0,8-2,5 cm × 1,5-3,5 mm; capsule 1-2,5 cm long, 1-1,5 cm Ø.

Open *Brachystegia* or *Isoberlinia* woodland; miombo and similar woodland types; sandy or clay soils; occasionally calcareous pans and termite mounds; 350-1550 m alt.

Very variable in flower characters, e.g. tepal size and colour.

Botswana, Namibia, S. Africa.

(SANDERSONIA)

Sandersonia littonioides Welw. ex Baker = **Littonia littonioides**

WURMBEA / *2*

Genus of some 40 species in Africa (mainly Cape Region) and Australia, with about 22 species in Africa, 19 in Australia.

Herbs with deep-seated tunicated bulb-like corms; leaves cauline, sessile, sheathing; flowers in an ebracteate spike-like scorpioid cyme; tepals basally fused into a tube, and the lateral nectaries fused into a single median structure.

Wurmbea angustifolia B. Nord.; Maroyi (2002): 4; Fl. Zambes. 12/2: 180, 182, 2009.

Herb to 15 cm tall; corm ,7-2 × 0,5-1,5 cm, covered with disintegrating brown or blackish papery tunics, neck 1-1,5 cm long; stem 7-15 cm long; basal leaf 1, linear, 8-28 × 0,1-0,45 cm, margins inrolled, scabrid; stem leaves 2, near stem middle, with loose sheathing base 0,4-0,6 cm wide, free part 3-18 × 0,35-0,5 cm; inflorescence dense, c. 3 cm long; flowers set 0,3-1 cm apart; flowers white, cream, greenish yellow to yellow, *cup-shaped*; tepals 5-7 mm long (including basal tube *1,5-2,5 mm long*) × 1-1,5 mm; fruit unknown.

Moist grassland, in dense turf or wet peaty soil; 1800-2300 m alt.

S. Africa, Lesotho.

WURMBEA

W. tenuis (Hook. f.) Baker; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Mt Oku…: 170, 2000; Harvey & al., Pl. Bali Ngemba…: 134, 2004; Onana & Cheek, Red Data Book flow. pl. Cameroon: 359, 2011; Onana, Vascul. pl. Cameroon: 157, 2011; Geerinck in Taxonom. 33: 6, 2012; Gereau & al., Lake Nyasa florist. checklist: 41, 2012. – Icon.: Engler, Nat. Pflanzenfam., ed. 2, 15a: 271, 1930; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 149, 1994; Fl. Trop. E. Afr., Colchic.: 13, 2005 (subsp. **goetzei**); Fl. Zambes. 12/2: 181, 2009 (idem).

bas.: *Melanthium tenue* Hook. f.

Resembling *W. angustifolia*, but: perianth tube 0,5-1,5 mm long (not 1,5-2,5 mm); flower stellate, free part of tepals narrowest at base (not distinctly narrowed at base as in *W. angustifolia*). Flower colour variable: white with green spots in centre of tepals, pale mauve with darker spots or pale yellow with green centre; capsule erect, ovoid, 8-15 × 3-5 mm.

Short wet grassland to dry sandy soil under scattered *Uapaca* trees; rocky grassland; forests; especially in moist sites or where regularly burned; thin soil over rock; 1200-3500 m alt.

Bioko/Fernando Poo.

Comprises 4 subspp.: – subsp. **australis** B. Nord. only in S. Africa, Lesotho; – subsp. **goetzei** (Engl.) B. Nord. (bas. & syn.: Enum. 3: 64, 1995), with cauline leaves shorter than inflorescence and perianth 6-10 mm long, in Tanzania S-wards; – subsp. **hamiltonii** (Wendelbo) B. Nord. (bas.: l.c.), with lower cauline leaf longer than inflorescene and perianth 4,5-7,5 mm long, in N part of range; – subsp. **tenuis** with 2-3 cauline leaves shorter than inflorescene and perianth 5,5-7,5 mm long, white or lilac-pink to lilac often with 2 purple spots per tepal, in W part of range, where it is partly common at c. 1800-2500 m alt.

Almost invisible unless in flower.

SYNONYMS:

Wurmbea goetzei Engl. = **Wurmbea tenuis** subsp. **goetzei**

hamiltonii Wendelbo = **W. tenuis** subsp. **hamiltonii**

homblei De Wild. = **W. tenuis** subsp. **goetzei**

TECOPHILAEACEAE /*3* g. / *6* spp.

A well circumscribed family with disjunct area: Chile – USA (California); tropical and S. Africa, Madagascar. 8 genera, 26 species.

Geophytes with cormous rootstock, poricidal anthers and semi-inferior ovary; flowers attractive, often fragrant (cf. Manning & al., in Bothalia 35: 115, 2005).

In one species of our area: fruit and seeds unknown.

BRUMMITT, R. K. & al. (1998). Taxonomy of Cyanastroideae (Tecophilaeaceae): a multidisciplinary approach. *Kew Bull.* 53: 769-803.

MATHEW, B. (1995). A fascinating family, the Tecophilaeaceae. *Bulb Newsl.* 10: 11-14.

SIMPSON, M. G. & P. J. RUDALL (1998). Tecophilaeaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants. 3. Flowering plants. Monocotyledons: Lilianae (except Orchidaceae)*: 429-436. Springer-Verlag, Berlin & Heidelberg.

CYANASTRUM / *3*

Sometimes placed in *Cyanastraceae*; formerly including *Kabuyea*. Tropical African genus with several corms superposed one above the other, a solitary leaf (basal) and the petiole and scape sheathed at base by cataphylls.

Cyanastrum cordifolium Oliv., incl. var. *brevipedunculatum* R. T. Clausen, and var. *compactum* R. T. Clausen; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 185-186, 2000; Tillich in Flora 198: 237, 2003; Sosef & al., Check-list pl. vascul. Gabon: 134, 2006. – Icon.: Hook., Ic. Pl. 20: pl. 1965, 1891; Bot. Jahrb. Syst. 28: pl. 10, 1900, reprint by Brummitt & al. (1998): 773; Kew Bull. 16: 191, 1962 (detail); Simpson & Rudall, o.c.: 429.

syn.: *Schoenlandia gabonensis* Cornu

Herb with depressed-globose corm, arranged in tiers, with few roots; leaf lamina (including lobes) 7-20 × 6-15 cm, sagittate to heart-shaped, deeply cordate at base, sinus with parallel to slightly divergent sides; petiole 7-32 cm long; scape 6-17 cm including inflorescence; inflorescence 1-4 cm long from lowest flower to apex, with 1-7 flowers; tepals 1-1,4 × 0,2-0,6 cm, bright blue; capsule deeply 3-lobed.

Rain-forest floor, often gregarious; near shore and lakes; 0-1000 m alt.

C. goetzeanum Engl. – Icon.: Bot. Jahrb. Syst. 28: l.c., and Brummitt & al. (1998): l.c.; Kew Bull. 16: l.c.

Very similar to *C. johnstonii* but inflorescence bracteate; nodes of inflorescence mostly 2-flowered; flowers blue or white, 1-1,2 × 0,3-0,4 cm (not 1,2-1,8 × 0,3-0,6 cm). Leaf blade more like that of *C. cordifolium*: ovate-orbicular and deeply cordate, to 8,5 cm long, 10 cm wide. Capsule unknown.

Near streams, probably shady margins of riverine forest; 125-600 m alt.

Rare: only 4 collections known (1899, 1959 + 1964, 1976, 1977).

C. johnstonii Baker, incl. var. *cuneifolium* S. Carter; Brummitt & al. (1998): 777-779. – Icon.: Kew Bull. 16: 191, 1962 (detail); Fl. Zambes. 12/3: 24, 2001.

syn.: *C. verdickii* De Wild.; *C. hockii* De Wild.

Herb 10-35 cm tall; corm discoid, to 2,5 cm Ø, at or just below ground level; leaf blade ovate, heart-shaped, (including lobes), 9-24 × 6-17 cm, lobes ca 3,5 cm long; petiole 6-22 cm long; inflorescence 10-35 cm long, incl. scape, appearing before leaves; raceme 3-17-flowered, 3-13 cm long, *ebracteate* (rarely with 1-2 filiform bracteoles); inflorescence nodes 1-flowered; tepals blue, 1,2-2,1 × 0,2-0,6 cm; capsule 1-2-lobed, lobes ovoid, to 0,7 × 0,5 cm.

Shady places in woodland or on river banks; 780-1530 m alt.

SYNONYMS (referrable to another genus):

Cyanastrum bussei Engl. = **Kabuyea hostifolia**

hostifolium Engl. = **K. hostifolia**

KABUYEA / *1*

Monotypic genus near *Cyanastrum* but: foliage leaves 4 forming a rosette and closely enfolding base of scape; petiole indistinctly defined; scape emerging from the middle of the leaf rosette (in *Cyanastrum* the bare scape emerges alongside the solitary leaf); tepals white; pollen grains with perforate tectum.

Kabuyea hostifolia (Engl.) Brummitt – Icon.: Bot. Jahrb. Syst. 28: pl. 9, 1900, reprint by Brummitt (1998): 772; Kew Bull. 16: 191, 1962; Fl. Zambes. 12/3: 23, 2001.

bas.: *Cyanastrum hostifolium* Engl.

syn.: *C. bussei* Engl.

Mostly recorded from transitional areas between deciduous woodland or thicket and riverine forest or lowland rain-forest, usually in shady damp places; deciduous woodland or sandy gritty soil; 0-700 m alt.

(SCHOENLANDIA)

Schoenlandia gabonensis Cornu = **Cyanastrum cordifolium**

WALLERIA / *2*

Genus of 3 species in Africa. *W. gracilis* (Salis.) S. Carter only in Namibia, S. Africa. The name *Walleriaceae* proposed to be conserved by Reveal in Taxon 47: 173-174, 1998.

Plants with lobate tubers produced deep below ground level; leaves cauline, many, spirally arranged, sessile, progressively larger apically; tepals persistent.

Walleria mackenziei J. Kirk, excl. var. *nutans* (J. Kirk) Baker *(= W. nutans);* Figueiredo & Smith, Pl. Angola: 207, 2008. – Icon.: Trans. Linn. Soc. London 24: pl. 52, 1864; Kew Bull. 16: 191, 1962 (detail); Simpson & Rudall (1998): 341; Fl. Zambes. 12/3: 21, 2001.

syn.: *W. angolensis* Baker

Herb 18-88 cm tall; tubers 1-5 at base of a slender vertical 5-15 cm long underground stem; tuber ± ovoid, 1,5-3 × 2,5-4 cm, with ± tuberculate surface; stem leafy, single, simple or sometimes with 1-2 branches, to 30 cm long; stem leaves evenly spaced, sessile, lanceolate to ovate, 3-11 × 0,35-2,8 cm, semi-amplexicaule at base; lowermost leaves few, 1,5-3 cm long; peduncles 1,3-6 cm long, ascending, occasionally branched; pedicels to 2,5 mm long; tepals patent or reflexed at first, soon straightening to enclose the ovary, white, pale to bright blue or pale to deep mauve, 13-22 × 2,5-6,5 mm, 5-10-veined; anthers blue to black with yellow tips and base, not connivent at apex; capsule green, maturing to dark yellow, globose to oblong, 1-2 cm Ø, 3-lobed.

Miombo, plateau and chipya woodlands; Kalahari Sand woodlands; riverine vegetation; wooded grassland; tall grassland; dambo; often rocky outcrops and hillsides; disturbed ground at roadsides; area cleared for cultivation; deciduous woodland and bushland on red sandy loam soils; edges of grassy depressions with impeded drainage; ant hills; here and there in short thicket-grown sandy-clayey somewhat rocky pastures, with *Gnidia*, *Ascolepis, Euphorbia* spp.; 300-1829 m alt.

Very variable in leaf shape, extreme forms linear.

W. nutans J. Kirk; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 12/3: 19, 2001. – Icon.: Trans. Linn. Soc. London 24: pl. 52, 1864; Kew Bull. 16: 191, 1962 (detail).

syn.: *W. mackenziei* J. Kirk var. *nutans* (J. Kirk) Baker; *W. muricata* N. E. Br.; *W. baumii* Dammer; *W. hockii* De Wild.

Near *W. mackenziei* but: herb (4)-9-40 cm tall (not 18-88); perianth segments 0,6-1,5 cm long (not 1,3-2,2), style 7-8,5 mm long (not 8-14) anthers yellow with blue or purple tips, connivent at apex.

Sandy soils in mixed deciduous woodland, with *Brachystegia*, *Albizia* or *Combretum* spp.; dry river beds; doloritic or granitic rocky outcrops; land cleared for cultivation; grassland in light shade in sandy soils; 900-1700 m alt.

Botswana, Namibia, S. Africa.

IRIDACEAE *16* g. / *159 + 6* ? spp.

Family of c. 2125 species in c. 65 genera with a ± worldwide distribution (maps by Davies & al., 2005: 423, and Davies & Barraclough in Syst. Assoc. Special Vol. Ser. 72: 158, 2007). There is a marked concentration in sub-Saharan Africa, and also in temperate and highland C. & S. America. The family is coherent among the lilioid monocots, but with a great morphological diversity. The genera are often difficult to distinguish. The rootstock is a rhizome, corm or bulb. The ovary is usually inferior. The fruit is a loculicidal capsule with often large seeds. The pollination ecology is diverse. The family is important in horticulture, grown either as garden plants or for the cut flower industry. Trade in corms, bulbs or rhizomes is considerable. Corms of certain species are eaten.

Many species in our area are incompletely known: no corm known in 7 species (= > 4%); leaf (leaves) unknown in 1 species; the colour of the flowers is not reported for 1 species; fruits are lacking for 30 species (= c. 19%) and only unripe fruits are known in 4 species; no seeds reported for 28 species (= c. 18%); the ecology is not recorded for 1 species; 9 species (= > 5%) are known only from the type; and further 9 species are known from only 2 or 3 gatherings.

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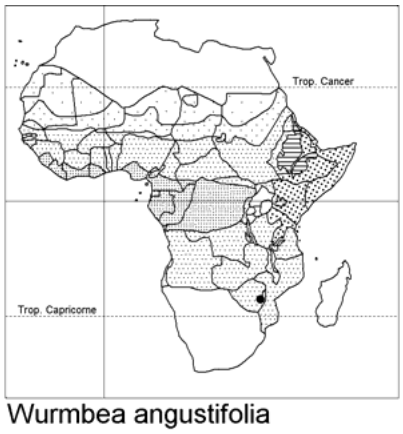
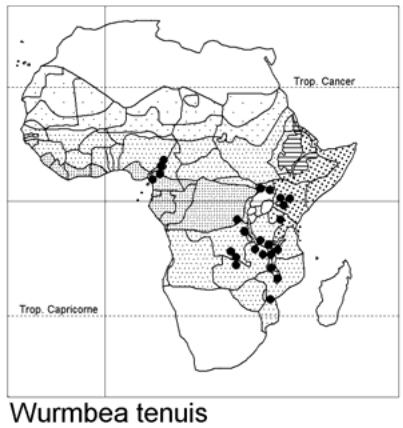
GOLDBLATT, P. & J. MANNING (2006). Radiation of pollination systems in the Iridaceae of sub-Saharan Africa. *Ann. Bot. (London)* 97: 317-344.

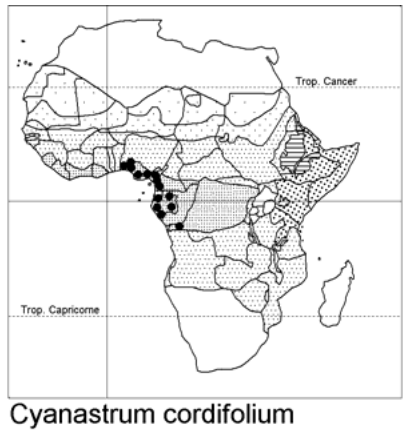
GOLDBLATT, P. & J. MANNING (2008). *The iris family. Natural history & [and] classification*. Timber Press, Portland & London. 290 pp.



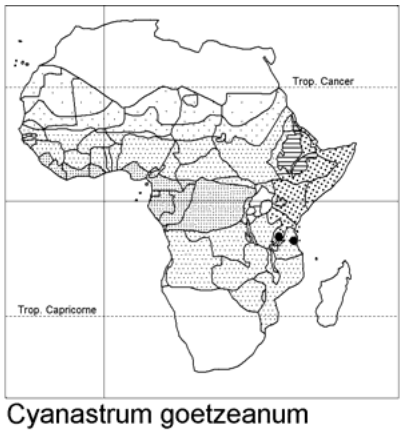
Wurmbea angustifolia



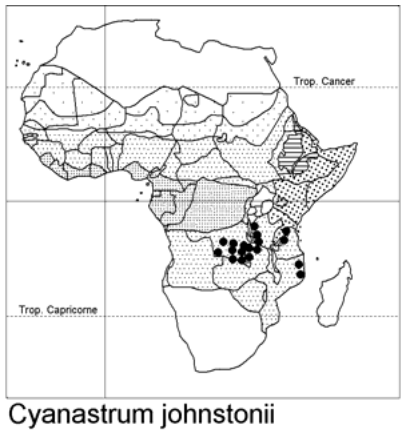
Wurmbea tenuis



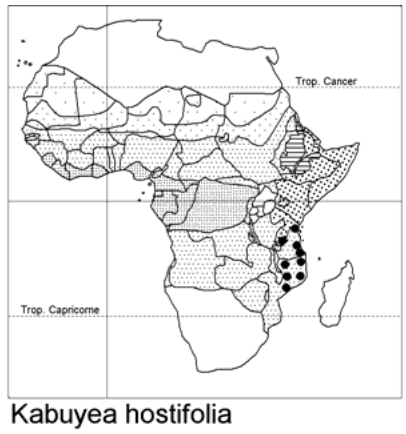
Cyanastrum cordifolium



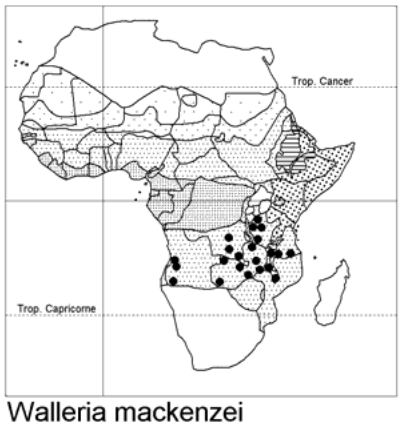
Cyanastrum goetzeanum



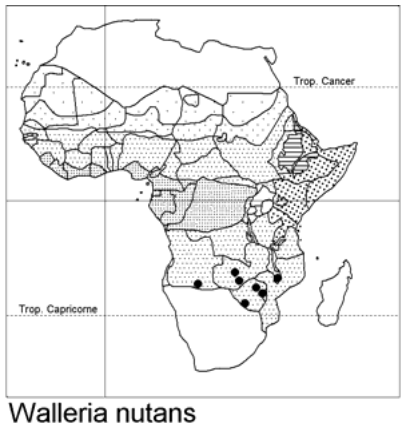
Cyanastrum johnstonii



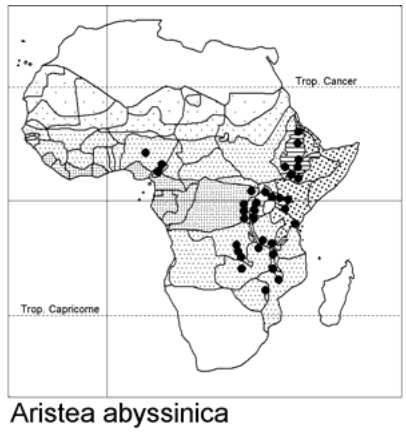
Kabuyea hostifolia



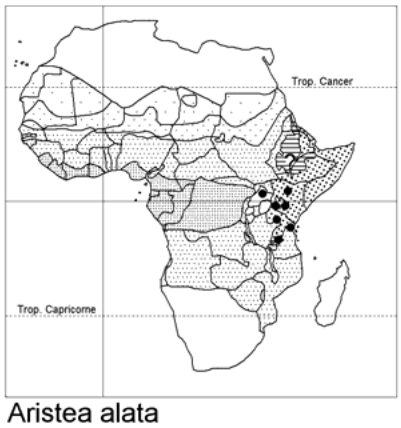
Walleria mackenzei



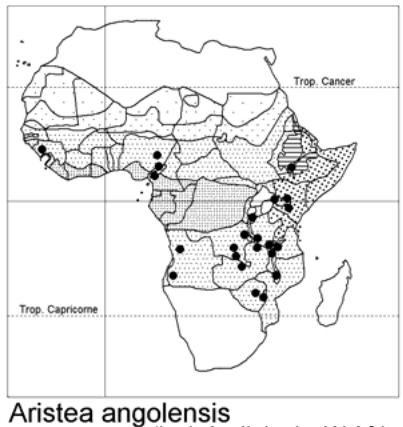
Walleria nutans



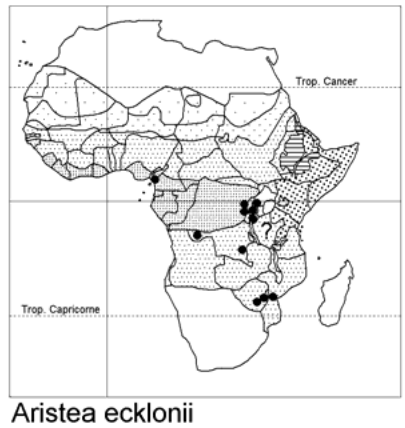
Aristea abyssinica



Aristea alata



Aristea angolensis
(incl. A. djalonis, W Africa)



Aristea ecklonii

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REEVES, G. & al. (2001). Molecular systematics of Iridaceae : A combined analysis of four plastid DNA sequence matrices. *Ann. Bot. Roma*, N. S. 58 : 29-42.

RUDALL, P. J. & al. (2003). Evolution of floral nectaries in Iridaceae. *Ann. Missouri Bot.Gard.* 90 : 613-631.

TILLICH, H.-J. (2003). Seedling morphology in Iridaceae : Indications for relationships within the family and to related families. *Flora* 198 : 220-242.

(ACIDANTHERA)

Acidanthera aequinoctialis (Herb.) Baker = **Gladiolus aequinoctialis**
aequinoctialis sensu Fl. W. Trop. Afr., ed. 2, 1968, p.p. = **G. praecostatus**
amoena (A. Chev.) Jacq.-Fél. = **G. chevalierianus**
bicolor Hochst. = **G. murielae**
bicolor sensu Lebrun & al., Cat. pl. vascul. Chad mér., 1972 = **G. iroensis**
candida Rendle = **G. candidus**
divina Vaupel = **G. aequinoctialis**
euryphylla (Harms) Diels = **Savannosiphon euryphylla**
goetzei Harms = **Gladiolus curtifolius**
gracilis Pax = **G. candidus**
gunnisii Rendle = **G. gunnisii**
holostachya (Baker) N. E. Br. = **Radinosiphon leptostachya**
iroensis A. Chev. = **Gladiolus iroensis**
laxiflora Baker = **G. candidus**
leptostachya (Baker) N. E. Br. = **Radinosiphon leptostachya**
lomatensis N. E. Br. = **R. lomatensis** (S. Africa)
murielae (Kelway) Hoog = **Gladiolus murielae**
nelloi Chiov. = **G. gunnisii**
schimperi (Asch. & Klatt) R. C. Foster = **Lapeirousia schimperi**
ukambanensis Baker = **Gladiolus candidus**
unicolor Hochst. ex Baker = **Lapeirousia schimperi**
zanzibarica Baker = **Gladiolus candidus**

(ANISANTHUS)

Anisanthus abyssinicus (Brogn. ex Lem.) Klatt = **Gladiolus abyssinicus**
huillensis (Welw. ex Baker) Klatt = **G. huillensis**

(ANOMATHECA)

Anomatheca angolensis Baker = **Lapeirousia schimperi**
cruenta Lindl. = **Freesia laxa** subsp. **laxa**
grandiflora Baker = **F. grandiflora**
laxa (Thunb.) Goldblatt = **F. laxa**
laxa subsp. *azurea* Goldblatt & Hutchings = **F. laxa** subsp. **azurea**

(ANTHOLYZA)

Antholyza abyssinica Brogn. ex Lem. = **Gladiolus abyssinicus**
cabrae De Wild. = **G. unguiculatus**
x*crocosmoides* Leichtl. ex J. N. Gerard = **Crocosmia**
degasparisiana Buscal. & Muschl. = **Gladiolus huillensis**
descampsii De Wild. = **G. gregarius**
djalonensis A. Chev. = **G. unguiculatus**
fleuryi A. Chev. = **G. unguiculatus**
gilletii De Wild. = **G. gregarius**
gracilis Pax in Engl. = **G. watsonioides**
hirsuta Klatt, non Lam. = **G. sericeovillosus** subsp. **sericeovillosus**
huillensis Welw. ex Baker = **G. huillensis**
labiata Pax = **G. unguiculatus**
laxiflora Baker = **G. dalenii** subsp. **dalenii**
magnifica Harms = **G. magnificus**
paniculata Klatt = **Crocosmia**
pubescens Vaupel = **Gladiolus huillensis**
schlechteri Baker = **G. dalenii** subsp. **dalenii**
schweinfurthii Baker = **G. schweinfurthii**
speciosa C. H. Wright = **G. watsonioides**
spectabilis Schinz = **G. magnificus**
sudanica A. Chev. = **G. unguiculatus**
thonneri De Wild. = **G. unguiculatus**
watsonioides (Baker) Baker = **G. watsonioides**
zambesiaca Baker = **G. magnificus**

ARISTEA / *9*

Genus of c. 60 species in tropical and S. Africa, Madagascar. Pollen highly diverse (see Le Thomas & al. in Grana 40 : 35-44, 2001, and Ann. Bot. Roma, N. S. 58 : 67-72, 2001). They are evergreen herbs with a rhizome. The flowers are usually short-lived, small, radially symmetrical and lack nectar or scent ; pollination by hopliine beetles has been studied by Goldblatt & Manning (Bot. Mag. 28 : 238-259, 2011, see p. 250-251).

GOLDBLATT, P. & A. LE THOMAS (1997). Palynology, phylogenetic reconstruction, and classification of the Afro-Madagascan genus Aristea (Iridaceae). *Ann. Missouri Bot. Gard.* 84 : 263-284.

GOLDBLATT, P. & al. (2004). Phylogeny of the Afro-Madagascan Aristea (Iridaceae) revisisted in the light of new data on pollen morphology. *Bot. J. Linn. Soc. London* 144 : 41-68.

Aristea abyssinica Pax; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 323-324, 1994 (as *A.cognata*); Cheek & al., Pl. Mt. Oku…: 184, 2000; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 143-144, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 226-227, 2010; Fl. Afr. Centr., Irid.: 33-34, 2005; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 186, 2011; Onana, Vascul. pl. Cameroon…: 166, 2011; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Fl. Zambes. 12/4: 6, 1993; Fl. Trop. E. Afr., Irid.: 5, 1996; Fl. Eth. & Eritrea 6: 167, 1997; Goldblatt & Manning, Iris fam…: 99, 2008; Salter & Davenport, Orchids & wildflowers Kitulo Plateau: 23, 2011.

syn.: Enum. 3: 87, 1995; *A. johnstoniana* Rendle; *A. tayloriana* Rendle; note that *A.longifolia* Baker is treated as a synonym of *A. abyssinica* in Fl. Zambes. 12/4: 9, 1993, but as a synonym of *A. alata* in Fl. Trop. E. Afr., Irid.: 9, 1996.

Perennial herb 12-50 cm tall with rhizome; leaves several, linear to narrowly lanceolate, c. 1/2 as long as the stem, 2-8 mm wide, *all basal* except for 1-2 near stem apex (this 3-5 cm long); stem compressed, broadly *winged*, *2-4 mm wide*, nearly unbranched; *flower clusters 1-3*, *terminal* or nearly so, usually 4-flowered; flowers blue, ± sessile; tepals 4,5-12 × 6-7 mm; capsule ovoid-obovoid, 5-8 mm long, ± *sessile* or on pedicel *1-2 mm*.

Short grassland; forest edges; especially on thin rocky soils; 1330-3800 m alt.

S. Africa, Lesotho, Swaziland.

"The taxonomy of the *A. abyssinica* complex requires careful investigation" (Fl. Trop. E. Afr., Irid.: l.c.).

A. alata Baker ("*elata*" Baker ex Engl., orth. var.), excl. subsp. *abyssinica* (Pax) Weim. and subsp. *bequaertii* (De Wild.) Weim. (both = *A. abyssinica*); Fl. Trop. E. Afr., Irid.: 9-10, 1996; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 187, 2011. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 150, 1994; R. Raistrick, African Violets…: 117, 2006.

syn.: *A. longifolia* Baker (see note above under *A. abyssinica*).

Perennial herb to 45-55 cm tall; leaves several, crowded in basal fan, sword-shaped, 1/2-2/3 as long as stem, 3-6 mm wide; stem compressed, 2-winged, *4-5 mm wide*, in the upper fourth bearing 1-2 short leaves, usually branched at these axils; flower clusters *1-5;* flowers blue; capsule ovoid-oblong, 9-12 mm long, on pedicels *4-25 mm long*, rarely nearly sessile.

Forests; forest margins and clearings; usually in light shade; occasionally in open wet grassland; 1800-3500 m alt.

In Ethiopia ? (not in Fl. Eth. & Eritrea 6, 1997).

Related to *A. abyssinica*, but "the taxonomy of the *A. alata* species group is unsettled" (Fl. Trop. E. Afr., Irid., l.c.). The two species are sometimes regarded as conspecific.

A. angolensis Baker; Fl. Zambes. 12/4: 3-4, 1993; Fl. Trop. E. Afr., Irid.: 8, 1996; Fl. Eth. & Eritrea 6: 166, 1997; Cheek & al., Pl. Mt Oku…: 184, 2000; Geerinck in Taxonom. 6: 11, 2002; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 143-144, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 227-228, 2010; Fl. Afr. Centr., Irid.: 29-30, 2005; Figueiredo & Smith, Pl. Angola: 186, 2008; Lisowski, Fl. Rép. Guinée 1: 419, 2009; Fischer & al., Annot. checklist vascul pl. Kakamega For.: 187, 2011; Onana, Vascul. pl. Cameroon: 166, 2011. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 150, 1994.

Perennial herb 25-90 cm tall; leaves several, basal and *cauline* (4-6), linear to narrowly lanceolate, 2,5-12 mm wide, mostly basal ± half as long as the stem, cauline progressively shorter above; stem *2-6-branched* (rarely simple), compressed, 2-angled (not winged), branches fairly short, erect; flower clusters 4-14, terminal and axillary, 4-6-flowered; flowers blue, ± sessile; tepals c. 12 × 4-5 mm; capsule (ob-)ovoid, 5-7 mm long, subsessile or on pedicel to 4 mm long.

Wet sites and often in seeps, seasonally flooded valley grassland (dambos) or shallow marshes; streamside; rocky places; 1290-2700 m alt.

S. Africa, Swaziland.

Comprises 4 subspp., 2 in our area, viz.: – subsp. **angolensis**, incl. var. *robusta* Marais [syn.: *A. zombensis* Baker; *A. nandiensis* Baker; *A. ramosa* De Wild.; *Anthericum djalonis* A. Chev., nom. invalid., see below under *Aristea djalonis;* – subsp. **acutivalvis** Weim., in Zimbabwe, NE S Africa. In S. Africa: – subsp. **majubensis** (Baker) Weim. [bas.: *A. majubensis* Baker; syn.: *A. cooperi* Baker]; – subsp. **pulchella** Weim. [syn.: *A. pulchella* N. E. Br. ex Weim., pro syn.].

(**A. djalonis** A. Chev. ex Hutch.); Kew Bull. 42: 932, 1987.

syn.: *Anthericum djalonis* A. Chev., Explor. bot. Afrique Occ. Franç. 1: 648, 1920, nom.; ex Hutch. in Hutchinson & Dalziel, Fl. W. Trop. Afr., ed. 1, 2/3, 1936, nom. inval. cited p. 376 and under *Aristea*, with the same specimens (Chevalier 12652, 18859). Ex Hutch. in Kew Bull. 1939: 246, 1939.

Rhizomatous herb with stem to 50 cm tall; leaves lax, linear, acute, nerves close, to 20 × 0,5 cm, margins thin, brown-tough; inflorescence simple or slightly ramose, axis flattened, nearly winged; lower bracts oblong-lanceolate, c. 2 cm long; flowers unknown (? sessile, clustered in the panicle); fruit oblong-ellipsoid, mucronate, grooved, coarsely reticulate, c. 1 cm long, dark brown when dry.

Plateau; 1000-1400 m alt.

? Only known from the syntypes collected in 1905 and 1907.

A form of *A. angolensis* ? Cf. above under this species. Lisowski, Fl. Rép. Guinée 1: 419, 2009, cites the two Chevalier specimens under *Aristea angolensis*.

A. ecklonii Baker; Cable & Cheek, Pl. Mt Cameroon: 160, 1998; Geerinck in Taxonom. 6: 11, 2002; Onana, Vascul. pl. Cameroon: 166, 2011. – Icon.: Fl. Zambes. 12/4: 6, 1993; Rheedea 5/2: 175, 1995; Fl. Trop. E. Afr., Irid.: 5, 1996; Fl. Afr. Centr., Irid.: 32, 2005; Goldblatt & Manning, Iris fam.: 99, 2008; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 603, 2008; Guymer in Queensland Herb. Achievements 2007-2008: 21, 2009.

syn.: Enum. 3: 87, 1995; *A. stipitata* R. C. Foster (not "R. Forst.").

Perennial herb 40-60 cm tall; leaves several, basal and *cauline*, the lowermost longest and exceeding the stem, progressively reduced above, those subtending the axillary flower clusters 2-5 cm; stem elliptic in section, usually winged, *few-several-branched;* flower clusters several to many, both terminal and axillary, then stalked or ± sessile, each usually 2-4-flowered; flowers blue, on pedicels c. 0,5 cm long; tepals 0,8-1 × 0,4 cm; capsule *cylindric*-trigonous, *1,2-1,8 cm long*, pedicel *0,6-1 cm long*.

Typically along streams and forest margins, in shade; old lava; 1525-3600 m alt.

ARISTEA ECKLONII

S. Africa, Swaziland. Tanzania ? – A weed in New Zealand, Australia, USA, with a capacity to invade open grassland, pastures or even undisturbed vegetation incl. rain-forest (Guymer, l.c.). Marketed in the horticultural trade as “an ideal cover plant”.

A. gerrardii Weim.; Fl. Zambes. 12/4: 4, 1993.

Perennial herb 0,15-1 m tall; leaves several, mostly basal and c. half as long as the stem, 0,6-1,2 cm wide, narrowly lanceolate to linear, cauline leaves progressively shorter above; stem flattened and 2-sided, *branched repeatedly* in the upper third, main axis predominant; *spathes keeled, margins entire, transparent;* flower clusters sessile except those terminal on the axes, usually 4-flowered; flowers blue, ± sessile; tepals 0,7-1,2 cm long; capsule oblong, 5-6 × 3,5-5 mm.

Coastal. Usually moist open grassland, roadside scrub and embankments; dry exposed hill crests; loamy soil preferred, sandy tolerated; 0-760 m alt. (in S. Africa).

S. Africa.

A. goetzei Harms; Fl. Trop. E. Afr., Irid.: 7, 1996.

syn.: *A. nitida* Weim.

Perennial herb 25-35 cm tall; leaves 6 or more in a basal fan, *soft-textured*, c. 2/3 to nearly as long as stems, 5-7 mm wide, stem leaves 2-3, decreasing in size above; stem with leaves at lower nodes, *compressed and 2-winged*, unbranched; flower clusters 4-several per axis, in spicate arrangement, *sessile* except the terminal, each usually 4-flowered; flowers bright blue, ± sessile; tepals c. 8 × 3,5 mm; capsule ovoid, 0,8-1 cm long.

Shade in mist forest; 2100-2400 m alt.

Madagascar (disjunct area).

A. nyikensis Baker; Fl. Zambes. 12/4: 5, 1993; Fl. Trop. E. Afr., Irid.: 6, 1996; Fl. Afr. Centr., Irid.: 30-31, 2005; Gereau & al., Lake Nyasa florist. checklist: 66, 2012.

syn.: *A. uhehensis* Harms & Engl., nom. nud.; *A. hockii* De Wild.

Herb 20-30 cm tall; leaves 5-8, the lower 3-5 basal, narrowly lanceolate, 15-25 cm × 4-6 mm, the upper 2-3 *cauline nearly as large*, linear, 4-8 mm wide; stem bearing 2-3 leaves, lightly compressed, simple or with 1-2 branches; flower clusters several per axis in spicate arrangement, sessile except the terminal, each 2-4-flowered; *spathes silvery translucent;* flowers deep blue, ± sessile; tepals c. 1 × 0,6 cm; capsule ellipsoid-ovoid, c. 7 mm long, on stalk to 5 mm long.

Grassland; woodland; sometimes in seasonally moist sites: rock pools; streamsides; 1200-2000 m alt.

A. polycephala Harms; Fl. Trop. E. Afr., Irid.: 7, 1996; Fl. Zambes. 12/4: 4-5, 1993.

Herb 0,4-1 m tall; leaves 6-8, basal and cauline, reaching to ± the middle of the stem, linear or falcate, 3-8 mm wide, the upper cauline reduced in size, partly to entirely sheathing; stem repeatedly branched in upper third, central axis predominant, weakly compressed, but without wings; flower clusters many, mostly stalked, generally 2-flowered; flowers blue, ± sessile; tepals 0,8-1 cm long; capsule oblong, ± 0,6 cm long.

Marshy sites; wet grassland; 950-2000 m alt.

ARISTEA

A. torulosa Klatt 1882 !, incl. var. *monostachya* Baker; Goldblatt & Manning in Novon 14: 297, 2004; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Fl. Trop. E. Afr., Irid. 8-9, 1996 (as *A. woodii*); Fl. Zambes. 12/4: 5, 1993 (idem); Burrows & Willis, Pl. Nyika Plateau: 308, 2005 *(A. woodii)*.

syn.: *A. affinis* N. E. Br.; *A. congesta* N. E. Br.; *A. gracilis* N. E. Br.; *A woodii* N. E. Br. 1931 !; *A. lukwangulensis* Marais

Herb 20-70 cm tall; leaves 6-10, mostly basal, linear or falcate, 3-7 mm wide, ± half as long as stem, cauline smaller, sometimes entirely sheathing; stem slightly compressed, *simple or with 1-4 short branches* at lower fertile nodes; flower clusters 3-8, usually in lax spicate arrangement, sessile except the terminal, 2-4-flowered; spathes 1-1,2 cm long, membranous, with green median part, edged reddish brown, bracts also so; flowers deep blue, ± sessile; tepals 1-1,4 × 0,5-0,7 cm; capsule ellipsoid-ovoid, 0,6-1 cm long, pedicel to 2 mm long.

Grassland; wet habitats: edge of marshes, dambos, along streams; 600-2700 m alt.

S. Africa, Swaziland.

SYNONYMS:

Aristea affinis N. E. Br. = **Aristea torulosa**

alata Bak. subsp. *abyssinica* (Pax) Weim. = **A. abyssinica** subsp. *bequaertii* (De Wild.) Weim. = **A. abyssinica**

angolensis Baker var. *robusta* Marais = **A. angolensis** subsp. **angolensis**

bequaertii De Wild. = **A. abyssinica**

cognata N. E. Br. ex Weim., incl. subsp. *abyssinica* (Pax) Marais = **A. abyssinica**

congesta N. E. Br. = **A. torulosa**

cooperi Baker = **A. angolensis** subsp. **majubensis** (S. Africa)

cyanea De Wild. = **A. ecklonii**

dichotoma Eckl. ex Klatt = **A. ecklonii**

djalonis A. Chev. ex Hutch. = **A. angolensis** subsp. **angolensis**/**A. djalonis**

elata Baker ex Engl. = **A. alata**

gracilis N. E. Br. = **A. torulosa**

hockii De Wild. = **A. nyikensis**

homblei De Wild. = **A. abyssinica**

johnstoniana Rendle = **A. abyssinica**

lastii Baker = **A. ecklonii**

longifolia Baker = **A. alata** (see also under **A. abyssinica**)

lukwangulensis Marais = **A. torulosa**

maitlandii Hutch. = **A. ecklonii**

majubensis Baker = **A. angolensis** subsp. **majubensis** (S. Africa)

nandiensis Baker = **A. angolensis** subsp. **angolensis**

nitida Weim. = **A. goetzei**

paniculata Pax, non Baker = **A. ecklonii**

pulchella N. E. Br. ex Weim. = **A. angolensis** subsp. **pulchella** (S. Africa)

ramosa De Wild. =**A. angolensis** subsp. **angolensis**

stipitata R. C. Foster = **A. ecklonii**

tayloriana Rendle = **A. abyssinica**

uhehensis Harms ex Engl. = **A. nyikensis**

woodii N. E. Br. = **A. torulosa**

zombensis Baker = **A. angolensis** subsp. **angolensis**

BABIANA / *1*

Babiana Ker Gawl., nom. cons. (Bothalia 38: 53, 2008).

Genus of c. 90 species in S. Africa, only one present in southern Tropical Africa. The Socotran *B. socotrana* Hook. f. is now referred to *Cyanixia socotrana* (Hook. f.) Goldblatt & Manning (Edinb. J. Bot. 60: 530, 2004).

GOLDBLATT, P. & J. C. MANNING (2004). Taxonomic notes and new species of the southern African genus Babiana (Iridaceae: Crocoideae). *Bothalia* 34: 87-96.

GOLDBLATT, P. & J. C. MANNING (2007). A revision of the southern African genus Babiana, Iridaceae: Crocoideae. *Strelitzia* 18. VI + 98 pp. + 6 coul. pl.

GOLDBLATT, P. & J. C. MANNING (2007). Floral biology of Babiana (Iridaceae: Crocoideae): Adaptive floral radiation and pollination. *Ann. Missouri Bot. Gard.* 94: 709-733.

Babiana bainesii Baker; Bothalia 34: 92-93, 2004. – Icon.: Fl. Zambes. 12/4: 56, 1993 (as *B. hypogea*); Veld & Flora December 2005: 199, 2005; *Strelitzia* 18: pl. 3 fig. D, 2007.

syn.: *B. schlechteri* Baker; *B. hypogaea* Burch. var. *ensifolia* G. J. Lewis and var. *longituba* G. J. Lewis; *B. hypogaea* (as *hypogea*) sensu G. J. Lewis 1959 not of Baker misapplied name; *B. bakeri* Schinz, nom. illegit.

Herb 15-25 cm tall, sometimes in tufts; stem underground, often branched; leaves linear to sword-shaped, 15-25 × 0,3-1 cm, much exceeding flowers, densely hairy, scabrid or virtually smooth; flowers zygomorphic, 2-8 in a compact spike borne below ground, *shades of blue to violet* or *mauve*, tepals paler (rarely white), lower lateral tepals *with white markings* often edged in dark blue; perianth tube: *3,5-7 cm long*, tepals: – dorsal 0,4-0,5 cm long, upper laterals joined to lower tepals for c. 0,6 cm to form a lip, – lower: 2,5-4 cm long; fruit unknown.

Kalahari sand, stony laterite in open woodland or grassland; c. 950 m alt.

Namibia, S. Africa.

Near *B. hypogaea* Burch. [syn.: *Antholyza hypogaea* (Burch.) Klatt] but this species has flowers in shades of yellowish to buff (dry tepals often with purple median streak). Namibia, S. Africa, i.e. west and south of the range of *B. bainesii*.

SYNONYMS (see also above under *B. bainesii*):

Babiana aurea (Pappe ex Hook. f.) Klotzsch = **Crocosmia aurea**

(BOBARTIA)

Bobartia natalensis (Regel) Klatt = **Gladiolus dalenii** subsp. **dalenii**

(CHASMANTHE)

Chasmanthe spectabilis (Schinz) N. E. Br. = **Gladiolus magnificus**

(CROCANTHUS)

Crocanthus mossambicensis Klotzsch = **Crocosmia aurea**

CROCOSMIA / *2*

Genus of 8 species, mostly in S. Africa, one in Madagascar [*C. ambongensis* (H. Perrier) Goldblatt & J. C. Manning]. Closely related to *Tritonia*.

Perennial herbs; corm persistent, with fibrous tunics; leaves ensiform.

The hybrid *C.* ×*crocosmiiflora* (Lemoine) N. E. Br. [bas.: *Montbretia* ×*crocosmiiflora* Lemoine = *C. aurea* (Pappe ex Hook) Planch. × *C. pottsii* (McNab ex Baker) N. E. Br.; icon.: Goldblatt & al., o.c.: 101, and pl. 12] is commonly cultivated, sometimes naturalized, e.g. in Central Africa, Ethiopia, Uganda, on Mt Kenya and the Aberdares. It is a weed in Madagascar, Mascareignes, tropical Asia, E Australia, tropical and N. America. Its flowers are zygomorphic with unilateral arcuate anthers.

GOLDBLATT, P. & al. (2004). *Crocosmia and Chasmanthe*. Timber Press, Portland/Oregon & Cambridge/UK. 219 pp. + 15 colour plates.

Crocosmia aurea (Pappe ex Hook. f.) Planch.; Geerinck in Taxonom. 6: 11, 2002; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 423, 1994; Figueiredo & Smith, Pl. Angola: 186, 2008; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Fl. Serres Jard. Eur 7: pl. 702, 1851; Fl. Zambes. 12/4: 51, 1993; Fl. Trop. E. Afr., Irid.: 43, 1996; Fl. south. Afr. 7/2/1: 132, 1999 (map p. 131); Goldblatt & al., o.c.: 70, pl. 5, 2004; Fl. Afr. Centr., Irid.: 39, photo. 10, 2005; Ann. Bot. (London) 97: 327, 2006 (pollination); Goldblatt & Manning, Iris family: 145, 2008.

bas.: *Tritonia aurea* Pappe ex Hook. f.

syn.: *Babiana aurea* (Pappe ex Hoof. f.) Klotzsch

Herb 0,4-1 m tall; corm almost globose 1,5-2 cm Ø; stem several-branched to unbranched; leaves sword-shaped, reaching to about the base of the spike, 1-3 cm wide, plane; spike arching slightly towards the ground, fairly lax, 4-12-flowered; flowers *actinomorphic*, *recurved*, *facing the ground*, orange, pale in throat, occasionally the tepals marked darker orange to brown above base; tube 1-2 cm long, curved; tepals *subequal* 1,2-4 × 0,6-1,2 cm; capsule depressed-globose, 3-lobed, showing the outline of the black seeds, orange inside (attractive).

Mostly in forest, forest margins and clearings; sometimes in deep shade; streamsides; *Uapaca* woodland; 500-2100 m alt.

S. Africa, Swaziland (map in Fl. south. Afr., l.c.). Naturalised (and cultivated) in E. Africa, Cameroon Mtn area.

Comprises 2 subspp.: – subsp. **aurea** [syn.: *C. aurea* var. *maculata* Baker; *C. maculata* (Baker) N. E. Br.; *Crocanthus mossambicensis* Klotzsch, nom. inval.] with branched stem and many large flowers (tube 13-20 mm long, tepals 30-40 cm long), occurring from S. Africa N to Zaire-Tanzania-Uganda; – subsp. **pauciflora** (Milne-Redh.) Goldblatt [syn.: Enum. 3: 88, 1995; *Crocosmia aurea* var. *pauciflora* (Milne-Redh.) M. P. de Vos; *C. cinnabarina* (Pax) M. P. de Vos], usually with unbranched stem and spikes shorter than leaves, smaller flowers (tube 10-15 mm long, tepals 15-18 mm long), occurring in W Zambia and adjacent Angola.

The flowers are adapted to pollination by large swallowtail butterflies (*Papilio;* cf. Ann. Bot. London 97: 97, 2006).

CROCOSMIA

C. paniculata (Klatt) Goldblatt – Icon.: Fl. Zambes. 12/4: 51, 1993; Fl. south. Afr. 7/2/1: 134, 1999; Goldblatt & al. (2004): 89 and pl. 9.

syn.: Enum. 3: 88, 1995.

Distinguished from *C. aurea* by its zygomorphic tubular flowers (tube 3-4 cm long) facing to the side, with unequal tepals the median one smallest, the upper laterals 7-10 mm long and spreading, the lower 3 ones 6-12 mm long, and by its broad plicate (not plane) leaves with fine hairs on ribs.

Moist rocky, grassy slopes; sometimes forest edges; often at high elevations.

NE S. Africa, Lesotho, Swaziland (map in Fl. south. Afr., l.c.).

C. ×*crocosmoides* (Leichtlin ex J. N. Gerard) Goldblatt (bas.: *Antholyza* ×*crocosmoides* Leichtlin ex J. N. Gerard; syn.: *Crocosmia* ×*latifolia* N. E. Br.) is the result of a deliberate cross between *C. aurea* and *C. paniculata* made by Max Leichtlin of Baden-Baden (Germany); cf. Goldblatt & al. (2004): 103-105; European Gard. Flora, ed. 2, 1: 296, 2011.

SYNONYMS:

Crocosmia cinnabarina (Pax) M. P. de Vos = **Crocosmia aurea** subsp. **pauciflora**

x*latifolia* N. E. Br. = **C.** ×**crocosmoides**

maculata (Baker) N. E. Br. = **C. aurea** subsp. **aurea**

pauciflora Milne-Redh. = **C. aurea** subsp. **pauciflora**

(CURTONUS)

Curtonus paniculatus (Klatt) N. E. Br. = **Crocosmia paniculata**

DIERAMA / *8*

A genus ("Hairbells") of 44 (43) species in Tropical and S. Africa.

"Specific epithets such as *ambiguum, dubium,* and *dissimile* give a hint of past problems with identification. Today even with the help of Hilliard and Burtt's monograph identifying Dierama can be difficult, and the authors accept some species ... not easily recognised." (D. Rowe, *Iris Year Book* 2008: 60, 2008).

Large evergreen, perennial herbs with aerial parts persisting for several years; corms large, flattened, with coarsely fibrous tunics. Leaves often without a midrib. Flowering stems wiry. Inflorescence consisting of drooping spikes in a lax one-sided panicle. Flowers actinomorphic, pendent, bell-shaped; capsule round, coriaceous.

A key to the 8 tropical African species figures in Hilliard & Burtt's Monograph: 48, 1991.

ROWE, D. (2008). Dierama – the Hairbells of Africa. An observer's viewpoint. *Iris Year Book* 2008: 60-65.

Dierama cupuliflorum Klatt; Fl. Zambes. 12/4: 43, 1993; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 324, 1994; Fl. Trop. E. Afr., Irid.: 31, 1996; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 149, 2003; idem, Aloes & lilies Eth. & Eritrea , ed. 2: 234, 2010; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Klatt in von der Decken, Reisen in Ost-Afrika, Bot. 3/3: pl. 3, 1879; Fl. Eth. & Eritrea 6: 173, 1997.

Herb of few to many stems clumped together; corm 10-25 mm Ø; basal leaves several, 20-85 × 0,3-1,1 cm; cauline sheathing leaves 5; flowering stems 2-4-branched, 0,3-1,35 m long; floral bracts usually ± *solidly coloured dark brown* or sometimes heavily flecked, lateral veins 10-12, fading out in upper third of bract; *tip of each bract either not reaching base of second bract above it* or doing so by means of a long acumen; spikes pendulous, *terminal spike 2-7-flowered;* flowers cup-shaped, 2-5 cm long, pale lilac to wine-red.

Grassland; heath; 2000-3900 m alt.

DIERAMA CUPULIFLORUM

Comprises 2 subspp.: – subsp. **cupuliflorum**; – subsp. **caudatum** Marais with leaves to 1 cm wide, tailed floral bracts, large flowers, in SW Tanzania.

Near *D. formosum*. Included in *D. pendulum* by Cufodontis.

D. densiflorum Marais; Fl. Zambes. 12/4: 41, 43, 1993; Fl. Trop. E. Afr., Iridaceae: 29-30, 1996; Gereau & al., Lake Nyasa florist. checklist: 66, 2012.

Herb probably with 1-few stems tufted together; corm 2-3 cm Ø; basal leaves several, 55-90 × 0,6-1,2 cm; reduced cauline sheathing leaves 3-4; flowering stem 1,35-1,65 m long, 2-5-branched; spikes pendulous; bracts 1,6-2,3 cm long, with a solid patch of coalescing veins reaching 3/4 of length, drying buff or sometimes brown-flecked, margins and shoulders flecked; perianth rose-purple pink, *2-3 cm long, tube 0,6-1 cm*, *tepals 1,2-2 × 0,5-0,8 cm.*

Open, often rocky grassland; 1800-2200 m alt.

Near *D. inyangense*.

D. formosum Hilliard; Fl. Zambes. 12/4: 43, 1993.

Herb forming large clumps of stems; corms 3-3,5 cm Ø; basal leaves several, 30-75 × 0,4-1 cm, reduced cauline sheathing leaves 5; flowering stems 0,75-1,65 m long; bracts 2-2,5 cm long; *tip of each flower bract* usually *reaching base of second bract above* it; *terminal spike 6-10-flowered;* perianth pale lilac pink, 2,6-3,7 cm long; tube 0,8-1,2 cm long, tepals 1,9-2,6 × 0,6-1,1 cm.

Relatively common in grassland; 1370-2590 m alt.

S. Africa.

Near *D. cupuliflorum*, but more robust and often taller.

D. inyangense Hilliard – Icon.: Fl. Zambes. 12/4: 42, 1993.

Herb with 1-few tufted stems; basal leaves several, 45-75 × 0,5-0,7 cm; reduced cauline sheathing leaves 4-8; bracts 1,7-3 cm long, imbricate; perianth light to dark purple-pink, *3,2-4,3 cm long*, *tube 1-1,5 cm long;* tepals *2,2-2,8 × 0,8-1* cm.

Rocky grassland; 1650-2300 m alt.

Near *D. densiflorum*.

(**D. latifolium** N. E. Br.) – Icon.: Hilliard & Burtt, Dierama…: 97, 1991.

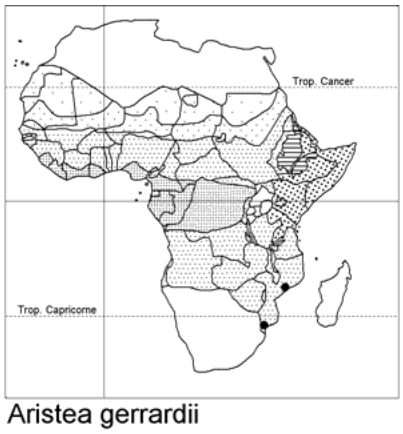
syn.: ? *D. palustre* N. E. Br.

Herb with many stems forming large clumps; corm 3,5-4 cm Ø; basal leaves many, 55-150 × *0,5-1,5 cm;* reduced cauline sheathing leaves c. 5; flowering stems 1,1-2,7 m long, sometimes erect; *bracts white* (or speckled), 1,8-2,7 cm long; perianth rose-pink to deep wine-red, 2,4-3,3 cm long; tube 0,8-1 cm long.

Open grassland; 600-2100 m alt (S. Africa).

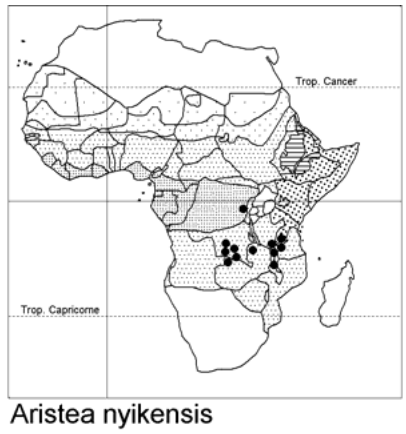
Hilliard & Burtt (l.c.) refer *D. palustre* to *D. latifolium* with *great hesitation*. The type (Appleton 38, K) bears 2 labels, one is the collector's field ticket, the other a Kew Herb. label stamped the date of receipt at Kew, 11.09.1911. Appleton, an army veterinary officer stationed at Pretoria, was interested in forage grasses. He referred to *Dierama* as a "reed grass", "grown on marshland". However, Appleton 38 is listed at Kew as *Eragrostis* sp. The type locality is cited as Mashonaland: Bulawayo and Matoppo Hills (SW Zimbabwe). Hilliard and Burtt conclude that the specimen labelled Appleton 38 is a mistake in mounting.

Not mapped by us.

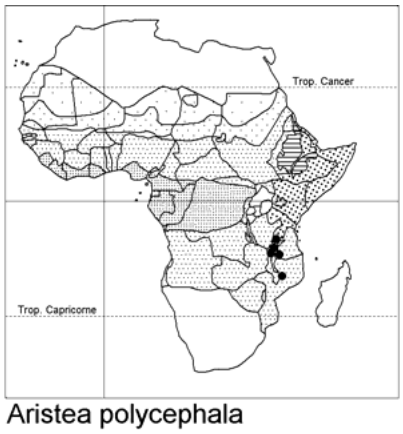


Aristea gerrardii

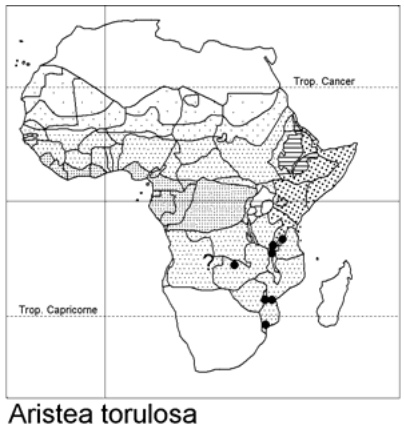
Aristea goetzei



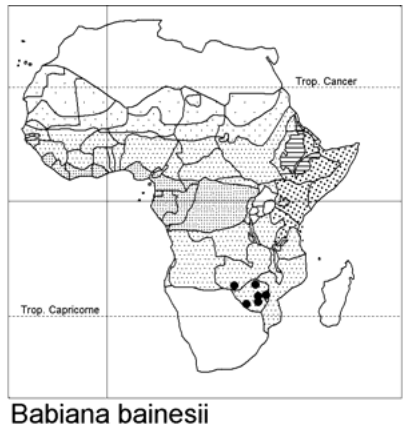
Aristea nyikensis



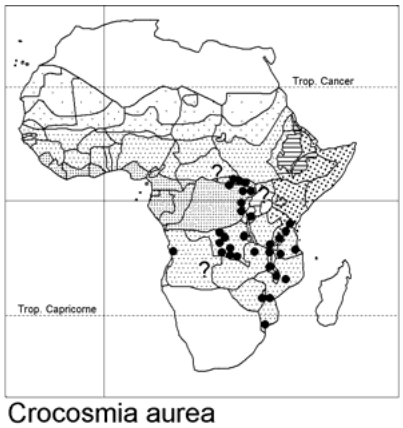
Aristea polycephala



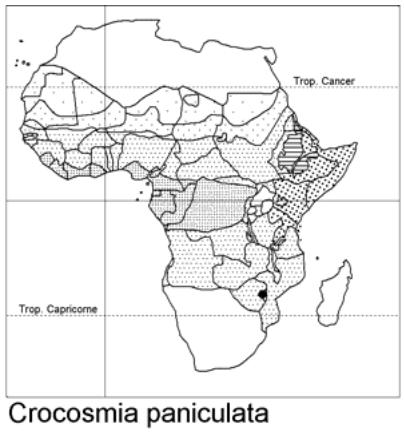
Aristea torulosa



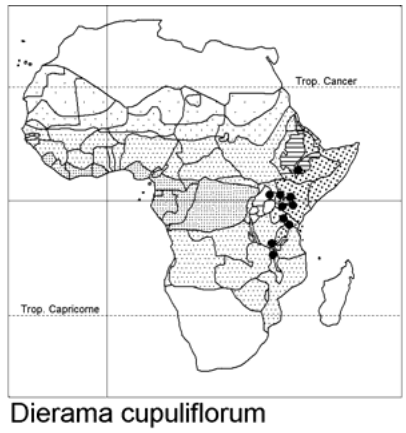
Babiana bainesii



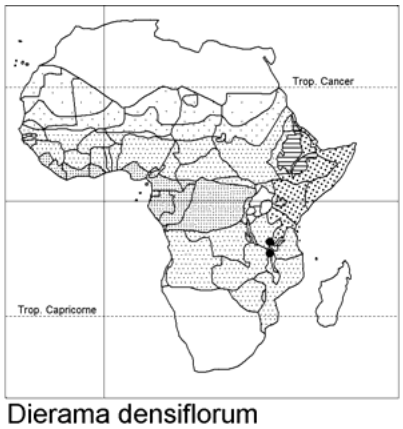
Crocosmia aurea



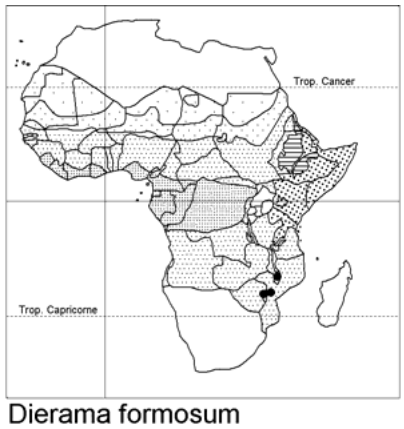
Crocosmia paniculata



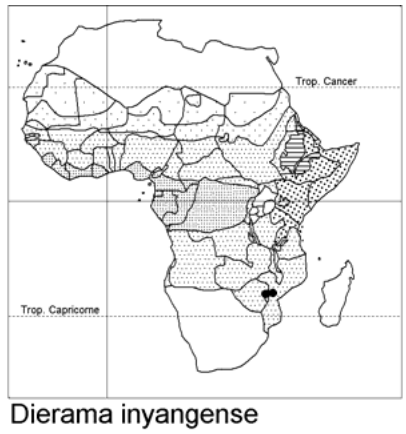
Dierama cupuliflorum



Dierama densiflorum



Dierama formosum



Dierama inyangense

DIERAMA

D. longistylum Marais – Icon.: Fl. Zambes. 12/4: 45, 1993; Fl. Trop. E. Afr., Irid.: 31, 1996; Goldblatt & Manning, Iris family: 193, 2008; Burrows & Willis, Pl. Nyika Plateau: 311, 2005.

Herb with *1-3 stems* forming tufts, 0,55-1,2 m tall; corm 1,5-4 cm Ø; basal leaves 25-70 × 0,2-0,7 cm, sheathing cauline leaves c. 5; flower bracts 1,5-2,5 cm long, *thin, pale*, tip of each bract *rarely reaching base of second bract above* it; perianth mauve-pink, *2,2-2,3 cm* long; tube 0,6-1 cm long, tepals *1,5-2,2 × 0,6-1 cm*.

Mainly in grassland; 600-2400 m alt.

Near *D. plowesii* and *D. parviflorum*. May be confused with *D. cupuliflorum*.

D. parviflorum Marais; Fl. Zambes. 12/4: 44, 46, 1993; Fl. Trop. E. Afr., Irid.: 32, 1996; Geerinck in Taxonom. 6: 11, 2002. – Icon.: Fl. Afr. Centr. Irid.: 36, 2005.

syn.: *D. ensifolium* sensu Lisowski & al. in Bull. Jard. Bot. Natl. Belg. 45: 388, 1975, non K. Koch & C. D. Bouché ("*D. pendula* Baker" in syn.).

Herb with 1 stem, 40-85 cm tall; corm c. 1,5 cm Ø; leaves several: basal *often absent at anthesis* (burnt remains often visible), c. 40-60 × 0,2-0,9 cm; sheathing cauline leaves c. 4-5; bracts 1,2-2 cm long, whitish to light brown-red, flecked; *perianth* mauve or lilac-pink, *1,7-2,2 cm long;* tube 6-7 mm long, *tepals 1-1,5 × 0,5-0,7 cm*.

Seasonally flooded valley; open grassland near forest; 1500-2450 m alt.

Closely allied to *D. longistylum*.

D. pauciflorum N. E. Br. – Icon.: Fl. Zambes. 12/4: 42, 1993.

Herb usually forming dense clumps, but occasionally stem solitary, 30-60 cm tall; corm c. 1,5 cm Ø; leaves several: basal 10-40 × *0,1-0,4 cm,* sheathing cauline leaves usually 3; terminal spike *1-3-flowered;* flower bracts 1,2-1,8 cm long, *rich rusty brown* with 6-8 main veins on each side of midvein fading out in upper third of bract; perianth bright pink to reddish, rarely white, 2-2,8 cm long; tube 5-7 mm long, tepals 1,4-2,2 × 0,8 cm.

Marshy mountain slopes; 500-2400 m alt.

S. Africa.

D. plowesii Hilliard – Icon.: Fl. Zambes. 12/4: 45, 1993.

Herb single-stemmed, stem 45-50 cm tall; corm 8 mm Ø; leaves several: basal absent at anthesis (only burnt bases present), sheathing cauline leaves 6, 25-40 × 0,3-0,4 cm; inflorescence *erect* (? always); floral bracts white, lightly flecked red-brown, 1,3-1,5 cm long, tip of each bract *usually reaching to or beyond base of the second bract above* it; perianth light magenta pink, c. 2 cm long; tube 5,5-6 mm long, tepals c. 16 × 6 mm.

Open grassland; 1350-2200 m alt.

Intermediates between *D. plowesii* and *D. formosum* occur. Most closely related to *D. parviflorum* but from which it is distinguished by its usually broader floral bracts with veins fading in the lower half (not in the upper third), longer tepals (16 not 10-15 mm), included stigma (not reaching or exceeding tepal apices).

DIERAMA

SYNONYMS:

Dierama ensifolium sensu Lisowski & al., 1975, non K. Koch & C.D. Bouché = **Dierama parviflorum**

palustre N. E. Br. = ? **D. latifolium**

"pendula Baker*"* in syn. *D. ensifolium* sensu Lisowski & al, 1975 = **D. parviflorum**

vagum N. E. Br. = **D. cupuliflorum** subsp. **cupuliflorum**

DIETES / *1*

Genus of 6 species, 5 of which in S. Africa (one reaching E Africa) and 1 outlying endemic on Lord Howe Island in the Tasmanian Sea off the E coast of Australia, viz. *D. robinsoniana* (C. Moore & F. Muell.) Klatt.

(**Dietes flavida** Oberm.) – Icon.: Fl. Pl. Afr. 149: pl. 1488, 1967; Fl. Zambes. 12/4: 9, 1993.

Herb 50-70 cm tall, in clumps; leaves narrowly lanceolate, 30-50 × 1,5-2,2 cm, glaucous; stems branching irregularly with long leaves below and reduced sheathing leaves above; resembling *D. iridioides* but flowers pale yellow with orange-brown nectar guides and cream to yellow (rarely blue-flushed) style branches; and capsule pendent, smooth-walled, without beak.

Forest margins, lightly shaded areas, in S. Africa.

Seen in Mozambique, Namaacha (25°59'S × 32°02'E) but herbarium material unknown. – Not mapped.

D. iridioides (L.) Sweet & Klatt; Geerinck in Taxonom. 6: 11, 2002; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 187, 2011; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Edwards's Bot. Reg. 13: pl. 1074, 1827 *(Moraea catenulata);* Fl. Pl. Afr. 39: pl. 1524, 1968; Fl. Zambes. 12/4: 9, 1993; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 150, 1994; Fl. Trop. E. Afr., Irid.: 13, 1996; Fl. Afr. C., Irid.: 21 , 2005.

bas.: *Moraea iridioides* L.

syn.: *M. iridioides* var. *catenulata* (Lindl.) Baker and var. *prolongata* Baker; *M. catenulata* Lindl.; *M. prolongata* Baker; *Iris compressa* L. f.; *I. compressa* Thunb., nom. illegit.; *I. moraeoides* Ker Gawl.; *I. catenulata* (Lindl.) Baker; *Naron orientale* Medik., nom. superfl.; *N. iridioideum* (L.) Moench; *Ferraria blanda* Salisb., nom. superfl.; *Dietes iridifolia* Salisb., nom. nud. et superfl.; *D. iridioides* (L.) Sweet, nom. inval.; *D. compressa* (L. f.) Klatt; *D. catenulata* (Lindl.) Sweet ex Klatt; *D. prolongata* (Baker) N. E. Br., incl. var. *galpinii* N. E. Br.

Herb *evergreen*, 0,15-1 m tall, often tufted; *rhizome* woody, *creeping;* leaves narrowly lanceolate, 2,5-6 × 0,6-2,5 cm, stiff, in a fan; stem irregularly branched, with short leaves below, and sheathing bract-like leaves above; sheathing leaves 2,5-3 cm long; old inflorescences sometimes producing branches with a terminal cluster of leaves, and ultimately rooting; flowers *white* with *yellow nectar guides* on *outer tepals*, claws of outer tepals orange-dotted, style branches *blue* or white flushed with blue above; outer tepals 2,4-3,5 cm long, claw c. 1,6 cm long, limb 1,2-1,6 cm long, spreading to recurved, inner tepals 2,4-2,8 × 0,9-1,2 cm; *capsule* ovoid-cylindrical, *erect*, 1,5-3 cm long, *rough-walled, beaked* usually.

Mostly in montane and coastal evergreen forest and forest margins, often along streams; flowering sporadically; 850-2300 m alt.

S. Africa, Swaziland. – Ethiopia ? – Naturalised in Réunion (Fl. Mascareignes 177, Irid.: 3-4, 1978).

Easily confused with *D. flavida* (see that species above); sometimes also with *D. grandiflora* N. E. Br. from S. Africa and cultivated. The latter has larger white flowers (tepals 4,5-6 cm long) marked brown on the inner tepals and darker purple style branches; its flowers last for 2-3 days, whereas those of *D. iridioides* last one day only.

D. iridioides multiplies rapidly, and "it can be used as a groundcover under deciduous trees" (Duncan in Veld & Flora 94/2: 69, 2008).

(DORTANIA)

Dortania amoena A. Chev. = **Gladiolus chevalierianus**

[**ELEUTHERINE**]

Genus of 2 species in Mexico, West Indies, C. and S. America.

Small seasonal perennial herbs; bulbs with dark reddish papery tunics; leaves few, plicate; flowering stem branched; flowers readily recognized by its small, radially symmetrical white flowers with subequal spreading tepals, free stamens and simple filiform style branches.

Eleutherine bulbosa (Mill.) Urb., introduced from the Caribbean-tropical S. America, is cultivated in Zaire and elsewhere in southern Africa, also naturalised in fields and fallows (Lejoly & al., Flore Tshopo in Taxonom. 24: 37, 2008 and ibid. 30: 158, 2010; Renier, Flore Kwango 1: 101, 1948. – Icon.: Fl. Afr. Centr., Irid.: 28, 2005; Goldblatt & Manning, Iris family: 240, 2008). Plants escaped from cultivation assumed to be native were described from S. Africa, Natal, in 1877 by Regel under a new genus, *Keitia*, and as *Keitia natalensis* (Acta Hort. Petrop. 5: 640).

The ground bulbs are used in preparation of a red ink.

FERRARIA / *4*

Genus of 18 species, in dry parts of central and SW Africa. They have disc-like corms lacking fibrous tunics which "rather resemble small potatoes" (G. Nicolson in Veld & Flora 94/4: 194, 2008). New corms are produced every year from the base of the flowering stem. The lowermost leaves (cataphylls) sheath the emerging shoot and lack blades. The true foliage leaves have a sheathing base, the blade is ± linear, unifacial. The flowers have 6 subequal clawed tepals, the claws together forming a cup; in the lower part the filaments of the 3 stamens are united; the style is divided at apex into 3 flattened branches, each one divided again, the arms are deeply and irregularly fringed. The capsule is ovoid-globose-truncate; the seeds are characteristic, rather large, their shape multifaceted, their surface smooth and glossy.

GOLDBLATT, P. & J. C. MANNING (2011). Systematics and biology of the African genus Ferraria (Iridaceae: Irideae). *Bothalia* 41: 1-40 [with maps].

GOLDBLATT, P. & al. (2009). Adaptive radiation of the putrid perianth: Ferraria (Iridaceae: Irideae) and its unusual pollinators. *Plant Syst. Evol.* 278: 53-65.

Ferraria candelabrum (Baker) Rendle; Goldblatt & Manning (2011): 14-15.

bas.: *Moraea candelabrum* Baker

syn.: *M. kitambensis* Baker; ? *M. andongensis* Baker; ? *Ferraria andongensis* (Baker) Rendle

Herb (30-)*60-80 cm tall;* stem with overlapping leaf bases below, exposed above, *branched repeatedly* from upper nodes, branches 2-3 per node; upper nodes and distal parts of internodes sticky

often with sand adhering; *basal leaves 5-8 in a fan*, 8-10 mm wide, central vein visible; cauline leaves well developed, progressively reduced becoming bract-like; flowers 3-4 in *narrow* clusters (rhipidia) 3 cm long; pedicels slightly longer than spathes; tepals brown with yellow markings or pale yellow, cup of claws c. 1 cm deep, 0,9 cm Ø, limbs c. 1 cm long, margins crisped, staminal column c. 1 cm long; style branches c. 1,5 mm long, arms 2 mm long and fringed; capsule 8 mm long; seeds unknown.

Marshy low grassland; rocky well-drained places; base of hill on sandy bank; 1400-1440 m alt.

F. glutinosa (Baker) Rendle; Goldblatt & Manning (2011): 11-14. – Icon.: ibid.: 12; Fl. Afr. Centr., Irid.: 23, 2005.

bas.: *Moraea glutinosa* Baker

syn.: *M. randii* Rendle; ? *M. malangensis* Baker; *Ferraria bechuanica* Baker; *F. viscaria* Schinz; *F. randii* (Rendle) Rendle

Herb 40-60 cm tall; stem with basal leaf sheaths, with 1-2 branches from upper nodes, rarely rebranched; upper internodes sticky above, often with sand adhering; *basal leaves 1-4*, blade linear, 4-6-10 mm wide, central vein visible; cauline leaves moderately well developed, often longer than basal leaf, progressively reduced above; flowers 4-6 in clusters, pedicels slightly longer than spathes, open 1 day; *tepals 2,3-3,3 cm long*, dark brown to dull purple, limbs with pale yellow to golden margins, sometimes spotted yellow; claws slightly longer than limbs, brown or yellow streaked purple, forming a cup c. 1 cm deep, 1,5-1,8 cm Ø, margins of limbs crisped; staminal column 0,8-1 cm long; style branches 2 mm long with fringed arms 2-3 mm long; capsule 12-18 mm long.

Edge of thicket; grassland; sandy ground (corms deeply buried); 1180-1700 m alt.

N Namibia, S. Africa, Botswana. – Probably also in Zambia.

Corms eaten raw or roasted. Plant ornamental.

F. spithamaea (Baker) Goldblatt & J. C. Manning ("spithamea"); Goldblatt & Manning (2011): 15.

bas.: *Moraea spithamaea* Baker

Herb *10-16 cm tall*; stem exposed above sheaths of cauline leaves; nodes and internodes sticky above, with sand adhering; stem 2-3-branched; flowering plants without basal leaves, leaves of vegetative plants unknown; flowers 3 in clusters; length of pedicels ± equalling spathes; tepals c. 2 cm long, pale *yellow*, with brown spots, claws forming a cup 8 mm deep, 7,5 mm Ø; *margins* of limbs ± *undulate;* staminal column c. 8 mm long; *style branches* 1,3 mm long, *divided into 2 divergent entire arms* 2 mm long; capsule c. 5 mm long; seeds unknown.

Sandy places (SW Angolan highlands).

Poorly known, only 2 collections known. In growth form resembling *F. welwitschii*.

F. welwitschii Baker; Goldblatt & Manning (2011): 15-17.

syn.: ? *Moraea viscosa* R. C. Foster, nom. nov. for *M. aurantiaca* Baker 1898, nom. illegit., non A. Dietrich 1832; *Ferraria hirschbergii* L. Bolus; *F. glutinosa* sensu Fl. Afr. Centr., Irid.: 22, 2005, p.p., excl. fig. p. 23 (= *F. glutinosa*).

Herb 12-35 cm tall; stem exposed above sheaths of lower leaves; upper nodes and distal parts of internodes sticky, often with sand adhering; *leaves* of flowering plants *sheathing*, *occasionally with short blades;* those of vegetative plants 1-2, 1,5-3 mm wide, main

FERRARIA WELWITSCHII

vein visible; flowers 4-5 in clusters, inner spathe 2-3,4 cm long, pedicels as long as spathes, lasting 1 day; tepals pale to dull *yellow* or buff, *limbs* with *brown, dark red* or dull green *spots*, margins crisped; cup of claws 7-9 mm deep, c. 7 mm Ø; staminal column 5-7,5 mm long; style branches 1,5-2 mm long, divided into diverging fringed arms; capsule 5-7 mm long, smooth or minutely warty.

Margins of open woodland, on stony or rocky ground; riverbanks, dambo margins; 900-1750 m alt.

SYNONYMS:

Ferraria andongensis (Baker) Rendle = **Ferraria** ? **candelabrum**

bechuanica Baker = **F. glutinosa**

blanda Salisb. = **Dietes iridioides**

glutinosa sensu Fl. Afr. Centr., Irid., p.p. ct Fl. Zambes., 12/4, p.p. = **Ferraria welwitschii**

hirschbergii L. Bolus = **F. welwitschii**

randii (Rendle) Rendle = **F. glutinosa**

viscaria Schinz = **F. glutinosa**

FREESIA / *2*

Genus of 16 species mainly in S. Africa. With an underground corm replaced annually, covered with tunics of reticulate fibers. Foliage leaves produced in 2-ranked fan, several, ensiform to oblong. Flowers zygomorphic with a long narrow tube and subequal tepals; stamens unilateral, arcuate. Capsule globose, surface rough-papillate with several round, shiny seeds.

Freesias are grown as ornamentals or as cut-flower crop. The horticultural history is poorly known. The modern *Freesia* cultivation started in the late 19th century. The horticultural forms are hybrids, many of them of uncertain parentage.

FENWICK, D. (2004). NCCPG National Plant Collecton of Freesia (Anomatheca). *Bulbs* 6/2: 15-18.

MANNING, J. C. & P. GOLDBLATT (2005). A new species of Freesia (Iridaceae: Crocoideae) from the succulent Karoo, South Africa, and notes on nomenclature and infrageneric classification. *Novon* 15: 168-172.

MANNING, J. C. & P. GOLDBLATT (2010). Botany and horticulture of the genus Freesia (Iridaceae). *Strelitzia* 27. V + 114 pp.

MANNING, J. C. & R. KAISER (2009). Scentsational freesias. Chemical analysis of the fragrance of freesias supports the division of the genus Freesia into two groups based on DNA and bract texture. *Veld & Flora* 95/3: 132-135.

Freesia grandiflora (Baker) Klatt; Enumér. 4: 627, 1997. – Icon.: Bot. Mag. 113: pl. 6924, 1887 (sub *Lapeirousia*); Fl. Zambes. 12/4: 54, 1993 (sub *Anomatheca*); Fl. Trop. E. Afr., Irid.: 39, 1996; Fl. Afr. Centr., Irid.: 52, 2005; G. Scott in Veld & Flora 91/4: 199, 2005 (painting by Tredgold); Manning & Goldblatt (2010): 10, 32 (both subspecies).

bas.: *Anomatheca grandiflora* Baker

syn.: *Lapeirousia grandiflora* (Baker) Baker 1887, nom. illegit., non *L. grandiflora* Jacq. 1836 *(= F. laxa); Hesperantha rubella* Baker; *Tritonia graminifolia* Baker; *Lapeirousia graminifolia* (Baker) L. Bolus; *Freesia rubella* Baker (all of subsp. **grandiflora**).

Herb 12-60 cm tall; corm globose, 1-1,5 cm Ø; leaves several, usually reaching to the base of the spike but sometimes exceeding it, 4-30 × 0,6-1,2 cm; stem erect, simple or 2-4-branched; spike 2-6-flowered; bracts soft, 1-2 cm long; flowers red, rarely

FREESIA GRANDIFLORA

pink, the lower 3 tepals each with a darker red mark at base; perianth tube erect, campanulate, slender below, broad and cupped above, 2-3 cm long; tepals *lanceolate forming a cup more than 1/2 as long as the tube,* unequal: upper erect 2,2-3,5 cm long, lower 3 ascending to nearly horizontal, 2,1-2,6 cm long; capsule 0,8-1 × 0,7-0,8 cm, smooth to irregularly papillate.

Light shade in woodland and scrub; on ant hills; 450-1800 m alt.

S. Africa, Swaziland.

Comprises 2 subspp.: – subsp. **grandiflora**; – subsp. **occulta** J. C. Manning & Goldblatt in Manning & Goldblatt (2010): 111; with pink flowers and very short filaments (c. 1,2 cm long, not 1,5-2,5 cm), a local genotype occurring in NC Mozambique, Mocuba (16°50'S × 36°59'E), in mid-altitude forest and woodland on granite-derived soils.

F. laxa (Thunb.) Goldblatt & J. C. Manning; Enumér. 4: 627, 1997; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 175, 2008. – Icon.: Edwards's Bot. Reg. 16: pl. 1369, 1830 (as *Anomatheca cruenta*); Troupin, Fl. Rwanda 4: 101, fig. 34, 1988; Fl. Zambes. 12/4: 54, 1993; Fl. Trop. E. Afr., Irid.: 39, 1996; Fl. Afr. Centr., Irid.: 52, photo. 15, 2005; Manning & Goldblatt (2010): 10, 28; Ann. Bot. London 97: 327, 2006.

bas.: *Gladiolus laxus* Thunb.

syn.: *Meristostigma laxum* (Thunb.) A. Dietr.; *Lapeirousia laxa* (Thunb.) N. E. Br.; *Anomatheca laxa* (Thunb.) Goldblatt; *A. cruenta* Lindl.; *Freesia cruenta* (Lindl.) Klatt; *Lapeirousia cruenta* (Lindl.) Baker; *L. grandiflora* Jacq. 1836, nom. illegit. superfl., non (Baker) Baker 1887 (= *Freesia grandiflora*); *L. graebneriana* Harms (all of subsp. **laxa**).

Herb 20-50 cm tall; similar and closely allied to *F. grandiflora*, but: – perianth tube twice as long as tepals; – tepals broadly ovate to oblong, held at right angles to tube; – filaments 3-4 mm long, scarcely exserted.

Among bamboo, shallow soil over rock; rocky slopes especially cliffs; sometimes along forest margins; along the coast in coarse sandy soil or grassy dunes, usually in shade; near sea level to 2000 m alt.

S. Africa, Swaziland. Introduced elsewhere, e.g. Morocco (Casablanca, Gattefossé 1952), and naturalised in Madeira, Réunion, Mauritius (Fl. Mascareignes 177, Irid.: 8, 10, 1978), Hong Kong, Florida (USA).

Comprises 2 subspp.: – subsp. **laxa** an inland plant with pink to red flowers with dark red blotches, upper tepal 10-15 mm long; – subsp. **azurea** (Goldblatt & Hutchings) Goldblatt & J. C. Manning (bas.: *Anomatheca laxa* subsp. *azurea* Goldblatt & Hutchings), in coastal habitats from NE S Africa to C Mozambique, with lilac, pale bluish or white flowers, with indigo markings on lower tepals, upper tepal 9-12 mm long.

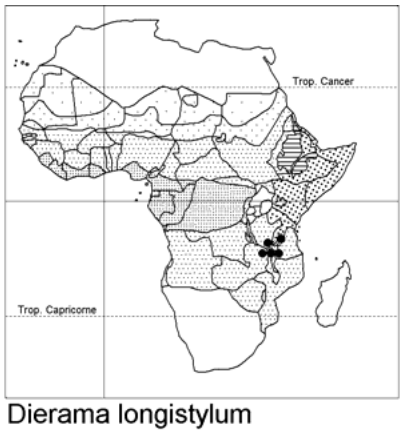
One of the earliest *Freesia* to be discovered but its identity remained uncertain for over a century. Widely known under the name *Anomatheca* (or later *Lapeirousia*) *cruenta* in horticulture. For cultivars and hybrids, see Fenwick in Bulbs 6/2: 16-18, 2004.

SYNONYMS:

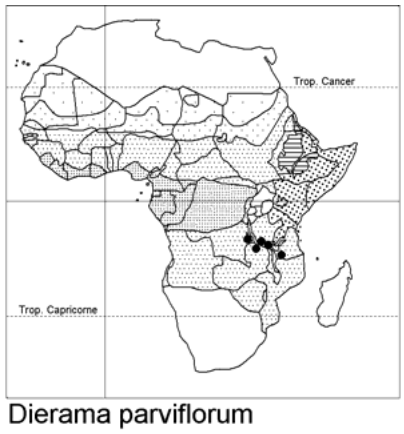
Freesia angolensis (Baker) Klatt = **Lapeirousia schimperi**

cruenta (Lindl.) Klatt = **Freesia laxa** subsp. **laxa**

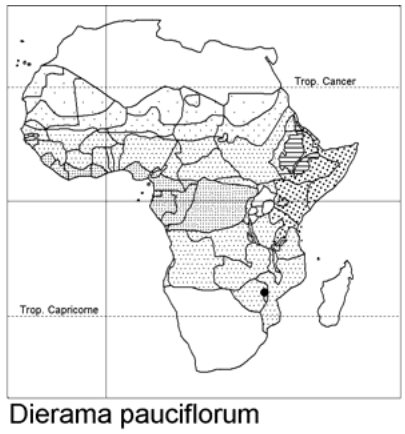
rubella Baker = **F. grandiflora** subsp. **grandiflora**



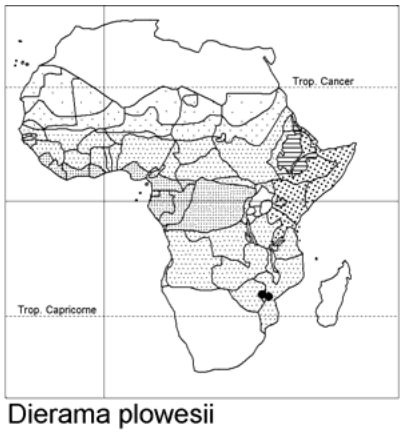
Dierama longistylum



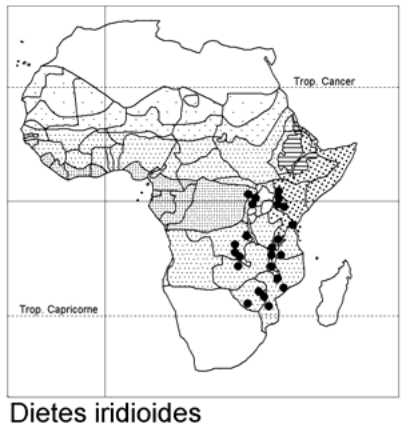
Dierama parviflorum



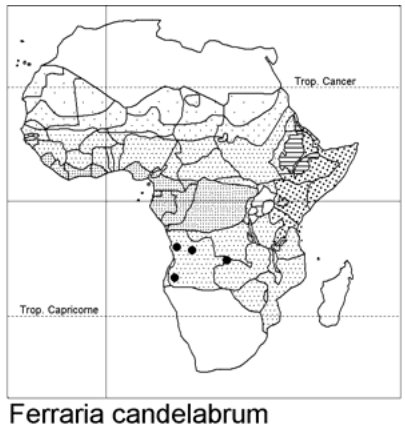
Dierama pauciflorum



Dierama plowesii

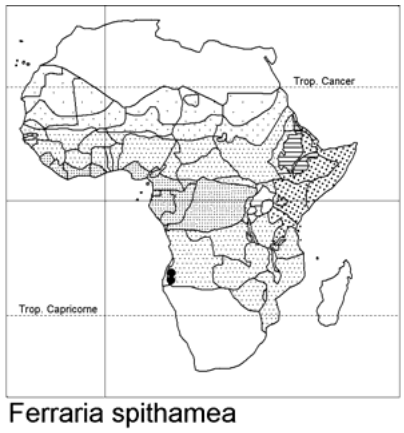


Dietes iridioides

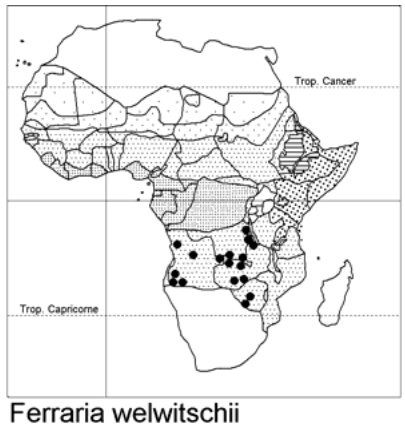


Ferraria candelabrum

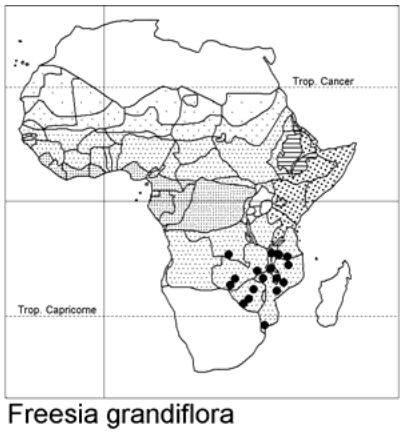
Ferraria glutinosa



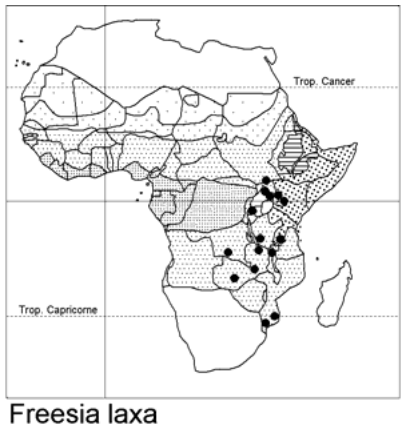
Ferraria spithamea



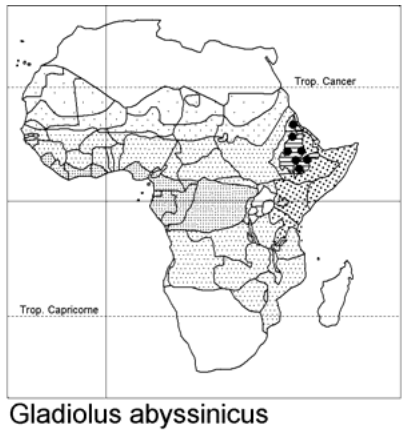
Ferraria welwitschii



Freesia grandiflora



Freesia laxa



Gladiolus abyssinicus

(GEISSORHIZA)

Geissorhiza abyssinica R. Br. ex A. Rich. = **Lapeirousia abyssinica**

var. *parvula* Klatt = **Hesperantha petitiana**

alpina Hook. f. = **H. petitiana**

briartii De Wild. & T. Durand = **Lapeirousia erythrantha**

GLADIOLUS / *83 + 3* ?

Genus of c. 262 species, the second largest of *Iridaceae* after *Iris* (168 in southern Africa, 83 in tropical Africa, 8 in Madagascar, 10 in Eurasia; cf. map in Global Ecol. Biogeogr. 20: 883, 2011). Some species occur both in S. and Tropical Africa.

Plants with corms, but very diverse in vegetative and floral morphology; lowest leaves reduced to sheaths; main leaves 2-ranked, linear-lanceolate; upper leaves short, stem-clasping; flowering stem usually terminating the leafy shoot; flowers stalkless, each with a bract and bracteole; perianth often zygomorphic, cylindric or funnel-shaped; stamens arching on upper side of perianth; style arching like the stamens and as long; capsules leathery with globose usually winged seeds.

As early as 1901 Th. Durand and E. De Wildeman wrote: "Il règne dans la délimitation des espèces de ce genre une grande obscurité…". In spite of 2 recent revisions of the Tropical African (1996) and the Southern African (1998) species, respectively, the genus is still incompletely known. In our area 3 species remain obscure. Seven species are known only from the type and further 5 species from only 2 or 3 gatherings. The ecology is unknown for one species. Certain parts are lacking in several species: corm unknown in 5 species, flower colour for one species; the fruit is immature in one species, and the fruit is lacking in 25 species (= c. 30%), and seeds unknown in 22 species (= c. 25%).

A few species are very variable, e.g. *G. atropurpureus*, *G. dalenii*, and *G. gregarius*.

The pollination has been studied by Goldblatt and Manning, and others (see, e.g., Ann. Missouri Bot. Gard. 85: 492-517, 1998; ibid. 86: 758-774, 1999; Ann. Bot., London 97: 317-344, 2006; Evolution 64: 960-972, 2009; Bot. Mag. 28: 238-259, 2011). The majority of species are pollinated by nectar-feeding bees, a few by large butterflies *(Aeropetes)* and others by long-proboscid flies, moths, or birds.

There is a large number of hybrids and cultivars derived mainly from S. African species (cf. Sharma & Sharga in Herbertia 46: 54-58, 1990).

GOLDBLATT, P. (1996). *Gladiolus in Tropical Africa. Systematics, Biology &* [and] *Evolution*. Timber Press, Portland, Oregon. 321 pp., 41 colour plates. [With maps.]

GOLDBLATT, P. & J. [C.] MANNING (1998). *Gladiolus in southern Africa*. Fernwood Press, Vlaeberg. 320 pp., 144 colour plates.

VALENTE, L. M. & al. (2011). Explaining disparities in species richness between Mediterranean floristic regions: a case study in Gladiolus (Iridaceae). *Global Ecol. Biogeogr.* 20: 881-892.

VALENTE, L. M. & al. (2012). Did pollination shifts drive diversification in southern African Gladiolus ? Evaluating the model of pollinator-driven speciation. *Amer. Nat.* 180: 83-98.

Gladiolus abyssinicus (Brogn. ex Lem.) B. D. Jacks. 1893; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 324, 1994 (as *Oenostachys*); Nordal & al. in Biol. Skr. 54: 256, 2001. – Icon.: Goldblatt (1996): 262, pl. 35; Fl. Eth. & Eritrea 6: 180, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 227, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 163, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 255, 2010; Puff & Sileshi, Pl. Simen: 226, 2005; Nordal in Symb. Bot. Upsal. 35/2: 104, 2011; Goldblatt & Manning in Ann. Bot., London 97: 330, 2006 (pollination).

syn.: Enum. 3: 89, 1995; *G. abyssinicus* (Brogn. ex Lem.) Goldblatt & de Vos 1989; *Anisanthus abyssinicus* (Brogn. ex Lem.) Klatt

Herb 45-65 cm tall; corm 1,5-2,5 cm Ø, often with numerous cormlets; flower bracts *3,5-7 cm long*, usually red or purple; perianth strongly zygomorphic, red (upper three) and greenish tipped yellow (lower three), without spots. Similar to *G. schweinfurthii*, both having the dorsal tepal twice as long as the upper laterals, and the lower tepals reduced to small cusps. In *G. abyssinicus* dorsal tepal 2-3,5 cm long, upper laterals 1,2-2 cm, lower laterals 0,8-1,5 cm, the lowermost tepal linear, 0,6-1,2 cm long. Capsule c. 1 cm long; seeds angular with reduced wing-like extension at one or both ends.

Well-watered grassland; cliffs and rock outcrops; streamsides; edge of forest patches; scrub; mostly 1830-3350 m alt.

Saudi Arabia.

Possibly not distinct from *G. schweinfurthii* (with smaller flowers and growing at lower altitudes).

G. actinomorphanthus P. A. Duvign. & Van Bockstal; Geerinck in Taxonom. 6: 12, 2002. – Icon.: Goldblatt (1996): 157; Fl. Afr. Centr., Irid.: photos. 20, 21, 2005.

Slender herb 30-50 cm tall; corm 1,2-1,8 cm Ø; leaves 1-1,5 mm Ø; flowers pale yellow or cream with *stamens symmetrically disposed*, tube slightly curved; filaments of anthers included in tube; tepals 6-7 mm long, equal and similarly disposed (virtually regular flower).

Largely restricted to heavily mineralized soils, most often those with high concentration of copper; among rocks in low grass. But also in woodland on rocky, non-mineralized soils (vide Pl. Ecol. Evol. 143: 10, 2010); 950-1400 m alt.

Discovered in 1957.

G. aequinoctialis Herb., incl. var. *divinus* (Vaupel) Marais and var. *tomentosus* Marais; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 424, 1994; Cheek & al., Pl. Mt Oku…: 184, 2000; idem, Pl. Kupe…: 449, 2004; idem, Pl. Dom, Bamenda Highl., Cameroon: 152, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 154, 2010; Onana, Vascul. pl. Cameroon…: 166, 2011; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 230, 2011. – Icon.: Goldblatt (1996): 288.

syn.: Enum. 3: 89, 1995.

Herb 0,4-1,2 m tall; corm 2-3 cm Ø; leaves 4-10, rather firm, with conspicuous secondary veins, very long, 1,2-1,7 cm wide; spike 3-5-8-flowered; bracts 5-8 cm long; flowers white, showy, tube cylindric, 12-14 cm long; tepals equal, 3,5-4 cm long, the lower 3 streaked purple; *anthers* with *appendages 0,5-1,5 mm* long, acute, apiculate; *filaments* exserted *0,5-1 cm;* capsule c. 2 cm long.

Rock crevices; rock outcrops; on wet ledges on steep cliffs; stony grassland; on dolerite; 450-2600 m alt.

Bioko/Fernando Poo.

Very difficult to distinguish from the E. African **G. murielae**, with *leaves weakly textured* and weakly developed veins, and anthers with appendages > 2 mm long and filaments exserted 10-12 mm from the tube.

G. amplifolius Goldblatt; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Goldblatt (1996): 125.

Herb 50-70 cm tall; corm 1,2-1,8 cm Ø, *tunics papery not* becoming *fibrous;* leaves leathery, reaching base of spike, 1-1,8 cm wide; *stem* erect, *simple;* flowers dark to light purple, the lower lateral tepals with a deep purple mark in distal third; tube 1,4 cm long; tepals unequal, 0,8-1,2 cm long; capsule 1,2 cm long (immature).

Ecology unknown (perhaps wet sites).

Only known from the type collected as late as 1970.

Near the widespread *G. atropurpureus*.

G. atropurpureus Baker, excl. syn. *G. unguiculatus* sensu, e.g., Burkhill, Useful pl. W. Trop. Afr., ed. 2, 2: 424, 1994, and Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 230, 2011, and Akoegninou & al., Fl. analyt. Bénin: 139-140, 2006; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Fl. Trop. E. Afr., Irid.: 58-59, 1996; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Fl. Afr. Centr., Irid.: pl. 16A, photos. 39-42, 2005; Goldblatt (1996): 127, pl. 8.

syn.: Enum. 3: 89, 1995.

Herb 30-60 cm tall; corm 1-3 cm Ø, tunics *pale fibrous;* leaves of flowering stems entirely sheathing or with blades 5-10 cm long, linear; perianth white entirely, partly shaded with purple, or uniformly dark purple to violet. Variable particularly in the degree of development of leaf blades.

Often in light woodland; montane grassland; sometimes rocky soils and rock outcrops; cultivated fields; *Brachystegia* woodland; dambo; adapted to a variety of humid to dry situations; cupriferous hills; 850-2600 m alt.

Related to *G. serapiiflorus* (with yellowish flowers). Strikingly similar to *G. unguiculatus*, and considered conspecific by Geerinck and Lewis & al.

G. balensis Goldblatt – Icon.: Goldblatt (1996): 182, pl. 19; Fl. Eth. & Eritrea 6: 178, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 156, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 244, 2010; Nordal in Symb. Bot. Upsal. 35/2: 102, 2011.

Herb slender, 50-60 cm tall; corm 1,8-2,2 cm Ø; leaves 3, only the lowermost basal, this longest, sometimes exceeding the spike, the upper 2 leaves inserted above ground level; perianth white with yellow nectar guides on the lower lateral tepals; capsule and seeds unknown.

Basalt outcrops on forested mountain slopes; limestone escarpment in *Acacia-Combretum* woodland; 1750-1850 m alt.

Resembling *G. boranensis*.

Known only from 2 collections (1980, 1983, respectively).

G. baumii Harms; Figueiredo & Smith, Pl. Angola: 186, 2008 (as *G. pallidus*); idem in Bothalia 39: 197, 2009 (Kunene Exp. Baum). – Icon.: Goldblatt (1996): 225 (as *G. pallidus* Baker).

syn.: *G. pallidus* Baker 1898, non Bouché 1838 (= *G. italicus* Mill., Macaronesia, Medit. to C Asia); *G. kubangensis* Harms; *G. splendidus* Rendle var. *tundensis* Chiov.

Herb 55-75 cm tall; corm 2,5-3,5 cm Ø; *leaves linear*, 2,5-3,5 (-5) mm wide, ± exceeding the spike, *margins and midribs* heavily *thickened* and raised; flowers pale yellow or moderately speckled with violet or red dots.

Rocky hills; stony ground, between grasses on hilly ground; laterite, between grasses in open forest; 1600-1900 m alt.

Near *G. dalenii*.

G. bellus C. H. Wright – Icon.: Goldblatt (1996): 191, pl. 23.

Herb 60-90 cm tall; corm c., 1,5 cm Ø; leaves 3-4 basal, reaching ± the spike, 7-12 mm wide; flowers with tubes 4,2-8,8 cm long and about half as long again to twice as long as the bracts; perianth white with large conspicuous dark red to violet markings on lower tepals; anthers without apiculate appendages.

Grassy crags near streams and waterfalls; shrubby hillsides in montane grassland; wet grassland; 1300-2000 m alt.

Resembling white-flowering *G. callianthus* (with still longer perianth, and anthers with apiculate appendages).

In morphology close to *G. usambarensis*.

G. benguellensis Baker; Figueiredo & Smith, Pl. Angola: 186, 2008; Bothalia 39: 197, 2009 (Kunene Exp.). – Icon.: Goldblatt (1996): 235, pl. 31; Fl. Afr. Centr., Irid.: photo. 25, 2005.

syn.: Enum. 3: 89, 1995; *G. longanus* Harms; *G. pubescens* Pax 1898, non Lam. 1791 [= *Babiana pubescens* (Lam.) G. J. Lewis, S. Africa], nec Baker 1876 (= *G. pubigerus* G. J. Lewis, S. Africa); *G. pubescifolius* G. J. Lewis

Herb 35-60 cm tall; corm globose to horizontally elongated, often rhizome-like, dark red, 1,5-2,5 cm long, c. 1 cm Ø, old corms sometimes persistent and then attached horizontally, tunics reddish brown; basal leaves 4-6, blades well developed, reaching ± to base of spike, 5-9 mm wide, glabrous to pubescent, margins and midribs thickened and hyaline; stem unbranched; flowers orange-red with yellow nectar guides on the lower tepals, or yellow; perianth tube c. 1,5 cm long, tepals *subequal in length;* stamen filaments 5-8 mm long, anthers 7-8 mm long; capsule 1,5-2 cm long.

Rather dry thicket-grown pastures; marshy grassland on river banks; dembos; swamp; boggy grassland; 1000-1400 m alt.

Recognised by its rather small flowers. Similar to *G. melleri* (with larger flowers and lacking leaves at anthesis). Easily confused with *G. manikaensis* (with larger flowers and longer style).

G. boranensis Goldblatt; Fl. Trop. E. Afr., Irid.: 66, 1996; Goldblatt (1996): 180-181; Fl. Eth. & Eritrea 6: 175-176, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 157-158, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 247, 2010.

Herb 38-55 cm tall; corm 1,8-2 cm Ø, tunics membranous; the 3-4 lower leaves exceeding the spike by 5-15 cm, blades 2-6 mm wide, the upper 2-3 leaves sheathing, usually blade-less; stem unbranched; floral bracts 2-3(-4) cm long, not clasping the stem; flowers pink to reddish; tube c. 1,5 cm long, normally shorter than upper tepals (2,4-3,2 cm long); capsule and seeds unknown.

Juniperus woodland; *Commiphora* scrub; sometimes in rocky fields; lava plateau; 1800-2400 m alt.

Known only from 4 collections. Near *G. macrospathus*.

G. brachyphyllus F. Bolus – Icon.: Goldblatt & Manning (1998): pl. 17.

Herb 55-80 cm tall; corm globose, c. 2-2,5 cm Ø; leaves 3, largely sheathing, with short or vestigial *blades 0,5-5 cm long;* floral bracts 1,5-2,5 cm long; perianth tube 1,6-2 cm long; flowers *bright red-purple* with *dark-red to purple markings* at bases of lower tepals; capsule 2-2,5 cm long.

Lightly rocky grassland; sometimes in rocky soils and rock outcrops; 60 m alt.

S. Africa, Swaziland ?

Not in Goldblatt, Gladiolus in Trop. Africa (1996).

G. calcicola Goldblatt; Goldblatt (1996): 202-203; Fl. Eth. & Eritrea 6: 176, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 158, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 247-248, 2010.

Herb 30-70 cm tall; corm 1-1,6 cm Ø, tunics membranous, becoming fibrous; leaves 5-6, the lower longest, reaching base of spike, 2-5 mm wide; stem erect, rarely with one short branch; floral bracts 2-3 cm long; flowers pale salmon pink, midline of tepals darker; tube c. 1,5 cm long; anther apices obtuse, without appendages; capsule 1,7-2,2 cm long.

Rocky limestone slopes; c. 2000 m alt.

Known from only 3 collections.

G. canaliculatus Goldblatt – Icon.: Goldblatt (1996): 136; Fl. Trop. E. Afr., Irid.: 61, 1996.

Herb 15-20 cm tall; corm unknown; leaves 2, both basal, reaching about base of spike, without obvious midrib, blade channelled and sheathing almost the entire length; stem unbranched; floral bracts 1,6-2,2 cm long, apices of the outer 3-lobed; flowers nearly actinomorphic, pale blue; tube c. 1 cm long; tepals ± equal, c. 1,5 cm long; filaments c. 5 mm long, anthers c. 6 mm; capsule and seeds unknown.

Short grassland along drainage lines; c. 1200 m alt.

Only known from the type collected in 1933.

Near *G. muenzneri*.

G. candidus (Rendle) Goldblatt; Fl. Eth. & Eritrea 6: 183, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 166, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 259, 2010. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 150, 1994 (as *G. ukambanensis*); Audru & al., Pl. vascul. Rép. Djibouti 2/2: 801, 1994 (idem); Thulin, Fl. Somalia 4: 65, 1995; Fl. Trop. E. Afr., Irid.: 81, 1996; Goldblatt (1996): 300, pl. 41.

syn.: Enum. 3: 89-90, 1995; *Acidanthera laxiflora* Baker in Johnston 1886, nom. nud., Trans. Linn. Soc., Ser. 2, 2: 350, 1887, non *Gladiolus laxiflorus* Baker 1878.

Herb 20-40 cm tall; corm globose, 1,2-2,5 cm Ø, tunics firm papery breaking into vertical fibres; leaves 2-3, ± basal, half as long as stem, 5-10 mm wide; stem erect, simple; inflorescence 2-4-flowered; bracts 4-5-8 cm long; flowers white, rarely pink, occasionally with purple median streaks in the lower midline of lower tepals, these 2-3 cm long; tube 7-10 cm long; filaments c. 2 cm long, included in tube or rarely exserted 1-2 mm; anthers with acute apiculate appendages; capsule 1,8-2,2 cm long.

Woodland and fairly dry bushland; well-watered places in rocky outcrops; cracks in granite rocks; edge of seasonal watercourse; coastal plain with open grassland; grassland with impeded drainage; black cotton soil; red sand; 50-2250 m alt.

Oman, Yemen (Kilian & al. in Willdenowia 32: 263, 2002).

Corms eaten (Dhofar).

Near *G. aequinoctialis*.

Most specimens collected without fruits, which makes it impossible to determine shape of seeds (winged or wingless).

G. chelamontanus Goldblatt; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Goldblatt (1996): 179.

Herb 45-75 cm tall; corm 1,5-2 cm Ø; leaves 6-7, the lowermost basal, linear, usually exceeding the spike by 5-15 cm, blades 3-5 mm wide; midrib and margins thickened, raised; sheaths of upper leaves, scabrid; stem straight, erect; spike erect, 6-10-flowered; bracts 2,5-4,5 cm long, green or flushed purple; flowers pink to mauve; tube c. 1 cm long; tepals unequal, upper three 2,5-3 cm long; anthers c. 1,2 cm long, without appendages; filaments c. 1,2 cm long; capsule and seeds unknown.

Rocky outcrops in thin soils and rock crevices; 1300-1950 m alt.

Near *G. zambesiacus*, *G. sulcatus*.

G. chevalierianus Marais – Icon.: Bull. Mus. Natl. Hist. Nat. Paris, Sér. 2, 9: 403, 1937 (sub nom. *Dortania amaena*).

syn.: Enum. 3: 90, 1995.

Herb 40-60 cm tall; corm 1,5 cm Ø; leaves 4-6, with blades narrowly lanceolate, 3-16 × 0,4-0,8 cm, grading imperceptibly into sheathing bract-like leaves; stem unbranched; spike 1-2-flowered; flower pale yellowish green; tube 6-7 cm long, tepals c. 2 cm long; capsule 2-2,5 cm long.

Grassy meadows on rock terraces; c. 1000 m alt.

Near *G. aequinoctialis*, *G. bellus*.

Only known from the 2 syntypes collected in 1937. Not in S. Lisowski, Flore Rép. Guinée 1 (Scripta Bot. Belg. 41), 2009; perhaps considered as a synonym of *G. aequinoctialis*, which has, however, longer leaf blades, spikes with 4-8 flowers, perianth tube 8-14 cm long and tepals 4 cm long.

G. crassifolius Baker; Fl. Zambes. 12/4: 68-70, 1993, p.p.; Fl. Trop. E. Afr., Irid.: 52-53, 1996, p.p.; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Goldblatt (1996): 95 (Lovett & al. 3276); Goldblatt & Manning, Gladiolus south. Afr.: pl. 3, 1998 (or *G. mosambicensis* ?).

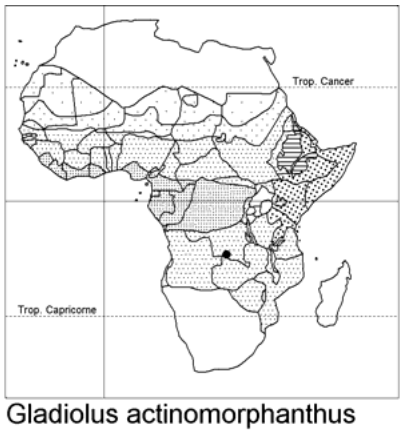
syn.: Enum. 3: 90, 1995, excl. syn. *G. gazensis* Rendle and *G. mosambicensis* Baker (both = *G. mosambicensis*); *G. thomsonii* Baker 1881 and 1892, nom. illegit.; *G. rachidiflorus* Klatt; *G. paludosus* Baker; *G. tritoniiformis* Kuntze; *G. junodii* Baker; *G. conrathii* Baker; *G. dieterlenii* E. Phillips; *G. masukuensis* Baker

Herb 0,4-1,2 m tall; corm 2-3 cm Ø; foliage leaves 4-8, either emergent at anthesis, or with several basal laminate leaves and sometimes 2-3 cauline leaves with progressively shorter blades; blades linear reaching base of spike or exceeding it, midrib and margins hyaline and ± thickened; stem often branched; spike 6-22-flowered; bracts 1,2-1,8 cm long, soft-textured; flowers pale to deep pink or purple, densely arranged; tube c. 8 mm long; tepals unequal, the dorsal c. 2 cm long, lower tepals each with dark pink to purple transverse band.

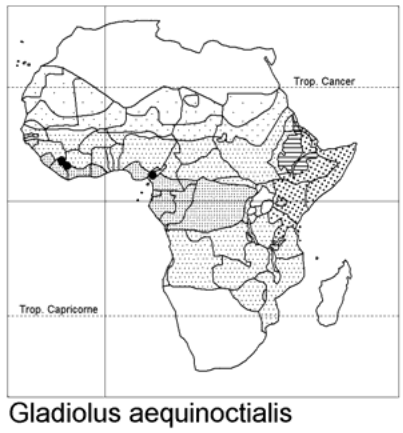
Open grassland, sometimes in rocky places, in well-watered or relatively dry sites; above 1800 m alt.

S. Africa, Lesotho, Swaziland.

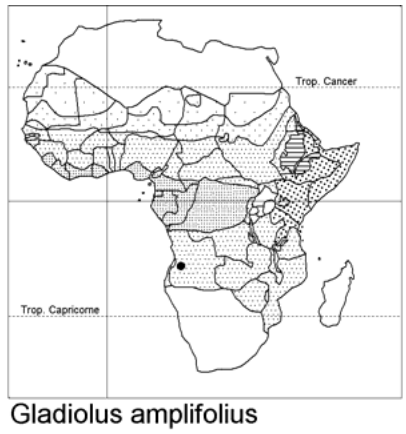
Populations from E Zimbabwe-C Mozambique treated under *G. crassifolius* by Goldblatt & Manning (1998: 75) but referred to as probably distinct figure below under *G. mosambicensis*. These plants usually have 2-3 branches and more intensely coloured flowers. The flowering occurs in September to November, before the new season's leaves have developed.



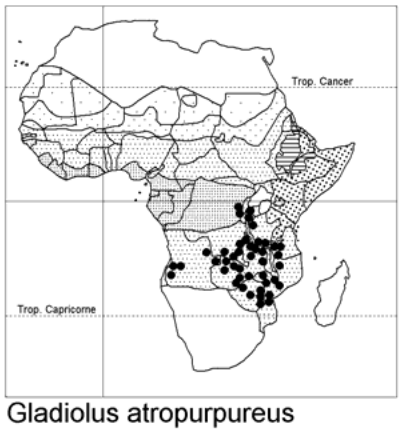
Gladiolus actinomorphanthus



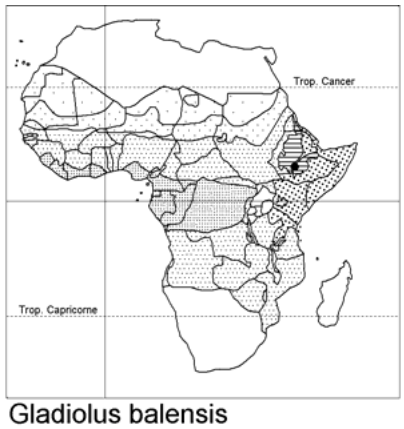
Gladiolus aequinoctialis



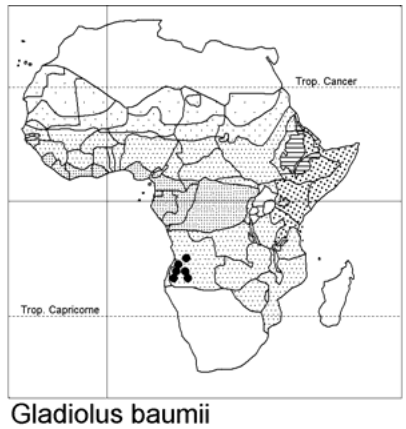
Gladiolus amplifolius



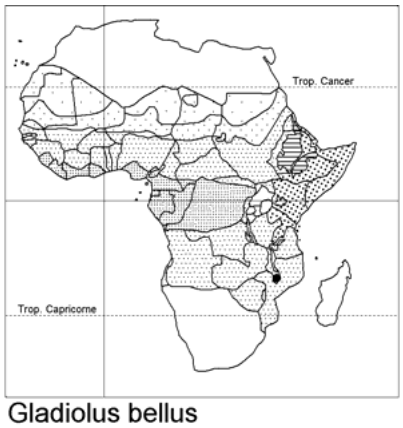
Gladiolus atropurpureus



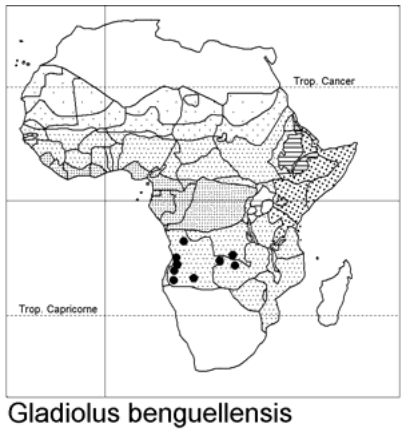
Gladiolus balensis



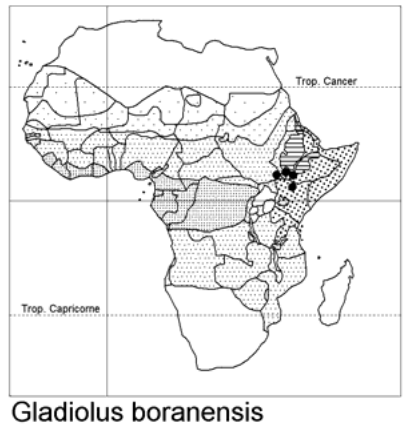
Gladiolus baumii



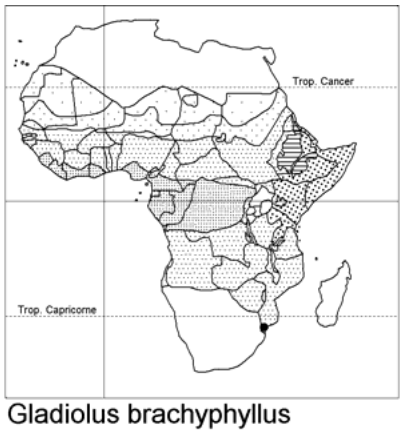
Gladiolus bellus



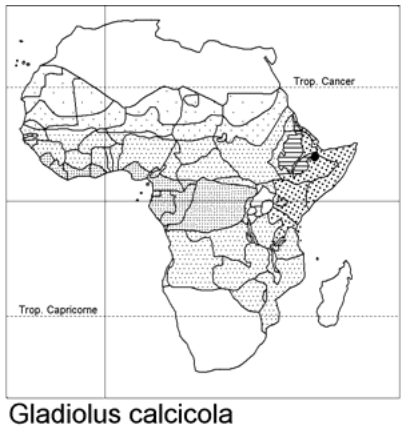
Gladiolus benguellensis



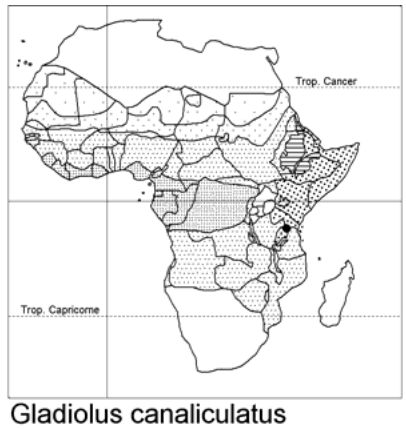
Gladiolus boranensis



Gladiolus brachyphyllus



Gladiolus calcicola



Gladiolus canaliculatus

G. curtifolius Marais; Fl. Zambes. 12/4: 102, 1993; Goldblatt (1996): 139-140; Fl. Trop. E. Afr., Irid.: 60, 1996; Gereau & al., Lake Nyasa florist. checklist: 67, 2012.

syn.: Enum. 3: 90, 1995.

Herb 25-35 cm tall; corm 1,2-1,8 cm Ø, tunics brittle-papery; leaves of flowering stem 2-3, short-bladed, lightly pubescent, almost entirely sheathing, *blades 1-3 cm long*, on lower half of stem; leaves on non-flowering specimens solitary; stem unbranched; spike 1-4-flowered; *flowers cream to lemon-yellow*, *tube 5-7,5 cm long*, tepals 1,5-2,2 cm long; capsule 1,3-1,5 cm long.

Open grassland; light woodland or bush; 1800-2200 m alt.

Related to S. African *G. woodii* Baker.

G. curtilimbus P. A. Duvign. & Van Bockstal ex S. Còrdova; Goldblatt (1996): 137-138; Fl. Afr. Centr., Irid.: 80-81, 2005.

Herb 25-45 cm tall; corm 1,2-2 cm Ø; uppermost cataphyll pubescent; flowering stem bearing only 1 leaf, this with a vestigial blade 0-3 cm long; flowers cream or pale pink to mauve; perianth tube 1-1,2 cm long, tepals unequal, the dorsal c. 1,5 cm long.

Schistose sandstone ! hill invaded by high ramose *Xerophyta; Brachystegia boehmii* forest with *Monotes homblei;* vegetation with *Brachystegia*, *Cryptosepalum* on schist.

Distinguished by its small flowers, short tepals, ± leafless habit. – Near *G. atropurpureus*. More and better preserved specimens needed.

G. dalenii Van Geel, excl. var. *melleri* (Baker) S. Còrdova (= *G. melleri*); Harvey & al., Pl. Bali Ngemba…: 141, 2004; Figueiredo & Smith, Pl. Angola: 186, 2008; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 152, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 187, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 230, 2011; Onana, Vascul. pl. Cameroon...: 166, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 62, 2012. – Icon.: Bot. Mag. 57: pl. 3032, 1830; ibid. 58: pl. 3084, 1831 (as *G. natalensis*); Fl. Pl. S. Afr. 3: pl. 116, 1923 (as *G. psittacinus*); Fl. Trop. E. Afr., Irid.: 69, 1996; Goldblatt (1996): 215, pl. 28-29; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 151, 1994 (as *G. newii* and *G. goetzei*); Fl. Eth. & Eritrea 6: 178, 1997; Goldblatt & Manning, Gladiolus south. Afr.: 115, pl. 25, 1998; Chaudhari, Fl. Kingd. Saudi Arabia ill. 3: 226, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea …: 159, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 249, 2010; Fl. Afr. Centr., Irid.: photos 22-23, 2005; Burrows & Willis, Pl. Nyika Plateau: pl. 7, 2005; Akoegninou & al., Fl. analyt. Bénin: 140, 2006; Latham, Pl. visited by bees…, south. Tanzania, ed. 3: 91, 2007; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 523, 2008; Lisowski, Fl. Rép. Guinée 2: fig. 499, 2009; Pickering & Roe, Wild flow. Victoria Falls area: 66, 2009; La Croix in Plantsman, N. S. 10: 174-176, 2011; Salter & Davenport, Orchids & wildflow. Kitulo Plateau: 24, 2011; Amer. Nat. 180: 85, 2012 (pollination).

syn.: Enum. 3: 90, 1995, excl. *G. pauciflorus* Baker (= *G. pauciflorus*).

Herb 0,5-2 m tall, with or without leaves at flowering time; corm woody, 1,5-3 cm Ø; leaves sword-shaped, 0,5-3 cm wide, smooth, margins and midribs moderately thickened; stem unbranched; spike 3-14-flowered; bracts green, 3-7 cm long; flowers *6-8 cm long*, red to orange on each lower (3) tepals, or yellow to greenish often with red or brown streaks on upper tepals; tube 2,5-4,5 cm long, curving outward in upper half; upper 3 tepals 3,5-5 cm long, much exceeding the recurved lower tepals, dorsal tepal strongly hooded, anthers well-exserted.

Loudetia arundinacea grassland with scattered trees, recently burnt; *Acacia abyssinica* woodland; open grassland and woodland, sometimes in seasonally flooded valley grassland; widespread and common; sandy thicket-grown hillsides with clay subsoil; rocks; mountain savanna with *Kotschya lutea;* 300-3600 m alt.

S. Africa, Lesotho, Swaziland, Botswana, Namibia; Madagascar; Saudi Arabia, Yemen. In Réunion and Mauritius has become a weed in fields (Fl. Mascareignes 177, Irid.: 14, 1978) like in the Philippines and Venezuela.

Comprises 3 subspp.: – subsp. **dalenii** [syn.: Enum., l.c.; *Watsonia natalensis* Eckl.; *Gladiolus dracocephalus* Hook. f.; *G. cooperi* Baker; *G. schimperianus* Steud. ex Baker; *Bobartia natalensis* (Regel) Klatt; *Gladiolus adlami* Baker; *G. leichtlinii* Baker; *G. garnieri* Klatt 1872, non 1879 (= *G. watsonioides*); *G. antholyzoides* Baker; *G. tysonii* Baker; *G. platyphyllus* Baker; *G. fuscoviridis* Baker; *G. brachylimbus* Baker; *G. magaliesmontanus* F. Bolus; *Antholyza schlechteri* Baker; *A. laxiflora* Baker; *Gladiolus garuanus* Vaupel; *G. boehmii* Vaupel; *G. occidentalis* A. Chev. 1920, nom. nud.; *G. pageae* L. Bolus; *G. vogtsii* L. Bolus; *G. nebulicola* Ingram; *G. strictiflorus* L. Bolus; *G. leptophyllus* L. Bolus; *G. retrocurvus* G. J. Lewis; *G. anorthanthus* Ingram], plants with well developed leaf blades on flowering stem (= simultaneously leaves and flowers); – subsp. **andongensis** (Baker) Goldblatt [syn.: Enum. 3: l.c.; *G. dalenii* var. *andongensis* (Baker) Goldblatt ex Geerinck], with leaves on flowering stem *sheathing*, plant base without a neck of coarse fibres, and dorsal tepal as long as or slightly exceeding the upper lateral tepals; – subsp. **welwitschii** (Baker) Goldblatt, with leaves of flowering stem sheathing or very short, plant base with a neck of coarse fibres, and dorsal tepal shorter than the upper lateral tepals, occurring only in the SW Angolan highlands.

Ornamental, widely cultivated.

Note: Plants grown as *G. garnieri* from Madagascar, seem not to be the species *G. dalenii* but hybrids with *G. dalenii* (fide I. La Croix in Plantsman, N. S. 10: 175, 2011).

G. debeerstii De Wild.; Goldblatt (1996): 108-111; Geerinck in Taxonom. 6: 12, 2002; Fl. Afr. Centr., Irid.: 78, 2005.

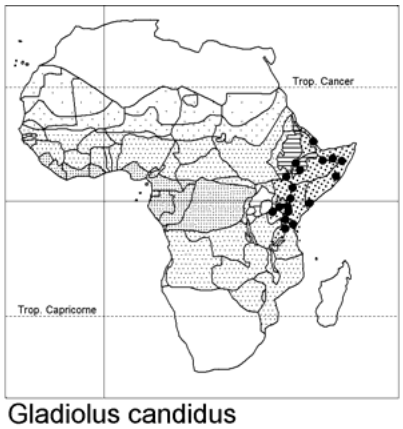
syn.: *G. camilae* S. Còrdova Ponce; *G. mitwabaensis* P. A. Duvign. & Van Bockstal ex S. Còrdova Ponce

Herb 40-70 cm tall; corm 1,5-2 cm Ø with tunics composed of fairly fine, soft textured fibres, these not accumulating around the base; lower basal leaves reaching to about base of spike, 1-2 mm wide, margins and midribs thickened and raised; spike fairly lax, 3-10-flowered; flowers pale pink, perianth tube c. 1 cm long, dorsal tepals 1,6 cm long.

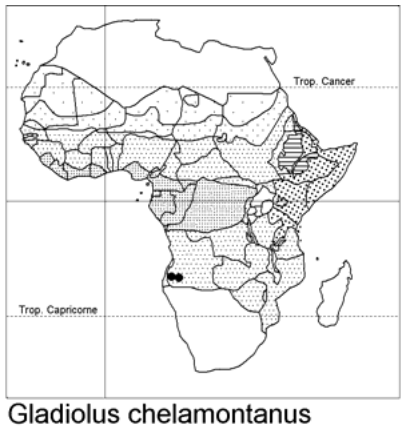
Marshy grassland on plateau; grassland wth *Loudetia simplex* in plain; source; 1800-1900 m alt.

Near *G. ledoctei*; confused with *G. erectiflorus*, *G. linearifolius*.

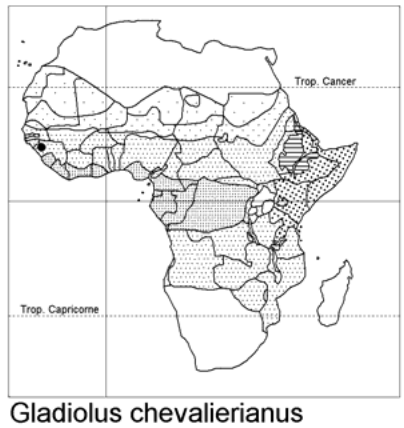
Note on *G. camilae*: known only from the type collected in 1953; capsule unknown. Seeds were not described by Còrdova (Bull. Jard. Bot. Natl. Belg. 60: 327) in 1990. However, such a description is cited by Goldblatt (1996: 111), who describes the seeds as "flat broadly winged, and 3-7 mm in diameter"; this description refers to seeds of *G. mitwabaensis*, another synonym of *G. debeerstii*.



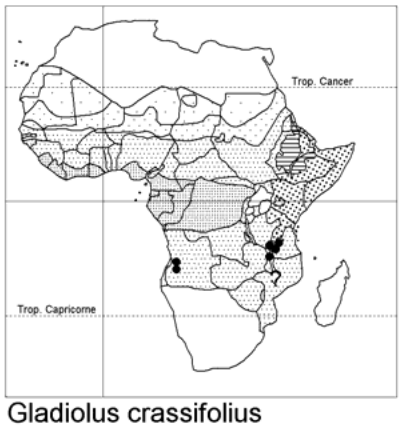
Gladiolus candidus



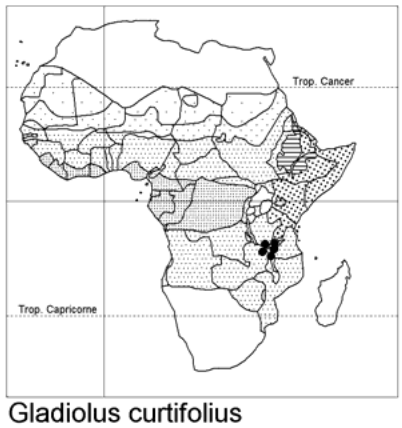
Gladiolus chelamontanus



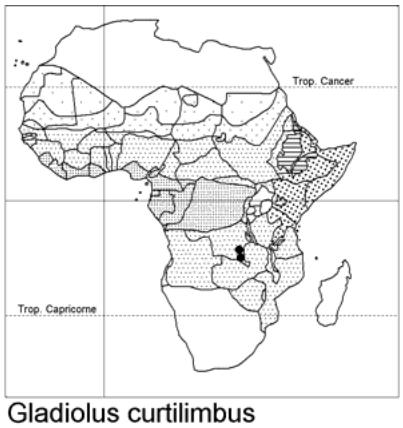
Gladiolus chevalierianus



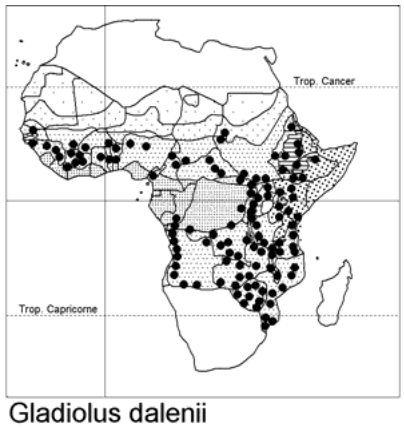
Gladiolus crassifolius



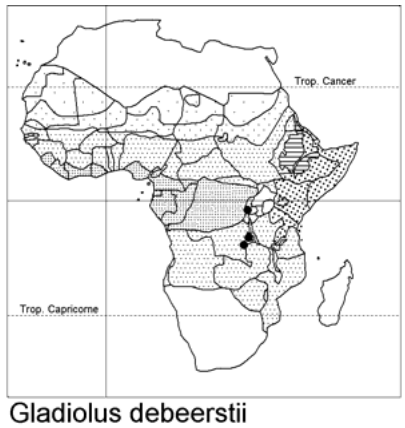
Gladiolus curtifolius



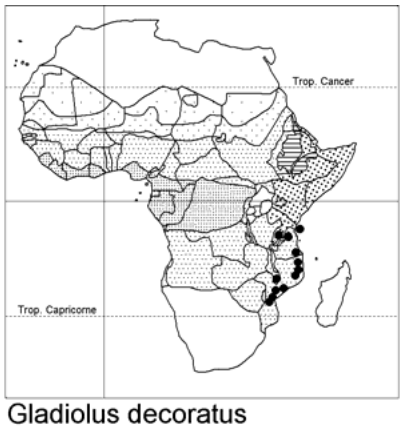
Gladiolus curtilimbus



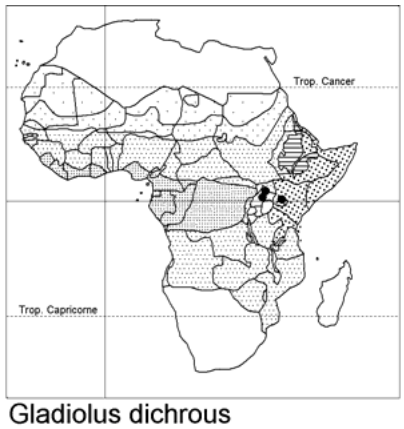
Gladiolus dalenii



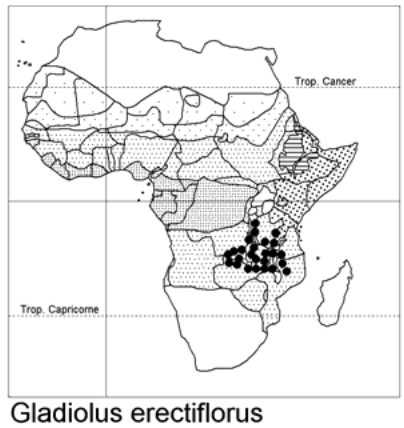
Gladiolus debeerstii



Gladiolus decoratus



Gladiolus dichrous



Gladiolus erectiflorus

GLADIOLUS

G. decoratus Baker; Fl. Trop. E. Afr., Irid.: 79-80, 1996. – Icon.: De Wildeman, Pl. nov. herb. Hort. Thenensis 1: pl. 5, 1904, sub nom. *G. morrumbalaensis*; Goldblatt (1996): 270, pl. 36.

syn.: Enum. 3: 90, 1995; *G. kirkii* Baker, Handb. Irid.: 222, 1892, non 1890 (= *G. ochroleucus* Baker, S. Africa).

Herb 45-80 cm tall; corm 1,5-2,5 cm Ø, with tunics initially membranous, becoming ± fibrous and matted, fibres brown, enclosing numerous small cormlets; leaves 4-5, fairly soft-textured with distinctive but not thickened venation and margins; flowers bright orange-red or dark red, lower tepals with a median white to yellow streak; dorsal tepal largest, 4,5-5,5 cm long; tube 2,5-3,5 cm long; capsule elliptic, 1,8-2,7 cm long.

Woodland and forest in rocky outcrops and screes and other more open sites; 0-2000 m alt.

Confused with *G. rupicola*, *G. oligophlebius*.

G. dichrous (Bullock) Goldblatt; Goldblatt (1996): 266-268; Fl. Trop. E. Afr., Irid.: 79, 1996.

Herb 45-90 cm tall; corm 2,5-3 cm Ø; leaves 5, mostly basal, 1-2 cm wide, reaching base of spike; stem unbranched; *flower bracts enlarged, red or reddish purple* (very rarely uniformly white in Kenya), nearly concealing the flowers; perianth including tube 4,5-6 cm long, white with dorsal tepal flushed red (in southern part of range) to red or orange.

Rocky outcrops; sometimes on cliffs; grassy clearing in *Podocarpus* forest; mountain meadow; 2500-3100 m alt.

Near *G. abyssinicus*, *G. schweinfurthii*.

G. erectiflorus Baker 1895, non Baker 1896 (= *G. trichonemifolius* Ker Gawl., S. Africa); excl. var. *verdickii* (De Wild. & T. Durand) Geerinck *(= G. verdickii);* Bull. Jard. Bot. Natl. Belg. 42: 274, 1972, excl. syn. *G. arnoldianus* De Wild. & T. Durand, *G. linearifolius* Vaupel, and *G. verdickii* De Wild. & T. Durand, and Geerinck in Taxonoman. 4: 3, 2001, and in Fl. Afr. Centr., Irid.: 85, 2005 (idem). – Icon.: Goldblatt (1996): 196, pl. 24-25; Fl. Trop. E. Afr., Irid.: 65, 1996; Fl. Afr. Centr., Irid.: photos 34-35, 2005.

syn.: Enum. 3: 90, 1995.

Herb 35-90 cm tall; corm 1,2-1,8 cm Ø; upper leaf blades overlapping and sheathing the stem to the base of the spike; stem unbranched; spike 4-8-flowered; flower with subequal tepals, the dorsal 2,5-3,5 cm long; *perianth whitish to cream*, or pale pink, the tepals *darkly veined in red to purple* (some populations without well-developed veining).

Woodland with *Brachystegia*, mostly in rocky sites in hilly country; organic-rich soils remaining moist throughout the growing season; c. 640-2450 m alt.

Near *G. rupicola*, *G. verdickii*, *G. stenosiphon*.

Note: Geerinck (l.c.) treats this species in a wider sense than Goldblatt, including *G. verdickii* on the level of variety; the latter is restricted to SE Zaire and neighbouring Zambia; distinguished by its large flowers, and the corms bear several short flat fasciated stolons ending in tiny cormlets.

G. fenestratus Goldblatt; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Goldblatt (1996): 173.

Herb 35-50 cm tall; corm c. 2 cm Ø; leaf blades terete to oval in cross section, 2-3 mm wide; spike inclined, 6-10-flowered; perianth tube 0,9-1 cm long; tepals unequal, the dorsal 1,5-1,7 cm long; tepals strongly narrowed in lower part so that in profile the flower is *windowed* (fenestratus); capsule and seeds unknown.

GLADIOLUS FENESTRATUS

Common locally; well-drained rocky sites; c. 2000 m alt.

Only 4 collections known (1897, 1909, 1965, 1968).

Near *G. permeabilis* subsp. *edulis*.

G. flavoviridis Goldblatt; Goldblatt (1996): 98-100.

Herb 55-85 cm tall; corm unknown; leaves 6, 2 ± basal and large, 4-5 mm wide, upper ones cauline; spike 10-18-flowered, secund, inflexed; flower bracts brown or rust-coloured above; flowers pale yellow or greenish, tepals unequal, the upper three 1,5-1,7 cm long; tepal markings if present unknown.

Deciduous woodland; open grassland; very local distribution; 1600 m alt.

Probably also in adjacent Mozambique.

Near *G. crassifolius*, *G. zimbabweensis*.

G. goldblattianus Geerinck; Fl. Afr. Centr., Irid.: 62-63, 2005. – Icon.: Taxonoman. 4: 1, 2001.

Herb to 65 cm tall; corm c. 2 cm Ø; leaves 3, cauline, to 8 cm long, 1-2,5 mm wide; spike 3-5-flowered; perianth probably yellowish white; tube 7-11 mm long; tepals 22-30 mm long, 7-9 mm wide; stamen filaments c. 2 cm long, exserted for 2 mm, anthers 0,8-1 cm long; capsule and seed unknown.

Savanna.

Known from only 2 collections.

Near *G. murielae*.

G. gracillimus Baker – Icon.: Goldblatt (1996): 165, pl. 28; Fl. Trop. E. Afr., Irid.: 61, 1996.

Herb 15-40 cm tall; corm 0,9-1,2 cm Ø; leaves 2, *the lower sheathing* the stem *for most of its length* and with a *short linear blade* that usually exceeds the short upper leaf (as in *G. pusillus*, *G. tshombeanus*); spike inclined, 2-4-7-flowered; flowers *pale blue-lilac* to lilac, sometimes white, usually the lower 3 tepals each with a dark blue to purple marking; tube 7-10 mm long; dorsal tepal 10-15 mm long; seeds winged.

Wet habitats, either permanently or seasonally waterlogged valleys; shallow soil over laterite; swampy places; grassy meadow; stony hillside; 900-2000 m alt.

Resembling *G. pusillus* but the latter distinguished by its very small yellow flowers.

G. grantii Baker; Goldblatt (1996): 279-280; Fl. Trop. E. Afr., Irid.: 82, 1996.

syn.: *G. angustus* sensu Baker 1875, non L. 1753 (a S. African species).

Herb 30-45 cm tall; corm 1,5-2 cm Ø; leaves basal (2-3) and cauline (2); spike erect, 2-6-flowered; flowers white to cream; perianth tube 3,3-3,5 cm long, tepals 2,8-3 cm; stamen filaments included or exserted for less than 2 mm from the tube; capsule and seeds unknown.

Moist habitats near streams; seasonally marshy sites; locally common; 1100-2000 m alt.

Near *G. oligophlebius*.

G. gregarius Welw. ex Baker, excl. var. *angustifolius* (Van Bockstal) Geerinck *(= G. microspicatus);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 426, 1994; Geerinck in Taxonom. 4: 3, 2001; Sosef & al., Check-list pl. vascul. Gabon: 200, 2006; Akoegninou & al., Fl. anal. Bénin: 139-140, 2006; Figueiredo & Smith, Pl. Angola: 186, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 230, 2011; Onana, Vascul. pl. Cameroon…: 166, 2011; M. Renier, Flore du Kwango 1: 101, 1948 (as *Antholyza gilletii*); Thiombiano & al., Cat. pl. vasc. Burkina Faso: 63, 2012; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Fl. Afr. Centr., Irid.: photo 38, 2005; Fl. Trop. E. Afr., Irid.: 61, 1996; Goldblatt (1996): p. 142, pl. 11-12, and p. 146, pl. 13 (*G. macrospathus*); Fl. Gabon 38: 33, 2009; Lisowski, Fl. Rép. Guinée 2: fig. 500, 2009.

syn.: Enum. 3: 90, 1995; *G. macrospathus* Goldblatt

Herb 0,15-1,4 m tall; corm 1,2-4 cm Ø; tunics seldom accumulating, base without neck of fibres; leaves 4-7, 3-5 basal, 0,6-2 cm wide, upper ones cauline and shorter; stem erect, unbranched; floral bracts 2-5 cm long, overlapping; flowers light to dark purple, fading later, the lower tepals with dark purple mark; tube 1,2-1,5 cm long; dorsal tepal 2-2,6 cm long.

Open woodland; often in rocky habitats where it is sheltered from competition; occasionally reported from wetter sites such as edges of seasonally flooded valley grassland; locally abundant; sand very humid; forest gallery; moist savanna; hollow on hardpan; Katanga copper soil (Pl. Ecol. & Evol. 146: 185, 2013); 130-2621 m alt.

Corms edible, sometimes sold in markets.

Near *G. microspicatus*, *G. harmsianus*.

Note: Geerinck treats *G. microspicatus* as a variety of *G. erectiflorus* (= var. *angustifolius;* cf. Taxonom. 4: 3, 2001, etc.), a smaller plant with linear leaves and not overlapping flower bracts. See below under *G. microspicatus*.

A plant named *G.* cf. *gregarius* is reported from SW Cameroon (Cheek & al., Pl. Mt Oku…: 185, 2000).

G. gunnisii (Rendle) Marais; Thulin, Fl. Somalia 4: 66-67, 1995; Goldblatt (1996): 251-253; Fl. Trop. E. Afr., Irid.: 76, 1996; Fl. Ethiopia 6: 179, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 161-162, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 252-253, 2010.

Herb 25-45 cm tall; corm globose-conic, 1,1-1,4 cm Ø; leaves ± 3, 1-2 basal, *grass-like*, 2-4,5 mm wide; stem unbranched; spike 1-2-3-flowered; flowers *white to cream*, strongly fragrant; *tube 8-12 cm long*, dorsal tepal 2,5-3 cm long; anther *filaments* c. 0,9 cm long, *included in tube*.

Sheltered sites in rocky habitats in dry country; limestone hills in rocky grassland; 1500-2300 m alt.

Superficially resembling *G. candidus*. Closely related to *G. richardsiae*. May be confused with *Lapeirousia schimperi* with similar flowers.

G. harmsianus Vaupel; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Goldblatt (1996): 151, pl. 14-15.

Herb 0,5-1,5 m tall; corm 2,5-3 cm Ø; with fan of several basal leaves; spike 15-20-flowered, straight or barely flexed at base; flower bracts clasping the spike axis and imbricate, usually 2, sometimes 3, 1-3 internodes long, 2,5-4,8 cm long; flowers white; tube 3-3,5 cm long; upper and lower tepals weakly differentiated; anthers dark purple; style branches c. 4,5 mm long.

Edge of the main escarpment or on hills; 1350-1550 m alt.

Near *G. gregarius* (vegetatively similar).

G. hollandii L. Bolus – Icon.: Fl. Pl. S. Afr. 20: pl. 791, 1940 (*G. varius* F. Bolus var. *elatus* F. Bolus); Goldblatt & Manning, Gladiolus south. Afr.: 76, pl. 4, 1998.

Herb 0,75-1,5 m tall, usually growing in small clumps; corm 1,8-4 cm Ø; leaves 6-8, lower 4-5 basal, 0,7-1,2 cm wide; stem erect, sometimes 1-branched; spike 18-55-flowered; bracts 1,7-3 cm long; flowers white, speckled red to pink; tube dark red, 1,8-3 cm long; tepals 2-2,3 cm long, the uppermost slightly larger.

Stony grassy slopes; c. 800 m alt.

S. Africa, Swaziland.

Not in Goldblatt, Gladiolus in tropical Africa, 1996.

G. huillensis (Welw. ex Baker) Goldblatt; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Goldblatt (1996): 232.

syn.: Enum. 3: 90, 1995; *Anisanthes huillensis* (Welw. ex Baker) Klatt; *Petamenes degasparisiana* (Buscal. & Muschl.) N. E. Br.

Herb 0,3-1 m tall; corm 1,6-2 cm Ø; leaves with blades to 8 cm long evenly spaced on stem; sheaths lightly pubescent; stem unbranched; spike 6-14-20-flowered; flowers bright red, often marked yellow on lower tepals and throat; upper tepal extended horizontally, c. 1,5 cm long; lateral tepals 5-6 mm long; lower ones 3-6 mm long; tube 1,1-1,6 cm long.

Light woodland; sunny sandy-stony thicket-grown places; *Uapaca* woodland; miombo; 1500-2050 m alt.

Near the *G. atropurpureus* group.

G. intonsus Goldblatt; Fl. Afr. Centr., Irid.: 75, 2005. – Icon.: Goldblatt (1996): 104; Fl. Trop. E. Afr., Irid.: 54, 1996.

Herb 0,5-0,75 m tall; corm globose, c. 1,5 cm Ø; cataphylls and leaves densely pubescent; leaves 6-8, 2-3 basal, lanceolate-linear, 7-12 mm wide, upper ones cauline, stem simple; spike 9-14-flowered; bracts 1,6-2,5 cm long; flowers white to cream or pink to light purple; tube c. 1 cm long; tepals unequal, dorsal one largest, c. 2 cm long; capsule and seeds unknown.

Woodland in hilly country; 1200-2200 m alt.

Near *G. puberulus*.

(**G. iroensis** (A. Chev.) Marais); Goldblatt (1996): 294-295.

syn.: Enum. 3: 90, 1995; *Acidanthera bicolor* sensu Lebrun & al., Cat. pl. vascul. Tchad mérid.: 198, 1972, non Hochst. (= *G. murielae*).

Herb 40-60 cm tall; corm 1,4-1,8 cm Ø; leaf blades erect, grass-like, 8-15 × 0,6-1 cm; stem simple, 30-60 cm tall; spike 1-2-flowered; anther appendages 4-5 mm long; capsule unknown.

Marsh; seasonally inundated water-logged soil.

Somewhat intermediate between *G. aequinoctialis* and *G. murielae*. Close resemblance to *G. chevalieranus*.

Only known from 3 collections (1903, 1969). A doubtful species. – Described from S. Chad, Lake Iro (10°05'N × 19°24'E); not mapped (map in Goldblatt, l.c.).

G. juncifolius Goldblatt – Icon.: Goldblatt (1996): 102, pl. 4.

Herb 20-35 cm tall; corm unknown; leaves 4-5, 2-3 basal with blades ± terete, 1-1,5 mm broad, ± exceeding the spike, narrowly four-grooved in section, edges of the raised parts sometimes ciliate; cauline ones entirely sheathing; stem simple; spike 2-6-flowered, bracts 1-1,5 cm long; flowers pale pink or purplish, the 2 lower lateral tepals with yellow transverse band; tube 0,9 cm long; tepals unequal, dorsal one arched, c. 2 cm long; capsule and seeds unknown.

Rocky grassland, in sites usually retaining moisture throughout the year; 1500-2500 m alt.

Confused with *G. zimbabweensis;* near the southern African *G. pretoriensis*.

G. laxiflorus Baker, non *Acidanthera laxiflora* Baker in Johnston 1886, nom. nud. *(= G. candidus);* Geerinck in Taxonom. 6: 12, 2002; Figueiredo & Smith, Pl. Angola: 186, 2008; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Goldblatt (1996): 116, pl. 5; Fl. Trop. E. Afr., Irid.: 54, 1996; Fl. Afr. Centr., Irid.: photo 28, 2005.

syn.: Enum. 3: 90, 1995.

Herb 20-70 cm tall; corm 2,5-3 cm Ø, usually dark red, persisting for some years; leaves 3-6, 2-4 basal, with blades emerging around anthesis, to 35 cm long, sparsely pubescent at least on sheaths; stem frequently branched; spike 6-9-flowered; bracts 1-2 cm long; flowers purple to pinkish; tepals ± unequal, the upper largest, 3-3,5 cm long; tube c. 1 cm long, tepals spreading outward from close to base.

Wet habitats: marshes, seasonally flooded valley grassland, stream banks; 1350-2300 m alt.

Poorly preserved specimens confused with *G. unguiculatus*.

G. ledoctei P. A. Duvign. & Van Bockstal – Icon.: Bull. Soc. Roy. Bot. Belg. 96: 125, 217 (both as *G. ledoctei* and *G. fungurumeensis*); Goldblatt (1996): 153; Fl. Afr. Centr., Irid.: photo 32, 2005.

Herb 35-80 cm tall, glabrous, often growing in clumps; corm 1,5-2 cm Ø, tunics extending upwards in a thick neck around stem base; leaves 5-7, 2 basal, linear to terete, 1-3 mm wide; cauline leaves 2-5, imbricate, shorter, partly entirely sheathing; stem simple; spike 3-8-flowered, ± sub-erect; bracts 1-1,5 cm long; flowers pale pink, or cream to yellow, the lower tepals with purple or dark yellow mark; tube 0,8-1,2 cm long; tepals unequal, the dorsal largest, c. 1,4 cm long; capsule ± globose, seeds angular.

Rocky sites; dry sites in open savanna; stony grassland with stunted shrubs; very high affinity to Cu/Co rich substrates (Pl. Ecol. Evol. 143: 9, 2010); 900-1450 m alt.

(**G. leonensis** Marais); Goldblatt (1996): 291-292. – Icon.: Boissiera 33: 176, 1981 (habitus).

Herb 25-30 cm tall, not including flowers; corm c. 1,5 cm Ø; leaves 3-4, 1-2 basal, with linear blade 2-6-12 cm long, 2-3 mm wide, midrib and margins thickened; stem erect, simple with 1-2 sheathing bract-like leaves; spike 2-3-flowered; bracts 3-5,5 cm long; flowers uniformly white, tube 13-14 cm long; tepals ± equal, 3-3,5 cm long; capsule and seeds unknown.

On peat with *Afrotrilepis pilosa*, *Hypoxis djalonensis* in burned meadow; 1500-1800 m alt.

Sierra Leone: Loma Mts, Tingi Mts. – Not mapped (map in Goldblatt, l.c.).

Very near *G. praecostatus*, and perhaps conspecific.

G. linearifolius Vaupel; Goldblatt (1996): 111-113; Fl. Afr. Centr., Irid.: 73-74, 2005.

syn.: *G. erectiflorus* sensu Geerinck, Bull. Jard. Bot. Natl. Belg. 42: 274, 1972, non Baker

Herb 25-40 cm tall; corm c. 1,2 cm Ø; leaves 3-5, 2-3 basal, with blades to 30 cm × 1,5-2 mm; stem simple, 20-40 cm tall; spike 2-4-flowered, inclined toward ground in upper half; bracts 1,3-1,5 cm long; flower colour unknown, probably red; tube c. 1 cm long; tepals ± equal, c. 2 cm long; anthers c. 5 mm long; capsule and seeds unknown.

Rocky places; 1600-2400 m alt.

Near *G. erectiflorus*, *G. sulcatus*.

Only 2 collections known (1908, 1970).

G. lithicola Goldblatt 1996, non Goldblatt & Manning 1998 (= *G. saxatilis* Goldblatt & Manning, a S. African species); Sebsebe Demissew & al., Flow; Eth. & Eritrea...: 165, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 257-258, 2010. – Icon.: Goldblatt (1996): 285; Fl. Eth. & Eritrea 6: 182, 1997.

Herb 8-28 cm tall; corm 0,8-1 cm Ø; leaves 2-4, *drooping*, blades linear, 2-4 mm wide, the lowermost 1,5-2,5 times as long as the stem; spike 1-3-flowered, bracts 1,5-3,5 cm long, green; flowers *bluish-purple* or *mauve;* tube c.1,8 cm long; tepals unequal, upper ones c. 1,8 cm long, lower ones c. 2 cm long; *anthers* c. *5 mm long, dark violet;* capsule and seeds unknown.

Steep rocky slopes and cliffs, originally in forest, but today largely cleared; 2100-2760 m alt.

Only 3 collections known (1961, 1963, 1969).

Near *G. serenjensis*.

G. longispathaceus Cufod.; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 162, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 253-254, 2010. – Icon.: Goldblatt (1996): 259; Fl. Eth. & Eritrea 6: 180, 1997.

Herb 45-90 cm tall; corm 1,5-3 cm Ø, usually with numerous small cormlets clustered around base; leaves 5-6, 4-5 ± basal, 0,7-1,5 cm wide; spike 8-12-flowered; bracts green or flushed red above or almost entirely reddish; flowers predominantly red; tube comprising a slender lower part 2-2,5 cm long, abruptly expanded into a wide horizontal cylindrical upper part c. 1,5 cm long; dorsal tepal largest, 2-2,5 cm long; lower 3 tepals reduced but not to a short cusp (cf. *G. abyssinicus*).

Moist habitats; streams; wet rocks; 2400-4000 m alt.

Near *G. abyssinicus*.

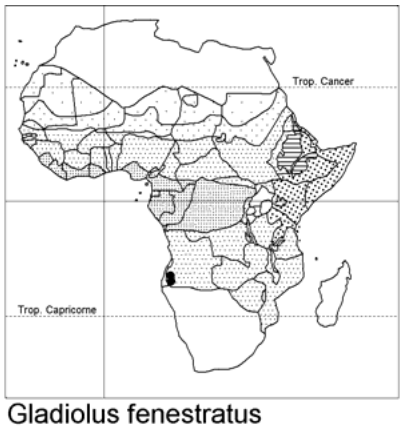
G. lundaensis Goldblatt; Goldblatt (1996): 118-119; Fl. Afr. Centr., Irid.: 87, 2005; Figueiredo & Smith, Pl. Angola: 186, 2008.

Herb 38-60 cm tall; corm 1,2-1,5 cm Ø, without accumulated tunics so that the corms are enclosed only by the bases of the current season's cataphylls; leaves 5-7, narrowly lanceolate, 3-4 mm wide, midrib lightly thickened, margins not raised or thickened; spike nearly erect, 3-6-10-flowered; bracts 0,6-1 cm long, inner ones especially in the middle of the spike longer than the outer; flowers purple (or white), lower tepals with dark purple markings; tube 0,6-0,8 cm long; tepals unequal, dorsal one largest, 1,2 cm long; seeds unknown.

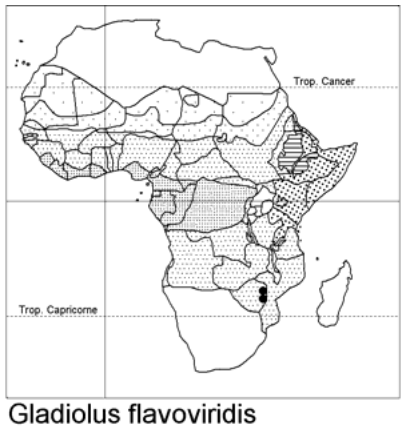
Permanently damp sites.

Closely resembles *G. unguiculatus*.

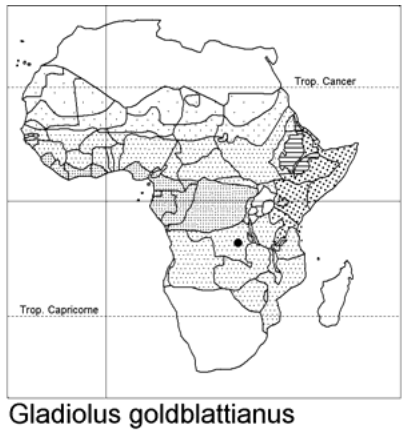
Only 2 collections known (1932, 1954).



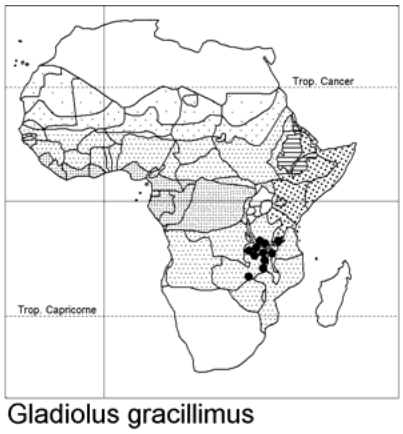
Gladiolus fenestratus



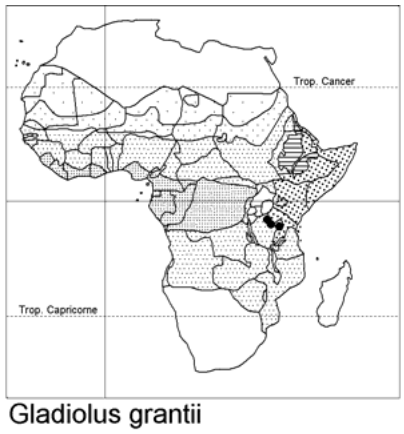
Gladiolus flavoviridis



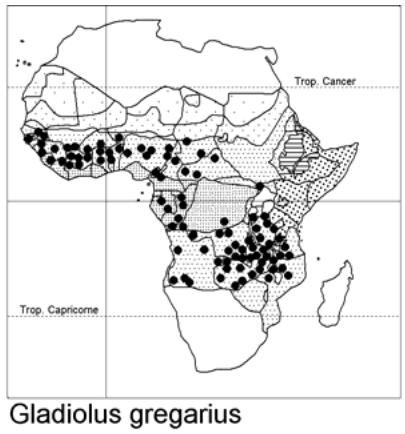
Gladiolus goldblattianus



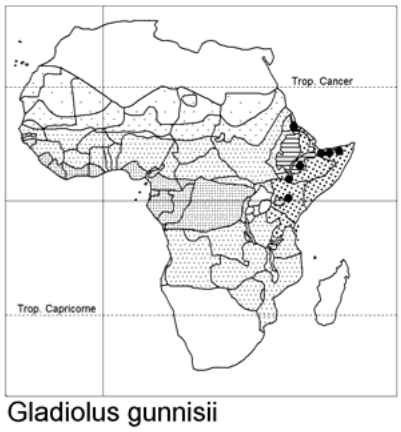
Gladiolus gracillimus



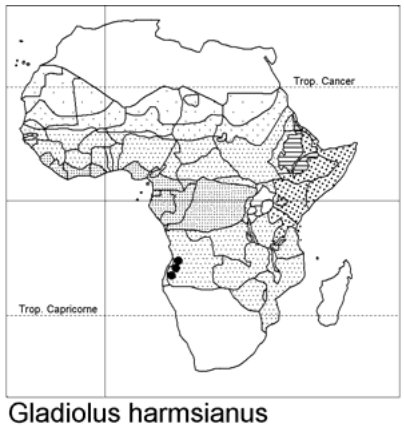
Gladiolus grantii



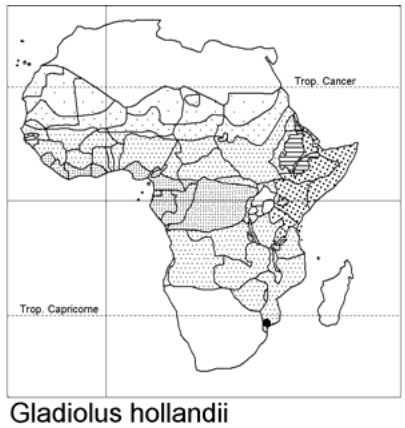
Gladiolus gregarius



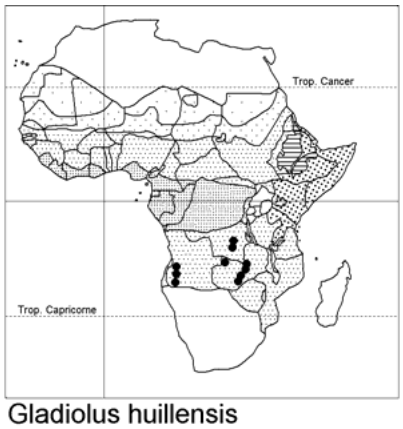
Gladiolus gunnisii



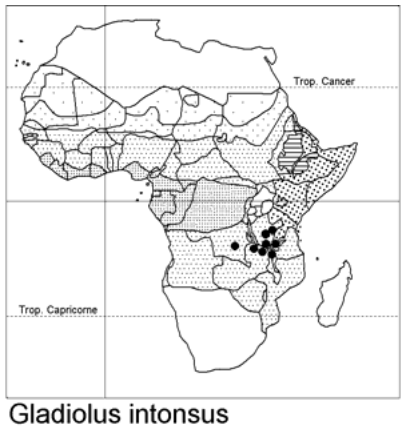
Gladiolus harmsianus



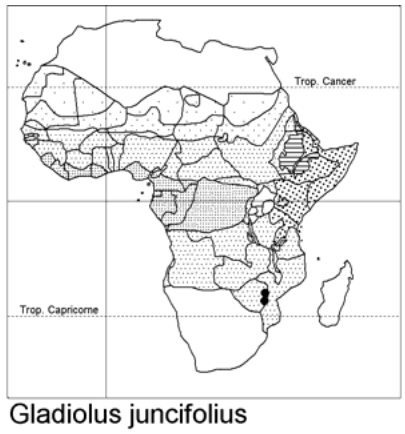
Gladiolus hollandii



Gladiolus huillensis



Gladiolus intonsus



Gladiolus juncifolius

G. magnificus (Harms) Goldblatt; Fl. Zambes. 12/4: 94-95, 1993; Figueiredo & Smith, Pl. Angola: 186, 2008; idem in Bothalia 39: 197, 2009 (Kunene Exped. Baum). – Icon.: Goldblatt (1996): 229, pl. 30; Goldblatt & Manning, Gladiolus south. Afr.: pl. 26, 1998.

syn.: Enum; 3: 91, 1995; *Antholyza spectabilis* Schinz, non *Gladiolus spectabilis* Baker; *Chasmanthe spectabilis* (Schinz) N. E. Br.; *Petamenes spectabilis* (Schinz) E. Phillips

Herb 0,8-1,4 m tall; corm depressed globose, 2-3 cm Ø; leaves 5-7, 4-5 basal and longest, blades 6-9 mm wide; stem simple; spike 6-15-flowered; bracts 2,5-3,5 cm long; flowers bright red with yellow markings on lower tepals and in throat; tube 2,5-3 cm long, expanded near top of bracts; tepals very unequal, the dorsal largest 3,5-4,2 cm long and 1,8-2,2 cm wide; upper lateral tepals 1,3-1,5 cm long; capsule and seeds unknown.

Light woodland or forest clearings in sandy soil, often with tall grasses; forest on river banks; *Baikiaea* woodland; c. 1200 m alt.

N Botswana, N Namibia.

Resembling a tall slender variant of *G dalenii*.

G. manikaensis Goldblatt – Icon.: Goldblatt (1996): 239; Fl. Afr. Centr., Irid.: photos 26-27, 2005.

Herb 35-60 cm tall; corm elongate, somewhat rhizome-like, dark red, 1,5-2,5 cm long, 1 cm Ø, old corms sometimes persistent, attached horizontally; leaves 4-6, the lowest basal, half as long as stem, 5-9 mm wide; stem erect, unbranched; spike 3-8-flowered; bracts 2,5-3 cm long; flowers white to pale lilac; tube 1,5 cm long; tepals unequal, the dorsal largest 2,3-2,5 cm long; capsule and seeds unknown.

Marshy sites permanently or seasonally wet; marshy river side; c. 1400 m alt.

Resembling *G. melleri*, *G. benguellensis*, *G. stenolobus.*

G. melleri Baker; Fl. Trop. E. Afr., Irid.: 74-75, 1996; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Bot. Mag. 105: pl. 6463, 1879 (sub nom. *G. brachyandrus* Baker); Tredgold & Biegel, Rhodes. wild flow.: pl. 8, 1979; Goldblatt (1996): 243, pl. 32; Fl. Afr. Centr., Irid.: photo 24, 2005; Burrows & Willis, Pl. Nyika Plateau: 311, 2005.

syn.: Enum. 3: 91, 1995; *G. welwitschii* Baker subsp. *brevispathus* Pax; *G. dalenii* Van Geel var. *melleri* (Baker) S. Còrdova Ponce

Herb 25-60 cm tall; corm 2,5-3,5 cm Ø; flowering stem with only sheathing leaves or nearly so; foliage leaves produced after anthesis on separate shoots, solitary, lanceolate, to c. 30 cm long, 1 cm wide; stem usually unbranched; spike 5-9-12-flowered; bracts 1,5-3,5 cm long; flowers brick-red to salmon; tube 1,5-2,5 cm long; stamen filaments 0,8-1 cm long, *included in perianth tube;* style branches 0,5-0,6 cm long.

Seasonally wet sites: margins of valley grassland, poorly drained wooded grassland; flowering is stimulated by fire and signs of burning are common on specimens; 1200-2600 m alt.

Resembling *G. oliganthus*, *G. roseolus*; confused with *G. dalenii* subsp. *andongensis*, *G. benguellensis*, *G. manikensis*.

G. mensensis (Schweinf.) Goldblatt; Goldblatt (1996): 184-186; Fl. Eth. & Eritrea 6: 175, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 157, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 246, 2010.

syn.: Enum. 3: 91, 1995.

Herb 25-80 cm tall; corm 1,2-1,4 cm Ø; foliage leaves 4-5, 2-3 ± basal; blades linear, 2-4 mm wide; stem erect, unbranched; spike 4-7-flowered; bracts 1,4-2,5 cm long; flowers cream, white to pale pink, 3,3-3,5 cm long, obliquely funnel-shaped; tube c. 1,5 cm long; anther filaments 0,9-1,2 cm long, exserted 4-5 mm from the tube.

Rocky grassland; c. 2200 m alt.

Poorly known; only 2 collections known.

G. metallicola Goldblatt

Herb 45-50 cm tall; corm probably globose, c. 1,5 cm Ø; leaves 5-6, the lower 2 with sublinear blades about as long as stem, 2-6 mm wide, margins and central vein heavily thickened (hyaline and conspicuous when dry); spike 10-15-flowered; bracts c. 1 cm long; flowers pale blue-lilac, midline of tepals marked dark red; tube c. 1 cm long; tepals basally narrowed, without tapering attenuate tips, the dorsal largest, c. 1,6 cm long; anthers 4-5 mm long; style short, dividing between base and middle of anthers; capsule and seeds unknown.

Heavy-metal-enriched soils and rocks of the Great Dyke (Zimbabwe).

Only known from the type collected in 1981.

Near *G. permeabilis* subsp. e*dulis*.

G. microspicatus P. A. Duvign. & Van Bockstal ex S. Còrdova; Geerinck in Taxonom. 4: 3, 2001 (*G. gregarius* var. *angustifolius*); Goldblatt (1996): 148-150; Fl. Trop. E. Afr., Irid.: 63, 1996; Fl. Afr. Centr., Irid.: 94, 2005.

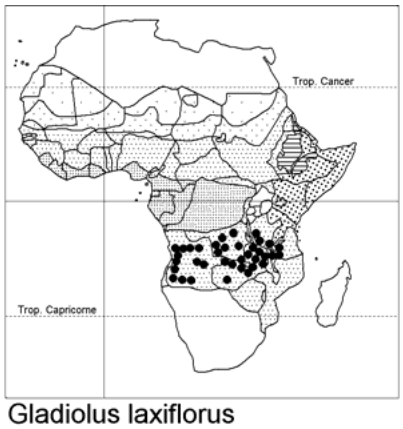
syn.: Enum. 3: 91, 1995; *G. gregarius* Welw. ex Baker var. *angustifolius* (Van Bockstal) Geerinck

Herb 25-35 cm tall; corm 1-2 cm Ø; fibers usually accumulating in a dense mass, often extending upwards and with the dry cataphylls forming a thick neck; leaves linear, to 25 cm × 1,5-7 mm; spike 4-10-flowered; bracts 1,8-2,5 cm long; flowers light to dark purple; tube 1-1,2 cm long; dorsal tepal 1,6-2 cm long.

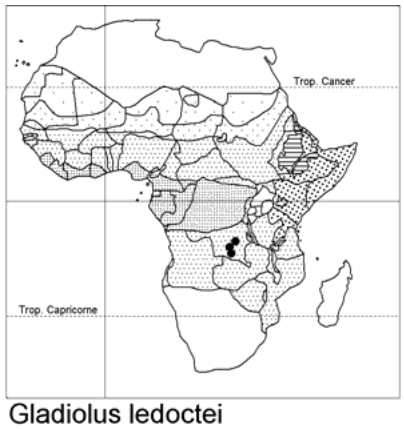
Copper hill; lightly copper-enriched steppe, summit of ore deposit; poisoned dambo south of metal-bearing hill; steppe with termite mounds; meadow rich in malachite; meadow with *Eragrostis, Xerophyta;* meadow with *Sporobolus*, copper rich; steppe on sand with many *Lentibulariaceae;* humid steppe near gallery; humid steppe; 1050-2100 m alt.

A species from heavy-metal-enriched soil; but also away from such habitats. Capsules of plants growing on sandy or stony soils are not known, and without seeds their identity is difficult to determine.

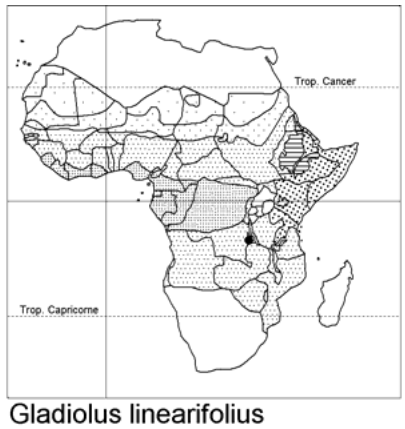
Near *G. gregarius*, and considered a variety of the latter by, e.g., Geerinck (cf. Goldblatt in Fl. Trop. E. Afr., l.c., i.e. var. *angustifolius*).



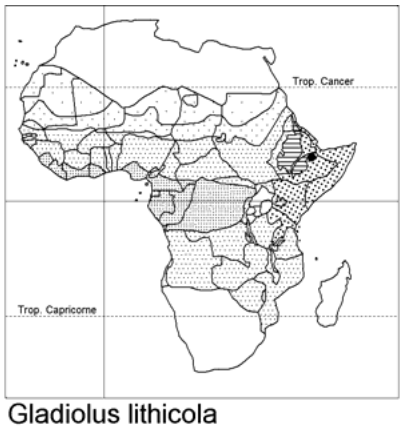
Gladiolus laxiflorus



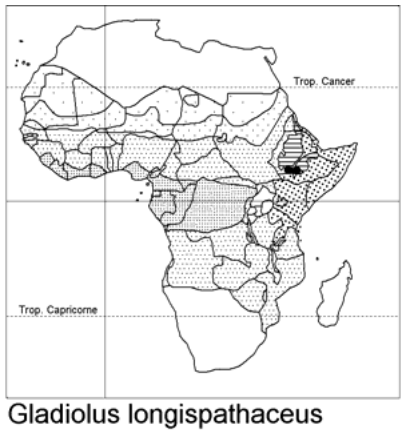
Gladiolus ledoctei



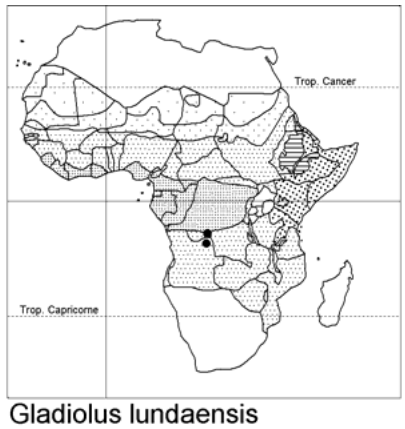
Gladiolus linearifolius



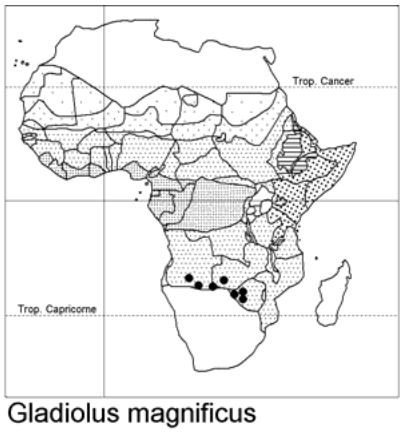
Gladiolus lithicola



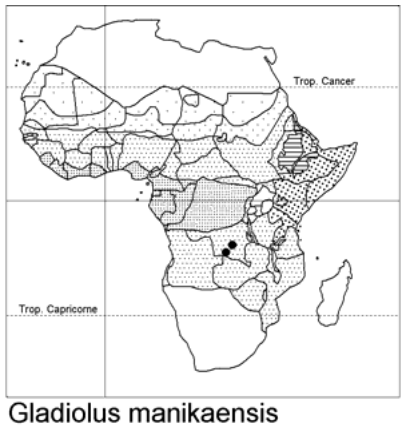
Gladiolus longispathaceus



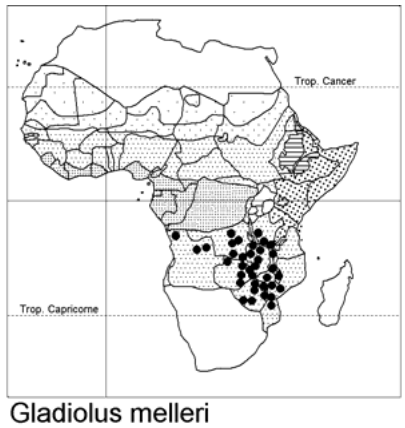
Gladiolus lundaensis



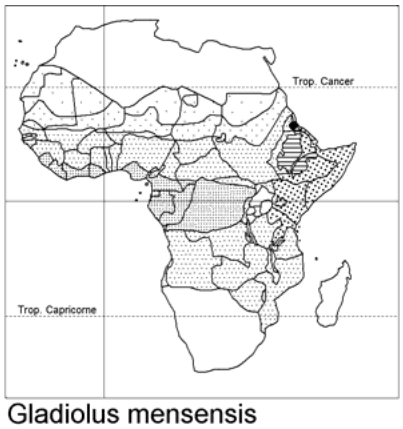
Gladiolus magnificus



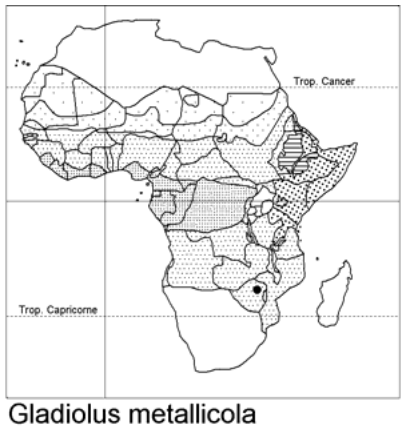
Gladiolus manikaensis



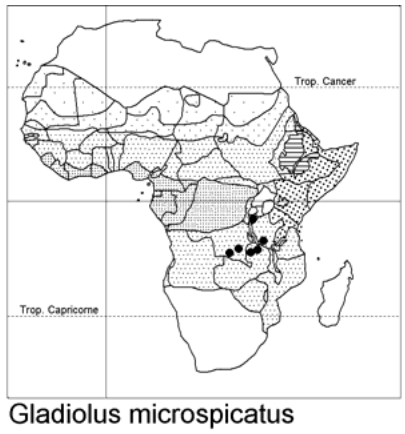
Gladiolus melleri



Gladiolus mensensis



Gladiolus metallicola



Gladiolus microspicatus

G. mirus Vaupel; Goldblatt (1996): 275-277; Sosef & al., Check-list pl. vascul. Gabon: 200, 2006; Fl. Gabon 38, Irid.: 32, 2009; Onana, Vascul. pl. Cameroon...: 166, 2011. – Icon.: Taxonoman. 8: l, 2002.

syn.: Enum. 3: 91, 1995; *G. oligophlebius* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 144, 1968, non Baker, et sensu Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 426, 1994.

Herb 40-80 cm tall; corm 1-2,5 cm Ø; leaves 4-5, 3 ± basal and longest, 6-35 × 0,3-1 cm; upper 2 leaves cauline, ± bract-like; stem simple; spike 5-15-flowered; bracts 2-4 cm long; flowers pink to red-purple, with a broad pale streak on each of the 3 lower tepals; tube 3-3,6 cm long, slightly shorter than tepals (2,5-3,5-4 cm long); anthers 8-9 mm long.

Open, usually rocky sites (e.g. inselbergs); shallow soil; meadows; half semi-humid or dry meadow with *Afrotrilepis pilosa;* meadow with *Eragrostis invalida*; treelet vegetation with *Euphorbia letestui* (see Acta Bot. Gall. 148: 341-365, 2001); *Oreonesiono testui-Afrotrilepidetum pilosae* Parmentier association (Phytocoenologia 36: 556, 2006); *Loudetiopsio glabratae-Antherothomion irvingianae* formation (Phytocoenologia 36: 582, 2006); 610-1600 m alt.

PARMENTIER, I. & al. (2002). Notes écologiques et taxonomiques sur Gladiolus mirus Vaupel (Iridaceae), nouvelles signalisations sur les inselbergs de Guinée Equatoriale et du Gabon. *Taxonoman*. 8: 1-6.

Near *G. oligophlebius*.

G. mosambicensis Baker; Novon 18: 165-167, 2008. – Icon.: Plowes & Drummond, Wild flow. Rhodesia: pl. 37, 1976.

syn.: *G. gazensis* Rendle

Herb 30-40 cm tall; corm 1,8-3 cm Ø; stem sometimes simple, or to 5-branched; flowers produced before the emergence of narrowly sword-shaped leaves (blades) have fully emerged; spike 10-15-flowered; floral bracts with rounded apices, 0,9-1,5 cm long; flowers pink to purple; tube 0,8-0,9 cm long; dorsal tepal 1,6-1,8 cm long; anthers 0,6-0,8 cm long; capsules 1,2-1,6 cm long, obovoid; seeds broadly winged, 5-7 × 4-5 mm.

Short open grassland on dry hillsides; vlei margins; among rocks in shallow loam overlying shales and sandstone; c. 1000 m alt.

Formerly considered synonymous with *G. crassifolius* (widespread species) but the two taxa are different in flowering time, stem branching, colour and size of flowers (cf. also Goldblatt & Manning, Gladiolus south. Africa: 75, 1998).

G. muenzneri Vaupel; Fl. Afr. Centr., Irid.: 74, 2005. – Icon.: Goldblatt (1996): 133, pl. 10; Fl. Trop. E. Afr., Irid.: 57, 1996; Burrows & Willis, Pl. Nyika Plateau: pl. 7, 2005.

Herb 30-60 cm tall; corm globose, 1-3,5 cm Ø; foliage leaves 2-3, entirely sheathing or with vestigial blades, lanceolate, 1-8-12 cm long; leaves on separate shoots not known; stem erect, simple; spike 2-8-flowered; bracts 1,8-2,5 cm long; *flowers white to cream or* yellow, sometimes flushed *pink* or light mauve, rarely uniformly mauve, pink or orange, without nectar guides; tube 0,7-0,8 cm long; tepals nearly equal, 2-2,5 cm long; anther filament 4-5 mm long, usually included in tube; anthers 7-9 mm long.

Dambo; edge of pool; dry deciduous woodland; grassy woodland; marshy grassland; 1200-2000 m alt.

Near *G. canaliculatus*, *G. atropurpureus*, *G. unguiculatus*.

G. murielae Kelway; Friis in Fragm. Flor. Geobot., Suppl. 2/1: 193, 1993 (Hochstetter's names for Schimper's early collections); Fl. Zambes. 12/4: 101-102, 1993 (as *G. callianthus*); Fl. Trop. E. Afr., Irid.: 83-84, 1996; Fl. Afr. Centr., Irid.: 63, 2005; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 165-166, 2003; idem, Aloes & lilies, Eth. & Eritrea, ed. 2: 258-259, 2010. – Icon.: Goldblatt (1996): 296, pl. 40; Fl. Eth. & Eritrea 6: 183, 1997.

syn.: Enum. 3: 91, 1995 (with nomenclatural discussion).

Herb 30-65 cm tall; corm 1,5-2,2 cm Ø; leaves 4-8, the lower three to five basal, 0,5-1,2 cm wide, reaching at least to the base of the spike, sometimes slightly exceeding it, relatively *soft-textured*, without thickened margins or midrib; flowers *white splashed with dark purple on lower tepals;* perianth *tube 9-15 cm long;* filaments exserted 1-1,5 cm; anther appendages 2-5 mm long.

In shade near stream; cliffs of volcanic rock; swampy ground; waterfalls; crevices in steep rock face; foot of wet rocks; river banks; 1200-2400 m alt.

Occasionally grown in gardens; available in the nursery trade; then better known as *G. callianthus* or *Acidanthera bicolor*.

Near *G. aequinoctialis* (with firm textured leaves). *G. iroensis* is a poorly known species and perhaps identical with *G. murielae* (cf. above under that species).

G. negeliensis Goldblatt – Icon.: Goldblatt (1996): 183, pl. 20; Fl. Eth. & Eritrea 6: 178, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 156, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 245, 2010.

Herb 15-30 cm tall; corm 1-1,4 cm Ø; leaves 2-3, basal, 2,5-4 mm wide; spike 2-5-flowered; flowers white to pale pink, produced at the same time as the leaves; tube 3-4 cm long; tepals 2,5-2,8 × 1-1,2 cm; capsule and seeds unknown.

Open flat grassland, sometimes waterlogged in rainy season; 1500-1700 m alt.

Only 3 collections known (1974, 1980, 1982).

G. nyasicus Goldblatt; Fl. Trop. E. Afr., Irid.: 73, 1996. – Icon.: Goldblatt (1996): 227.

Herb 40-60 cm tall; corm 1,5-2 cm Ø; leaves on the flowering stem, 4-5, c. 1/3 as long as spike, firm-textured; stem unbranched; spike 2-7-flowered; flowers pale yellow to cream; tube 1,8-2,5 cm long; tepals unequal: the dorsal largest, usually 3-3,5 cm long; the lower 3 curving downward, 1,2-1,6 × 0,7-1 cm, the lowermost somewhat longer than the laterals; filaments c. 1,6 cm long, exserted 4-6 mm from the perianth tube.

Boggy grassland and dambos; seasonally flooded valley grassland; 1000-1800 m alt.

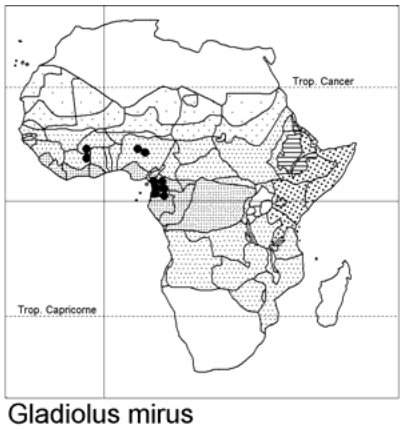
Related to *G. dalenii*, a taller plant with larger flowers. Also near *G. melleri* (the two often confused), *G. balensis*, *G. oliganthus.*

G. oliganthus Baker; Goldblatt (1996): 240-241; Fl. Trop. E. Afr., Irid.: 73-74, 1996.

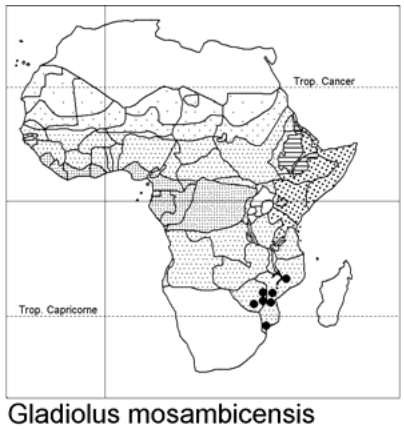
Herb 30-80 cm tall; corm 1,8-2,4 cm Ø; leaves 3-5, ± basal, blades ± linear, 5-10 mm wide; spike 3-7-10-flowered; flowers pale yellow to cream; tube 1,8-2,5 cm long; tepals unequal, lower three curving downward, 2-3 × 0,8-1,2 cm; filaments 1,2-1,6 cm long, reaching the mouth of the perianth tube or exserted 1-2 mm; anthers 0,8-1,2 cm long with obtuse apices.

Boggy grassland; seasonally flooded valley grassland; 1000-1800 m alt.

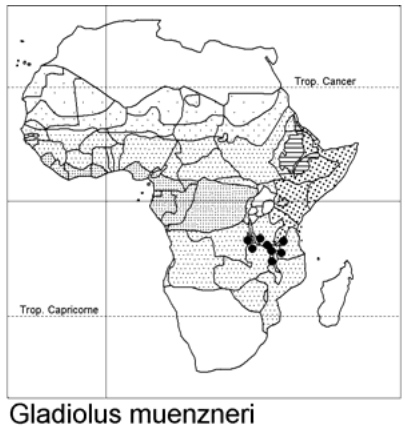
Near *G. sudanicus*. Confused with *G. melleri*, *G. dalenii*.



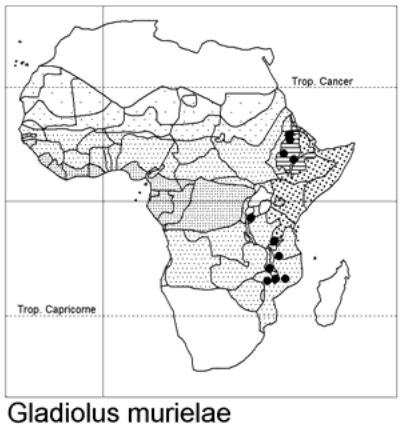
Gladiolus mirus



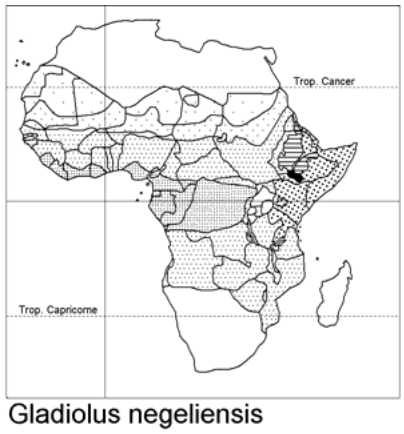
Gladiolus mosambicensis



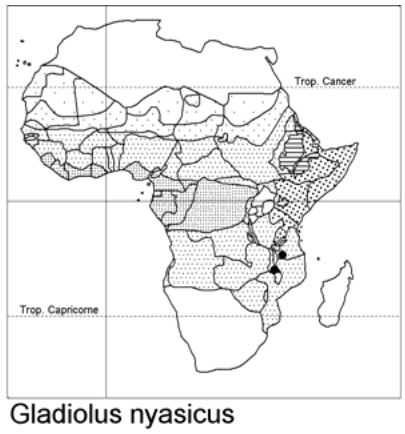
Gladiolus muenzneri



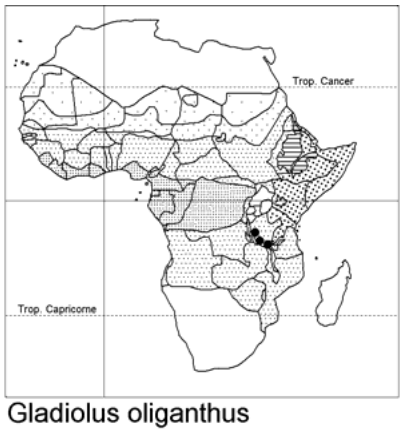
Gladiolus murielae



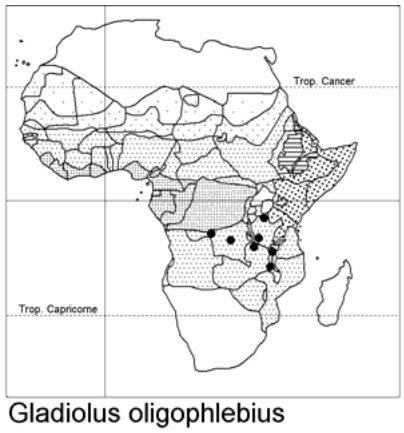
Gladiolus negeliensis



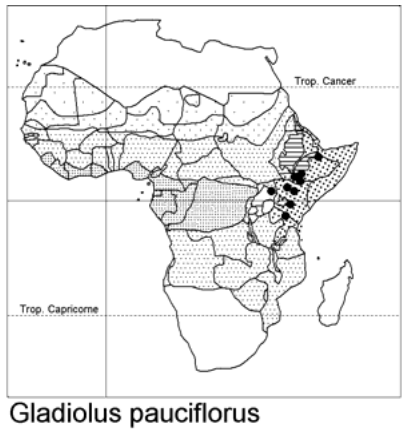
Gladiolus nyasicus



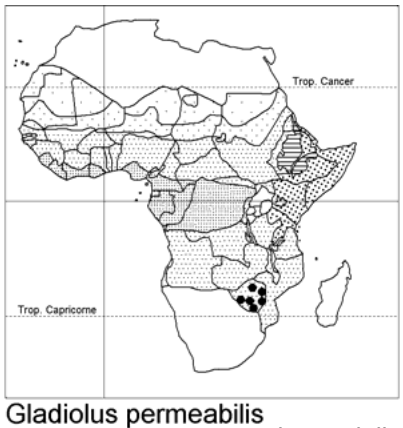
Gladiolus oliganthus



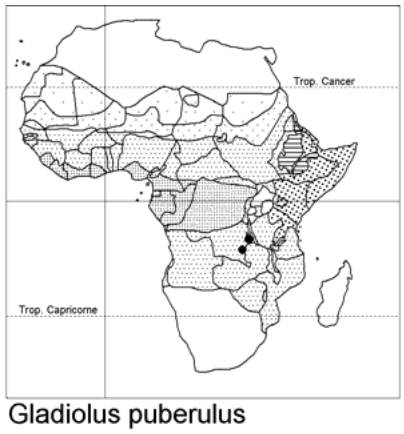
Gladiolus oligophlebius



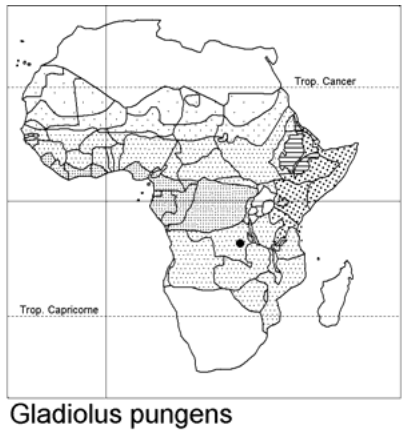
Gladiolus pauciflorus



Gladiolus permeabilis
subsp. edulis



Gladiolus puberulus



Gladiolus pungens

G. oligophlebius Baker, non *G. oligophlebius* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 144, 1968, nec sensu Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 426, 1994 *(= G. mirus).* – Fl. Afr. Centr., Irid.: 75-76, 2005. – Icon.: Goldblatt (1996): 274, pl. 37; Fl. Trop. E. Afr., Irid.: 81, 1996.

Herb 40-80 cm tall; corm 1,5-2,5 cm Ø, fibres brown, enclosing numerous small cormlets; leaves 4-5, fairly soft-textured, midrib and margins not thickened; spike 5-9-flowered; flowers pale to deep pink with elliptic markings; tube 3-4 cm long; tepals ± equal, dorsal one 3,8-4,5 cm long; filaments 1,5-2 cm long, exserted 0,3-1,5 cm from perianth tube; anthers 1-1,5 cm long with prominent acuminate appendages.

Forest edge; along river; above waterfalls; grassy scree; open woodland or grassland; sand dune woodland; close to lake shore; rock outcrops in dry country; 500-1500 m alt.

Near *G. decoratus. G. minus* is possibly conspecific with *G. oligophlebius*.

G. pauciflorus Baker 1887, non De Wild. 1913 (= *G. dalenii* subsp. *andongensis*); Fl. Trop. E. Afr., Irid.: 75, 1996. – Icon.: Goldblatt (1996): 249, pl. 34; Fl. Eth. & Eritrea 6: 180, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 161, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 252, 2010.

Herb 0,8 – c. 1 m tall; corm 1,5-2,2 cm Ø; leaves 3-5, the lower 2-4 basal, narrowly lanceolate, 8-15 mm wide; spike 2-10-flowered, bracts 3,5-6 cm long; flowers white to pale yellow, cream, yellowish green (rarely pink or red), lower 3 tepals often with a dark purple median streak; tube 2-4,5 cm long; upper 3 tepals largest, dorsal one 3-3,5 cm long; filaments exserted 1-1,4 cm from perianth tube.

Open grassland or woodland; > 1000-2600 m alt. – Most common in Ethiopia.

Fairly variable.

Near *G. verdickii*, *G. usambarensis*.

G. permeabilis D. Delaroche subsp. **edulis** (Burch. ex Ker Gawl.) Oberm.; Goldblatt & Manning (1998): 202 (map of species p. 201). – Icon.: Edwards's Bot. Mag. 2: pl. 169, 1817 (sub nom. *G. edulis*); Van Wyk & Malan, Field guide Witwatersrand Pretoria: pl. 352, 1998; Goldblatt (1996): 170.

syn.: Enum. 3: 91, 1995; *G. remotifolius* Baker

Herb 30-60 cm tall; corm 1-1,2 cm Ø; leaves 3-6, the lower 2-3 inserted at or below ground level, linear, 1-3 mm wide; stem simple or branched; spike 4-8-flowered; bracts 0,7-1,2 cm long; flowers whitish to dull cream, grey or mauve, flushed with grey-blue on the dorsal tepal; tube 0,8-1,2 cm long; tepals unequal, long-attenuate, the upper 3 narrowed into claws beneath and the cusps often twisted; in profile the flower is windowed (gaping between bases of dorsal and upper lateral tepals, hence *permeabilis*; in profile one can see through the flower, a character shared with *G. fenestratus and G. unguiculatus*). The subspecies is distinctive in its linear leaves, small intensely fragrant pale flowers, long-apiculate tepals with dark median streaks.

Usually on sandy soils in grassland and *Acacia* woodland; c. 900 m alt.

Botswana, Namibia, Lesotho, Swaziland, S. Africa.

Subsp. **permeabilis** occurs in SW Cape Province. Subsp. *wilsonii* (Baker) G. J. Lewis = **G. wilsonii** (Baker) Goldblatt & J. C. Manning in S. Africa.

(**G. praecostatus** Marais); Goldblatt (1996): 289-291, map p. 290.

syn.: *Acidanthera aequinoctialis* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 139, 1968, p.p. quoad specim. Schnell 1561.

Herb 30-65 cm tall; corm 1,5-3 cm Ø, tunics light red-brown; leaves 4-several, the lower 3-5 are 0,4-1,2 cm wide, stiff with heavily thickened margins, midribs and at least 2 other veins, the thickening raised and arching over the blade surface; blades at least 15 cm long, usually reaching to at least base of spike; spike 2-6-flowered; bracts 3-7 cm long; flowers white, each of the 3 lower tepals with a dark purple streak in lower midline; tepals ± equal, ± obovate, apiculate.

Meadows on rocky soils or rocks; 1100-1800 m alt.

Occurs in the Nimba Mts (S Guinea-N Liberia-neighbouring Ivory Coast). – Not mapped.

Very near and probably a synonym of *G. leonensis;* also near *G. aequinoctialis* but the flower in *G. praecostatus* has perianth tube 8-12,5 cm long, tepals 3,2-3,5 cm long (not 8,5-14 cm, nor 3,5-4 cm).

The 3 taxa *G. iroensis, G. praecostatus, G. aequinoctialis* are doubtfully distinguished from the E. African *G. murielae*.

G. puberulus Vaupel; Fl. Afr. Centr., Irid.: 77, 2005. – Icon.: Goldblatt (1996): 107.

Herb 0,3-1,3 m tall; corm depressed globose, 1,5-2,5 cm Ø; leaves 4-6; 2-3 basal, 0,8-1,2 cm wide, densely pubescent on margins and veins; spike 7-14-flowered; bracts 2-4 cm long; flowers cream to ivory, sometimes flushed with pink, or pink to purple with lower 3 tepals cream with a central yellow band; tube 1,5-3,5 cm long; tepals unequal, the dorsal largest, 2,5-3,5 cm long.

Woodland on rocky sites; 1450-2000 m alt.

Near *G. intonsus*.

G. pungens P. A. Duvign. & Van Bockstal ex S. Còrdova; Goldblatt (1996): 155-156; Fl. Afr. Centr., Irid.: 76-77, 2005.

Herb 60-70 cm tall; corm unknown; cataphylls dry, dark brown, accumulating in a neck around base; leaves 8-9, the lower 3-4 basal with long terete blades 1-1,8 mm, tips filiform; spike ± 5-flowered; bracts c. 1 cm long, ± dry; flowers white to pink, throat purple; tube 0,8-1,2 cm long; tepals unequal, the dorsal largest, c. 1,5 cm long; capsule unknown; seeds angular, winged.

Schist escarpment; c. 1400 m alt.

Known only from the type collected in 1957.

Near *G. ledoctei* ?

G. pusillus Goldblatt in Fl. Zambes. 12/4: 85, 1993; Goldblatt (1996): 167-168; Fl. Trop. E. Afr., Irid.: 64, 1996 (cf. Kew Bull. 53: 702, 1998); Fl. Afr. Centr., Irid.: 84-85, 2005.

syn.: *G. opheliae* P. A. Duvign. & Van Bockstal, nom. in sched.

Herb 15-40 cm tall; corm 0,7-1,2 cm Ø, fine netted fibres sometimes accumulating in a weakly developed neck around the base; leaves 2, the lower one basal, tightly sheathing the stem for most of its length, often reaching to about top of the spike, this inclined about 30°, lightly flexuous; bracts 6-9 mm long; flowers tiny, yellow to white with deep yellow nectar guides on lower 3 tepals; tube 3,5-4 mm long; tepals unequal, dorsal one largest and hooded, 7-10 mm long.

Damp white sand; pasture; moist peaty dambo; dambo on peaty granitic sand; 1050-1680 m alt.

GLADIOLUS PUSILLUS

The presence of this species in Tanzania is doubtful. The locality given by Goldblatt (1996) is erroneous; the exact position given by Verdcourt on his gathering is Mpanda distr., Uvinza-Mpanda road, mile 26. The ecology is peaty soil of seepage zone in miombo woodland, *Brachystegia microphylla*, etc. The specimen cited (Verdcourt 3441A) is a very delicate gladiolus with *blue* flowers (= ? *G. gracillimus*).

Near *G. gracillimus* (and confused with it), but flower colour different (and with perianth tube 11-15 cm long, uppermost tepal 11-15 mm long).

G. richardsiae Goldblatt; Goldblatt (1996): 253-254; Fl. Trop. E. Afr., Irid.: 76-77, 1996.

Herb 45-55 cm tall; corm unknown; leaves 5, 3 basal; blade lanceolate, 5-8 mm wide; spike 2-3-flowered; bracts 4-4,7 cm long; flowers white; tube 8-8,5 cm long; tepals unequal, the 3 dorsal ones 4-4,5 cm long; anther filaments c. 2,5 cm long; capsule and seeds unknown.

Heavy clay mud in marshy habitat; 1500 m alt.

Only one gathering (type) known (4 specimens), collected in 1968.

Near *G. gunnisii*.

G. robiliartianus P. A. Duvign.; Fl. Afr. Centr., Irid.: 82-83, 2005. – Icon.: Goldblatt (1996): 159; Bull. Soc. Roy. Bot. Belg. 96: 124, 1963 (and sub nom. *G. duvigneaudii*).

Herb slender, 25-40 cm tall, in compact clumps; corm 0,9-1,2 cm Ø, fibres extending in a neck; leaves 3, blades terete, ± filiform, at least the lower two, substantially exceeding spike, the upper largely sheathing; stem strongly flexed and inclined; spike 3-8-flowered; bracts c. 1 cm long; flowers pale blue to lilac or pink, each tepal with a dark blue to purple mark distally; tube 7-8 mm long; tepals unequal, the dorsal largest, 12-14 mm long.

Mineralized hill; rocky steppe formation; in well-drained soils; rocky meadows with black soil; Cu/Co-rich soils (to > 50.000 ppm), uranium-rich soils; also on less mineral-rich soils; 1350-1450 m alt. (vide Pl. Ecol. Evol. 143: 9, 2010; and ibid. 146: 185, 2013).

Near *G. ledoctei.*

G. roseolus Chiov.; Puff & Sileshi, Pl. Simen: 226, 2005; Onana, Vascul. pl. Cameroon...: 166, 2011. – Icon.: Goldblatt (1996): 247, pl. 33; Fl. Eth. & Eritrea 6: 178, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 160, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 251, 2010.

syn.: *G. heterolobus* Vaupel; *G. melleri* sensu Fl. W. Trop. Afr., ed. 2, 2/3: 144, 1968, non Baker

Herb 40-90 cm tall; corm 2,5-3 cm Ø; leaves of flowering stems 2-4, short and ± entirely sheathing, sometimes with short blades 6-14 cm long; laminate foliage leaves produced from separate shoots, narrowly lanceolate, 4 mm wide; spike 2-10-flowered; bracts 2-3 cm long; flowers *whitish* with a pink flush *to pink*, sometimes speckled with minute red dots; *tube 1,8-2,3 cm long;* dorsal tepals strongly arched to almost hooded, lower 3 tepals curving downward; tepals unequal, 2,6-3 cm long (dorsal); anther filaments exserted 4-5 mm from perianth tube; style branches 4-5 mm long.

Savanna among rocks; *Combretum-Terminalia* woodland; bamboo thicket; often in rocky sites; riverbank around waterfall; heavy black clay; 1200-2200 m alt.

Near *G. melleri*.

GLADIOLUS

G. rupicola Vaupel – Icon.: Goldblatt (1996): 188, pl. 21; Fl. Trop. E. Afr., Irid.: 65, 1996; R. Raistrick, African violets...: 93, 2006.

Herb 50-75 cm tall; corm 1,8-2,5 cm Ø, possibly always with cormlets around base; leaves several, as long as stems, 8-15 mm wide, lower 3-5 basal; spike 3-5-flowered; bracts 3-5 cm long; flowers red to deep pink, lower 3 tepals white to cream at base, each with a narrow cream to yellow median streak; tube 2,5-3 cm long; dorsal tepal largest, ± arched over stamens, 2,5-5,5 cm long.

Grassland; rocky outcrops; ? rain-forest; crevices of vertical rocks; hanging from steep rocks; river bank in moss; 1150-2400 m alt., usually above 2000 m.

Fairly common in the Uluguru and Usambara mountains (Tanzania).

Easily confused with *G. decoratus, G. oligophlebius*.

G. salmoneicolor P. A. Duvign. & Van Bockstal ex S. Còrdova; Goldblatt (1996): 283-284; Fl. Afr. C., Irid.: 63-64, 2005.

syn.: *G. erectiflorus* sensu Geerinck, Bull. Jard. Bot. Natl. Belg. 42: 274, 1972, quoad specim. Dubois 1399, non Baker

Herb 14-60 cm tall; corm 1,3-1,5 cm Ø; leaves 5-6, with blades reaching to about base of spike, narrowly lanceolate or linear, 0,4-0,6 cm wide, soft-textured; spike 5-7-flowered; flowers evidently actinomorphic with tube evidently white (described as salmon coloured), 8-9 mm long; tepals pale pinkish, 1,8-2 cm long; anthers 5-6,5 mm long, bases included in tube; capsule unknown; seeds described but not present in cited material.

Open forest with *Marquesia, Brachystegia*.

Only known from 2 collections (1945, 1960).

G. schweinfurthii (Baker) Goldblatt & M. P. de Vos; Thulin, Fl. Somalia 4: 66, 1995; Fl. Trop. E. Afr., Irid.: 78, 1996; Goldblatt (1996): 264-266; Fl. Eth. & Eritrea 6: 181-182, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 163-164, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 255-256, 2010. – Icon.: Bot. Mag. 126: pl. 7709, 1900 (sub gen. *Antholyza*).

syn.: Enum. 3: 91, 1995.

Herb 30-75 cm tall; corm 0,8-1,5 cm Ø; leaves 4-5, lower 2 basal reaching 1/2-1/3 of stem height; blades lanceolate, 0,4-2 cm wide, plane; stem simple or with 1-2 branches; spike 2-7-12-flowered; bracts often *flushed dull purple*, 1,8-3 cm long; flowers strongly zygomorphic, 2,5-3,6 cm long, bright to orange red; tube 1,1-1,6 cm long; tepals very unequal, the dorsal largest 1,2-2,2 cm long; upper lateral ones directed forward, 0,8-1,4 cm long; median lower tepal a linear cusp 0,3-0,6 cm long.

Dry bush; grassland; dry woodland; rocky habitats; 750-2600 m alt.

Near and often confused with *G. abyssinicus*, with larger flowers and bracts.

G. serapiiflorus Goldblatt; Geerinck in Taxonom. 6: 12, 2002. – Icon.: Goldblatt (1996): 131, pl. 9; Fl. Afr. C., Irid.: pl. 15, photos. 29-31, 2005.

syn.: *G. galbinus* sensu P. A. Duvign. & Van Bockstal in Herb. BRLU.

Herb 30-60 cm tall; corm 1,5-2 cm Ø, with coarsely fibrous tunics; leaves of flowering stem 4-6, imbricate, almost entirely sheathing or the lower ones laminate; blades usually 3-8 cm long, occasionally to 30 cm; flowers dull to bright yellow, dorsal and 2 lower lateral tepals sometimes brown or the lower lateral tepals deeper yellow; flower forming a tube-like structure with a narrow opening at tepal apices (as in *Serapias*, *Orchidaceae*); tube c. 0,8 cm long; tepals c. 1,2-1,3 cm long, dorsal largest.

Light woodland; open low grassland; sometimes in rocky soils or on rock outcrops; c. 1450 m alt.

Resembling *G. atropurpureus* (but with purplish flowers).

G. serenjensis Goldblatt; Goldblatt (1996): 280-282.

Herb 15-40 cm tall; corm 1,4-2,5 cm Ø; leaves 5-6, lowest 3-4 basal, linear 2-4 mm wide, rather soft-textured; spike 3-6-flowered; bracts 1,5-2,5 cm long; flowers bright pink; tube c. 1,5 cm long; tepals subequal, lanceolate, 1,8-2 × 0,8 cm, all similarly oriented, directed forward, curving outward distally; anthers c. 6,5 mm long, with apiculate appendages c. 0,4 mm long; capsule and seeds unknown.

Hilly country, granite or quartzite rock outcrops in thin soil or in crevices in sandstone; 1500 m alt.

Near *G. lithicola*. Allied to *G. decoratus*, *G. oligophlebius*.

G. sericeovillosus Hook. f. subsp. **calvatus** (Baker) Goldblatt; Goldblatt & Manning, Gladiolus in south. Afr.: 105-106, 1998. – Icon.: Goldblatt (1996): 205.

syn.: Enum. 3: 91, 1995; *G. ochroleucus* sensu Baker in Bot. Mag. 103: pl. 6291, 1877, non Baker 1876 s. str.; *G. ludwigii* (Pappe ex Baker) Baker var. *calvatus* Baker; *G. sericeovillosus* fa. *calvatus* (Baker) Oberm. and var. *glabrescens* L. Bolus; *G. rigidifolius* Baker

Herb 0,35-1 m tall; corm globose, 2,5-3 cm Ø; leaves 5-7, mostly basal, linear, exceeding the spike sometimes by twice as much, 3-8 mm wide, usually microscopically pubescent on sheaths and often on lower parts of blades, margins and midrib strongly thickened; spike *distichous*, erect; bracts 1,5-3 cm long, soft-textured; flowers pale grey-green to cream with tepals densely speckled with minute dark red to maroon points, these often concentrated in the midline of each tepal, the lower laterals yellow-green in lower half.

Open tall grassland; light woodland in well-drained soils; granite sand; rocky grassland; c. 1200 m alt.

NE S. Africa, where also subsp. **sericeovillosus** occurs (and in Swaziland). Subsp. **calvatus** may also occur in adjacent parts of Mozambique.

Flowers adapted for bee pollination (see Goldblatt & al., Ann. Missouri Bot. Gard. 85: 492, 494, 1998).

G. somalensis Goldblatt & Thulin; Goldblatt (1996): 302-303; Bulb. Newsl. 15: 10, 1996. – Icon.: Novon 5: 326, 1995; Thulin, Fl. Somalia 4: pl. 3 fig. C, 1995.

Herb 7-30 cm tall; corm obconic, c. 1,2 cm Ø; tunics of softly-textured layers, these decaying into fine netted fibers; leaves 4-5, lower 3 basal reaching at least base of spike; spike 2-10-flowered; flowers zygomorphic, orange; lower lateral tepals (or lower median) bright yellow in lower half; dorsal tepal inclined over the stamens, 1,6-1,8 × 0,8 cm, the upper lateral tepals as long or nearly so; tube, 6-8 mm long; capsule and seeds unknown.

Limestone escarpments in evergreen bushland dominated by *Buxus hildebrandtii*, *Cadia purpurea*; 1350 m alt.

Flowers superficially resembling those of a *Tritonia*, fair resemblance to *G. calcicola*, *G. mensensis.*

G. stenolobus Goldblatt; Fl. Trop. E. Afr., Irid.: 82-83, 1996: Goldblatt (1996): 282.

Herb c. 75 cm tall; corm globose, c. 1 cm Ø; leaves 8, lower 4 basal, 2/3 as long as stem, blades sublinear, 3-4 mm wide; spike 14-flowered; bracts 1,4-3,5 cm long; flowers reddish purple; tepals subequal, narrowly lanceolate, c. 3,3 × c. 0,3 cm; anther filaments c. 5 mm long, entirely included in perianth tube; anther apices with acute apiculate appendages, 0,5-1 mm long; capsule unknown.

Pockets of soil in weathered sandstone on escarpment; c. 1250 m alt.

Only known from the type collected in 1956.

Near *G. manikensis*, *G. serenjensis*, *G. canaliculatus*.

G. stenosiphon Goldblatt; Goldblatt (1996): 201-202; Figueiredo & Smith, Pl. Angola: 186, 2008.

Herb 0,8-1,1 m tall; corm ovoid, 2-3,5 cm Ø; leaves 8-10, lower 4-5 basal reaching ± middle of spike, linear, 5-8,5 mm wide; spike 14-18-flowered; bracts 1,5-3 cm long; flowers white, perianth tube 4,5-5 cm long; tepals subequal, the dorsal largest, 2,5-2,8 × 1-1,2 cm, inclined over the stamens.

Savanna woodland among rocks; 1900 m alt.

Near *G. usambarensis, G. harmsianus, G. erectiflorus, G. verdickii, G. gregarius.*

G. sudanicus Goldblatt, non *Antholyza sudanica* Chev., nom. nud.; Fl. Eth. & Eritrea 6: 182, 1997. – Icon.: Goldblatt (1996): pl. 38; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 165, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 257, 2010.

Herb 15-20 cm tall; corm 1-1,2 cm Ø; tunics of medium-textured to fine netted fibers; leaves fairly soft-textured (midvein and one pair of secondary veins not noticeably thickened); spike 2-3-flowered; bracts 2-2,5 cm long; flowers pale to deep pink; lower tepals with white to pale yellow nectar guides; anthers c. 6,5 mm long, with acute apiculi 0,5-1 mm long; capsule and seeds unknown.

Grassland; among shrubs in seasonally wet sites; 1000-1200 m alt.

Resembling *G. oliganthus*; the *G. decoratus* complex with e.g. *G. serenjensis*.

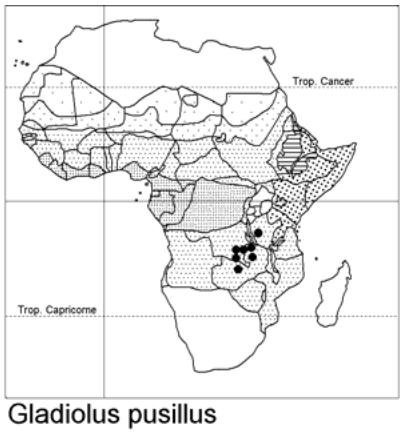
G. sulculatus Goldblatt; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Goldblatt (1996): 113 (as *G. sulcatus*); Fl. Trop. E. Afr., Irid.: 54, 1996 (idem).

syn.: *G. sulcatus* Goldblatt, 1996, non Lam. 1791 [= *Babiana hirsuta* (Lam.) Goldblatt & Manning, S. Africa].

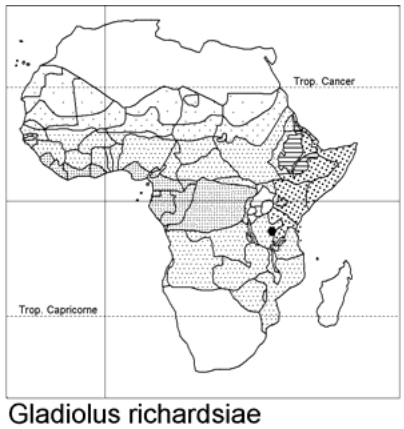
Herb 20-40 cm tall excluding leaves; corm globose, c. 2 cm Ø; leaves 4-5, sometimes to 15 cm long, at least one usually exceeding stem, linear, 2,5-4 mm wide, with heavily thickened margins and midribs, edges of midrib often ciliate; stem inclined almost from base of spike; spike pink to scarlet, lower lateral tepals sometimes partly white and each with a broad triangular yellow mark in the centre edged in dark pink or red; tube c. 1,3 cm long; tepals c. 2,3 mm long, nearly equal.

Rocky grassland; rough pasture on volcanic soil; 2100-3100 m alt.

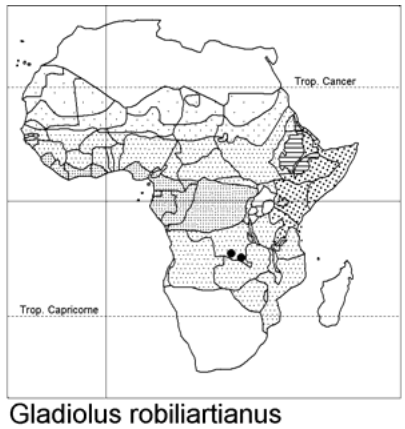
Near *G. chelamontanus*, *G. linearifolius*.



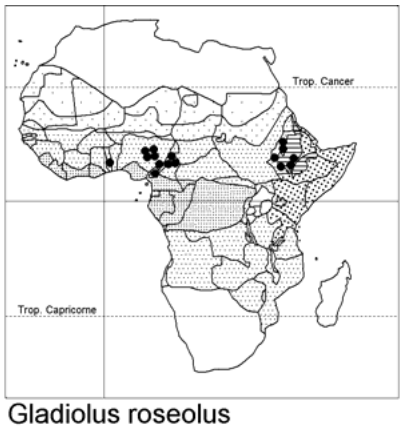
Gladiolus pusillus



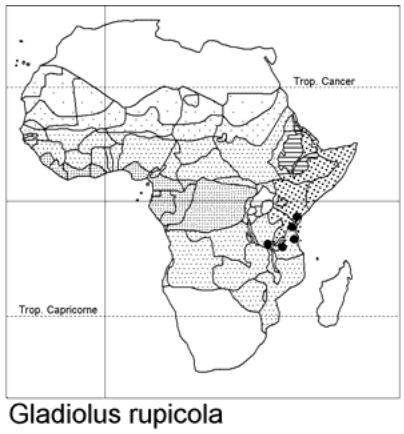
Gladiolus richardsiae



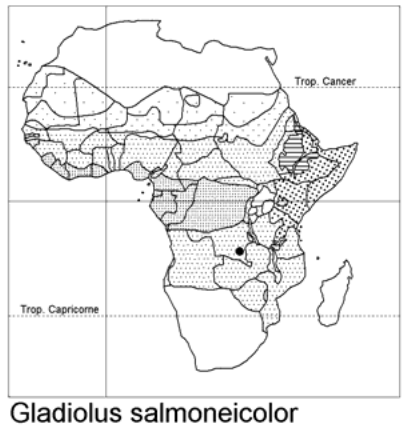
Gladiolus robiliartianus



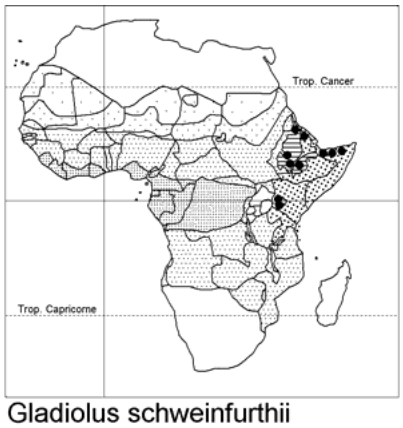
Gladiolus roseolus



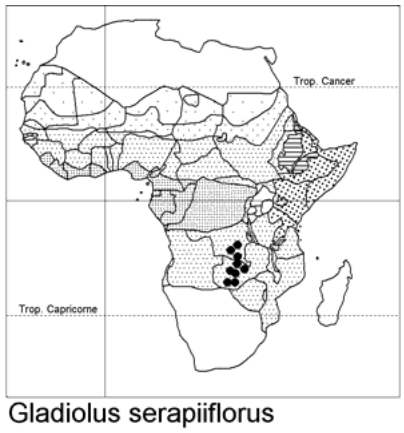
Gladiolus rupicola



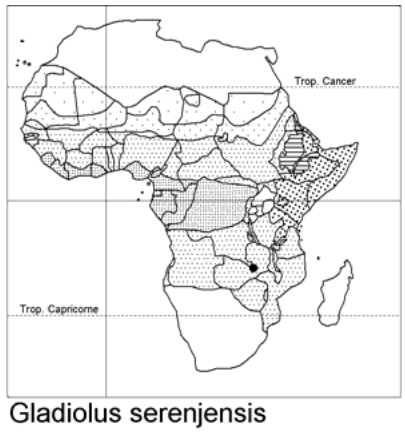
Gladiolus salmoneicolor



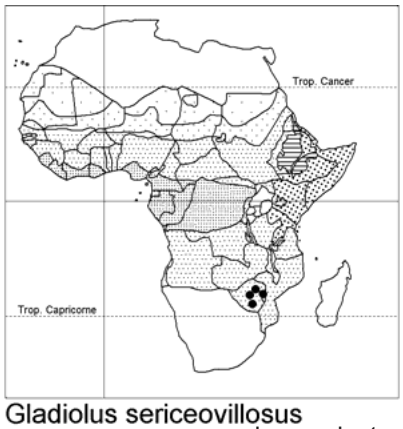
Gladiolus schweinfurthii



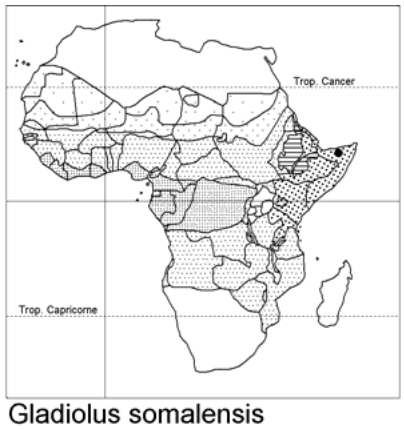
Gladiolus serapiiflorus



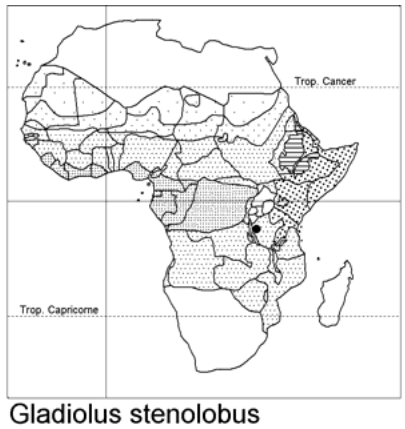
Gladiolus serenjensis



Gladiolus sericeovillosus subsp. calvatus



Gladiolus somalensis



Gladiolus stenolobus

G. tshombeanus P. A. Duvign. & Van Bockstal, incl. var. *parviflorus* P. A. Duvign. & Van Bockstal. – Icon.: Goldblatt (1996): 162; Fl. Afr. C., Irid.: photo. 33, 2005.

Herb 15-40 cm tall, growing in clumps; corm 0,9-1,2 cm Ø, tunics of tough reddish brown fibres, usually accumulating in a neck around base; leaves 2, the lower basal, sheathing for most of its length, terminating in a 2-6 cm long, terete, 4-grooved blade; spike 4-7-flowered, inclined 45°; bracts c. 1 cm long; flowers usually pale blue to lilac; tube c. 1 cm long; tepals unequal, dorsal largest 1,2-1,4 cm long, lower lateral tepals each with a dark purple mark at base or marginal spots.

Copper rich soils (to 50.000 ppm); lateritic dambo with copper (fide Duvigneaud & Denaeyer, Bull. Soc. Roy. Bot. Belg. 96: 126, 1963, not validated by Faucon et coll., Pl. Ecol. Evol. 143: 10, 2010); thicket of *Uapaca kirkiana;* meadow with *Eragrostis* on malachite stowage.

Near *G. gracillimus*, *G. robiliartianus*.

G. unguiculatus Baker; Fritsch in Bull. Herb. Boiss., Sér. 2, 1: 1112, 1901 (as *G. brevicaulis*); Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c50, 2001; Harvey & al., Pl. Bali Ngemba...: 141, 2004; Fl. Afr. C., Irid.: 87-89, 2005; Burrows & Willis, Pl. Nyika Plateau: 310, 2005; Sosef & al., Checklist pl. vascul. Gabon: 201, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Lejoly & al., Fl. Tshopo in Taxonom. 24: 37, 2008; idem, Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 158, 2010; Onana, Vascul. pl. Cameroon...: 166, 2011; M. Renier, Flore du Kwango 1: 101, 1948 (as *Antholyza labiata*, *A. thonneri*). – Icon.: Flow. Pl. Africa 44: pl. 1760, 1977 (as *G. atropurpureus*); Tredgold & Biegel, Rhodes. wild flowers: pl. 8, 1979; Fl. Trop. E. Afr., Irid.: 57, 1996; Goldblatt (1996): 121, pl. 15; Fl. Afr. C., Irid.: photos 36, 37, 2005; Lisowski, Fl. Rép. Guinée 2: fig. 500, 2009; Fl. Gabon 38, Irid.: pl. 8A, 2009.

syn.: Enum. 3: 91, 1995; *G. micranthus* Baker; *Antholyza labiata* Pax

Herb 30-60 cm tall; corm 1,5-2,5 cm Ø, often dark red outside; flowering stem with 2-3 *entirely sheathing leaves*, 6-9 cm long; spike erect, 10-18-flowered; flowers cream to light purple, upper tepals flushed light to deep purple, the lower 3 each with deep purple spear-shaped marking in upper third, surrounded by a lighter area, sometimes with a dark spot at base of dorsal tepal; *flower windowed* with a gap between dorsal and upper lateral tepals; tube c. 1 cm long, curving outward; tepals c. 2 cm long.

Savanna on (seasonally) humid soils; meadows; on hard-pan and conglomerate; damp sandy soils; shallow soils; marigots; open forests; wooded grassland; rock outcrops; 30-2200 m alt.

Botswana, S. Africa.

Confused with *G. atropurpureus*, but corm and flower morphology different.

G. usambarensis Marais ex Goldblatt – Icon.: Goldblatt (1996): 190, pl. 22; Fl. Trop. E. Afr., Irid.: 65, 1996.

Herb 20-40 cm tall, erect or inclined to trailing from cliffs; corm 1,5-2 cm Ø, tunics reddish brown; a plant with a delicate, almost fragile appearance but the leaves are firm; leaves 4-6, lower 3-5 basal reaching at least base of spike, ± linear, 5-12 mm wide; spike 2-8-flowered; bracts 2-5 cm long; flower zygomorphic, usually white, sometimes pale pink, greenish on reverse of the tube, lower 3 tepals with a narrow red stripe in lower midline, yellow in throat; *tube 3,5-6 cm long;* dorsal tepal 3-3,2 × 3-3,2 cm.

Rocky sites, sometimes on cliffs; 1200-2280 m alt.

Near *G. stenosiphon*, *G. microcarpus*; confused with *G. pauciflorus*, *G. candidus*, *G. murielae*.

G. velutinus De Wild.; Fl. Trop. E. Afr., Irid.: 72, 1996; Fl. Afr. C., Irid.: 69, 2005; Burrows & Willis, Pl. Nyika Plateau: 310, 2005. – Icon.: Goldblatt (1996): 222, pl. 29.

syn.: Enum. 3: 92, 1995.

Herb 1-1,5 m tall; corm depressed-globose, 3-5 cm Ø, tunics reddish, irregularly broken; leaves several, mostly basal or in lower part of stem, about half as long as the spike, 1,3-3,5 cm wide; leaves always present at flowering time, margins and midribs moderately thickened, *densely and minutely papillose* (microscopically) *to short-pubescent*; spike 6-10-flowered; bracts 4-7 cm long; flowers pale yellow with greenish highlights; tube 3-4 cm long; tepals unequal, upper 3 c. 4 cm long, the dorsal hooded over stamens, c. 2 cm wide; lower 3 tepals much smaller; capsule and seeds unknown.

Wetland sites: marshes, seasonally flooded valley grassland, streambanks; 1600-2200 m alt.

Near *G. dalenii*.

G. verdickii De Wild. & T. Durand; Fl. Afr. C., Irid.: 86-87, 2005; Geerinck in Taxonom. 4: 3, 2001; Goldblatt & Manning in Novon 14: 289, 2004. – Icon.: Goldblatt (1996): 199, pl. 26.

syn.: Enum. 3: 92, 1995; *G. erectiflorus* Baker var. *verdickii* (De Wild. & T. Durand) Geerinck

Herb 0,7-1,1 m tall; corm 2-3,5 cm Ø, producing short *flat fasciated stolons* from base, these each bearing numerous cormlets; leaves 5-7, the lower 3-4 ± basal, reaching to about base of spike, blade 0,8-1,5 cm wide; spike 4-8-flowered; bracts 3-5,5 cm long; flowers white to yellow, sometimes conspicuously veined dark red to pink, lower lateral tepals with a cream to yellow mark in lower centre; tube 2,5-3,5 cm long; dorsal tepal largest, 4,5-5 cm long.

Open woodland; savanna; termite mound; 1100-1670 m alt.

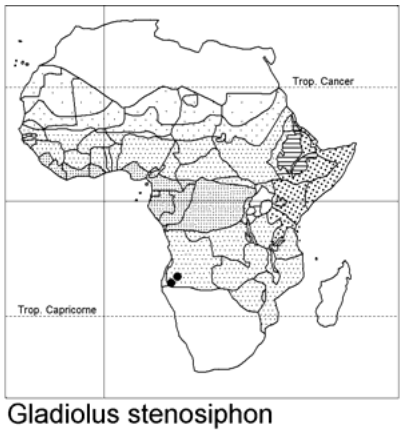
Related and similar to *G. erectiflorus; G. verdickii* has larger flowers, and "the fasciated basal stolons are unique in the genus" (Fl. Zambes. 12/4: 88, 1993).

G. watsonioides Baker, incl. var. *minor* Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 324, 1994. – Icon.: Bot. Mag. 113: pl. 6919, 1887; idem 128: pl. 7860, 1902 (as *G. mackinderi*); Goldblatt (1996): 256; Fl. Trop. E. Afr., Irid.: 69, 1996; Birks in Alpine Gard. 76: 432, 2008.

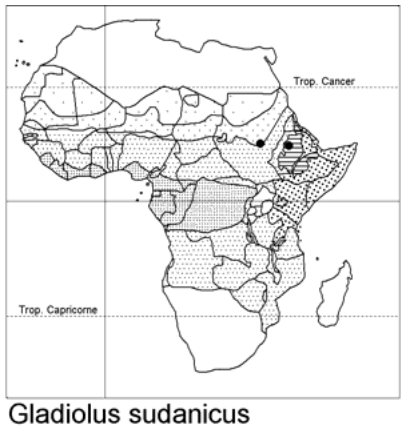
syn.: Enum. 3, 92, 1995, excl. *G. gracilis* (Baker) Pax, sphalm; *G. garnieri* Klatt 1879, non 1872 (= *G. dalenii* subsp. *dalenii*); *Homoglossum gracile* (Pax in Engl.) N. E. Br.

Herb 0,55-1 m tall or more; corm 1,5-2 cm Ø, tunics red-brown, firm-membranous; leaves 5-7, mostly basal, linear, 0,2-1,4 cm wide; spike 3-14-flowered; bracts 2-7 cm long, often flushed dark purple; flowers scarlet, with throat and sometimes the base of lower 3 tepals yellow; tube externally red above, bright green below, often whitish or red on drying, 1,8-4 cm long, with slender lower part and a wide upper part; tepals subequal, 2,6-3,5 cm long.

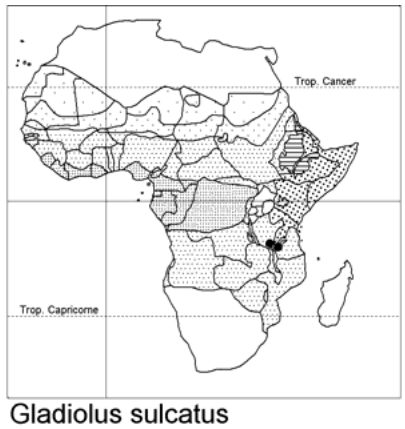
Wet stony soils in clearings in the bamboo and alpine zones; sometimes in lava rubble; glades in *Juniperus* forest; 2000-4200 m alt.



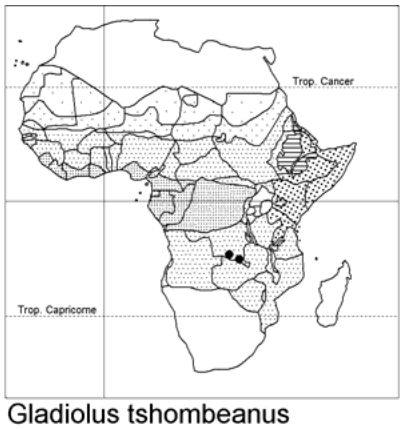
Gladiolus stenosiphon



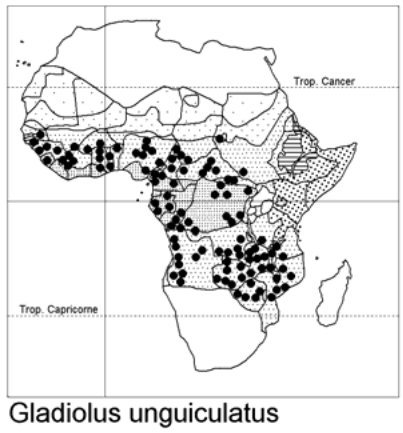
Gladiolus sudanicus



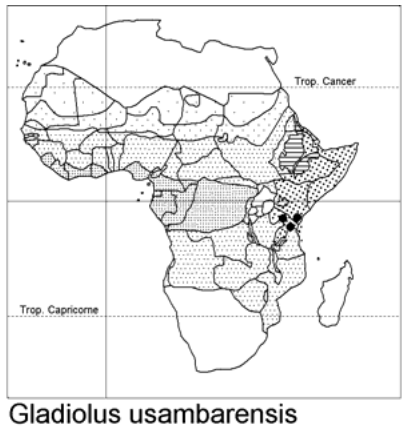
Gladiolus sulcatus



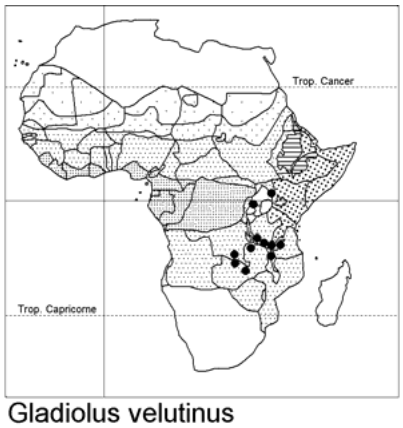
Gladiolus tshombeanus



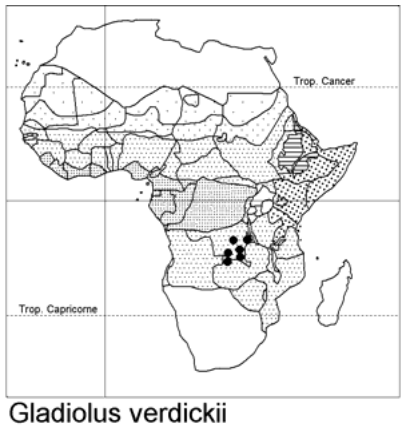
Gladiolus unguiculatus



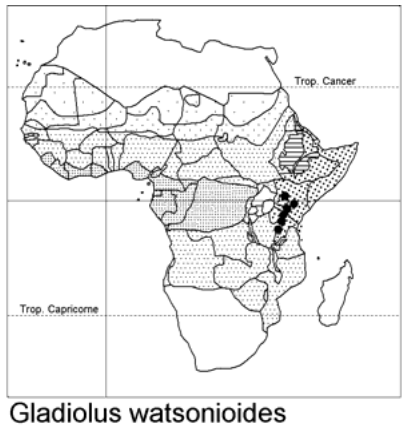
Gladiolus usambarensis



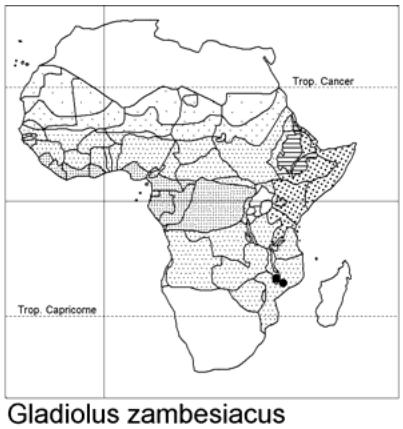
Gladiolus velutinus



Gladiolus verdickii

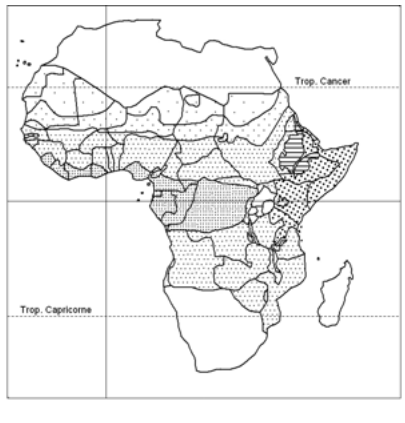


Gladiolus watsonioides



Gladiolus zambesiacus

Gladiolus zimbabweensis



G. zambesiacus Baker – Icon.: Goldblatt (1996): 177, pl. 17-18.

Herb 45-75 cm tall; corm c. 1,5 mm Ø; leaves 6-7, the lower 4 ± basal and largest, blades 2-6 mm wide, sheaths of the lowermost often with sparse or rarely dense short pubescence, blades occasionally sparsely puberulent; spike 6-12-flowered; bracts 2-4,5 cm long; flowers pink to mauve, fading to whitish in the throat, lower 3 tepals cream in lower half; tube 1-1,2 cm long; upper 3 tepals largest, 2,2-2,6 cm long; anthers 0,7-1 cm long, yellow.

Grassland in thin soil in rocky crevices; 1300-1500 m alt.

Near *G. mensensis*, *G. chelamontanus*; confused with *G. erectiflorus*.

G. zimbabweensis Goldblatt – Icon.: Goldblatt (1996): 100, pl. 3.

Herb 20-35 cm tall; corm 0,9-1,2 cm Ø, tunic fibers sometimes extending upward in a neck; leaves 4-5, lower 2 basal, blades 1-1,5 mm wide, edges of the raised parts ciliate to pubescent; lower sheaths lightly pubescent; spike 4-8(-12)-flowered; bracts green, not becoming dry above at time of flowering, 1-1,5 cm long; flowers pale grey-blue or purple to pink; tube 0,7-1 cm long; tepals unequal, the dorsal largest, arched to hooded, 1,4-1,9 cm long.

Rocky, well-watered grassland; c. 1980-2200 m alt.

SYNONYMS:

Gladiolus aberdaricus N. E. Br. = **Gladiolus watsonioides**

adlami Baker = **G. dalenii** subsp. **dalenii**

affinis De Wild., non Pers. = **G. dalenii** subsp. **dalenii**

andongensis Welw. ex Baker = **G. dalenii** subsp. **andongensis**

angolensis Baker = **G. dalenii** subsp. **dalenii**

angustus Baker 1867, non L. 1753 = **G. grantii**

anorthanthus Ingram = **G. dalenii** subsp. **dalenii**

antholyzoides Baker = **G. dalenii** subsp. **dalenii**

antunesii Baker = **G. laxiflorus**

aphanophyllus Baker = **G. gracillimus**

arnoldianus De Wild. & T. Durand = **G. verdickii**

atropurpureus sensu auctt., p.p., non Baker = **G. unguiculatus**

bakeri Klatt = **G. unguiculatus**

barnardii G. J. Lewis = **G. dalenii** subsp. **dalenii**

baumii Harms = correct name for **G. pallidus**

boehmii Vaupel = **G. dalenii** subsp. **dalenii**

brachyandrus Baker 1879 = **G. melleri**

brachylimbus Baker = **G. dalenii** subsp. **dalenii**

brevicaulis Baker = **G. unguiculatus**

brevifolius sensu Eyles, non Jacquin = **G. unguiculatus**

brevispathus (Pax) Klatt = **G. melleri**

buchananii Baker = **G. zambesiacus**

buettneri Pax = **G. dalenii** subsp. **dalenii**

bussei Vaupel = **G. oliganthus**

cabrae (De Wild.) N. E. Br. = **G. unguiculatus**

caerulescens Baker = **G. atropurpureus**

caffensis Cufod. = **G. dalenii** subsp. **dalenii**

callianthus Marais = **G. murielae**

calothyrsus Vaupel = **G. dalenii** subsp. **dalenii**

camilae S. Còrdova Ponce = **G. debeerstii**

caudatus Baker = **G. oligophlebius**

coccineus L. Bolus = **G. dalenii** subsp. **dalenii**

conrathii Baker = **G. crassifolius**

cooperi Baker = **G. dalenii** subsp. **dalenii**

corbisieri De Wild. = **G. gregarius**

corneus Oliv. = **G. dalenii** subsp. **dalenii**

dalenii Van Geel var. *andongensis* (Baker) Goldblatt ex Geerinck = **G. dalenii** subsp. **andongensis**

dalenii Van Geel var. *melleri* (Baker) S. Còrdova Ponce = **G. melleri**

decipiens Vaupel = **G. puberulus**

dehnianus Merxm. = **G. sericeovillosus** subsp. **calvatus**

dieterlenii E. Philipps = **G. crassifolius**

dracocephalus Hook. f. = **G. dalenii** subsp. **dalenii**

duvigneaudii Vaupel = **G. robiliartianus**

edulis Burch. ex Ker Gawl. = **G. permeabilis** subsp. **edulis**

elegans Vaupel = **G. gregarius**

elliotii sensu G. J. Lewis & al., non Baker = **G. sericeovillosus** subsp. **calvatus**

erectiflorus Baker var. *verdickii* (De Wild. & T. Durand) Geerinck = **G. verdickii**

erectiflorus sensu Geerinck 1972, p.p. = **G. linearifolius**, **G. salmoneicolor**

flexuous Baker = **G. atropurpureus**

fungurumeensis P. A. Duvign. & Van Bockstal = **G. ledoctei**

fuscoviridis Baker = **G. dalenii** subsp. **dalenii**

galbinus sensu P. A. Duvign. & Van Bockstal, nom. = **G. serapiiflorus**

gallaensis Vaupel = **G. dalenii** subsp. **dalenii**

garnieri Klatt 1872 = **G. dalenii** subsp. **dalenii**

garnieri Klatt 1879 = **G. watsonioides**

garuanus Vaupel = **G. dalenii** subsp. **dalenii**

gazensis Rendle = **G. mosambicensis**

goetzei Harms = **G. dalenii** subsp. **andongensis**

gracilicaulis G. J. Lewis = **G. atropurpureus**

gracilis (Baker) Pax = synonym, erroneous, under **G. watsonioides** in Enum 3: 92, 1995

gregarius Welw. ex Baker var. *angustifolius* (Van Bockstal) Geerinck = **G. microspicatus**

hanningtonii Baker = **G. gregarius**

heterolobus Vaupel = **G. roseolus**

hockii De Wild. = **G. dalenii** subsp. **dalenii**

ignescens Bojer ex Baker = **G. dalenii** subsp. **dalenii**

johnstonii Baker = **G. melleri**

junodii Baker = **G. crassifolius**

karendensis Baker = **G. gregarius**

katubensis De Wild. = **G. velutinus**

kilimandscharicus Pax = **G. dalenii** subsp. **dalenii**

kirkii Baker 1892, non 1876 = **G. decoratus**

klattianus Hutch. = **G. gregarius** subsp. *angustifolius* Van Bockstal and var. *angustifolius* (Van Bockstal) Geerinck = **G. microspicatus**

kubangensis Harms = **G. baumii**

labiatus (Pax) N. E. Br. = **G. unguiculatus**

laxus Thunb. = **Freesia**

leichtlinii Baker = **Gladiolus dalenii** subsp. **dalenii**

leptophyllus L. Bolus = **G. dalenii** subsp. **dalenii**

longanus Harms = **G. benguellensis**

louwii L. Bolus = **G. dalenii** subsp. **dalenii**

ludwigii (Pappe ex Baker) Baker = **G. sericeovillosus** subsp. **sericeovillosus**

var. *calvatus* Baker = **G. sericeovillosus** subsp. **calvatus**

luembensis De Wild. = **G. dalenii** subsp. **dalenii**

luridus Welw. ex Baker = **G. atropurpureus**

luteolus Klatt = **G. dalenii** subsp. **dalenii**

mackinderi Hook. f. = **G. watsonioides**

macrophlebius Baker = **G. benguellensis**

macrospathus Goldblatt = **G. gregarius**

magaliesmontanus F. Bolus = **G. dalenii** subsp. **dalenii**

malangensis Baker = **G. benguellensis**

masukuensis Baker = **G. crassifolius**

matabelensis Schltr. ex Weim. = **G. melleri**

melleri sensu Fl. W. Trop. Afr., ed. 2 = **G. roseolus**

micranthus Baker = **G. unguiculatus**

mildbraedii Vaupel = **G. dalenii** subsp. **andongensis**

mitwabaensis P. A. Duvign. & Van Bockstal ex S. Còrdova Ponce = **G. debeerstii**

morrumbalaensis De Wild. = **G. decoratus**

multiflorus Baker = **G. gregarius**

musukiensis Baker = **G. crassifolius**

natalensis Reinw. ex Hook. = **G. dalenii** subsp. **dalenii** var. *melleri* (Baker) Geerinck = **G. melleri**

nebulicola Ingram = **G. dalenii** subsp. **dalenii**

newii Baker = **G. dalenii** subsp. **dalenii**

nyikensis Baker = **G. erectiflorus**

oatesii Rolfe = **G. unguiculatus**

occidentalis A. Chev. = **G. dalenii** subsp. **dalenii**

ochroleucus sensu Baker 1877 = **G. sericeovillosus** subsp. **calvatus**

oligophlebius sensu Fl. W. Trop. Afr., ed. 2, 1968 and sensu Burkill 1994 = **G. mirus**

opheliae P. A. Duvign. & Van Bockstal, nom. = **G. pusillus**

pageae L. Bolus = **G. dalenii** subsp. **dalenii**

pallidus Baker, non Bouché = **G. baumii**

paludosus Baker = **G. crassifolius**

pauciflorus De Wild., non Baker ex Oliv. = **G. dalenii** subsp. **andongensis**

paxii Klatt = **G. benguellensis**

peschianus P. A. Duvign. & Van Bockstal = **G. tshombeanus**

platyphyllus Baker = **G. dalenii** subsp. **dalenii**

primulinus Baker = **G. dalenii** subsp. **dalenii**

pseudogregarius Mildbr. ex Hutch. = **G. gregarius**

psittacinus Hook. f. = **G. dalenii** subsp. **dalenii**

pubescens Pax = **G. benguellensis**

pubescifolius G. J. Lewis = **G. benguellensis**

quartinianus A. Rich. = **G. dalenii** subsp. **dalenii**

quilimanensis Baker = **G. decoratus**

rachidiflorus Klatt = **G. crassifolius**

remotifolius Baker = **G. permeabilis** subsp. **edulis**

retrocurvus G. J. Lewis = **G. dalenii** subsp. **dalenii**

rigidifolius Baker = **G. sericeovillosus** subsp. **calvatus**

saltatorum Baker = **G. dalenii** subsp. **dalenii**

schimperianus Steud. ex Baker = **G. dalenii** subsp. **dalenii**

sericeovillosus Hook. f. fa. *calvatus* (Baker) Oberm. = **G. sericeovillosus** subsp. **calvatus**

var. *glabrescens* L. Bolus = **G. sericeovillosus** subsp. **calvatus**

var. *ludwigii* Pappe ex Baker and var. *rubicundus* Kuntze = **G. sericeovillosus** subsp. **sericeovillosus** (S. Africa)

spicatus Klatt 1868, non L. 1753 = **G. gregarius**

splendidus Rendle = **G. dalenii** subsp. **dalenii** var. *tundensis* Chiov. = **G. baumii**

staudtii Vaupel = **G. mirus**

strictiflorus L. Bolus = **G. dalenii** subsp. **dalenii**

subulatus Baker = **G. huillensis**

sulcatus Goldblatt 1996, non Lam. 1791 = **G. sulculatus**

sulphureus Baker = **G. dalenii** subsp. **dalenii**

taylorianus Rendle = **G. dalenii** subsp. **dalenii**

thomsonii Baker 1881 and 1892 = **G. crassifolius**

thonneri (De Wild.) Vaupel = **G. unguiculatus**

trichophyllus Diels = **G. laxiflorus**

tritoniiformis Kuntze = **G. crassifolius**

tritonioides Baker = **G. laxiflorus**

tysonii Baker = **G. dalenii** subsp. **dalenii**

uhehensis Harms = **G. gregarius**

ukambanensis (Baker) Marais, incl. var. *alatus* Marais = **G. candidus**

validissimus Vaupel = **G. velutinus**

varius F. Bolus var. *elatus* F. Bolus = **G. hollandii**

venulosus Baker = **G. erectiflorus**

vogtsii L. Bolus = **G. dalenii** subsp. **dalenii**

welwitschii Baker = **G. dalenii** subsp. **welwitschii** subsp. *brevispathus* Pax = **G. melleri**

whytei Baker = **G. atropurpureus**

xanthus L. Bolus =**G. velutinus**

zanguebaricus Baker = **G. decoratus**

(GYNANDRIRIS)

Gynandriris simulans (Baker) R. C. Foster, cited in Enum. 3 : 93, 1995, occurs in S. Africa, Botswana, Lesotho. Its correct name is : **Moraea simulans** Baker.

HESPERANTHA */4*

syn.: *Schizostylis* Backh. & Harv.

Genus distributed across sub-Saharan Africa; greatest diversity in southern Africa. Some 82 species known (Bot. Mag. 28: 247, 2011).

Plants with small corms or rhizome; inflorescence a spike; flowers radially symmetric; style dividing at mouth of perianth tube into long spreading branches with stigmatic surface on their entire length.

GOLDBLATT, P. (2003). A synoptic review of the African genus Hesperantha (Iridaceae): Crocoideae). *Ann. Missouri Bot. Gard.* 90: 390-443.

GOLDBLATT P. & al. (2004). Floral biology of Hesperantha (Iridaceae: Crocoideae): how minor shifts in floral presentation change the pollination system. *Ann. Missouri Bot. Gard.* 91: 186-206.

Hesperantha ballii Wild.; Fl. Zambes. 12/4: 62, 1993; Goldblatt (2003): 441.

Herb 12-25 cm tall; corms conical-campanulate, 9 mm Ø; leaves 4, 2 basal, laminate, linear, and 2 cauline, sheathing; stem erect, unbranched; spike *1-2-flowered;* flowers white, outer tepals dark-red on the reverse; *tube 1,1-1,5 cm* long, slightly longer than the bracts (1,1-1,4 cm long); capsule unknown.

Thin soils on rock shelves and in grassland; 2200 m alt.

H. coccinea (Backh. & Harv.) Goldblatt & J. C. Manning; Goldblatt (2003): 431. – Icon.: Bot. Mag. 90: pl. 5422, 1864; Fl. Zambes. 12/4: 61, 1993 (sub gen. *Schizostylis*).

bas.: *Schizostylis coccinea* Backh. & Harv.

syn.: *S. pauciflora* Klatt; *S. ixioides* Harv. ex Baker

Herb 40-70 cm tall; rhizome short, erect; leaves several, narrowly lanceolate, mostly basal, 5-10 mm wide; upper leaves inserted on the stem well above the ground, becoming progressively shorter, sometimes entirely sheathing; stem usually unbranched, often producing corm-like propagules in aerial axils; spike 3-12-flowered; flowers *red*, occasionally pink, rarely white; tube *2,2-3,5 cm* long, *straight;* tepals *2,5-3,5 × 1-1,5 cm*.

Wet places, especially mountain streams and seeps.

S. Africa, Lesotho, Swaziland.

Ornamental.

Seeds unusual in the genus: prismatic with loose translucent light brown seed coat, with smooth outline (Goldblatt, l.c.).

H. longicollis Baker; Fl. Zambes. 12/4: 60, 1993; Goldblatt (2003): 441; Burrows & Willis, Pl. Nyika Plateau: 310, 313, 2005. – Icon.: Fl. Pl. Africa 46: pl. 1810, 1980, *excl*. syn. *H. sabiensis*.

syn.: Enum. 3: 93, 1995.

Herb 30-70 cm tall; corm c. 1 cm Ø, campanulate; leaves 5-6, 2-3 basal erect or trailing, c. 2 mm wide; upper ones 1-2, cauline, shorter than the basal ones, partly to entirely sheathing; spike *3-9-flowered*; flowers whitish to ivory or light brown; tube *1,8-2,5 cm* long.

Along streams; vleis; seeps.

Botswana, S. Africa, Swaziland.

H. petitiana (A. Rich.) Baker, incl. var. *uniflora* Hochst. ex Baker and var. *volkensii* (Harms) R. C. Foster; Cable & Cheek, Pl. Mt Cameroon: 166, 1998; Cheek & al, Pl. Mt Oku...: 185, 2000; Goldblatt (2003): 416-417; Sebsebe Demissew & al., Flow; Eth. & Eritrea...: 150, 2003; idem, Aloes & Lilies Eth. & Erithrea, ed. 2: 235-236, 2010. – Icon.: Fl. Zambes. 12/4: 61, 1993; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 149, 1994; Fl. Trop E. Afr., Irid.: 34, 1996; Fl. Eth. & Eritrea 6: 173, 1997; Puff & Sileshi, Pl. Simen: 227, 2005; Burrows & Willis, Pl. Nyika Plateau: 311, 2005.

syn.: Enum. 3: 93, 1995; *H. uniflora* Hochst. ex A. Rich.; *Ixia hochstetteriana* A. Rich.

Herb 8-45 cm tall; corm globose to ovoid, 0,7-1,2 cm Ø; leaves 3-4, the lower 2-3 basal, longer than the others, 2-6 mm wide; upper leaf inserted in middle of the stem, usually entirely sheathing; spike 1-9-flowered; flowers *pink*, lilac, *white*, *borne erect;* tube *straight;* outer floral bracts with *margins free to the base;* capsule *0,8-1,5 cm* long.

Rocky sites; short grassland; stony grassland; often on cliffs and rock outcrops; *Erica arborea* scrub, common; 1800-4100 m alt.

Remarkably variable.

Near S. African *H. baumii* Baker

SYNONYMS:

Hesperantha alpina (Hook. f.) Pax = **Hesperantha petitiana**
kilimanjarica Rendle = **H. petitiana**
matopensis L. S. Gibbs = **H. longicollis**
rubella Baker = **Freesia grandiflora**
uniflora Hochst. ex A. Rich. = **Hesperantha petitiana**
volkensii Harms = **H. petitiana**
widmeri Beauverd = **H. longicollis**

(HOMOGLOSSUM)

Homoglossum gracile (Pax in Engl.) N. E. Br. = **Gladiolus watsonioides**
schweinfurthii (Baker) Cufod. = **G. schweinfurthii**
watsonioides (Baker) N. E. Br. = **G. watsonioides**

(HYMENOSTIGMA)

Hymenostigma schimperi Hochst. = **Moraea schimperi**
tridentatum Hochst. = **M. schimperi**

(IRIDOPSIS)

Iridopsis textilis Welw. ex Baker = **Moraea textilis**

[IRIS]

SYNONYMS:

Iris catenulata (Lindl.) Baker = **Dietes iridioides**
compressa L. f. = **D. iridioides**
compressa Thunb. = **D. iridioides**
diversifolia Steud. ex A. Rich. = **Moraea schimperi**
moraeoides Ker Gawl. = **Dietes iridioides**
spathacea Thunb. = **Moraea spathulata**
spathulata L. f. = **M. spathulata**

(IXIA)

Ixia bulbocodium A. Rich., non L. = **Romulea fischeri**

hochstetteriana A. Rich. = **Hesperantha petitiana**

petitiana A. Rich. = **H. petitiana**

quartiniana A. Rich. = **Gladiolus murielae**

(KEITIA)

Keitia natalensis Regel = **Eleutherine bulbosa**

LAPEIROUSIA / *11 + 1* ?

Genus of 41 species widespread across sub-Saharan Africa from Nigeria and Ethiopia to S Africa and Namibia.

Herbs with bell-shaped, flat-based corms with woody tunics. Leaves few to 1. Inflorescence a panicle or spike. Flowers actinomorphic or zygomorphic with a long narrow tube. Tepals equal and spreading, or upper ones largest, lower 3 forming a lip.

GEERINCK, D. & al. (1972). Le genre Lapeirousia Pourr. (Iridaceae) au Zaïre. *Bull. Soc. Roy. Bot. Belg.* 105 : 333-351.

Lapeirousia abyssinica (R. Br. ex A. Rich.) Baker ; Puff & Sileshi Nemomissa in Syst. Geogr. Pl.: 982, 2002. – Icon.: Fl. Eth. & Eritrea 6 : 169, 1997 ; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 147, 2003 ; idem, Aloes & lilies Eth. & Eritrea, ed. 2 : 232, 2010.

syn.: Enum. 3 : 93, 1995 ; *Montbretia gallabatensis* Schweinf. ex Baker

Herb 9-35 cm tall ; corm 0,8-1,2 cm Ø ; leaves 3, lower 2 at least usually inserted near ground level, lanceolate, 3-5 mm wide ; stem compressed, 2-3-angled ; inflorescence a spike or few-branched pseudo-panicle, main axis 5-7-flowered, secondary axes with fewer flowers ; flower bilaterally symmetric, blue-violet, lower 3 tepals with a *white median streak edged* with a *darker band of purple* in the lower mid-line ; tube c. 9 mm long.

Mostly rocky sites in shallow soils, often on limestone ; 1800-2600 m alt.

L. bainesii Baker ; Figueiredo & Smith, Pl. Angola : 187, 2008. – Icon.: Fl. Zambes. 12/4 : 32, 1993.

Herb 30-60 cm tall ; corm 1,3-2 cm Ø, tunics ± *fibrous*, *reticulate ;* leaves 5-7 mm wide ; stem compressed, 2-winged below, 3-4-angled to winged above ; pseudo-panicle with divaricate branching, ultimate branches 1-2-flowered, axes trigonous ; flower zygomorphic, *white* to *cream* coloured, sometimes flushed to brown streaked in lower half and with a dark mark at base, sweet-scented ; tube *2,5-4 cm* long.

Hard flat sandy ground in open or bush country ; 450 m alt.

Namibia, Caprivi Strip, S. Africa, Botswana.

L. erythrantha (Klotzsch ex Klatt) Baker, incl. var. *briartii* (De Wild. & T. Durand) Geerinck, Lisowski, Malaisse & Symoens, var. *rhodesiana* (N. E. Br.) Geerinck & al., var. *welwitschii* (Baker) Marais ex Geerinck & al., fa. *briartii* (De Wild. & T. Durand) Goldblatt ex Geerinck, *fa. albescens* Geerinck ; but excl. var. *setifolia* (Harms) Geerinck & al. *(= L. setifolia),* and var. *teretifolia* Geerinck & al. *(= L. teretifolia) ;* Burkill, Useful pl. W. Trop. Afr., ed. 2, 2 : 427, 1994 ; Fl. Afr. C., Irid.: 44, 46-47, 2005 ; Figueiredo & Smith, Pl. Angola : 187, 2008. – Icon.: Peters, Reise Mossamb., Bot. 2 : pl. 58, 1864 (sub nom. *Ovieda erythrantha*) ; Bot. Mag. 172 : pl. 349, 1959 (sub nom. *Lapeirousia rhodesiana*) ; Bull. Soc. Roy. Bot. Belg. 105 : 338, 1972 (sub nom. *L. erythrantha* var. *briartii*) ; Tredgold & Biegel, Rhodes. wild flow.: pl. 7, 1979 ; Fl. Zambes. 12/4 : 32, 1993 ; Fl. Trop. E. Afr., Irid.: 24, 1996 ; Fl. Afr. Centr., Irid.: photo. 14, 2005 ; Pickering & Roe, Wild flowers Victoria Falls area : 66, 2009.

syn.: Enum. 3 : 1995 ; *L. welwitschii* Baker 1892, non Eyles 1916 (= *L. setifolia*) ; *Geissorhiza briartii* De Wild. & T. Durand

Herb 15-45 cm tall ; corm 0,8-1,6 cm Ø ; leaves 3-4, lower 2-3 longest, 0,2-1,1 cm wide, upper decreasing in size and becoming bract-like above ; stem compressed, 2-angled below, branched repeatedly, 3-angled above ; panicle (often of umbellate appearance), several-many-branched, the ultimate branches bearing 2-8 flowers, these often crowded terminally ; bracts ±*membranous* and dry above at anthesis, 3-6 mm long ; branching *not at all contorted ;* flowers zygomorphic, blue to violet, lower tepals with a hastate white mark outlined dark blue to purple.

Dry wooded savanna ; black humid soil ; on gravels ; waste land ; road sides ; brown clayey soil ; open *Brachystegia microphylla* forest ; mainly on rock outcrops ; occasionally in open grassland or woodland, protected in thin rocky soils from predation ; laterite pans ; shallow pans in areas of impeded drainage in mopane or miombo woodlands ; rather damp pastures with short grass ; growing along with *Indigofera*, etc.; 60-2100 m alt.

Botswana. – Disjunct area : Nigeria – S-SE Africa.

Corms edible, raw or cooked.

Supposed Cu-endemic but not validated by Faucon & al. in Pl. Ecol. Evol. 143 : 11, 2010. These authors put *L. erythrantha* var. *welwitschii* in synonymy with *L. erythrantha* var. *setifolia*.

L. littoralis Baker ; Fl. Zambes. 12/4 : 38-39, 1993 ; Figueiredo & Smith, Pl. Angola : 187, 2008 (subsp. **littoralis**).

syn.: Enum. 3 : 93, 1995.

Herb 5-35 cm tall ; corm campanulate, 1-1,4 cm Ø at base ; leaves few to several, 1,5-4 mm Ø, ascending to falcate or trailing, *lightly plicate* ; stem simple or branched, ± terete to weakly angled below the nodes ; the branches either crowded below, or laxly arranged ; inflorescence : 1-several lax to fairly congested spikes, 5-12-flowered ; *flower colours in shades* of white to cream, rarely purple, with or without markings on lower tepals ; tepals *1,3-3 cm long* ; tube *2-7 cm long.*

Usually in sandy well-drained soils, sometimes on dunes ; gravelly hills near the sea ; river sandbanks ; lake shores ; sandy floodplains and pan margins ; near sea-level to ?

Comprises 2 subspp.: – subsp. **littoralis** (syn.: add *L. burchellii* Baker) with perianth tube 2-3,5 cm long, tepals 1,3-1,5 cm long and 1,3-2 mm wide ; subsp. **caudata** (Schinz) Goldblatt, with perianth tube 2,5-7 cm long, tepals 1,8-3 cm long, 2-3 m wide.

Rendle (in Cat. Welw. Afr. pl. 2/2 : 27, 1899) writes : “Bulbs were collected but lost in the Monanensian war”. This war is probably one of the 174 Portuguese military campaigns in Angola between the end of the 19th century and 1920.

Namibia, Caprivi Strip, Botswana, S. Africa.

LAPEIROUSIA

L. masukuensis Vaupel & Schltr.; Fl. Zambes. 12/4: 35, 1993.

Herb 40-60 cm tall; corm c. 1,5 cm Ø; leaves 4-6, the lowermost larger than the rest, 3-5 mm wide; stems compressed and 2-angled to winged below, 3-angled and lightly winged above the branches; inflorescence a *panicle* or *spike with* at least *some main branches 3-9-flowered*, main axis ± straight and dominant; flowers often *apically crowded*, blue to violet or greenish-cream, lower tepals with a purple to red and white hastate median streak in the distal half; tube *1,5-2,5 cm long*.

Preferring seasonally wet habitats, either in vlei, marsh edges, or waterlogged flats; 1400 m alt.

S. Africa.

L. odoratissima Baker; Fritsch in Bull. Herb. Boiss., Sér. 2, 1: 1112, 1901; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Bull. Soc. Roy. Bot. Belg. 105: 345, 1972; Tredgold & Biegel, Rhodes. wild flowers: pl. 7/1, 1979; Fl. Zambes. 12/4: 37, 1993; Fl. Trop. E. Afr., Irid.: 24, 1996; Fl. Afr. Centr., Irid.: 45, photo. 13, 2005; Scott in Veld & Flora 91/4: 199, 2005 (about Margaret H. Tredgold).

syn.: Enum. 3: 93, 1995; *Psilosiphon odoratissimus* Welw., pro syn.

Herb 10-25 cm tall; corm 1,5-2 cm Ø at base; leaves often 2 inserted below the ground, to 30 × 0,3-0,5 cm, plicate; aerial stem 2-10 cm long, simple of slightly branched; *upper internodes condensed,* 0,5-1 cm long, and *leaves densely clustered;* spikes 1 or more, congested, ± umbellate, with 3-6 flowers per branch; floral bracts green, *hardly different from the leaves;* flowers white to ivory; tube 1-1,4 cm long.

Various grassland and woodland types; usually in sandy soil, often in sandy dambos; sandy rocky thickets; occasionally *Brachystegia* woodland; sandy flats in dry grassland; semi-arid places; 600-1925 m alt.

Namibia, Botswana.

(**L. otaviensis** R. C. Foster)

Near *L. littoralis* but: tepals 4-5 mm at the widest; flowers with violet markings on lower tepals.

Goldblatt (Ann. Missouri Bot. Gard. 77: 469, 1990) cites 2 specimens from SW-most Angola, viz. Rycroft 2443 and Pearson 2738, however with a remark: "the poorly preserved plants are either depauperate or possibly belong to the related *L. gracilis*" [*L. gracilis* Vaupel, in SW Namibia].

Not enumerated by Figueiredo & Smith, Pl. Angola, 2008.

L. rivularis Wanntorp; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Fl. Zambes. 12/4: 32, 1993; Pl. Ecol. 165: 278, 2002.

Herb 30-45 cm tall; corm 1,2-2,2 cm Ø; leaves 3-5, the lower 2 ± basal, 2-3 mm wide; stem weakly compressed, 3-4-angled, usually laxly branched; *panicle* rounded to elongate, ultimate branches bearing *1-5 flowers, laxly arranged;* flowers zygomorphic, pale blue-mauve, dorsal tepal *sub-erect to curving forwards over stamens;* tube 7-9 mm long.

Mostly in moist or wet localities (dambos, pan margins); also in rocky grassland; soil derived from basic rocks and is predominantly sandy clay loam; grassland with *Hyparrhenia* spp., *Themeda triandra*, *Tristachya superba*, *Loudetia simplex,* etc. (see Chidumayo, Pl. Ecol. 165: 275-286, 2002).

LAPEIROUSIA

L. schimperi (Aschers. & Klatt) Milne-Redh.; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Fl. Zambes. 12/4: 37, 1993; Thulin, Fl. Somalia 4: 65, 1995; Fl. Trop. E. Afr., Irid.: 24, 1996; Fl. Eth. & Eritrea 6: 169, 1997; Puff & Sileshi, Pl. Simen: 227, 2005; Burrows & Willis, Pl. Nyika Plateau: 311, 2005; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 148, 2003; idem, Aloes and lilies Eth. & Eritrea, ed. 2: 233, 2010.

syn.: Enum. 3: 93, 1995; *L. cyanescens* Baker, incl. var. *minor* Chiov.; *Acidanthera unicolor* Hochst. ex Baker, nom. superfl.; *Freesia angolensis* (Baker) Klatt; *Anomatheca angolensis* Baker; *Psilosiphon cyanescens* Welw.; *P. fragrans* Welw.

Herb 20-80 cm tall; corm 1,8-2,2 cm Ø; leaves 3 or more, lower 2 longest, 0,5-1,5 cm wide; stem terete below to nearly square in section and 4-angled to 4-winged above, laxly branched; pseudo-panicle *lax*, ultimate branches 1-3-flowered; flowers zygomorphic, sessile, *white* to cream, rarely pale-violet; *tube 10-15 cm long;* tepals subequal, 1,8-2,2 × *0,6-0,7 cm*.

Locally moist sites in arid country; often in washes, dambos, stream sides; seasonal marshes; damp grassland; 1100-2150 m alt.

Botswana, Caprivi Strip, Namibia. Disjunct area.

Corms edible.

Confusion possible with *Gladiolus gunnisii, G. candidus*, both with long-tubed white flowers.

L. setifolia Harms; Fl. Zambes. 12/4: 33-34, 1993; Fl. Trop. E. Afr., Irid.: 25, 1996; Fl. Afr. Centr., Irid.: 47-48, 2005. – Icon.: Burrows & Willis, Pl. Nyika Plateau: pl. 6, 2005; Kirkel in Aloe 48/1: 11, 2011.

syn.: *L. erythrantha* (Klatt) Baker var. *setifolia* (Harms) Geerinck, Lisowski, Malaisse & Symoens; *L. welwitschii* Eyles 1916, nom. illegit., non Baker 1892 (= *L. erythrantha*).

Herb *5-15 cm* tall; corm 1-1,2 cm Ø at base; leaves 3-7, lower 2-4 clustered at stem base, ascending or ± spreading, the lowermost longest, the upper decreasing in size, 0,5-1 mm wide; stems irregularly flexuous, somewhat *contorted*, several-to-many-branched, 3-4-angled; pseudo-panicle congested, ultimate branches 2-4-flowered; outer bracts 4-5 mm long, *green*, often purple-flushed; flowers zygomorphic, blue to violet; tube c. 1 cm long; tepals 7-9 × 2 mm.

Shallow seasonally waterlogged soil on rock outcrops; 1200-2300 m alt.

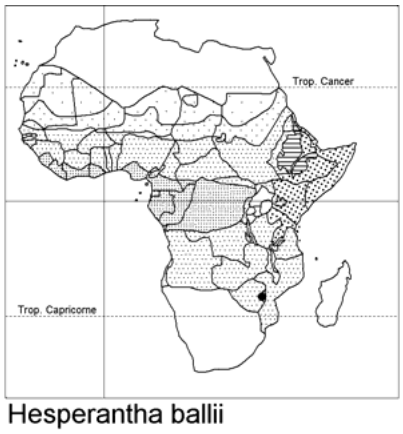
Collections from SE Zaire are probably *L. erythrantha*.

Lapeirousia erythrantha var. *welwitschii* is considered as a synonym by Faucon & al. in Pl. Ecol. Evol. 143: 11, 2010 (cf. above under *L. erythrantha*).

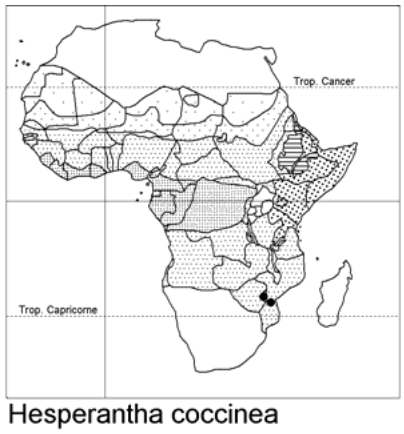
L. teretifolia (Geerinck, Lisowski, Malaisse & Symoens) Goldblatt; Fl. Zambes. 12/4: 34, 1993; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Bull. Soc. Roy. Bot. Belg. 105: 343, 1972 (as *L. erythrantha* var. *teretifolia*); Fl. Afr. Centr., Irid.: 49, 2005.

bas.: *L. erythrantha* (Klotzsch ex Klatt) Baker var. *teretifolia* Geerinck & al.

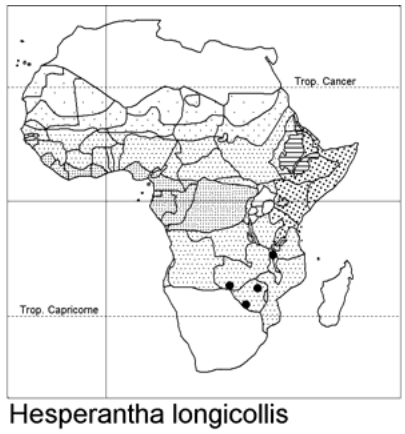
Herb 20-70 cm tall; corm 0,9-1,3 cm Ø; leaves 3-4, the lowermost near the ground and longest, the upper ones decreasing in size, rigid, 1-1,5 mm Ø, ±*terete* in section; stems ± terete below, lightly 3-4-angled above; panicle rounded to columnar, main axis dominant, ultimate branches 1-3-flowered; outer bracts *2,5-4 mm*



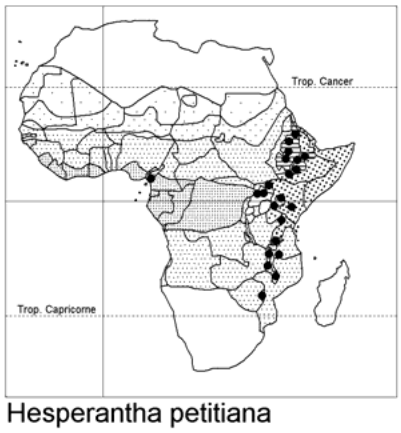
Hesperantha ballii



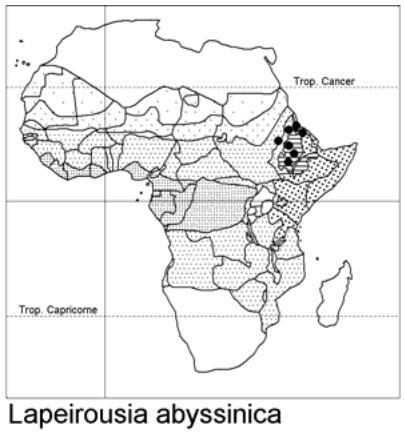
Hesperantha coccinea



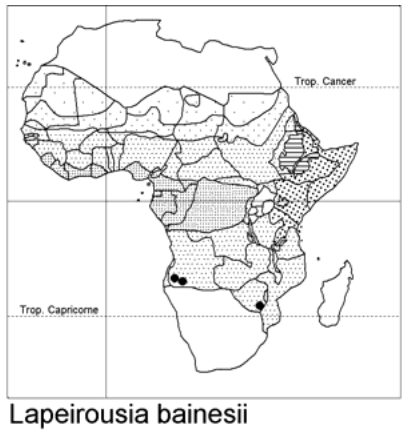
Hesperantha longicollis



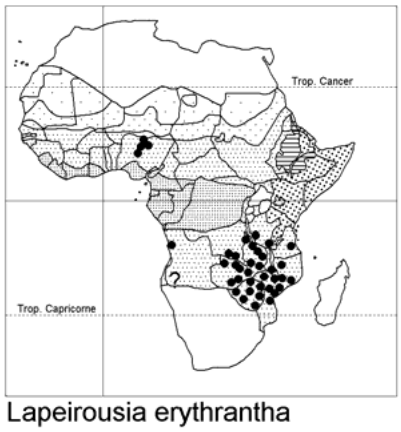
Hesperantha petitiana



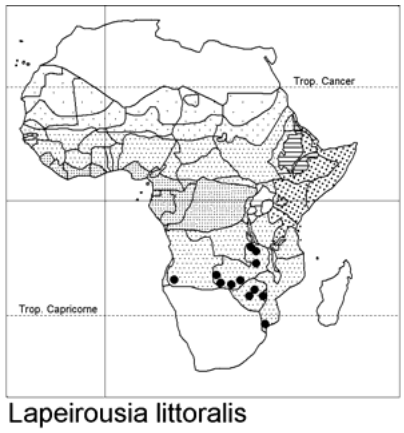
Lapeirousia abyssinica



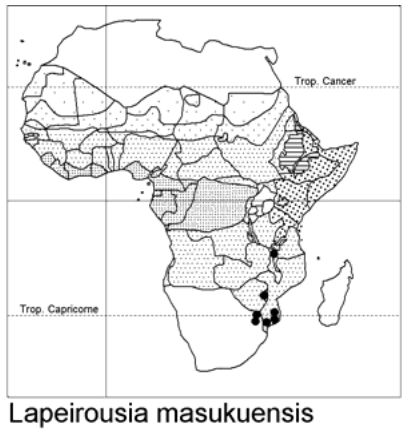
Lapeirousia bainesii



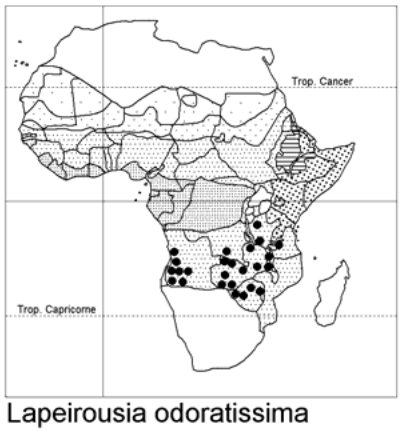
Lapeirousia erythrantha



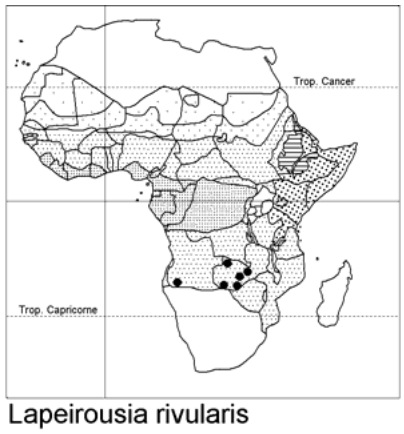
Lapeirousia littoralis



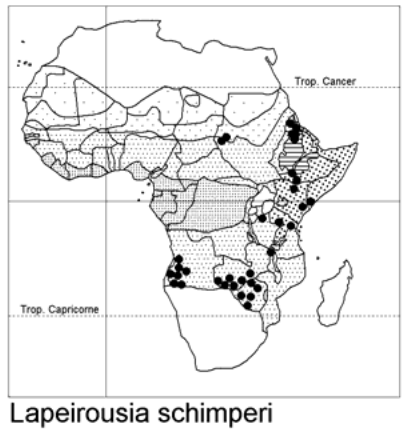
Lapeirousia masukuensis



Lapeirousia odoratissima



Lapeirousia rivularis



Lapeirousia schimperi

LAPEIROUSIA TERETIFOLIA

long; flowers weakly zygomorphic, *whitish* to *pale-lilac*, lower tepals with a darker blue to violet streak in lower midline; tube *4-5 mm long*; tepals *5-6 mm long*.

Seasonally moist or waterlogged ground; often in lateritic pans; grassy "steppe" on sand; 1490 m alt.

L. zambesiaca Goldblatt; Fl. Zambes. 12/4: 34-35, 1993; Figueiredo & Smith, Pl. Angola: 187, 2008.

syn.: *L. angolensis* Goldblatt 1990, non R. C. Foster (= *L. schimperi*).

Herb 24-30 cm tall; corm 1,3-1,6 cm Ø; leaves 2-3, lowermost near ground level, upper ones decreasing in size, all rigid, 1-1,5 mm Ø, ± *terete* in section; stems divaricately branched, weakly compressed, 2-angled below, 3-angled above the branches; panicle rounded, relatively few-flowered, main axis dominant, terminal branches 1-2-flowered; outer bracts 4-6 mm long; flowers zygomorphic, pale-violet; *tube 3,3 mm long;* tepals *13-14 × 1,5-2 mm;* capsule and seeds unknown.

Boggy grassland, probably seasonally inundated.

SYNONYMS (see also Enum. 3: 94, 1995):

Lapeirousia anisochila Vaupel in sched. = **Zygotritonia nyassana**

burchellii Baker = **Lapeirousia littoralis** subsp. **littoralis**

cruenta (Lindl.) Baker = **Freesia laxa** subsp. **laxa**

cyanescens Welw. ex Baker, incl. var. *minor* Chiov. = **Lapeirousia schimperi**

erythraeae Chiov. = **L. schimperi**

erythrantha (Klotzsch ex Klatt) Baker var. *welwitschii* (Baker) Marais ex Geerinck = **L. erythrantha**

erythrantha var. *setifolia* (Harms) Geerinck, Lisowski, Malaisse & Symoens = **L. setifolia**

erythrantha var. *teretifolia* Geerinck, Lisowski, Malaisse & Symoens = **L. teretifolia**

euryphylla Harms, incl. var. *minor* Geerinck & al. = **Savannosiphon**

graebneriana Harms = **Freesia laxa** subsp. **laxa**

graminifolia (Baker) L. Bolus = **F. grandiflora** subsp. **grandiflora**

grandiflora Jacq. = **F. laxa** subsp. **laxa**

grandiflora (Baker) Baker = **F. grandiflora**

holostachya Baker = **Radinosiphon leptostachya**

laxa (Thunb.) N. E. Br = **F. laxa**

leptostachya Baker = **Radinosiphon leptostachya**

nigeriensis R. C. Foster = **Lapeirousia erythrantha**

welwitschii Eyles 1916, non Baker 1892 = **L. setifolia**

welwitschii Baker 1892, non Eyles 1916 = **L. erythrantha**

(MERISTOSTIGMA)

Meristostigma laxum (Thunb.) A. Dietr. = **Freesia laxa**

(MONTBRETIA)

Montbretia abyssinica Hochst. ex A. Rich. = **Lapeirousia abyssinica**

x*crocosmiiflora* Lemoine = **Crocosmia ×crocosmiiflora**

gallabatensis Schweinf. ex Baker = **Lapeirousia abyssinica**

laxifolia Klatt = **Tritonia laxifolia**

strictifolia Klatt = **T. laxifolia**

MORAEA / *23 + 2* ?

Genus of some 202-205 species widely distributed in sub-Saharan Africa, concentrated in the SW Cape (the winter rainfall zone); outliers in the Mediterranean Region and the Middle East to W Himalaya.

"Closely related to the well know *Iris* and can be regarded as an African counterpart of this genus" (Goldblatt, Ann. Missouri Bot. Gard. 63: 657, 1976).

Herb with apically rooting corms; leaves bifacial, channelled to flat; flowers similar to those of *Iris:* outer tepals larger than inner and strongly clawed; inner tepals with an ascending claw and spreading limb; the style is short and much exceeded by 3 broad style branches against which the upper part of the filaments and the anthers are appressed.

Some species in our area that are known from only 1 or 2 collections, are doubtful and more material is needed. Series of closely related species exist (e.g. *M. tanzanica*, *M. brevifolia -M. clavata -M. balundana -M. bovonei;* do we have 1 variable species or 5 distinct ones ?). Some quantitative characters seem to be unsubstantial.

Some species in our area are incompletely known: corms are lacking in 2 species, the leaf (leaves) in another species, 4 species have no fruits known, a further species has only unripe fruits, seeds are lacking for at least 3 species; 2 species are known only from the type, a further one from 2 gatherings only.

GEERINCK, D. (2013). Polémique concernant la taxonomie dans le genre africain Moraea Miller (Iridaceae) et ses conséquences. *Taxonomania* 34: 40-41.

GOLDBLATT, P. (1998). Reduction of Barnardiella, Galaxia, Gynandriris, Hexaglottis, Homeria, and Roggeveldia in Moraea (Iridaceae: Irideae). *Novon* 8: 371-377.

GOLDBLATT, P. & J. C. MANNING (2009). New species of Moraea (Iridaceae: Iridoideae), with range extensions and miscellaneous notes for southern African species. *Bothalia* 39: 1-10.

GOLDBLATT, P. & al. (2005). Pollination mechanisms in the African genus Moraea (Iridaceae, Iridoideae): floral divergence and adaptation for pollinators. *Adansonia*, Sér. 3, 27: 21-46.

LOEUILLE, B. & al. (2003). Phylogénie moléculaire du genre Moraea (Iridaceae: Irideae): apports du séquençage d'une région d'ADN chloroplastique. *Acta Bot. Gall.* 150: 345-353.

Moraea afro-orientalis Goldblatt; Fl. Trop. E. Afr., Irid.: 16, 1996. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 149, 1994.

Herb 15-40 cm tall; corm 1,2-2 cm Ø; with 1 basal leaf, usually sheathing the lower half of the stem, 2-5 mm wide; stem usually 1-3-branched; flowers blue to violet; outer tepals 1,8-2,6 cm long, with orange nectar guides at base of limbs; anthers *c. 4,5 mm* long; *ovary 3-5 mm long*.

(Stony) grassland; 1400-2400 m alt.

(**M. angolensis** Goldblatt); Figueiredo & Smith, Pl. Angola: 187, 2008.

Herb 35-40 cm tall; corm unknown; with 1 basal leaf, c. 2 mm wide; stem erect; *bract leaves 3,4-4,5 cm long; spathes 4-5 cm long*; flowers yellow ?; outer tepals c. 3,5 cm long; inner tepals c. 3 cm long; capsule unknown.

River.

Known only from the poorly preserved type (2 specimens), collected in 1885 (E Angola: Moxico, Rio Culiti; ca 14°50'-15°50'S × 19°20'-21°50'E). – Not mapped.

Most resembling *M. muddii, M. inyangani*.

(**M. balundana** Goldblatt); Fl. Afr. Centr., Irid.: 16-17, 2005.

syn.: *M. angusta* sensu Geerinck, Bull. Soc. Roy. Bot. Belg. 105: 6, 1972, non (Thunb.) Ker Gawl. (S. African species).

Herb unbranched 15-40 cm tall; corm c. 1,5 cm Ø; leaf one, 6-11 cm long, 1-3 mm Ø, *inserted at base of inflorescence*, *shortly* exceeding it; *outer* spathe *1,5-2 cm long, inner one 3-4,5 cm long* (outer less than half of the inner); flower yellow; capsule and seeds unknown.

Permanently wet dambo.

Only known from the type collected in 1963 (Robinson 6025; Zaire, Mutshatsha 10°39'Sx24°27'E).

Near *M. bovonei*.

M. bella Harms; Fl. Afr. Centr., Irid.: 10-11, 2005. – Icon.: Fl. Zambes. 12/4: 22, 1993; Fl. Trop. E. Afr., Irid.: 19, 1996.

syn.: *M. textilis* sensu Geerinck, Bull. Soc. Roy. Bot. Belg. 103: 151, 1970, p.p., quoad specim. Thoreau II/119, P. Van den Brande 1.

Herb solitary, 30-70-100 cm tall, very rarely branched; corm c. 1,5 cm Ø; leaf 1, inserted at ground level, 2,5-6 mm Ø, exceeding inflorescence; flowers pale yellow, with a darker nectar guide and often conspicuously veined and spotted; outer tepals *4,5-6,5 cm long;* anthers *8-10 mm long.*

Seasonally or permanently waterlogged habitats: marshes, vleis, streambanks, dambos; flowering towards the end of wet season and in dry season (Feb.-March to July). Occasionally in damp, poorly drained grassland which retains moisture well after the rains are over; 1450-2100 m alt.

Near *M. verdickii*.

M. bovonei Chiov.; Fl. Afr. Centr., Irid.: 16, 2005.

Herb to 40 cm tall; corm unknown; leaf 1, terete, *c. 40 cm long, inserted at base of inflorescence;* stem with a long lower internode at the apex of which are *2 herbaceous bract leaves* c. 3,5 cm long and the inflorescence; inner spathe c. *6 cm long*, the outer slightly shorter; flower yellow; outer tepals to 2,6 cm long, inner ones 2,4 cm long; capsule and seeds unknown.

Marshes; 1350 m alt.

Near *M. balundana*, *M. unifoliata*.

Only known from the type (Bovone 12, Zaire, Ditungula, 1350 m alt.), collected in 1914.

M. brevifolia Goldblatt – Icon.: Fl. Zambes. 12/4: 22, 1993.

Herb 20-50 cm tall; corm 1-1,5 cm Ø; leaf 1, *inserted* shortly *above the ground*, *reaching* to *about middle of stem*, 2-6 mm wide; sheathing leaves *1*-2, 6-9 cm long; stem erect, simple; inner spathe 7,5-12 cm long, outer one 2/3 as long; flowers pale yellow with deeper yellow nectar guides on outer tepals; outer tepals 5-7 cm long, inner 4-5 cm long; capsule unknown.

Marshy places.

Near *M. clavata*; confused with *M. tanzanica*.

M. callista Goldblatt; Fl. Trop. E. Afr., Irid.: 15-16, 1996; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Cribb & Leedal, Mountain fl. S Tanzania: pl. III A, 1982; Salter & Davenport, Orchids & wildflowers Kitulo Plateau: 25, 2011.

Herb solitary, *simple* or *rarely 1-branched*, 30-70 cm tall; corm unknown; leaves 2, the lower basal, the upper cauline, to 7 mm wide; outer spathe *4-6 cm long;* flowers blue mauve; tepals *fully reflexed*, fading to white distally; outer tepals 3-3,5 cm long; capsule unknown.

Mountain grassland; 1800-3000 m alt.

Very few collections known.

Near *M. carsonii*.

M. carsonii Baker; Fl. Zambes. 12/4: 14, 1993; Fl. Trop. E. Afr., Irid.: 15, 1996. – Icon.: Tredgold & Biegel, Rhodes. wild flowers: pl. 7, 1979; Scott in Veld & Flora 91/4: 199, 2005 (on Margaret Tredgold); Fl. Afr. Centr., Irid.: 9, photo 1, 2005.

Herb 20-40 cm tall; corm c. 1,5 cm Ø; leaves 2-3, lower ± basal, upper cauline, 2-5 mm wide, usually falcate; spathes occasionally reddish, inner *2,5-5 cm long*; flower blue with yellow nectar guides; outer tepals 1,8-3 cm long, inner 1,7-2,8 cm long.

Open short grassland, often among rocks; woodland, sometimes in seasonally wet sites: ? formations on Cu-substrates; 1600-2100 m alt.

Variable.

Namibia, Botswana.

Near *M. afro-orientalis*, *M. elliotii*, *M. natalensis*.

M. clavata R. C. Foster; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Fl. Zambes. 12/4: 22, 1993; Fl. Afr. Centr., Irid.: photo. 7-8, 2005 (as *M. schaijesiorum*).

syn.: *M. gracilis* Baker 1878, nom. illegit., non A. Dietr. 1833 (= *M. unguiculata* Ker Gawl., S. Africa); *M. schaijesiorum* Geerinck

Herb often in clumps, 15-35 cm tall; corm 1-1,5 cm Ø; leaf 1, linear, inserted midway of the stem, usually 5-20 × 0,2-0,4 cm; stem *simple*; bract leaf *1*, 3-4 cm long; flowers yellow; inner spathe *4,5-6 cm* long, outer 2/3 as long; outer tepals *2-3,5 cm* long.

Moist habitats: stream banks, dambo margins, seeps; sandy short thicket-grown pastures; 1450-1500 m alt.

M. elliotii Baker; Goldblatt in Ann. Missouri Bot. Gard. 64: 259-260, 1977; Fl. Zambes. 12/4: 14-15, 1993.

syn.: Enum. 3: 94, 1995; *M. violacea* Baker 1900, and Baker 1901, nom. illegit.

Herb to 55 cm tall, usually branched (1-8 branches *crowded apically*); corm 1,5-2 cm Ø; leaf 1, terete, inserted near the base or the *lower* third of the stem; inner spathes 4-6 cm long; flowers blue violet with orange yellow nectar guides.

Moist grassland; rocky sites; seeps, marshes.

S. Africa, Lesotho, Swaziland. – Disjunct area.

M. inyangani Goldblatt; Fl. Zambes. 12/4: 20, 1993.

Herb *15-30 cm* tall; corm to 1 cm Ø; leaf solitary, inserted *at* or *below ground*, margins tightly inrolled, to 3 mm wide; bract leaves *3-4*, *5-8 cm* long; spathes with brown acute apices, inner ones *5-8 cm* long; flowers pale *yellow;* outer tepals to *2,5 cm* long; capsule unknown.

Grassland in moist situations: seeps, marshy localities, along streams; > 2400 m alt.

Near *M. muddii*, *M. angolensis*.

M. iringensis Goldblatt – Icon.: Fl. Trop. E. Afr., Irid.: 13, 1996.

Herb solitary, 10-30 cm tall, usually branched; corm c. 1 cm Ø; leaf 1, to *6 mm* wide; sheathing portion of bract leaves short; flowers blue; outer tepals 3 cm long, inner ones 2 cm long; anthers c. *6 mm* long; ovary *0,7-1,3 cm* long; capsule *known:* oblong, c. 1,2 cm long, *included* in the spathes.

Grassland; open *Brachystegia* woodland. Fairly common around Mufindi and Njombe (Tanzania); 1800-2250 m alt.

Near *M. afro-orientalis*.

M. macrantha Baker; Goldblatt in Ann. Missouri Bot. Gard. 64: 279-280, 1997; Fl. Zambes. 12/4: 21, 1993; Fl. Trop. E. Afr., Irid.: 20-21, 1996; – Icon.: Burrows & Willis, Pl. Nyika Plateau: pl. 6, 2005. Fl. Afr. Centr., Irid.: 13-14, 2005 (sub *M. ventricosa* var. *macrantha*).

syn.: Enum. 3: 94, 1995; *M. ventricosa* Baker var. *macrantha* (Baker) Geerinck fa. *macrantha*.

Herb solitary, *unbranched*, 50-70 cm tall; corm c. 1,5 cm Ø with *pale reticulate fibres;* leaf 1, basal, linear, to 7 mm wide; bract leaves 4-5, *usually overlapping* (or not); flowers *blue* to *violet* with pale yellow nectar guides; *outer tepals 5,5-8 cm* long.

Woodland; grassland; generally > 1800 m alt. (1400-1800 m Zaire).

Near *M. verdickii*, *M. textilis*.

M. muddii N. E. Br.; Goldblatt in Ann. Missouri Bot. Gard. 64: 271-273, 1977; Fl. Zambes. 12/4: 18, 20, 1993.

Herb *15-70 cm* tall, solitary; corm c. 1,5 cm Ø; leaf linear, *c. 5 mm* wide; stem unbranched; flowers cream to yellow, with deeper yellow nectar guides on outer tepals; inner tepals *3-3,5 mm* long, *lanceolate*.

Open grassland; peaty or stony ground; > 1800 m alt.

E S. Africa.

M. natalensis Baker – Icon.: Bull. Soc. Roy. Bot. Belg. 103: 148, 1970 (as *M. erici-rosenii*); Fl. Zambes; 12/4: 16, 1993; Fl. Afr. Centr., Irid.: photo. 2, 2005.

syn.: Enum. 3: 94, 1995.

Herb 15-45 cm tall, *usually branched;* corm to 1,5 cm Ø; leaf inserted *shortly below* the *inflorescence*, to 20 cm long or reduced; bract leaves if present seldom exceeding 2,5 cm long; flowers *blue* mauve with yellow nectar guides; outer tepals 1,4-2 cm long, inner ones 0,9-1,5 cm long, all spreading.

Moist situations: vleis, dambos, seasonal pools; exposed sites along rocky streambanks, seeps on rock outcrops; open grassland; c. 900 m (Zambia). – On rich Cu/Co soil fide Geerinck, Bull. Soc. Roy. Bot. Belg. 103: 147, 1970.

E S. Africa.

One of the most widespread species in the genus.

M. schimperi (Hochst.) Pic. Serm.; Friis in Fragm. Florist. Geobot., Suppl. 2/1: 196, 1993 *(Hymenostigma schimperi, H. tridentatum);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 427, 1994; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c50, 2001; Cheek & al., Pl. Mt Oku...: 185, 2000; Harvey & al., Pl. Bali Ngemba...: 141, 2004; Burrows & Willis, Pl. Nyika Plateau: 313, 2005; Figueiredo & Smith, Pl. Angola: 187, 2008; Onana, Vascul. pl. Cameroon...: 166, 2011. – Icon.: Bull. Soc. Roy. Bot. Belg. 103: 150, 1970; Fl. Zambes. 12/4: 22, 1993; Fl. Trop. E. Afr., Irid.: 19, 1996; Fl. Eth. & Eritrea 6: 167, 1997;

Sebsebe Demissew & al., Fl. Eth. & Eritrea...: 146, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 230, 2010; Puff & Sileshi, Pl. Simen: 227, 2005; Fl. Afr. C., Irid.: pl. 1, 2005; Salter & Davenport, Orchids & wildflowers Kitulo Plateau: 25, 2011.

bas.: *Hymenostigma schimperi* Hochst.

syn.: Enum. 3: 94; 1995; *Vieusseuxia schimperi* (Hochst.) Hochst. ex A. Rich.; *Xiphion diversifolium* Klatt; *Moraea diversifolia* (Klatt) Baker; *Hymenostigma tridentatum* Hochst.; *Vieusseuxia tridentata* (Hochst.) Hochst. ex A. Rich.; *Iris diversifolia* Steud. ex A. Rich.

Herb 20-50 cm tall, usually in clumps, unbranched; corm 1,5-2 cm Ø; prophylls 3-5, *prominent*, usually *dark brown;* leaf 1, basal 0,9-1,5 cm wide, emerging as flowering begins, *often shorter* than stem; bract leaf usually 1, spathe ± *dry at flowering time;* flowers *blue* purple to mauve with yellow white nectar guides; *outer tepals 4-6,5 cm long*, inner ones 3,5-4,5 cm long.

Flowers appearing after fire at the end of the dry season, i.e. early flowering. Woodland; treeless rocky slopes; *Loudetia* grassland in shallow soil over rocks; fire-swept meadow; often in damp places; 900-3250 m alt.

Disjunct area. Widespread in highland E tropical Africa and Angola.

M. spathulata (L. f.) Klatt, incl. subsp. *autumnalis* Goldblatt, subsp. *saxosa* Goldblatt, subsp. *transvaalensis* Goldblatt; Goldblatt & Manning in Bothalia 39: 8, 2009. – Icon.: Bot. Mag. 28: pl. 1103, 1809 (sub nom. *M. spathacea*); Fl. Zambes. 12/4: 19, 1993.

bas.: *Iris spathulata* L. f.

syn.: *I. spathacea* Thunb.; *Moraea spathacea* (Thunb.) Ker Gawl., nom. illegit, incl. var. *natalensis* Baker; *M. balenii* Stent; *M. longispatha* Klatt

Herb *0,5-1,5 m* tall, solitary or usually in *clumps;* corm 1,5-2 cm Ø; cataphylls prominent, dark brown; leaf solitary *1-1,6 cm* wide, much longer than stem; stem simple or occasionally bearing 1 branch; flower pale yellow, with deep yellow nectar guides; outer tepals 3-4 cm long, spreading to reflexed; inner ones 3-4 cm long, erect.

Mostly in well watered areas in rocky grassland; edge of forest or bush.

S. Africa, Lesotho, Swaziland.

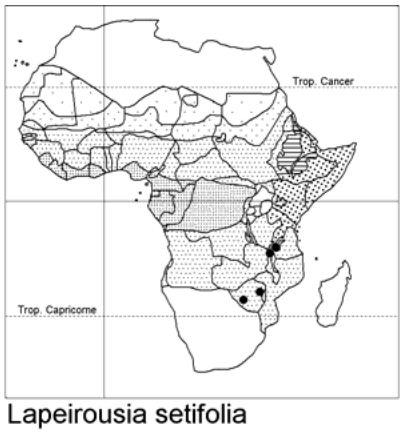
Grown as an ornamental, hardy in Britain (these corms collected around Port Elizabeth, S. Africa; cf. The Botanics 34: 15, 2008; European Garden Flora, ed. 2, 1, Monocot.: 265, 2011).

M. stricta Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 149, 1994 (as *M. thomsonii*); Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 145, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 229, 2010. – Icon.: Fl. Zambes. 12/4: 16, 2003; Flow. Pl. Afr. 52: pl. 2069, 1993; Fl. Trop. E. Afr., Irid.: 13, 1996; Fl. Eth. & Eritrea 6: 167, 1997.

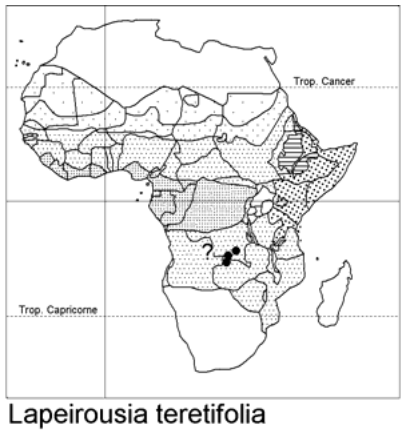
syn.: Enum. 3: 94, 1995; *M. mossii* N. E. Br.; *M. parva* N. E. Br.; *M. trita* N. E. Br., incl. var. *foliata* N. E. Br.

This species was treated as a synonym of *M. thomsonii* by Goldblatt in his revision of 1977 (Ann. Missouri Bot. Gard. 64: 262-265, 1977), but later recognised by him in his later treatments for the floras cited above.

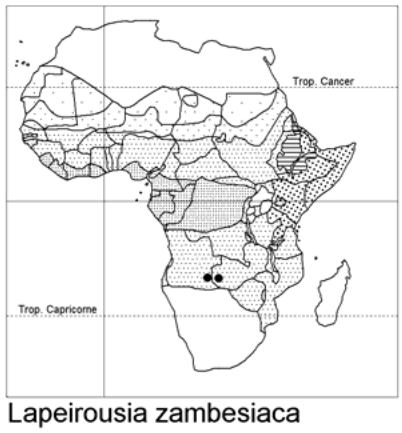
Herb 15-25 cm tall; corm ± globose, 1-3 cm Ø, with ± coarse fibrous tunics and often bearing cormlets among the fibres and accumulating in a thick mass; *leaf* 1, terete, usually *absent at anthesis*, or dead and still attached to stem base, c. 1,5 mm Ø;



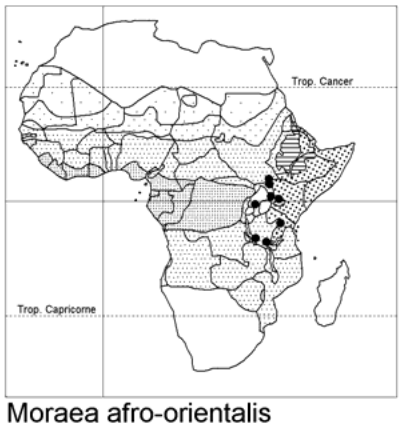
Lapeirousia setifolia



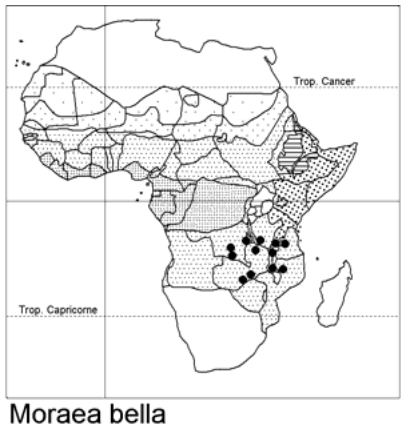
Lapeirousia teretifolia



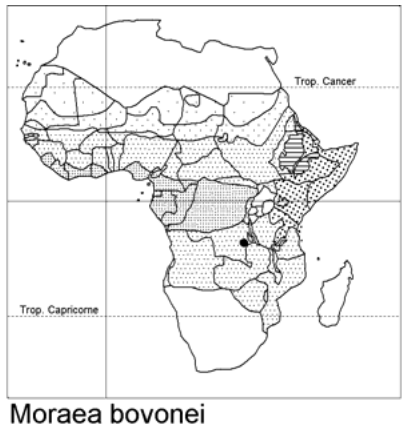
Lapeirousia zambesiaca



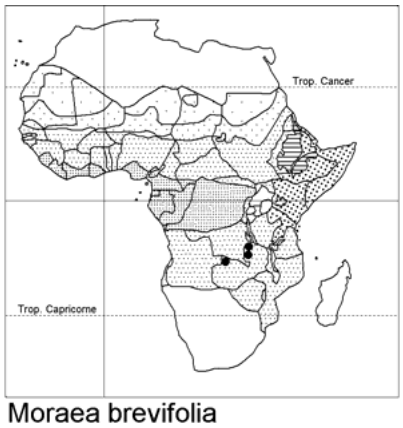
Moraea afro-orientalis



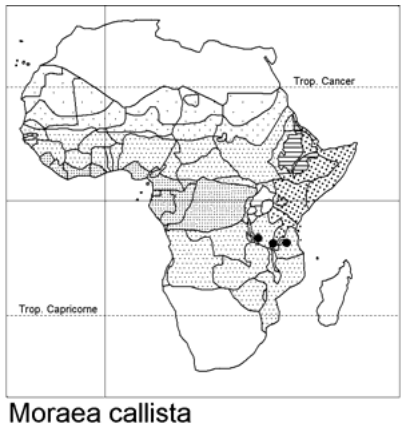
Moraea bella



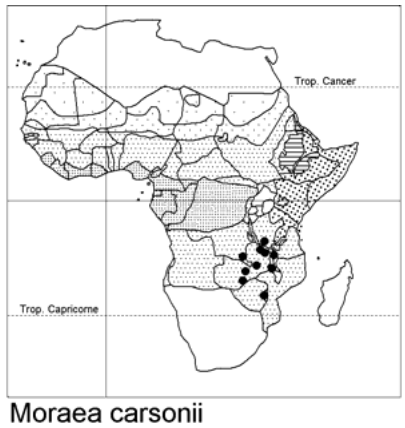
Moraea bovonei



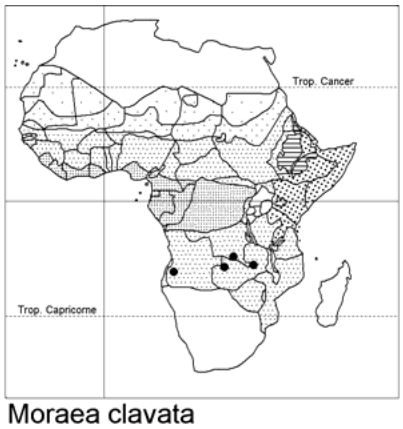
Moraea brevifolia



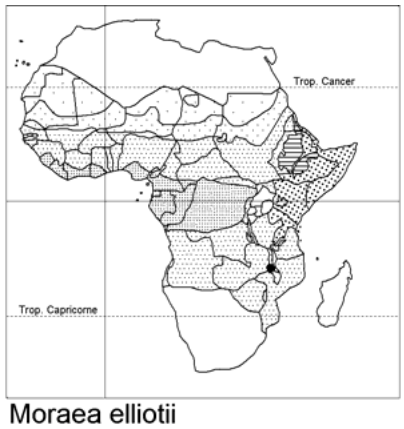
Moraea callista



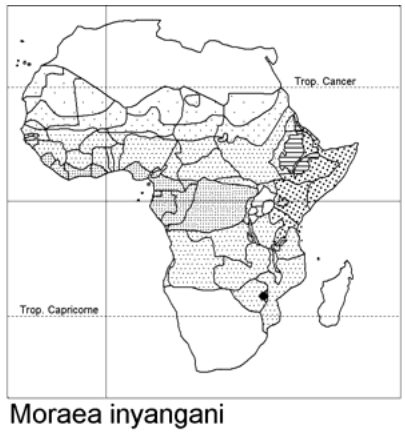
Moraea carsonii



Moraea clavata



Moraea elliotii



Moraea inyangani

stem erect, usually with *3-6 branches* held close to the main stem, *mostly sessile*; sheathing leaves dry, brownish, 3-6 cm long; inflorescence spathes dry, papery, 2,5-4 cm long, speckled darker brown; flowers pale lilac to blue-violet, with *yellow-orange nectar guides on outer tepals;* these tepals 2-2,4 cm long, reflexed; inner ones 1,5-1,8 cm long, without nectar guides (cf. *M. thomsonii*); style crests 2-4 mm long (absent in *M. thomsonii*); style branches wider than anthers (hardly wider in *M. thomsonii*).

Blooming among dry grasses at end of the dry season. Open stony grassland; 1500-3000 m alt.

S. Africa, Lesotho, Swaziland. – One of the most wide ranging species in the genus.

Confused with the vegetatively similar *M. thomsonii*. Flowers carefully preserved are needed to help understand variation patterns and relationships between the two species.

A polyploid species (2n = 24 in south. Africa, 2n = 36 and 48 in tropical Africa).

M. tanzanica Goldblatt; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Cribb & Leedal, Mountain fl. S Tanzan.: pl. 51C, 1982; Fl. Zambes. 12/4: 19, 1993; Fl. Trop. E. Afr., Irid.: 19, 1996; Burrows & Willis, Pl. Nyika Plateau: 311, 2005.

Herb solitary, 20-35 cm tall; corm c. 1,5 cm Ø; leaf 1, channelled, 15-25 cm long, 3-6 mm wide, *seldom reaching beyond the midline of the spathes*, inserted shortly above ground level; stem simple; bract leaves *2*, usually overlapping; flowers pale yellow with deeper yellow nectar guides; outer tepals 5,5-7 cm long; inner ones 3,5-4,8 cm long.

Open grassland; > 2000 m alt.

Related to the *M. textilis* complex: *M. verdickii*, *M. brevifolia*, *M. clavata*.

M. textilis (Welw. ex Baker) Baker; Fl. Zambes. 12/4: 21, 1993; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Bull. Soc. Roy. Bot. Belg. 103: 153, 1970.

bas.: *Iridopsis textilis* Welw. ex Baker

syn.: Enum. 3: 94, 1995; *Moraea revoluta* C. H. Wright

Herb 40-120 cm tall, unbranched; corm c. 2 cm Ø, tunics of *wiry*, *dark fibres;* leaf 1, linear, 6-8 mm wide; bract leaves *3-7;* flowers blue purple or yellow, usually streaked with purple; outer tepals *4,5-6,5 cm* long; inner ones 4,8-6,5 long; *anthers 1-1,5 cm* long.

Grassland; rocky sites; damp hillsides; marshy places; sometimes in dry places or in seasonally wet sites; >1200 m alt.

Common in Angola, especially in Huila and Huambo provinces.

Near *M. ventricosa*; allied to *M. verdickii*, *M. macrantha*.

The name *M. textilis* has been used for plants belonging to *M. bella*, forms of *M. ventricosa*, *M. verdickii* (cf. Fl. Afr. C., Irid.: 10, 12-15, 2005).

M. thomsonii Baker (in Goldblatt, Ann. Missouri Bot. Gard. 64: 262, 1977, excl. *M. stricta* and synonyms); Fl. Zambes. 12/4: 17-18, 1993; Fl. Trop. E. Afr., Irid.: 17-18, 1996; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Cribb & Leedal, Mountain pl. S Tanzania: pl. 51A, 1982.

Herb 15-25 cm tall; corm 1-3 cm Ø, tunics of dark brown fibres, often bearing cormlets among the fibres; leaf 1, usually absent at anthesis, or dry and still attached to stem base, later reaching 60 cm in height; stem with 3-6 branches, held close to stem; sheathing leaves 3-6 cm long; flowers pale lilac to whitish with

yellow to orange spotted nectar guides on *outer and inner tepals* (cf. above under *M. stricta*); outer tepals 1,9-2,4 cm long, spreading; inner ones 1,5-2 cm long, spreading; style branches 7-8 mm long, *hardly wider than anthers*, *without crests*.

Open grassland, often in places remaining moist throughout the dry season; flowering amongst dry grasses at end of the dry season; 1600 – 2000 m alt.

NE S. Africa.

A diploid species (2n = 12), as far as known (cf. *M. stricta*).

Confused with (and perhaps not distinct from) *M. stricta*.

M. unifoliata R. C. Foster – Icon.: Bull. Soc. Roy. Bot. Belg. 103: 148, 1970; Fl. Afr. Centr., Irid.: photo. 5, 2005.

Herb 20-35 cm tall, unbranched; corm c. 1,5 cm Ø; leaf 1, 4-7 cm long, 0,3-0,5 cm wide, usually not longer than the spathes, *inserted near apex of stem*, and usually partly sheathing the inflorescence; *bract leaves absent*; inflorescence usually 2-flowered; flowers yellow; *outer tepals c. 3,5 cm long*; inner tepals 2,5-3 cm long; seeds unknown.

Moist places along dambo margins; steppe savanna; clayey or sandy soil.

Near *M. bovonei*, and other related species: *M. balundana*, *M. tanzanica*, *M. brevifolia*, *M. clavata*.

M. upembana Goldblatt

syn.: *M. textilis* sensu Geerinck, Bull. Soc. Roy. Bot. Belg. 103: 151, 1970, p.p., quoad spec. de Witte 2400, non Baker

Herb *10-20 cm* tall, unbranched; corm c. 1 cm Ø, with *finely reticulate fibres;* leaf unknown (*absent at flowering time*); bract leaves *1-2* on stem; inflorescence 1-flowered; flowers yellow; outer tepals *2,7-4,5 cm* long; inner ones 2-2,5 cm long; capsule unknown.

River banks.

Only known from the type collected in 1945, and inadequate.

Near *M. clavata*, *M. brevifolia*.

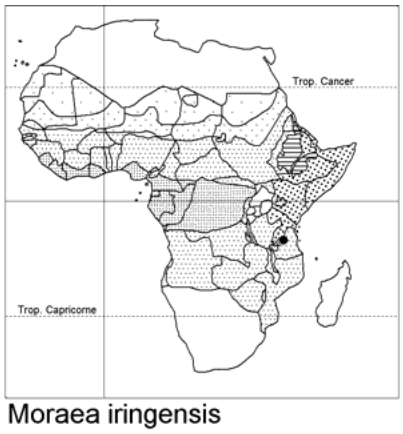
M. ventricosa Baker, incl. fa. *bequaertii* (De Wild.) Geerinck, fa. *boussardiana* Geerinck, fa. *witteana* Geerinck, but excl. var. *macrantha* (Baker) Geerinck (= *M. macrantha*) and fa. *verdickii* (De Wild.) Geerinck *(= M. verdickii);* Fl. Zambes. 12/4: 21, 23, 1993; Fl. Trop. E. Afr., Irid.: 21-22, 1996; Geerinck in Taxonom. 4: 4-5, 2001; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Fl. Afr. Centr., Irid.: photo. 3, 2005.

syn.: *M. textilis* sensu Geerinck, Bull. Soc. Roy. Bot. Belg. 103: 151, 1970, quoad specim. De Giorgi s.n., De Witte 5981, Quarré 3179, Ringoet 499, Schmitz 5835, Thoen 4646, Lestrade s.n., Lewalle 1728, Michel 4664 bis, Van der Ben 1966 (fa. *boussardiana*); De Witte 2428, 2470 (fa. *witteana*).

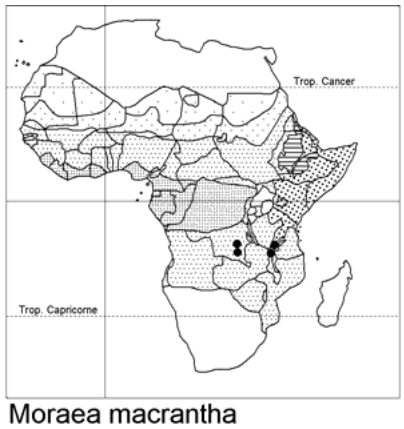
Herb 30-45 cm tall, unbranched; corm c. 1,5 cm Ø; leaf 1, longer than inflorescence, 3-7 mm wide; stem with *3-6 bracts;* flowers *blue purple*, *white* to *pale yellow;* outer tepals 4-5,5 cm long; inner ones *3,7-4,5 cm* long; *anthers 0,8-1,1 cm* long.

Savanna sometimes wooded; open forests; steppe formations on rocks; forest gallery; seasonally flooded dambo margins; 1200-2100 m alt.

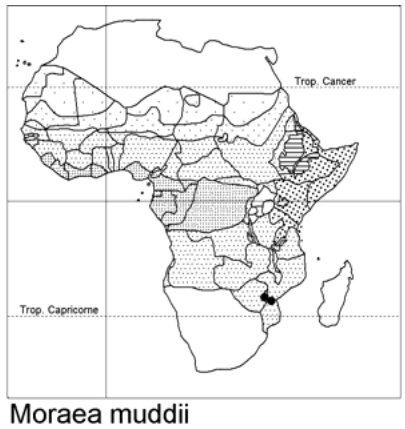
The flower colours of the forms and varieties retained and/or described by Geerinck are summerized in Taxonom. 4: 5, 2005.



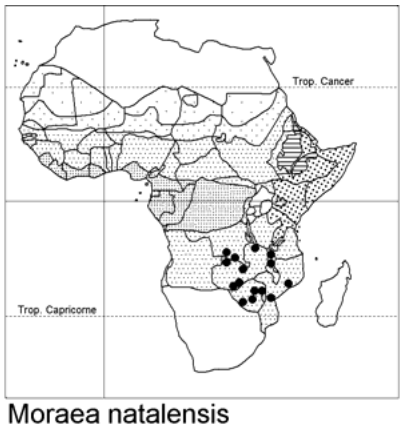
Moraea iringensis



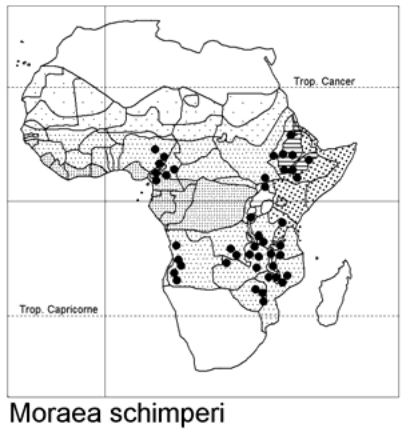
Moraea macrantha



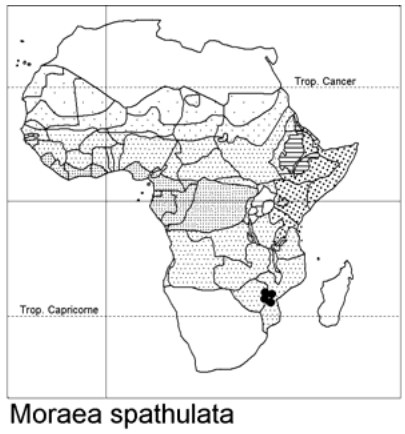
Moraea muddii



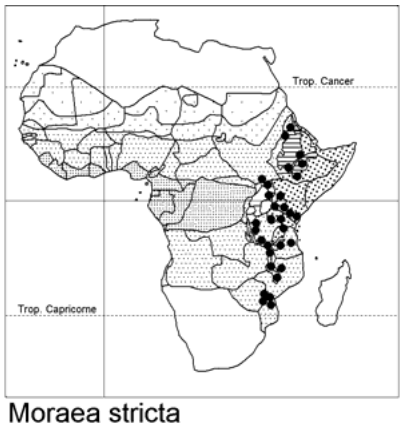
Moraea natalensis



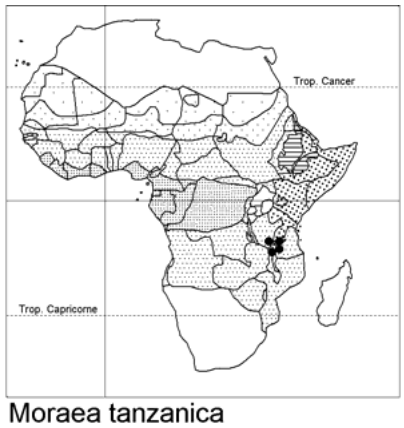
Moraea schimperi



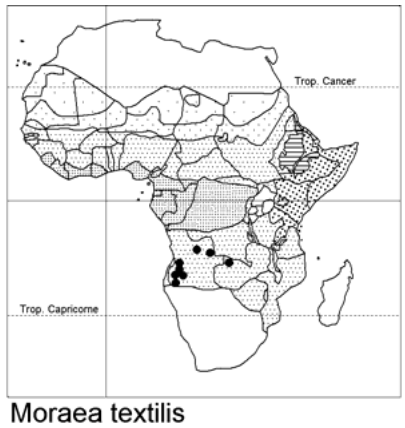
Moraea spathulata



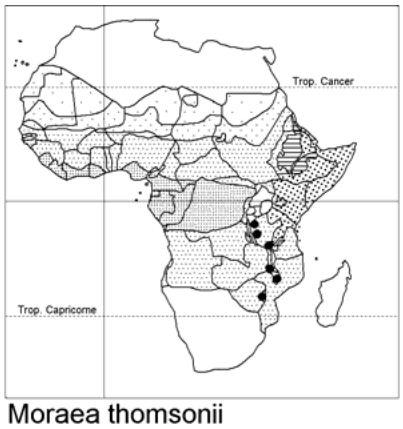
Moraea stricta



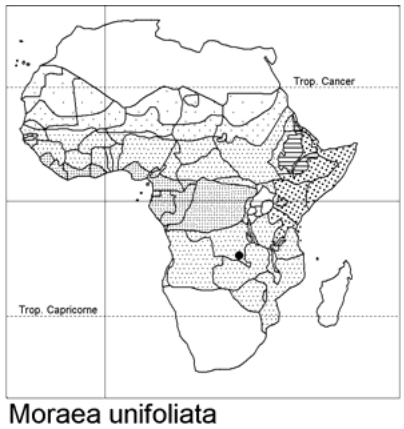
Moraea tanzanica



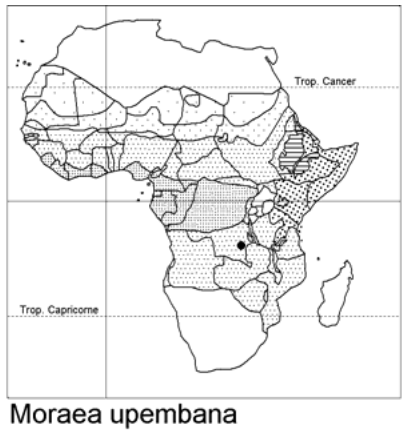
Moraea textilis



Moraea thomsonii



Moraea unifoliata



Moraea upembana

MORAEA

M. verdickii De Wild.; Fl. Zambes. 12/4: 20, 1993; Fl. Trop. E. Afr., Irid.: 21, 1996; Figueiredo & Smith, Pl. Angola: 187, 2008 (sub nom. *M. ventricosa* fa. *verdickii*); Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Fl. Afr. Centr., Irid.: photo. 4, 2005.

syn.: *M. ventricosa* Baker fa. *verdickii* (De Wild.) Geerinck; *M. textilis* sensu Geerinck, Bull. Soc. Roy. Belg. 103: 151, 1970, p.p.

Herb 45-75 cm tall, unbranched; corm c. 2 cm Ø; leaf 1, 0,4-1,2 cm wide, inserted near base of the stem but often to 10 cm above ground; stem with *2-4* herbaceous bract leaves; flowers *yellow;* outer tepals *5-10 cm* long; inner ones 4,5-7 cm long; *anthers 1-1,4 cm* long.

Rocky grassland; forest margins; light woodland; seasonally wet sites; 1100-1700 m alt.

SYNONYMS (see also Enum. 3: 95, 1995):

Moraea andongensis Baker = **Ferraria** ? **candelabrum**

angusta sensu Geerinck = **Moraea balundana**

aurantiaca Baker 1898, non A. Dietrich 1832 = **Ferraria welwitschii**

balenii Stent = **Moraea spathulata**

candelabrum Baker = **Ferraria candelabrum**

diversifolia (Klatt) Baker = **Moraea schimperi**

glutinosa Baker = **Ferraria glutinosa**

gracilis Baker 1878 = **Moraea clavata**

gracilis A. Dietr. 1833 = **M. unguiculata** Ker Gawl. (S. Africa)

kitambensis Baker = **Ferraria candelabrum**

longispatha Klatt = **Moraea spathulata**

malangensis Baker = **Ferraria glutinosa**

mossii N. E. Br. = **Moraea stricta**

parva N. E. Br. = **M. stricta**

randii Rendle = **Ferraria glutinosa**

revoluta C. H. Wright = **Moraea textilis**

spathacea (Thunb.) Ker Gawl., incl. var. *natalensis* Baker = **M. spathulata**

spithamaea Baker = **Ferraria spithamaea**

textilis sensu Geerinck 1970, p. p. = **Moraea bella**, **M. upembana**, **M. ventricosa**, **M. verdickii**

trita N. E. Br., incl. var. *foliata* N. E. Br. = **M. stricta**

ventricosa Baker var. *macrantha* (Baker) Geerinck fa. *macrantha* = **M. macrantha**

ventricosa fa. *verdickii* (De Wild.) Geerinck = **M. verdickii**

violacea Baker 1900 and Baker 1901 = **M. elliotii**

viscosa R. C. Foster = **Ferraria** ? **welwitschii**

(OENOSTACHYS)

Oenostachys abyssinica (Brogn. ex Lem.) N. E. Br. = **Gladiolus abyssinicus**

dichroa Bullock = **G. dichrous**

huillensis (Welw. ex Baker) Goldblatt = **G. huillensis**

vaginifer (Milne-Redh.) Goldblatt = **G. huillensis**

zambesiacus (Baker) Goldblatt = **G. magnificus**

(OVIEDA)

Ovieda erythrantha Klotzch ex Klatt = **Lapeirousia**

(PETAMENES)

Petamenes degasparisiana (Buscal. & Muschl.) N. E. Br. = **Gladiolus huillensis**

huillensis (Welw. ex Baker) N. E. Br. = **G. huillensis**

latifolia N. E. Br. = **G. abyssinicus**

magnificus (Harms) R. C. Foster = **G. magnificus**

schweinfurthii (Baker) N. E. Br. = **G. schweinfurthii**

spectabilis (Schinz) E. Phillips = **G. magnificus**

vaginifera Milne-Redh. = **G. huillensis**

zambesiaca (Baker) N. E. Br. = **G. magnificus**

(PSILOSIPHON)

Psilosiphon cyanescens Welw., incl. var. *minor* Chiov. = **Lapeirousia schimperi**

fragrans Welw. = **L. schimperi**

odoratissimus Welw. = **L. odoratissima**

RADINOSIPHON / *1*

Genus of 2-3 cryptic species or probably one polymorphic species. From S Tanzania to S. Africa. Affinities uncertain, but near *Gladiolus*.

Herbs with globose corms with soft fibrous tunics; leaves soft-textured; flowers zygomorphic with a long tube; tepals unequal, the lower 3 smaller and forming a lip.

Radinosiphon leptostachya (Baker) N. E. Br. – Icon.: Cribb & Leedal, Mountain fl. S Tanzan.: pl. 49C, 1982; Fl. Trop. E. Afr., Irid.: 46, 1996; Burrows & Willis, Pl. Nyika Plateau: 312, 2005.

syn.: Enum. 3: 95, 1995; *R. holostachya* (Baker) N. E. Br.; *Tritonia acroloba* Harms

Herb 8-50 cm tall; corm 1,2-1,5 cm Ø; leaves *several*, mostly basal, reaching base of spike, *plane*, *0,8-1,5 cm* wide, midrib and margins slightly raised; stem simple or 1-3-branched; spike 2-12-flowered or more; flowers pink to purple; tube *2-3 cm* long, longer than tepals (upper 1-1,2 cm long, lower 0,8-1,1 cm); style branches *filiform;* capsule round, 4-5 mm long; seeds *globose* to *angular*.

Rocky grassland, often among boulders; cliffs; 1200-2200 m alt.

NE S. Africa, Swaziland.

R. lomatensis (N. E. Br.) N. E. Br. (bas.: *Acidanthera lomatensis* N. E. Br.) occurring in S. Africa/Mpumalanga, was treated as a synonym of *R. leptostachya* by S. Carter in Flow. Pl. Africa 35: pl. 1384, 1962. "This seems advisable as there seem to be no major morphological differences between populations that merit species separation..." (Fl. Trop. E. Afr., Irid.: 48, 1996).

ROMULEA / *3*

Genus of some 96 species distributed throughout southern Europe, Africa, the Arabian Peninsula and Socotra. The main centre of diversity is situated in S. Africa, mostly in SW Cape and W Karroo. A secondary centre of distribution lies in the Mediterranean area, extending from the Canary Islands and Morocco to the Middle East.

Similar to *Crocus* (first included in that genus). With corms with hard brown tunics, flowering stems short, flower actinomorphic with a ± long tube; seeds globose.

ATTRILL, R. P. (2003). The genus Romulea – An introduction. *Bulbs* 4/2: 19-24.

GRIMSHAW, J. (2011). Giants and dwarfs. *Alpine Gard.* 79: 167-179 [*Romulea*, *Helichrysum*, etc.].

MANNING, J. C. & P. GOLDBLATT (2001). A synoptic review of Romulea (Iridaceae: Crocoideae) in sub-Saharian Africa, the Arabian Peninsula and Socotra including new species, biological notes, and a new infrageneric classification. *Adansonia*, Sér. 3, 23: 59-108.

Romulea camerooniana Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 323, 1994 (sub nom. *R. campanuloides*); Cable & Cheek, Pl. Mt Cameroon: 166, 1998; Manning & Goldblatt, o.c.: 73-74; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 152, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 238, 2010; Fl. Afr. Centr., Irid.: 24, 26, 2005, excl. plate 4; Onana, Vascul. pl. Cameroon: 166, 2011; Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Cribb & Leedal, Mountain fl. S Tanzan.: pl. 51E, 1982; Fl. Trop. E. Afr., Irid.: 34, 1996; Fl. Eth. & Eritrea 6: 173, 1997; Burrows & Willis, Pl. Nyika Plateau: 312, 2005; Salter & Davenport, Orchids & wildflowers Kitalo Plateau: 27, 2011.

syn.: Enum. 3: 95, 1995; *R. campanuloides* Harms, incl. var. *camerooniana* (Baker) Cufod. and var. *gigantea* (M. P. de Vos) M. P. de Vos; *R. thodei* Schltr. subsp. *gigantea* M. P. de Vos

probable syn.: *R. bulbocodium* sensu Broun & Massey, Fl. Sudan: 393, 1929 (Erkovit, 4000 feet) and sensu Andrews, Flow. pl. Sudan 3: 294, 1956, non (L.) Sebast. & Mauri

Herb 7-15 cm tall, excl. leaves; corm 0,8-1,5 cm Ø; foliage leaves 1-6, usually erect, 6-6 cm long, 1-1,5 mm Ø, filiform; stems 1-4, 2-4 cm long; flowers solitary per stem; *bracts pointed*, green, striate, 1,2-1,8 cm long; *bracteoles with narrow colourless membranous margins*, 1,2-2 cm long; flowers lilac, magenta to violet or pink, white to yellow in the centre, tube 7-8 mm long, tepals darkly veined, subequal, 1,2-2 cm long; *anthers 0,3-0,7 cm* long.

Rocky sites, rock outcrops; savanna; wet grassland on stony soils; 1200-3000 m alt.

S. Africa, Lesotho.

Var. *gigantea* is a large-flowered form, but height and size of flowers are variable in general in the species.

Closely related to *R. congoensis*. *R. fischeri* Pax was treated as a synonym in Fl. Zambes. 12/4: 63, 1993. Similar to *R. autumnalis* L. Bolus from the Cape – Often confused with *Hesperantha petitiana*.

R. congoensis Bég.; Agnew & Agnew, l.c. (as *R. keniensis*); Fl. Trop. E. Afr., Irid.: 37, 1996; Fl. Eth. & Eritrea 6: 172, 1997; Manning & Goldblatt, o.c.: 75; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 152-153, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 239, 2010. – Icon.: Robyns, Fl. spermat. Parc Natl. Albert 3, Monocot.: 397, 1955; Symb. Bot. Upsal. 15: 67, 1957 (as *R. keniensis*); Fl. Afr. Centr., Irid.: 25, 2005.

syn.: *R. keniensis* Hedb.

ROMULEA CONGOENSIS

Herb 2-20 cm tall, incl. leaves; corm 0,5-1 cm Ø, with reddish brown tunics; leaves 3-7, basal, linear, ovate in cross section with 4 longitudinal grooves, 3-20 cm x1-2 mm; flowering stems 1-2, ± erect at anthesis, soon curving, 2-6 cm long; *bracts blunt* or rounded at apex, green, 1,2-1,5 cm long; bracteoles with *broad rust-brown scarious* margins, often appearing *entirely scarious*, c. 1,2-1,5 cm long; flowers pink to lilac or white with a yellow or white centre; tube c. 0,7 cm long; tepals 1,5-2 cm long.

Scree; open grassland; mossy seeps on lava; wet stony soils, especially streamsides; 3000-4200 m alt.

R. fischeri Pax; Fl. Trop. E. Afr., Irid.: 35-36, 1996; Fl. Eth. & Eritrea 6: 171-172, 1997; Manning & Goldblatt, o.c.: 74. – Icon.: Blundell, Wild flow. E. Afr.: fig. 712, 1987; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 150, 1994; Thulin, Fl. Somalia 4: pl. 3 B, 1995; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 224, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 151, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 237, 2010; Puff & Sileshi, Pl. Simen: 227, 2005.

syn.: Enum. 3: 95, 1995; *R. purpurascens* (Ten.) Ten. var. *edulis* Herb. ex Baker

Herb 1-12 cm tall, excl. leaves; corm ovoid with oblique rounded base, 0,7-1 cm Ø; leaves 2-5, mostly 0,8-1,5 cm long, oblong in cross section, midrib raised, erect to spreading (depauperate plants); flowering stems 1-4, ± erect; *bracts pointed*, green; bracteoles with *broad membranous margins irregularly streaked with brown*, 1,2-1,8 cm long; flowers blue, purple or violet, occasionally almost white with a yellow centre; tube 4-5 mm long; tepals *1-2* × 0,4-0,6 cm, with bands of darker pigment over the 3 main nerves.

Rocky sites; short grassland; low, often heavily grazed grassland; stony grassland, especially where disturbed; patches of grassland in evergreen bushland; 1300-4200 m alt.

Saudi Arabia, Yemen, Socotra.

Closely related to *R. camerooniana*, and treated as a synonym under the latter in Fl. Zambes. 12/4: 63, 1993.

SYNONYMS:

Romulea alpina Rendle = **Romulea camerooniana**

bulbocodium sensu Broun & Massey, Fl. Sudan 1929 and sensu Andrews, Fl. pl. Sudan 3, 1956 = **R.** ? **camerooniana**

campanuloides Harms, incl. var. *camerooniana* (Baker) Cufod. and var. *gigantea* (M. P. de Vos) M. P. de Vos = **R. camerooniana**

campanuloides Cufod. = **R. fischeri**

columnae Cufod., non Seb. & Maur. = **R. fischeri**

iroensis A. Chev. = **Gladiolus iroensis**

keniensis Hedb. = **Romulea congoensis**

linaresii Parl. subsp. *abyssinica* Bég. = **R. fischeri**

purpurascens (Ten.) Ten. var. *edulis* Herb. ex Baker = **R. fischeri**

ramiflora Baker, non Ten. = **R. fischeri**

rosea auct., non (L.) Eckl. = **R. camerooniana**

thodei Schltr., incl. subsp. *gigantea* M. P. de Vos = **R. camerooniana**

SAVANNOSIPHON / *1*

Monospecific genus, in SE tropical Africa. "For a long time included in *Lapeirousia* on account of its deeply divided style branches, the genus seems isolated taxonomically" (Fl. Trop. E. Afr., Irid.: 27, 1996).

Savannosiphon euryphylla (Harms) Goldblatt & Marais; Goldblatt & al. in Edinb. J. Bot. 60: 531, 2004 (key to genera); Gereau & al., Lake Nyasa florist. checklist: 67, 2012. – Icon.: Bull. Soc. Roy. Bot. Belg. 105: 347, 1972; Fl. Zambes. 12/4: 29, 1993; Fl. Trop. E. Afr., Irid.: 28, 1996; Fl. Afr. Centr., Irid.: 42, photos 11-12, 2005.

syn.: Enum. 3: 95, 1995; *Lapeirousia euryphylla* Harms, incl. var. *minor* Geerinck, Lisowski, Malaisse & Symoens

Herb 15-70 cm tall; corm *round-based* c. 1 cm Ø; leaves 3-5, lower 1-3 laminate, plicate, ± as long to slightly longer than the stem, the upper ones shorter, partly to almost entirely sheathing; stem erect, compressed, *2-winged*, unbranched; *spike 1-6-flowered;* bracts 4-30 cm long, inner ones shorter than the outer; flowers actinomorphic, *white*; tube *8-12,5 cm* long with *stamens included*; style branches *deeply forked*.

Woodland; wooded grassland; often associated with termite mounds; stream banks; clayey red ground; 1100-2000 m alt.

(SCHIZOSTYLIS)

Schizostylis coccinea Backh. & Harv. = **Hesperantha coccinea**
ixioides Harv. ex Baker = **H. coccinea**
pauciflora Klatt = **H. coccinea**
sp. (Angola) = **Gladiolus benguellensis**

(SPHAEROSPORA)

Sphaerospora gigantea Klatt = **Gladiolus murielae**

TRITONIA / *2*

An African genus of some 26 species occurring from Tanzania to S. Africa where most of the species are concentrated. Several species and hybrids are cultivated.

DUNCAN, G. (2006). Spectacular, rewarding tritonias. *Veld & Flora* 92/3: 132-137.

Tritonia laxifolia (Klatt) Benth., incl. var. *strictifolia* (Klatt) Baker – Icon.: Fl. Zambes. 12/4: 48, 1993; Fl. Trop. E. Afr., Irid.: 41, 1996.

bas.: *Montbretia laxifolia* Klatt

syn.: *M. strictifolia* Klatt; *Tritonia strictifolia* (Klatt) Benth. & Hook. f.; *T. bakeri* Klatt 1894, nom. illegit., non Klatt 1882 (S. African species); *T. clusiana* Worsley; *T. bracteata* Worsley

Herb 10-60 cm tall; corm 1-1,5 cm Ø, with tunics of fine fibres, often with small basal cormlets; leaves 4-7, the lower basal longest, usually *reaching to ± base* of spike, 0,5-1,2 cm wide; stem simple or with 1-2 or rarely more branches; spike fairly lax, secund, 6-12-flowered; flowers zygomorphic, orange to pale brick-red, lower 3 tepals with a yellow or greenish median mark outlined in red and a *prominent tooth-like callus;* tube (0,6)-*1,2-1,6 cm* long.

Woodland; open slopes.

Fairly variable in vigour, size of flowers.

S. Africa.

T. moggii Oberm.; Fl. Zambes. 12/4: 47, 49, 1993.

syn.: *T.* sp cf. *laxiflora* [sic !] sensu Mogg 1958 [*laxifolia*].

Herb 20-50 cm tall; corm 1-1,5 cm Ø, sometimes with small cormlets on stolons; tunics of fine fibres; leaves 6-9, mostly basal, 15-50 × 0,4-1,1 cm, *just exceeding* the spike; stem erect, simple or 1-3-branched; spike lax, subsecund, usually 8-10-flowered; flowers zygomorphic, orange or salmon-pink, lower 3 tepals with a yellow basal mark outlined in red, *the lowermost* of *all* with a *small median callus;* tube *1,6-4 cm* long (usually 2,5-3,5).

Low-lying sandy coastal plains.

Short-tubed forms have perhaps genes of *T. laxifolia* (introgression).

SYNONYMS:

Tritonia abyssinica (Hochst. ex A. Rich.) Walp. = **Lapeirousia abyssinica**
acroloba Harms = **Radinosiphon leptostachya**
aurea Poppe ex Hook. f. = **Crocosmia aurea**
bakeri Klatt 1894, non Klatt 1882 = **Tritonia laxifolia**
bongensis Pax = **Zygotritonia**
bracteata Worsley = **Tritonia laxifolia**
cinnabarina Pax = **Crocosmia aurea** subsp. **pauciflora**
clusiana Worsley = **Tritonia laxifolia**
cooperi Baker = **Watsonia borbonica**
x*crocosmiiflora* Nicholson = **Crocosmia crocosmiiflora**
graminifolia Baker = **Freesia grandiflora** subsp. **grandiflora**
mensensis Schweinf. = **Gladiolus mensensis**
sp. cf. *laxiflora* sensu Mogg 1958 = **Tritonia moggii**
schimperi Aschers. & Klatt = **Lapeirousia schimperi**
strictifolia (Klatt) Benth. & Hook. f. = **Tritonia laxifolia**
tigrina Pax = **Gladiolus benguellensis**

(VIEUSSEUXIA)

Vieusseuxia schimperi (Hochst.) Hochst. ex A. Rich. = **Moraea schimperi**
tridentata (Hochst.) Hochst. ex A. Rich. = **M. schimperi**

[WATSONIA]

A southern African genus of some 52 species, at least 10 are in general cultivation today (cf. Europ. Gard. Flora, ed. 2, 1, Monocot.: 293, 2011) in both tropical and temperate areas. Reported from our area is:

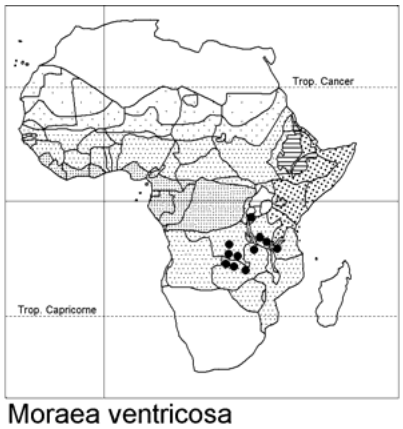
[**Watsonia borbonica** (Pourr.) Goldblatt] – Icon.: Fl. Afr. Centr., Irid.: 55, 2005; Goldblatt, The genus Watsonia: 34, plates 2-3, 1989.

syn.: Enum. 3: 96, 1995.

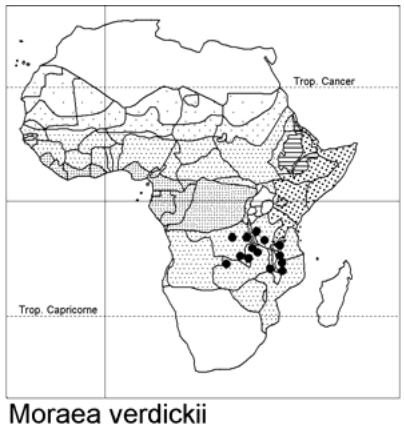
Herb 1,2-2 m tall; corm 3-4 cm Ø, with coarsely reticulate grey-brown tunics; leaves 5-8, glossy, the lower ± basal, lanceolate, 1/3-2/3 as long as spike, 2-4 cm wide, the uppermost sheathing the stem; spike branched, main axis to 20-flowered; flowers zygomorphic, pale to deep pink to light purple, midline of lower 3 tepals dark coloured; lower part of perianth tube 1,2-2 cm long, 1,5-2 mm Ø, upper part funnel-shaped and 0,8-2 cm long, ± horizontal to ± pendulous, widening at the mouth; tepals 2-3,6 cm long, spreading outwards. Bee pollinated.

Native to the extreme SW Cape, S. Africa.

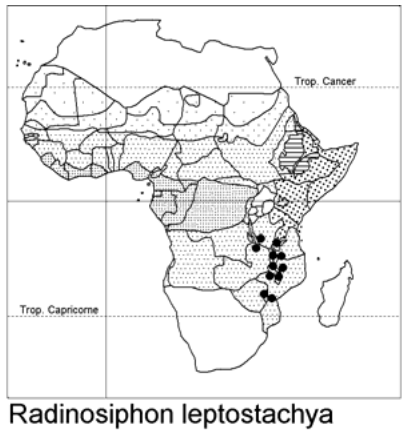
Reported as naturalized in wet places in Burundi and Rwanda; c. 2100 m alt.



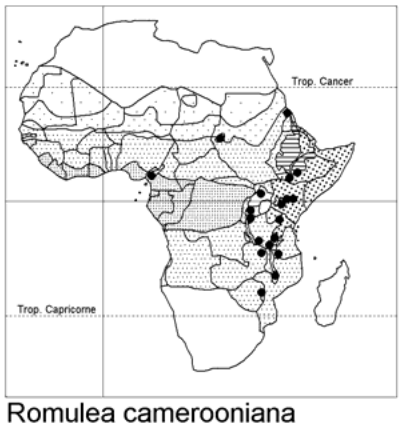
Moraea ventricosa



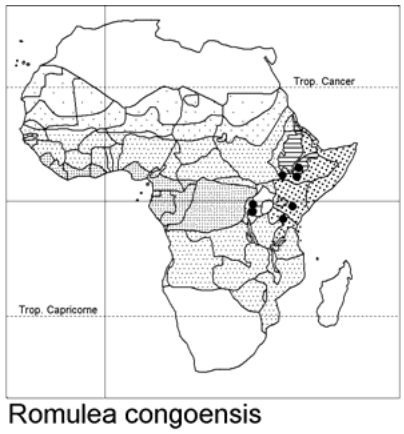
Moraea verdickii



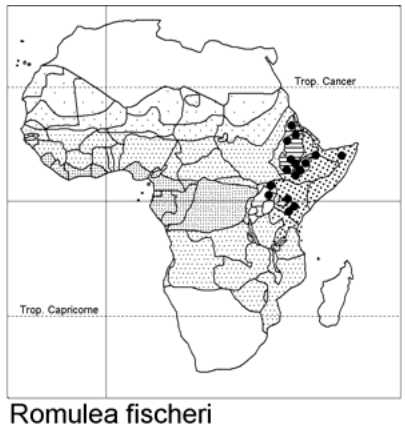
Radinosiphon leptostachya



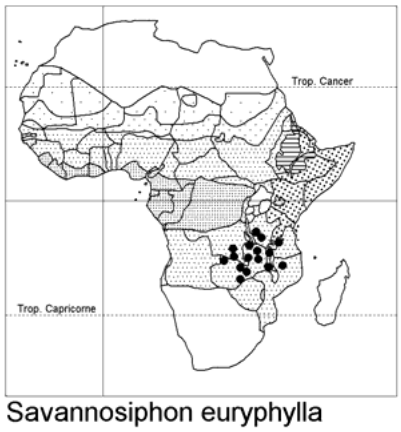
Romulea camerooniana



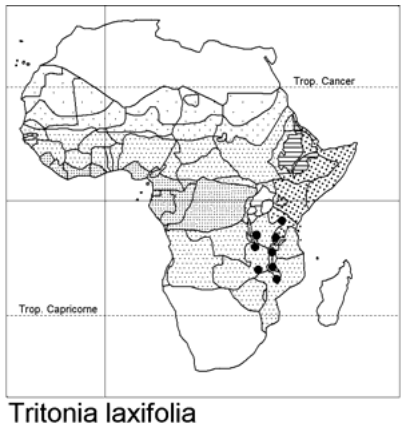
Romulea congoensis



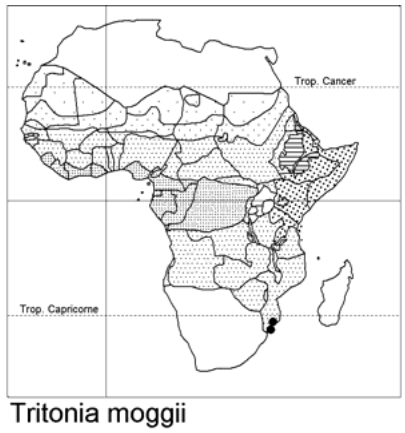
Romulea fischeri



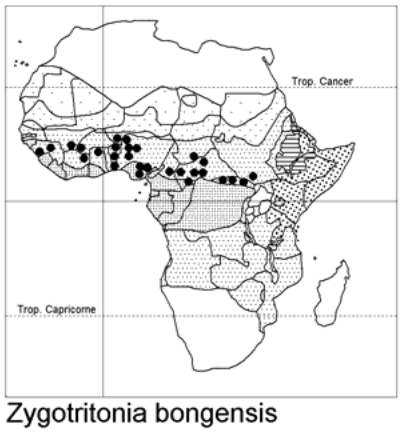
Savannosiphon euryphylla



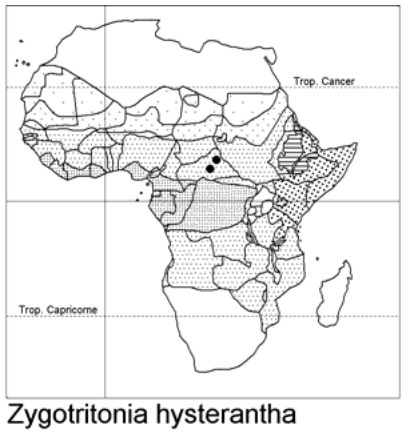
Tritonia laxifolia



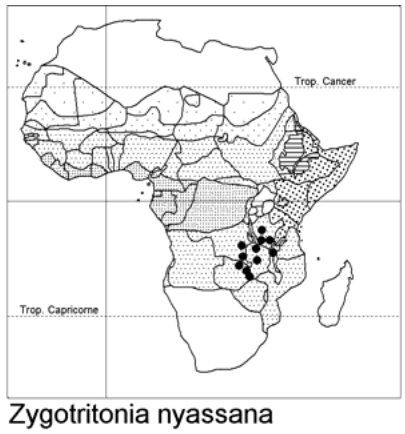
Tritonia moggii



Zygotritonia bongensis



Zygotritonia hysterantha



Zygotritonia nyassana

WATSONIA

SYNONYM:

Watsonia natalensis Eckl. = **Gladiolus dalenii** subsp. **dalenii**

(XIPHION)

Xiphion diversifolium Klatt = **Moraea schimperi**

ZYGOTRITONIA / *4*

Genus of 4 species in tropical Africa and Socotra.

Seasonal perennials with globose corms with fibrous netted tunics; leaves few, prominently veined; spike with spiralled flowers; bracts small; flowers zygomorphic, bilabiate; tube short; tepals unequal, the dorsal largest and hood-like; style undivided; seeds large, smooth.

Zygotritonia bongensis (Pax) Mildbr., incl. var. *robusta* Mildbr.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 428, 1994; Akoegninou & al., Fl. analyt. Bénin: 140, 2006 (as *Z. crocea*); Lisowski, Fl. Rép. Guinée 1: 419, 2009 (idem); Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 231, 2011 (idem); Thiombiano & al., Cat. pl. vasc. Burkina Faso: 63, 2012 (as *Z. crocea*). – Icon.: Fl. Afr. Centr., Irid.: 57, 2005.

syn.: Enum. 3: 96, 1995; *Z. crocea* Stapf (icon.: Hook. Ic. Pl. 32: pl. 3120, 1927 !). Note: *Z. praecox* described l.c. is *not* illustrated there.

Herb 18-65 cm tall; corm 1,5-2,5 cm Ø; leaves 1-3, lanceolate, 15-30 × *1,2-4 cm*, at base of spike; inflorescence simple or 1-3-branched, 12-40-flowered; bracts *reddish*, *nearly smooth*, 4-5 mm long; perianth whitish to yellowish green, reddish to purplish toward apex; lateral and lower lobes *7-8 mm* long; capsule warty.

Wooded savannas; humid places in savannas; savanna with *Monotes kerstingii;* shallow soil on granite; stony hills; 500 m alt.

Socotra.

Corms and fruits eaten (famine food).

Closely allied to *Z. nyassana*.

Z. hysterantha Goldblatt

Most closely related to *Z. bongensis* but: – absence of leaves on flowering stem; – stem sheathed by imbricate *bract*-leaves. Also near *Z. praecox* but: – rarely less than 25 cm and to 65 cm tall; – flowering stem bearing 2-3 imbricate sheathing *bract*-leaves without free blade.

Wet rocky sites; 585 m alt.

Only known from 2 gatherings, collected in 1921 and 1985, respectively.

Z. nyassana Mildbr. – Icon.: Fl. Zambes. 12/4: 58, 1993; Fl. Trop. E. Afr., Irid.: 46, 1996; Fl. Afr. Centr., Irid.: photos 17-18, 2005.

syn.: Enum. 3: 96, 1995; *Lapeirousia anisochila* Vaupel in sched.

Near *Z. bongensis* but: – uppermost cathaphyll ± truncate with revolute margins; inflorescence well branched; flowers slightly smaller; bracts short, 2-3 mm long; surface of bracts usually *distinctly papillate*.

Open grassland; light woodland; savannas; pastures; miombo; red, stony soil; shallow sand over rock by river; 850-1650 m alt.

ZYGOTRITONIA

Z. praecox Stapf; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 428-429, 1994; Sebsebe Demissew & al. in Ghazanfar & Beentje, eds., Taxonomy and ecology of African plants...: 255, 2006 (with map); Lisowski, Fl. Rép. Guinée 1: 419-420, 2009; Fl. Eth. & Eritrea 1: 249-250, 2009. – Icon.: Berhaut, Fl. ill. Sénégal 9: 405, 1988; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 153, 2003; idem, Aloes & Lilies Eth. & Eritrea, ed. 2: 241, 2010.

Near *Z. hysterantha* but: – rarely exceeding 25 cm tall; flowering stem bearing one basal leaf, this sheathing the stem for most of its length, with a free blade shorter than the sheath, 1,5-3 mm wide.

Humid ground; meadow; alluvial soils in wet sites and amongst grasses; temporarily inundated grassland with rocky outcrops and scattered clumps of shrubs; c. 1600 m alt. (Ethiopia).

Scattered distribution but probably overlooked.

SYNONYMS:

Zygotritonia crocea Stapf = **Zygotritonia bongensis**

giorgii De Wild. = **Z. nyassana**

gracillima Mildbr. = **Z. nyassana**

homblei De Wild. = **Z. nyassana**

DIOSCOREACEAE / *1* g. / *29 + 4* ? spp.

excl. *Tacca (Taccaceae)*

Family of 3 genera and 400-600 species 95% of which belong to the genus *Dioscorea*. "Species diversity is highest in the seasonally dry tropics, especially in C South America, Mexico, the Caribbean, South Africa, Madagascar and Indochina, where *Dioscorea* species numbers are highest, but the range of *Dioscorea* extends into temperate regions" (Wilkin in Fl. Zambes. 12/2: 109, 2009).

"Among the dioecious genera, growth habit was used to distinguish the dwarf montane genera *Epipetrum* Phil. from Chile and *Borderea* Miégev. from the Pyrenees from *Dioscorea*, but both of these are now generally regarded as subgeneric elements within *Dioscorea*..." (Wilkin in Kew Bull. 56: 361, 2001).

Several species of *Dioscorea* are important food plants (carbohydrate staples) by their underground storage tubers (also aerial bulbils eaten), notable for their diverse phytochemistry (alkaloids, steroidal saponins). Some species are regarded as succulents and grown as ornamentals (cf. Eggli, ed., Illustrated handbook of succulent plants, Monocotyledons: 254-257, 2001).

Species delimitations need to be investigated. Herbarium material available is not always complete. In one species in our area the tuber is unknown *(D. knuthiana),* a few others are incompletely known and listed below within brackets.

CADDICK, L. R. & al. (2002a). Yams reclassified: a recircumscription of Dioscoreaceae and Dioscoreales. *Taxon* 51: 103-114.

CADDICK, L. R. & al. (2002b). Phylogenetics of Dioscoreales based on combined analyses of morphological and molecular data. *Bot. J. Linn. Soc.* 138: 123-144.

GOVAERTS, R. & al. (2007). *World Checklist of Dioscoreales: Yams and their allies.* Kew Publishing, Royal Botanic Gardens, Kew. XVIII + 65 pp.

HUBER, H. (1998). Dioscoreaceae. *In:* KUBITZKI, K., ed., *The Families and Genera of Vascular Plants. 3. Flowering plants. Monocotyledons: Lilianae (except Orchidaceae):* 216-235. Springer-Verlag, Berlin & Heidelberg.

WILKIN, P. (2001). Dioscoreaceae of South-Central Africa. *Kew Bull.* 56: 361-404.

(BORDEREA)

See below under **Dioscorea gillettii**.

(BOTRYOSICYOS)

Botryosicyos pentaphyllus Hochst. = **Dioscorea quartiniana**

DIOSCOREA / *29 + 4* ?

Genus of "at least 400 species" (Fl. Zambes. 12/2 : 109, 2009), often c. 600 species given in the current literature. In all tropical and subtropical regions, with a number of species extending into temperate areas as far north as S Canada, N Europe, Russian far East, and south to Chile, W Australia, S. Africa (Cape Province).

At least 50 species have edible tubers, and 3 are major cultigens, viz. *D. alata*, *D. cayenensis* (incl. *D. rotunda*) and *D. esculenta*.

The main morphological characters are : presence of rhizome or tuber ; stem twining (to the left or right), leaf petiole not sheathing ; inflorescence a simple raceme or spike or compound such ; flowers usually unisexual ; fruit a dry capsule (rarely baccate).

DE WILDEMAN, E. (1938). *Dioscorea alimentaires et toxiques (morphologie et biologie). Espèces et variétés congolaises*. Bruxelles. 262 pp.

DUMONT, R. & al. (2005). *Biodiversité et domestication des ignames en Afrique de l'Ouest. Pratiques traditionnelles conduisant à Dioscorea rotundata Poir.* CIRAD, Montpellier. 119 pp.

DURST, E. (2009). Dioscoree succulente : un'introduzione/Succulent Dioscoreae : an introduction. *Cactus & Co*. 13/4 : 21-51.

EDEOGA, H. O. (2006). Lamina anatomy and classification of some Dioscorea L. (Dioscoreaceae). *J. Econ. Taxon. Bot.* 30 : 368-375.

EDEOGA, H. O. & B. E. OKOLI (2001). Mid-rib anatomy and systematics in Dioscorea L. (Dioscoreaceae). *J. Econ. Taxon. Bot., Add. Ser*. 19 : 191-195.

EDEOGA [sic !], H. O. & B. E. OKOLI (2005). Stem anatomy and systematics in some Dioscorea species (Dioscoreaceae). *New Botanist* 32 : 1-13.

EDEOGA, H. O. & B. E. OKOLI (2006). Morphology of the aerial shoot and classification of some Dioscorea species. *J. Econ. Taxon. Bot.* 30 : 381-389.

EDEOGAI, H. O. & al. (1998). Observations on the floral morphology of some Dioscorea species (Dioscoreaceae) in Nigeria. *Folia Geobot.* 33 : 201-205.

GAMIETTE, F. & al. (1999). Ploidy determination of some yam species (Dioscorea spp.) by flow cytometry and conventional chromosome countings. *Genet. Resources & Crop Evol.* 46 : 19-27.

GAO, Xing & al. (2008). Phylogeny of Dioscorea sect. Stenophora based on chloroplast matK, rbcL and trnL-F sequences. *J. Syst. Evol*. 46 : 315-321.

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N'KOUNKOU, J. S. (1996a). Synthèse taxonomique des Dioscorea (Dioscoreaceae) d'Afrique centrale (Congo, Zaïre, Rwanda, Burundi). *Fragm. Florist. Geobot*. 41 : 595-610.

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PAVAN KUMAR, G. & al. (2007). Assessment of morphological variation in Dioscorea L. using numerical analysis. *Phytomorphology* 57 : 95-102.

SCHMID. J. (2009). Pflegeleichte Dioscorea-Arten in Kultur. *Kakteen & Sukk.* 60 : 148-153.

SCHOLS, P. & al. (2001). Morphology of pollen and orbicules in some Dioscorea species and its systematic implications. *Bot. J. Linn. Soc.* 136 : 295-311.

SCHOLS, P. & al. (2003). Pollen morphology of Dioscorea (Dioscoreaceae) and its relation to systematics. *Bot. J. Linn. Soc.* 143 : 375-390.

SCHOLS, P. & al. (2005). Pollen evolution in yams (Dioscorea : Dioscoreaceae). *Syst. Bot.* 30 : 750-758.

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WILKIN, P. (2001). Dioscoreaceae of South-Central Africa. *Kew Bull.* 56 : 361-404.

WILKIN, P. & L. CADDICK (2000). Palaeotropical compound-leaved Yams (Dioscorea ; Dioscoreaceae) : monophyly and relationships. *In :* WILSON, K. L. & D. A. MORRISON, eds., *Monocots : Systematics and Evolution*: 497-504. CSIRO, Melbourne.

WILKIN, P. & al. (2005). A plastid gene phylogeny of the Yam Genus, Dioscorea : roots, fruits and Madagascar. *Syst. Bot.* 30 : 736-749.

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WILKIN, P. & al. (2010). A critically endangered new species of yam (Dioscorea strydomiana Wilkin, Dioscoreaceae) from Mpumalanga, South Africa. *Kew Bull.* 65 : 421-433.

ZOUNDJIHEKPON, J. & al. (1997). Flowering synchronization between male and female West African cultivated yams (Dioscorea cayenensis-rotundata complex). *Euphytica* 95 : 371-375.

Dioscorea abysssinica Hochst. ex Kunth ; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 204-205, 2003. – Icon.: Hamon & al. (1995) : 61; Fl. Eth. & Eritrea 6 : 57, 61, 1997 (leaf, fruit) ; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2 : 317, 2010.

syn.: Enum 3 : 96, 1995, *excl*. syn. *D. sagittifolia* Pax

Climber with stems 2-5 m long, unarmed, glabrous ; tubers deep-set, annual, (edible), cylindrical, to 6 × 2-3 cm ; roots unarmed ; leaves usually opposite, cordate to ovate, 4-12 × 2-6 cm, basal lobes ± rounded, length/width ratio < 1,8, acuminate, 5-7 nerved ; male inflorescences of 3-6 spikes, 2-10 cm long, in leaf axils ; male flower with suborbicular segments ; female inflorescences of 1-2 spikes, 8-15 cm long in leaf axils ; perianth 1-1,5 mm long, white or grey, base thickish, not scarious ; flower axis stout ; capsule as long as wide ; seed with wing all round.

Woodland or wooded grassland with *Combretum*, *Terminalia*, *Stereospermum*, *Oxythenanthera;* 1000-1800 m alt. (Ethiopia).

Perhaps from Senegal to Ethiopia (map in Hamon & al, 1995 : 58) but confused in some floras with *D. sagittifolia* and other species. The relations with *D. praehensilis*, *D. cayenensis* and *D. liebrechsiana* are also not clear. The supposed wide distribution area of *D. abyssinica* needs to be confirmed by further field observations and morphological studies in comparison with the *D. cayenensis* complex.

[**D. alata** L.] ; Fl. Trop. E. Afr., Dioscor.: 11, 1975 ; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 655-657, 1985 ; Fl. Eth. & Eritrea 6 : 60, 1997 ; Kew Bull. 56 : 374-375, 2001; Cheek & al., Pl. Kupe…: 440, 2004 ; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 203-204, 2003 ; idem, Aloes & lilies Eth. & Eritrea. ed. 2 : 315, 2010 ; Sosef & al., Check-list pl. vascul. Gabon : 153, 2006 ; Figueiredo & Smith, Pl. Angola : 183, 2008 ; Figueiredo & al., Annot. cat. S. Tomé & Príncipe : 53, 2011; Fl. Zambes. 12/2 : 110, 2009 ; Onana, Vascul. pl. Cameroon…: 164, 2011; Masharabu & al. in Adansonia, Sér. 3, 34 : 159, 2012 ; M. Renier, Flore du Kwango 1 : 100, 1948 ; Thiombiano & al., Cat. pl. vasc. Burkina Faso : 59, 2012. – Icon.: Kew Bull. 56 : 372, 2001; Akoegninou & al., Fl. anal. Bénin : 123, 2006 ; Latham & Konda, Pl. utiles Bas-Congo, ed. 2 : 121, 2007 ; Lisowski, Fl. Rép. Guinée 2 : fig. 488, 2009 ; Wilkin & Thapyai, Fl. Thailand 10/1: 12, 14, 2009 ; Gardenwise 35 : 7-9, 2010 ; Téllez Valdés & al. (2010) : 39.

DIOSCOREA ALATA

syn.: Enum. 3 : 98, 1995 ; for full synonymy, see Govaerts & al., World Checklist Dioscoreales : 15, 2007.

A cultigen described from a plant collected in Ceylon/Sri Lanka by Hermann. Probably of SE Asian origin, not found wild ; dispersed by man.

Vigorous climber 10-15 m long, unarmed, glabrous, some forms with bulbils ; highly distinctive : stems right-twining, square, with a wing at each angle ; tuber annual, often large, to c. 6 cm Ø, (10-50 × 5-30 cm), single or digitate, descending vertically, branched, recurved or even twisted ; leaves opposite, above often in whorls of 3-4 ; petiole 8-10 cm long, winged, decurrent on stem ; blade ovate to broadly elliptic, deeply cordate at base with overlapping lobes, 6-22 × 3-18 cm, apex acute ; *male* inflorescences flexuous, axillary (2 per axil), each spike with 12-20 sessile flowers, axis zig-zag, perianth ± globose ; *female* inflorescences solitary spikes in leaf axils, 20-30 cm long, glabrous ; capsule glabrous, emarginate, 2-2,5 × 3-3,5 cm ; seeds winged all round.

Cultivated in tropical Africa for its starchy tubers, sometimes persisting in fields, fallows, savannas, around villages, secondary forest and bushland, there appearing as a native plant ; 0-1900 m alt.

Introduced into Africa from the East. Propagated vegetatively : usually plants of one sex are found in one locality. Production of fruit very rare in Africa. This cultigen has become pantropical following its domestication : The most cultivated yam in the humid and semi-humid tropics of the Old and the New World.

CHIN SEE CHUNG (2010). A gift from the rain forest – yams in history, food, sex and medicine. *Gardenwise* 35 : 6-9.

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Not mapped.

D. asteriscus Burkill ; Agnew & Agnew, Upl. Kenya wild flow., ed. 2 : 310, 1994 ; White & al., Evergreen for. fl. Malawi : 96, 2001.– Icon.: Fl. Trop. E. Afr., Dioscor.: 4, 1975 ; Kew Bull. 56 : 364, 368, 2001; Fl. Zambes. 12/2 : 113, 2009.

syn.: Enum. 3 : 96, 1995.

Tuber annual, solitary, round, glabrous, c. 10 cm Ø ; stem left-twining, unarmed, terete, usually with ovoid, dark purple or red bulbils 0,4-1 cm Ø in axils ; leaves alternate ; blade entire, apex acuminate, to 3 cm long, never thickened ; a pair of membranous semicircular projections clasping the stem present at petiole base ; *male* inflorescence compound ; *flowers pedicellate*, *yellow*, *patent to inflorescence axis*, *star-like; female* flowers similar, *ovary restricted just below perianth;* capsule winged at base, often ± triangular, 1,7-3 × 1,1-1,5 cm ; seed winged at basal end.

Rain-forest ; dry evergreen forest ; forest edges ; scrub ; coastal evergreen bushland in forested ravines ; among rocks ; sandy and lateric soils ; termite mounds ; disturbed habitats ; 0-2700 m alt.

Botswana, Namibia. Perhaps in Uganda, Centr. Afric. Rep.

The bulbils are apparently not eaten (cf. *D. bulbifera*).

Confused with the wild variety of the very close *D. bulbifera*. The main difference lies in the male flowers (see characters underlined above). The two taxa seem to be sympatric.

DIOSCOREA

D. baya De Wild.; Fl. Trop. E. Afr., Dioscor.: 13, 1975 ; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 228, 2002 ; Sosef & al., Check-list pl. vascul. Gabon : 153, 2006 ; Figueiredo & Smith, Pl. Angola, 183, 2008 ; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30 : 164, 2010 ; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Ann. Mus. Congo, Bot., Sér. 5, 3 : pl. 52, 53, 1912 ; Kew Bull. 56 : 373, 2001; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 367, 2006 ; Fl. Zambes. 12/2 : 113, 2009.

Tuber large, covered by a woody plate, with woody roots from crown and with prickles to 1 cm long, glabrous ; stems perennial, right-twining, to 30 m long, 1-2 cm Ø, with stout brown or black curved prickles to 1 cm long at base, glabrous, woody with age ; bulbils absent ; leaves usually opposite ; petiole 2-4,5 cm long ; blade ovate or elliptic, to 6-9 × 4,5-6 cm, base rounded, apex *to 1 cm long*, thickened ; cataphylls on basal stem (to 8 m height) *stipule-like;* inflorescence spicate, flowers sessile ; male spike simple, flowers falling after anthesis, in var. **baya** *densely flowered*, *2-5 cm long*, *axis hidden by flowers*, in var. **kimpundi** *laxly flowered*, *5-8 cm long*, *axix visible between flowers;* capsule 1,5-2,3 × 2,5-3,8 cm, pendent to patent ; seeds winged all round.

Swamp and seasonally flooded sedge meadow ; rain-forests ; also in open areas ; persists in areas of disturbance ; old termite mounds ; forest regrowths ; wet, humus-rich soil ; graphitic, schistose soil ; secondary forests with *Musanga;* 200-c. 1500 m alt.

Comprises 2 vars.: – var. **baya** (syn.: *D. baya* var. *subcordata* De Wild.) ; – var. **kimpundi** De Wild., in W part of range.

Tubers edible.

D. buchananii Benth., incl. var. *ukamensis* R. Knuth ; Figueiredo & Smith, Pl. Angola : 183, 2008 ; Gereau & al., Lake Nyasa florist. checklist : 48, 2012. – Icon.: Fl. Trop. E. Afr., Dioscor.: 48, 1975 ; Kew Bull. 56 : 371, 2001; Fl. Zambes. 12/2 : 114, 2009 ; Durst (2009) : 36.

syn.: Enum. 3 : 96, 1995.

Left-twining vine to 10 m long ; tuber woody, globose to ovoid, glabrous ; stems unarmed, terete, glabrous, to 5 mm Ø, bulbils absent ; leaves alternate ; blade *entire* or with *3-7 shallow to deep lobes*, apex *acute* or rarely obtuse ; inflorescences simple, male racemose with flower tepals on a *saucer-shaped* torus to *4 mm Ø;* tepal *apex acute* to short-acuminate ; perianth c. *1-1,3 cm* Ø when flattened ; capsule 2,2-3 × 2-3,2 cm ; seed with a broad wing at each end and joined by a narrower wing.

Near rock outcrops in woodland ; *Combretum* thickets ; *Brachystegia* woodland ; termitaria ; riverine forest ; near mangrove swamps ; limestone, and granite substrates ; 0-1600 m alt.

The largest-flowered *Dioscorea* in Africa.

Has been confused with *D. rupicola* Kunth (S. African sp.) in Zimbabwe, Mozambique.

D. bulbifera L., incl. var. *anthropophagorum* (A. Chev.) Summerh.; Fl. Trop. E. Afr., Dioscor.: 9-10, 1975 ; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 657-659, 1985 ; Cable & Cheek, Pl. Mt. Cameroon : 156, 1998 ; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 228, 2002 ; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 202, 2003 [with map] ; Harvey & al., Pl. Bali Ngemba…: 137, 2004 ; Cheek & al., Pl. Kupe…: 440, 2004 ; Strugnell, Checklist spermat. Mt. Mulanje, Malawi : 79, 2006 ; Sosef & al., Check-list pl. vascul. Gabon : 153, 2006 ; Figueiredo & Smith, Pl. Angola : 183, 2008 ; Fl. Zambes. 12/2 : 119-120, 2009 ; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30 : 118, 2010 ; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon :

150, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 223, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 178, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 228, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; M. Renier, Flore du Kwango 1: 99, 1948; Adansonia, Ser. 3, 34: 159, 2012 (Burundi); Figueiredo & al., Annot. cat. S. Tomé & Príncipe: 53, 2011. – Icon.: Adam, Fl. Mts Nimba 5: 1874, 1981; Troupin, Fl. Rwanda 4: 93, 1988 (as *D. odoratissima*); Berhaut, Fl. ill. Sénégal 9: 353-354, 1988; Hamon & al. (1995): 47, 44 (map); Fl. Eth. & Eritrea 6: 57, 59, 1997; Huber (1998): 218; Kew Bull. 56: 369, 2001; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 365, 2006; Akoegninou & al., Fl. anal. Bénin: 123, 2006; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 122, 2007; Lisowski, Fl. Rep. Guinée 2: fig. 489, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 769, photos. 769 a-b, 2010; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 313, 2010; Fl. Mascareignes 182, Dioscoréacées: 3, 1978; Wilkin & Thapyai, Fl. Thailand 10/1: 26-27, 2009; White & al., Evergreen for. fl. Malawi: fig. 38, 2001.

syn.: Enum. 3: 97, 1995; *D. latifolia* Benth., incl. var. *longipetiolata* (Baudon) A. Chev.; *D. zara* Baudon var. *violacea* (Baudon) A. Chev.; *D. sylvestris* De Wild.; *D. hoffa* Cordem.; *D. bulbifera* var. *sativa* Prain, var. *elongata* (F. M. Bailey) Prain & Burkill, var. *suavia* Prain & Burkill, and var. *vera* Prain & Burkill; *D. hofika* Jum. & H. Perrier; *D. anthropophagorum* A. Chev.; *D. longipetiolata* Baudon; *D. violacea* Baudon; *D. perrieri* R. Knuth; *Helmia bulbifera* (L.) Kunth; *Polynome bulbifera* (L.) Salisb.; for full synonymy, see Checklist of Selected Plant families, Dioscoreaceae, Roy. Bot. Gard. Kew.

Vigorous vine with annual stems 3-12 m long, leaft-twining, terete, unarmed, glabrous; tuber perennial, irregularly ovoid to subglobose, occasionally elongate, sometimes absent; leaves as in *D. asteriscus*, *alternate*, petiole to 8 cm long, blade to 14-18 cm long and broad, often much smaller; aerial axillary bulbils subglobose to ovoid, 0,6-3 cm Ø, rounded, poisonous (var. *bulbifera*, i.e. non-cultivated forms), or angular, flattened, to 10 cm long, brown, edible (var. *anthropophagorum*, i.e. cultivated forms); inflorescences as in *D. asteriscus*, simple or compound, except that flowers are *sessile*, *turned toward inflorescence apex* in both genders; male flower tepals (sub)*erect*, 2 mm long, *pale pink;* female flower ovary *not restricted* just below perianth; capsule only 1-2,2(-3) × 0,1-1,5 cm; seed winged at basal end. – Not possible to distinguish from *D. asteriscus* in the sterile state.

Rain-forest; secondary evergreen bushland; steep slopes in broad-leaved riverine forest and forest edges; persisting in abandoned cultivated ground and by perennial rivers; mopane woodland; swamp sides; sand; forest regrowths; secondary forests; savanna; forest gallery; seasonally flooded sedge meadow; fallows; 0-1500 m alt.

The most widespread *Dioscorea* species: tropical Africa, extending from W Africa throughout along the coast and penetrating inland along migration and trade and travel routes; also in Asia to Polynesia. – Not mapped (many gatherings in herbaria cannot be satisfactorily determined in the absence of subterranean and/or aerial tubers). Also, wild strains are often planted intermixed with or on the edges of plantings of improved races (protection against thieving, fide Burkill, l.c.).

Species of many races, the wild ones have round (dark) brown bulbils of c. 0,5 kg weight (used as famine food, but very toxic even boiled); bulbils of selected cultivars are ± angular, flattened, with a weight of up to 2 kg. Races with increased bulbil production tend to show reduction of the tuber.

DIOSCOREA BULBIFERA

Domesticated in Africa. However, male material is very rare in or absent from collections in Africa, female races are perhaps preferred in cultivation. But there is the question of how female plants in southern Africa set fruit, supports the assertion that the plant may not be native.
Containing alkaloids, i.a. dioscorine. Cattle may be poisoned.

D. burkilliana J. Miège; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 659, 1985; Sosef & al., Check-list pl. vascul. Gabon: 153, 2006; Chatelain & al., Cartes distr. pl. Côte D'Ivoire: 229, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Hamon & al. (1995): 23; Akoegninou & al., Fl. anal. Bénin: 124, 2006; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 367, 2006.

Climber with *annual* spiny right-winding stems 5->20 m long, 0,7-2,5 cm Ø at base, *not rooting* at nodes when in contact with the soil; corm well developed, often very long (up to 1 m) and heavy (> 10 kg), on its undersurface presence of numerous fibrous tubers (that break off easily), usually up to 15 cm long, 2-3 cm Ø, some tubers end in a globular structure (50-200 g weight) containing a yellow starchy tissue which is edible; roots unarmed; skin dark; leaves opposite, sometimes alternate; stipules alternate, broadly triangular, *1-1,5 cm long;* petiole 4-11 cm long, slender; blade ovate, 5-16 × 4-12,5 cm, apex acuminate-glandular, base cordate or rounded with swelling on the margin near the petiole *(acarodomatia);* inflorescences primrose: male 2-7 in fasciculate spikes or paniculate racemes at apex of branches, 27-45 cm long, leaves *bract-like*, 0,75-1 mm long; female 1 or in pair, to 20 cm long in fruit; *capsule 1,5-3 cm long*, *1,8-3,5 cm Ø*; seeds *spherical*.

Cultivations; fallows; forest edges; gallery; semi-deciduous moist rain-forest; secondary forests; clayey-sandy soils; 200-2200 m alt.

Also in Angola ? Madagascar ? (fide N'Kounkou & al., 1993). Distribution (our map) in Centr. Afr. Rep., Congo-Brazzaville and Zaire doubtful (confusion with other species ?).

Very difficult to distinguish from *D. minutiflora* on dried material. Also similar to *D. smilacifolia*. Near *D. pynaertii*.

D. cayenensis Lam. or the **D. cayenensis-D. rotundata** complex; excl. *D. cayenensis* var. *praehensilis* (Benth.) A. Chev. *(= D. praehensilis);* Guinea yam; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 660-661, 667-668 (sub *D. rotundata*), 1985; Fl. Eth. & Eritrea 6: 60-61, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 204, 1997 [with map]; Akoegninou & al., Fl. anal. Bénin: 124, 2006; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; Figueiredo & al., Annot. cat. S. Tomé & Príncipe: 53, 2011; M. Renier, Flore du Kwango 1: 100, 1948. – Icon.: Ann. Mus. Congo, Bot., Sér. 5, 3: pl. 68 1912 (as *D. moma*); Onwueme & Hamon, in Oyen & Lemmens, eds., Ressources végétales de l'Afrique tropicale. Précurseur: 77, 76 [simplified map], 2002.

syn.: Enum. 3: 97, 1995, excl. *D. angustiflora* Rendle *(= D. praehensilis), D. demeusei* De Wild. & T. Durand *(= D. smilacifolia).*

One of the 3 major *Dioscorea* cultigens; not known in the wild. A West-African cultigen developed in Africa. Thought to be among the first plants cultivated in W Africa.

Vine with annual stems, terete, right-twining, 2-5 m long, unarmed or prickly, spines 1-3 at base, sparse above; bulbils absent; tuber sub-cylindrical, sometimes bifid at base, 35-50 cm long, 7-10 cm Ø (weight up to 26 kg), formed near soil surface, superficial roots prickly or unarmed; leaves opposite above, alternate at base; petiole 2,5-12 cm long, sometimes spiny, rounded-canaliculate; blade broadly ovate to suborbicular, sometimes

undulate, 4-12 × 2,5-10 cm, apex acuminate, base broadly cordate; *male* inflorescence of *1-3 spikes*, *4-6 cm long*, in leaf axils; female of 1-2 spikes, 10-12 cm long, few-flowered, to 45 cm long in fruit; capsule 2-2,5 × 3-3,5 cm; seeds winged all round.

Wooded savannas; sources; fallows; gallery; forests with *Scorodophloeus zenkeri;* sandy soils; 200-1100 m alt.

Two subspecies are recognized, but the criteria used to differentiate them are not satisfactory, and many forms are intermediate: – subsp. **cayenensis**, Yellow Guinea yam, mostly with yellow tuber flesh; – subsp. **rotundata** (Poir.) J. Miège, White Guinea yam, with white flesh. – There are many races, grown for their tubers rich in carbohydrate, usually eaten boiled.

Epicentre of cultivation: Gulf of Guinea, from Ivory Coast to S Nigeria. But also throughout tropical Africa, dispersed by man to areas with high and regular rain-fall. Not reported from Angola but "it is hard to believe that this…cultigen is not in small-scale cultivation" (Figueiredo & Smith, Pl. Angola: 183, 2008). Carried by slaves to the Western Hemisphere.

CARNEY, J. A. & R. N. ROSOMOFF (2009). *The shadow of slavery:* fig. 14 (map of domestication area). University of California Press, Berkely, etc.

DANSI, A. & al. (1999). Morphological diversity, cultivar groups and possible descent in the cultivated yams (Dioscorea cayenensis/D. rotundata complex) in Benin Republic. *Genet. Resources & Crop Evol.* 46: 371-388.

DANSI, A. (2000a). Using isozyme polymorphism to assess genetic variation within cultivated yams (Dioscorea cayenensis/Dioscorea rotundata) complex of the Republic of Benin. *Genet. Resources & Crop Evol*. 47: 371-383.

DANSI, A. (2000b). Identification of some Benin Republic's Guinea yam (Dioscorea cayenensis/Dioscorea rotundata complex) cultivars using randomly amplified polymorphic DNA. *Genet. Resources & Crop Evol*. 47: 619-625.

DANSI, A. & al. (2001). Ploidy variation in the cultivated yams (Dioscorea cayenensis-Dioscorea rotundata complex) from Cameroon as determined by flow cytometry. *Euphytica* 119: 301-307.

MIGNOUNA, H. D. & al. (2002). Morphological and isozymic diversity of the cultivated yams (Dioscorea cayenensis/Dioscorea rotundata complex) of Cameroon. *Genet. Resources & Crop Evol*. 49: 21-29.

Also in S. Tomé, Bioko/Fernando Poo, Annobón.

The relations between *D. cayenensis*, *D. praehensilis*, *D. abyssinica*, *D. liebrechtsiana* are not clear. – Not mapped by us.

(**D. claessensii** De Wild.); Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Ann. Mus. Congo, Bot., Sér. 5, 3: pl. 54, 1912.

Perennial herb some meters tall; tuber unknown; stems terete, scabrous, unarmed, 2-3 mm Ø; leaves opposite, simple, without stipules; petiole unarmed, terete, 3-5 cm long; *blade broadly elliptic to suborbicular*, 9-12 × 7-9 cm, *5-nerved*, base rounded to ± cordate, apex abruptly acuminate-glandular; male flowers unknown.

Secondary forest.

Known from the type (Claessens 389) collected in 1910 in Zaire, Katako Kombe (3°25'S × 24°25'E), and also from Cameroon (Zenker 723, collected in 1895), Yaounde (3°51'N × 11°31'E).

Near *D. smilacifolia, D. minutiflora*.

Not figuring in N'Kounkou & al., 1993. – Not mapped.

D. cochleariapiculata De Wild.; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 200-201, 2003; Gereau & al., Lake Nyasa florist. checklist: 48, 2012. – Icon.: Fl. Trop. E. Afr., Dioscor.: 5, 1975 (fruit, seed); Fl. Eth. & Eritrea 6: 57, 1997; Kew Bull. 54: 24, 1999; idem 56: 382, 2001; Fl. Zambes. 12/2: 114, 119, 2009; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 310, 2010.

syn.: *D. stolzii* R. Knuth

Vigorous climbing vine to 15 m long, shoots usually annual, left-twining; tuber solitary, 4-lobed, or 4-5 in a cluster, each tuber depressed, globose, 10 cm Ø, near soil surface; plant usually pubescent when young (simple straight hairs, 0,2-0,8 mm long), becoming glabrescent; stem with stout prickles towards base brown, usually in leaf axils; leaves alternate, 3-foliolate; petiole to 27 cm long, pubescent, usually with very few scattered prickles; leaflets with petiolule to 1 cm long, densely pubescent when young; median leaflet obovoid, to *28* × 29 cm, acutely *acuminate*, base cuneate or rounded; male inflorescence often present when the plant is leafless, paniculate; ultimate inflorescences 0,6-2,6 cm long, *ultimate* branches spreading in all directions forming *dense* cylindrical spikelets to *2,5 cm long* on peduncles to *1,5 cm long;* capsule *narrowly obovate to elliptic*, 4,4-5,8 × 1,9-2,9 cm, glabrescent *at maturity*; seed with wing on basal side.

Sandy lake-shores; sandy ground in *Brachystegia* woodland; deciduous woodland with *Adansonia digitata*, *Boswellia papyrifera;* termite hills; near rock outcrops; persisting in abandoned cultivated places; forest margins; river valleys; edges of watercourses; rarely in heavily disturbed places; prefers well-drained sandy soils; 400-1900 m alt.

Caprivi Strip.

Tubers eaten as a famine food, but washing and drying necessary to remove toxic alkaloids which are used as arrow poison in Mozambique (Fl. Zambes., l.c.).

Close to *D. dumetorum*, but more vigorous and with larger leaves and flowers. In S part of range forms exist with glabrous perianths, perhaps crosses with *D. dumertorum*. Also near *D. dregeana*. Young female inflorescences rarely collected (perhaps not very conspicuous).

D. cotinifolia Kunth – Icon.: Engler, Pflanzenfam. 4, 43, Dioscor.: 93, 1924; J. S. Afric. Bot. 33: 13, 1967; Kew Bull. 56: 365, 371, 2001; Fl. Zambes. 12/2: 114, 2009 (fruit); Durst (2009): 36-37.

syn.: *D. malifolia* Baker

Twining vine to 10 m long; tubers several, ovoid to pyriform, to 5 cm long, on short to long stout roots; stems annual, left-twining, wiry, unarmed; leaves usually *opposite;* blade *entire*, *ovate* to *orbiculate* or *transversely elliptic*, apex with a 1-2 mm long *triangular brown apiculus*, with oblong *cystoliths* in blade; inflorescence simple, male simple or compound; tepals *erect* at anthesis, male flowers *urn-shaped;* tepals *obconic*, *fleshy;* pedicels *0,8-1,3 mm* long; capsule *oblong* to *pyriforme;* seeds winged at apex.

Open dry forest; forest margins; scrubby vegetation; rocky places; 0-400 m alt.

S. Africa, Swaziland.

Near *D. sylvatica*.

D. dregeana (Kunth) T. Durand & Schinz, incl. var. *hutchinsonii* Burkill, nom. nud.; Kew Bull. 54: 34-35, 1999. – Icon.: Kew Bull. 56: 365, 367, 2001; Fl. Zambes. 12/2: 114, 2009 (fruit); B.-E. Van Wyk & al., Medicin. pl. S. Africa, ed. 2: 121, 2009; Fl. Pl. Africa 62: pl. 2266, 2011.

bas.: *Helmia dregeana* Kunth

Herbaceous twining vine to 12 m long; tuber solitary, lobed, or main tuber with several smaller subsidiary ones in a dense cluster, 2,5-7 cm Ø; stems annual, left-twining, to 1 cm Ø, often with ridged ascending prickles, concentrated towards base, to 1,5 cm long; stems and inflorescences with sometimes dense, velutinous indumentum; leaves alternate, trifoliolate; anterior leaflet broadly ovate-elliptic, 4,3-18 × 2-15 cm, *acute to obtuse*, *apiculate;* male inflorescence compound; partial inflorescences with whole *axis visible;* flowers usually in *2-3-flowered* cymules (sometimes 1 flower, occasionally 1 cymule); ultimate inflorescence branches *lax;* flowers sessile, 0,2-1 cm apart at anthesis; inner tepals *1,2-2,3* × *1-2,3* mm (outer 1,1-1,9 × 0,5-1,4 mm); female inflorescence spicate, to 14 cm long; capsule *3,8-5* × *1,8-2,7 cm;* seeds winged at base.

Watercourse margin; 400-1400 m alt. in S. Africa.

Indumentum variable, some plants densely velutinous (very attractive young leaves), sometimes even golden yellow (Flow. Pl. Africa 62: 39, 2011).

S. Africa, Swaziland (a single collection known from Mozambique).

Medicinal plant, tubers used (S. Afric. J. Bot. 73: 131-137, 2007).

Very near *D. dumetorum* and *D. cochleariapiculata*. Also near the Asian *D. hispida* Dennst.

D. dumetorum (Kunth) Pax, incl. var. *glabrescens* A. Chev., var. *lanuginosa* A. Chev., and var. *vespertilio* A. Chev.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 661-662, 1985; Kew Bull. 54: 35-38, 1999; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 228, 2002; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 201, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 311-312, 2010; Cheek & al., Pl. Kupe…: 440, 2004; Burrows & Willis, Pl. Nyika Plateau, Malawi: 305, 2005; Sosef & al., Check-list pl. vascul. Gabon: 153, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Fl. Zambes. 12/2: 123-125, 2009; Figueiredo & Smith, Succ. fl. Angola in Haseltonia 15: 74, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 118, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; Figueiredo & al., Annot. cat. S. Tomé & Príncipe: 53, 2011; M. Renier, Flore du Kwango 1: 100, 1948. – Icon.: Engler, Pflanzenreich 4, 43, Dioscor.: 133, 1924; Fl. Trop. E. Afr., Dioscor.: 5, 1975; Berhaut, Fl. ill. Sénégal 9: 357, 1988; Troupin, Fl. Rwanda 4: 91, 1988; Hamon & al. (1995): 33, 30 (map); Fl. Eth. & Eritrea 6: 57, 1997; Kew Bull. 56: 365, 367, 2001; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 367, 2006; Akoegninou & al., Fl. anal. Bénin: 124, 2006; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 121, 2007; Lisowski, Fl. Rép. Guinée 2: fig. 490, 2009; Pickering & Roe, Wild. flow. Victoria Falls area: 59, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 770, 2010; White & al., Evergreen for. fl. Malawi: fig. 38, 2001.

syn.: Enum. 3, 97, 1995.

Vine to 5-10 m long; tuber replaced annually, solitary, deeply lobed or main tuber with several smaller tubers in a dense cluster 2,5-7 cm Ø, spreading or to 30 cm deep from soil surface; indumentum of simple straight or curved hairs, 0,1-1 mm long, on stems, leaves (on upper surface coarse, on lower surface soft), capsule wings; stems usually annual, left-twining, with prickles

especially towards base; leaves alternate, *3-foliolate*, anteriour leaflet apex obtuse to rounded or rarely truncate, *apiculate* to long-acuminate, *to 21 cm long;* petiole to 20 cm long, pubescent, somewhat prickly; petiolules to 1 cm long; leaflets asymmetrical; male inflorescence usually only present when leaves are fully expanded, compound; partial inflorescences *sessile*, rarely on rather stout peduncles to *5 mm long;* flowers dense, hiding axis; capsule with 3 longitudinal wings, 3,1-5,3 × 1,5-2,5 cm, sparsely pubescent; seeds winged at base.

Edges of rain-forest; dry evergreen forest; evergreen bushland; termite hills in *Brachystegia* woodland; edge of savanna; persisting in plantations and in secondary thickets and grasslands; roadsides; riverbanks; rocky areas; wooded savannas; hollows; forest gallery; marigot edges; regrowths; fallows; lateritic soils; *Combretum-Terminalia* woodland; 0-2020 m alt.

S. Tomé, Príncipe, Annobón; S. Africa. Material cited from Asia is *D. hispida* Dennst. (or are they conspecific ?, cf. Wilkin & Thapyai, Fl. Thailand 10/1: 71, 2009).

Tubers used as famine food, after washing and drying to remove toxic alkaloids. Cultivation has resulted in races less poisonous, some even non-toxic and edible (cf. also Sonibare & al. in Biochem. Syst. Ecol. 38: 320-334, 2010, concerning genetic variation of the species).

[**D. esculenta** (Lour.) Burkill, incl. var. *fasciculata* (Roxb.) Prain & Burkill, var. *fulvidotomentosa* R. Knuth, var. *spinosa* (Prain) R. Knuth]; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 663, 1985; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; M. Renier, Flore du Kwango 1: 100, 1948 (as *D. aculeata*); Thiombiano & al., Cat. pl. vasc. Burkina Faso: 60, 2012. – Icon.: Wilkin & Thapyai, Fl. Thailand 10/1: 50, 2009.

syn.: *D. aculeata* Roxb., non Balb. ex Kunth (= *D. cayenensis* subsp. *cayenensis*); *D. fasciculata* Roxb., incl. var. *spinosa* Prain; for full synonymy, see Checklist of Selected Plant Families, Dioscoreaceae, Roy. Bot. Gard., Kew.

One of the 3 major cultigens of *Dioscorea* (Fl. Zambes. 12/2: 109, 2009).

Climber to 10-12 m, left-twining; with numerous shallow-rooted tubers, digitate or ovate or globose in cultivated forms, c. 12-15 × 16-20 cm, crown with thicker roots and rigid thorny roots; indumentum of T-shaped hairs on all parts of plant; stems annual, terete; leaves alternate, simple; blade ± ovate, chartaceous, 7-9-veined, base cordate, apex acuminate; petiole 6-14 cm long, terete; inflorescences pendent, simple, 1-2 per leaf axil; male ones racemose, flowers solitary; female ones spicate; capsule very rarely set; seeds unknown.

Probably of SE-Asian origin, now widely grown for its edible tubers; introduced "recently" (Burkill, l.c.) to W Africa, under cultivation around the coast, in particular from Ivory Coast to Nigeria.

D. gillettii Milne-Redh.; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 201-202, 2003: idem, Aloes & lilies Eth. & Eritrea, ed. 2: 312, 2010. – Icon.: Fl. Trop. E. Afr., Dioscor.: 4, 1975 (capsule, seed); Fl. Eth. & Eritrea 6: 57, 1997 (leaf).

syn.: Fl. Trop. E. Afr., Dioscor.: 7, 1975, p.p. quoad specim. septentr. (cf. *D. kituiensis* below).

Herbaceous twiner < *2 m tall;* stems unarmed, glabrous; tuber, spreading horizontally near soil surface, 3,5-4,5 × 2,5-3,2 cm, with fringing roots; leaves alternate; petiole 0,5-5 cm long; blade ovate-cordate, 1,5-9 × 1-7,5 cm, apex acute to acuminate, base

deeply cordate; male inflorescence: panicle in leaf axils, 1-14 cm long, with single pedicellate flowers or 2-4-flower cymules at each node; male flowers with *spreading perianth*, stamens *3*, staminodes *3;* capsule ± obovate, 2,2-2,7 × 2-3 cm, winged; seeds *wingless*.

Acacia, *Commiphora* scrub; *Acacia*, *Commiphora*, *Boswellia* woodland; wooded grassland; "seasonally dry inhospitable habitats" (Fl. Trop. E. Afr., l.c.); 450-1650 m alt.

Near *D. kituriensis*. – Rarely collected.

Note on relationships: This species was considered (Milne-Redhead) as closely related to *Borderea* Miégev. (now enclosed in *Dioscorea*): tuber perennial, small; male flowers 1-4 in cymules on short secondary axes, each with 3 fertile stamens; capsule with nerves running parallel from the margin of each wing; seeds wingless. Wingless seeds occur only in *D. gillettii*, *D. pyrenaica* Bubani & Bordère ex Gren., *D. chouardii* Gaussen (the two latter endemic to the French and Spanish C Pyrenees), *D. perdicum* Taub. (Brazil), and *D. humilis* Bertero ex Colla (C Chile; traditionally placed in *Epipetrum*); see Wilkin & al. in Syst. Bot. 34: 652-659, 2009; also Huber (1998): 230 (with illustration of *Borderea pyrenaica* p. 217). However, a careful examination of the type material of *D. gillettii* revealed morphologically distinctive features with respect to those exhibited by *Borderea* suggesting that *D. gillettii* is more closely related to other *Dioscorea* species than to *Borderea* (Segarra-Moragues & Catalan, l.c.).

Literature referring to the European *Borderea:*

BENITO ALONSO, J. L. (2008). Nótula fitosociológica sobre Borderea chouardii (Gaussen) Heslot (Dioscoreaceae), especie críticamente amenazada. *Flora Montiber.* 40: 25-29.

BOCK, B. & V. MALÉCOT (2007). Borderea pyrenaica Miègeville: contribution à l'étude des stations françaises et mise au point nomenclaturale. *Bull. Soc. Bot. Centre-Ouest, N.S.* 37: 263-272.

BRAUN-BLANQUET, J. (1948). Les souches periglacières de la flore pyrénéenne. *Collect. Bot. Barcelona* 2: 1-23 [vide: 7-11].

CHOUARD, P. (1941). Deux raretés pyrénéennes pour les amateurs de plantes énigmatiques : Dioscorea pyrenaica Bub. et Bord. & [et] Pinguicula Longifolia [sic !] Ram. *Rev. Hort. N.S.* 27: 377-379.

DUNGLAS, E. (1945). L'igname pousse-t-il spontanément en France ? *Notes Afric.* 27: 6.

GARCIA, M. B. & al. (2011). No evidence of senescens in a 300-year-old mountain herb. *J. Ecol.* 99: 1424-1430 [*Borderea pyrenaica*; the plant "can live for at least 260 years without showing its age"; *Nature* 477/7363; an anonymous summary; "the herb gains a scar on its tuber each year…"; the plant is illustrated on the front cover of J. Ecol. 99/6 and in Nature, l.c., Enduring herb improves with age].

GRUBER M. (1976). Les groupements végétaux rupicoles calcicoles des Pyrénées ariègeoises et catalanes. *Bull. Soc. Bot. France* 123: 61-78 [vide p. 67].

SEGARRA-MORAGUES, J. G. & P. CATALAN (2006). Species boundaries and population divergence in the Pyrenean endemic relict genus Borderea (Dioscoreaceae) as revealed by microsatellite (SSR) and other hypervariable markers. *Aliso* 22: 541-555.

SEGARRA-MORAGUES, J. G. & al. (2007). Nunatak survival vs. tabula rasa in the Central Pyrenees: a study on the endemic plant species Borderea pyrenaica (Dioscoreaceae). *J. Biogeogr.* 34: 1893-1906.

Note on the foliar pathogen *(Hyphomycetes) Cercospora aragonensis* Durrieu (Bull. Trimestr. Soc. Mycol. France 80: 169, 1964): "Several pathogens and similar fungi in the 'Cercospora complex' have been described from *Dioscorea* species" [N. Pons & B. C. Sutton, Cercospora and similar fungi on yams (*Dioscorea* species), in *Mycol. Papers* 160: 1-78, 1988]. This fungus was described from *Borderea pyrenaica (= Dioscorea pyrenaica),* but without description or illustration of the conspicuous scars on the conidiogenous cells and conidia (ill. Mycol. Papers 160: 14, 1988). The species may occur on other *Dioscorea* species, but Pons & Sutton preferred to maintain it as distinct from *C. apii* Fresen., although it might be an immature state of the latter. Cf. also nomenclatural notes in Taxon 40: 643-646, 1991.

(**D. gribinguiensis** Baudon) – Icon.: Ann. Inst. Bot.-Géol. Colon. Marseille 21: 240, 1913.

Stem cylindric, slender, woody with rare spines; tuber thin, tough, 30 cm long at least; leaves lanceolate, 9-10 × 3 cm, base slightly cordate, apex acuminate, petiole 3,5 cm long; male flowers solitary, spaced, sessile, tepals with rounded lobes; female inflorescence axillary, erect, 4-5 cm long; unripe capsule 2 cm long, stipe 6 mm long, 14 mm wide.

Ecology unknown.

? Only known from 2 collections: Centr. Afr. Rep., Les M'bres, Baudon 1822, 1911; Cameroon, Betaré Oya, Jacques-Félix 4591, ante 1947.

Not mapped.

D. hirtiflora Benth.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 663, 1995; Cable & Cheek, Pl. Mt Cameroon: 156, 1998; Chapman & Chapman, For. Taraba & Adamawa States, Nigeria: c49, 2001; Akoegninou & al., Fl. anal. Bénin: 125, 2006; Sosef & al., Check-list pl. vascul. Gabon: 153, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Idem, Succ. fl. Angola in Haseltonia 15: 74, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 153, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 60, 2012. – Icon.: Engler, Pflanzenreich 4, 43, Dioscor.: 307, 1924; Adam, Fl. Mts Nimba 5: 1875, 1981; Fl. Trop. E. Afr., Dioscor.: 4, 1975 (fruit, seed); Hamon & al. (1995): 39, 36 (map); Kew Bull. 56: 364, 372, 2001; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 365, 2006; Fl. Zambes. 12/2: 113, 2009.

syn.: Enum. 3: 97, 1995 (and under subspp. below).

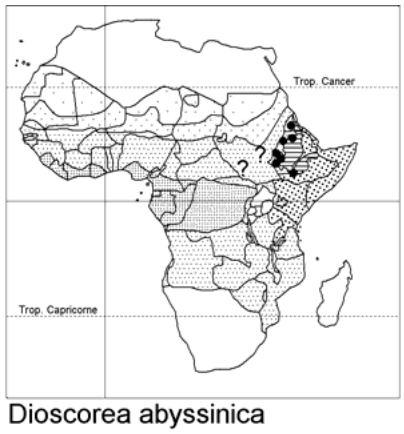
Twining (right-twining) vine to 3-8 m long with annual stems, densely or sparsely beset with spreading or felted *stellate* or *dendroid hairs*, rarely almost glabrous (subsp. **orientalis**); tubers 1-6, annual, to 5 cm Ø, cylindric, descending vertically, branching at top; leaves usually opposite; petiole to 5-9 cm long; blade ovate-cordate to broadly heart-shaped, *to 10* × 9,5 cm; acutely acuminate or gradually narrowed to an acute apex, with rather densely scattered stellate hairs beneath; inflorescences descending, spicate or racemose; male: to 3-5 per leaf-axil, to 12-15 cm long; flowers *shortly pedicellate* or *scarcely pedicellate;* tepals *erect*, *1,3-3,5 mm*; stamens *3*, staminodes *3;* female: 2-3, to 16-23 cm long; seeds winged all round.

Rain-forest; moist or swampy forest; gallery forest; fallows; inselbergs; secondary scattered-tree grassland; termite mounds; open woodland and grassland; dry evergreen forest; thickets, rocky places; clayey-sandy soils; 0-2440 m alt.

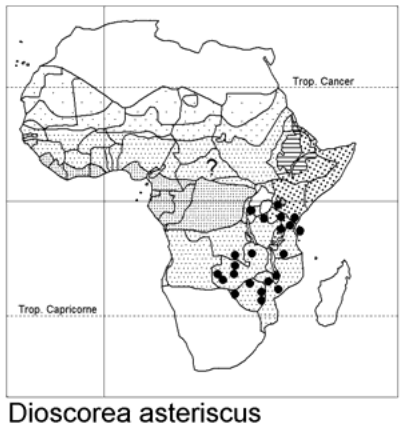
Caprivi Strip, S. Africa.

Comprises 3 subspp.: – subsp. **hirtiflora** [syn. to add: *D. dusenii* Uline ex R. Knuth; *D. hirtiflora* var. *trapnellii* Burkill, nom. illegit.] in W part of range, S to Angola, with leaves as wide as long, only young stems with short ± felted stellate hairs; – subsp. **orientalis** Milne-Redh. [syn.: *D. lindiensis* R. Knuth; etc.] in S part of range, and coastal to Kenya, in lowland dryer habitats; ± glabrous; with leaves much longer than wide; – subsp. **pedicellata** Milne-Redh. [syn. to add: *D. hirtiflora* var. *nyassica* Burkill, nom. illegit.], in C-S part of range, at higher alt., with leaves much longer than wide, stellate or spreading indumentum. – Intermediates between subsp. **pedicellata** and subsp. **orientalis** occur in Mozambique, Malawi. Fertile material necessary for naming plants at subspecific level.

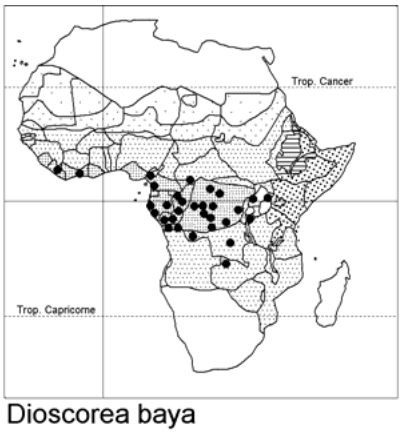
Zygotritonia praecox



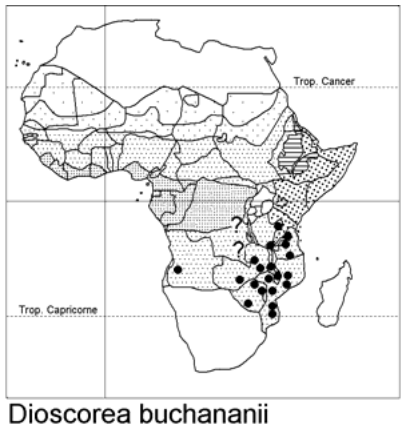
Dioscorea abyssinica



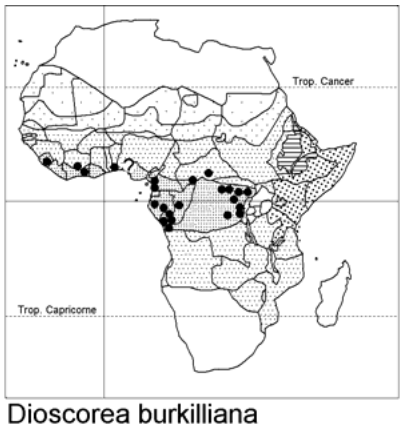
Dioscorea asteriscus



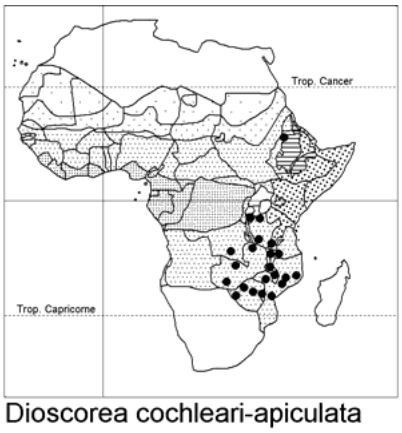
Dioscorea baya



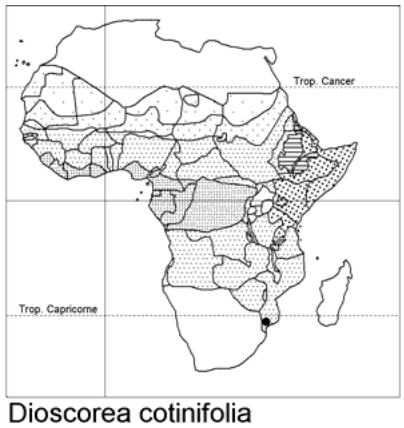
Dioscorea buchananii



Dioscorea burkilliana

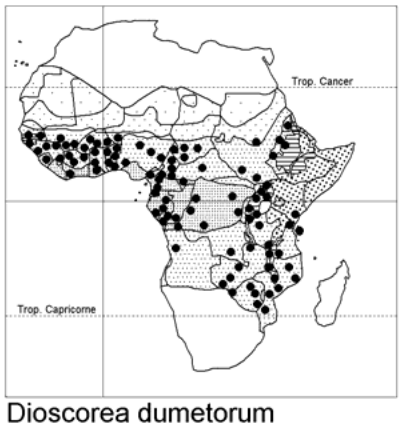


Dioscorea cochleari-apiculata

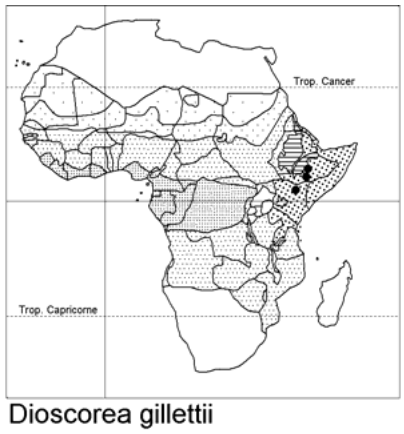


Dioscorea cotinifolia

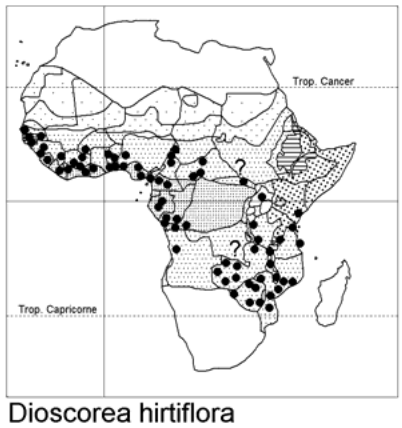
Dioscorea dregeana



Dioscorea dumetorum



Dioscorea gillettii



Dioscorea hirtiflora

D. kituiensis Wilkin & Muasya – Icon.: Syst. Bot. 34: 654, 657, 2009.

syn.: *D. gillettii* sensu Fl. Trop. E. Afr., Dioscor.: 7, 1975, quoad specim. Edwards 195 (S Kenya).

Near *D. gillettii* but: leaf apex usually rounded, with an abruptly differentiated broadly deltoid acumen; male flower: at least 2 flowers in each cymule open simultaneously, tepals spreading to ascending even before anthesis; male inflorescence cymule branches always present between at least the first 3 flowers; male flower pedicel 1,1-3,8 mm, usually linear, swollen only immediately under flower torus; tepals dark purple to dark brown-purple with pale green margin at apex, 1,3-2,1 × 0,6-1,1 mm; pollen different also (see Syst. Bot. 34: 654, 2009). Seeds wingless.

Steep or rocky areas with *Euphorbia*, *Acacia* or *Commiphora* woodland; *Acacia*, *Commiphora* bushland; *Acacia*, *Combretum* wooded grassland; *Acacia*, *Adansonia, Delonix* woodland; red lateritic soil; 450-1000 m alt.

D. knuthiana De Wild.; Wilkin, Kew Bull. 54: 1-18, 1999; ibid.: 26. – Icon.: J. Linn. Soc. Bot. 56: 396 fig. 56W, 1960.

(Easily) distinguished from *D. quartiniana* in male flowering material: inflorescences laxer and rachis exposed, pedicels stout and longer, held patent to rachis at anthesis, presence of 2 floral bracts per flower, flowers with 3 stamens and 3 staminodes (as in *D. hirtiflora*); female flowering material difficult to differentiate from *D. quartiniana*, but in fruit the capsule of *D. knuthiana* is wider (1,8-2 cm) and apex acute. Tuber unknown.

Hills (S of the River Congo); manioc plantation; forest; c. 2100 m alt.

D. longicuspis R. Knuth – Icon.: Fl. Trop. E. Afr., Dioscor.: 17-18, 1975.

syn.: *D. schimperiana* Hochst. ex Kunth var. *nigrescens* Uline ex R. Knuth

Tuber annual, branching at top, branches descending vertically, cylindrical, to 60 cm long, 10 cm Ø; stems twining, > 6 m long, with sparse *stellate* hairs, soon glabrescent; leaves usually opposite; petiole 6-15 cm long; blade *ovate*, rarely heart-shaped, to 12-14 × 7-11 cm, *clothed with stellate hairs*, base from deeply and widely *cordate* to subtruncate, apex acutely acuminate; inflorescences descending, spicate; male to 6-12 per leaf-axil, to 7-11 cm long, flowers sessile, directed away from the axis; female 3-5 per leaf-axil, to 25 cm long; capsule c. 4 cm Ø, glabrescent; seeds winged all round.

Rain-forest; often persisting in secondary growth after felling; 1000-1960 m alt.

Variable in degree of indumentum of leaves, also in size of capsule.

Near *D. hirtiflora*.

D. mangenotiana J. Miège; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 664, 1985; Belg. J. Bot. 126: 56, 1993; Cable & Cheek, Pl. Mt Cameroon: 156-157, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 228, 2002; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 366, 2006; Akoegninou & al., Fl. anal. Bénin: 125, 2006; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 153, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Berhaut, Fl. ill. Sénégal 9: 362, 1988; Hamon & al. (1995): 55, 52 (map).

Vigorous climber, stems *2,5-4,5* cm Ø at base, right-twining, spiny, internodes long, purple when young; tuber perennial, long-lived, increasing each year with extra lobes, to 35-60 kg in weight, protected by spiny roots; basal leaf reduced to stipules, leathery auricles terminating in a glandular *acumen 3-4 × 0,5 cm,* with reflexed margins, purplish; leaves alternate below, then opposite, blade shortly cordate, 4-12 × 3-10 cm, with red acumen; *petiole* red, *3-9 cm long;* male inflorescence reflexed upwards, to > 60 cm long, of 2 *erect* spikes 5-9 cm long; female flowers with 6 minute staminodes; capsule 2-3,5 × 3,5-4 cm; seeds winged all round.

Secondary sandy dry forest; forest edges; forest gallery; coastal forest; clayey-sandy soil; 0-1480 m alt.

Near *D. burkilliana, D. praehensilis, D. baya*.

D. minutiflora Engl.; Fl. Trop. E. Afr., Dioscor.: 14, 1975; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 664, 1985; Belg. J. Bot. 126: 67, 1993; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Cheek & al., Pl. Kupe…: 440, 2004; Akoegninou & al., Fl. anal. Bénin: 125, 2006; Sosef & al., Check-list pl. vascul. Gabon: 153, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo, in Taxonom. 30: 118, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; Figueiredo & Smith, Annot. cat. S. Tomé & Príncipe: 53, 2011; M. Renier, Flore du Kwango 1: 100, 1948 (as *D. armata*). – Icon.: Proceed. Linn. Soc. London 159: 79, 1947 (rootstock); Adam, Fl. Mts Nimba 5: 1877, 1981; Berhaut, Fl. ill. Sénégal 9: 363, 1988; Hamon & al. (1995): 20, 20 (map); Hawthorne & Jongkind, Woody pl. west. Afr. for.: 367, 2006 (leaf); Lisowski, Fl. Rép. Guinée 2: fig. 491, 2009.

syn.: Enum. 3: 97, 1995; *D. acarophyta* De Wild.; *D. grandibulbosa* R. Knuth; *D. hystrix* R. Knuth; *D. pendula* R . Knuth

Twining stems 6-10 m long, right-twining, with few or no prickles, arising from ends of *horizontally radiating branches* of a perennial rootstock, forming a network on the ground with multiple tubers; tubers c. 25 cm long, vertical on underside of rootstock branches; roots not spiny; leaves opposite, occasionally alternate; petiole to 10 cm long; blade with 2 pairs of strong basal veins, broadly *ovate*, *orbicular* or the uppermost *reniform*, *5-9*-nerved, base cordate or rounded, shortly acuminate, lower leaves to 12 × 9 cm, upper ones 5 × 6 cm; male inflorescences of 5-12 fasciculate spikes or panicle of racemes at apex of branches, 17-55 cm long; female panicle of single or paired racemes, to 60 cm long in fruit; capsule 3-4 × 3,5-4,5 cm; seeds ellipsoid.

Fallows; forest edges; gallery forest; swampy forests; forest regrowths; secondary forests; degraded rain-forests; sandy-clayey soils; clearings; very common in rain-forest; 200-1800 m alt.

São Tomé, Príncipe; reported from Madagascar, but it is not for certain that the species occurs in a wild state E of Uganda (Fl. Trop. E. Afr., l.c.). Presence in SW-most Centr. Afr. Rep. not certain (Harris, Vascul. pl. Dzanga-Sangha Res….: 229, 2002).

Near *D. smilacifolia, D. claessensii*.

(**D. paleata** Burkill)

Base unknown. Near *D. bulbifera* but: leaves coriaceous; male flowering spikes 4-10 cm long (not 10-15); perianth c. 1 mm long (not 2 mm); fruit unknown.

Ecology unknown.

? Only known from the type (Claessens s. n.), collected in 1929; between Shanguru (Rwanda) and Usumbura (Burundi). – Not mapped.

DIOSCOREA

D. praehensilis Benth.; (often cited as *D. odoratissima*); Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 665-666, 1985; Belg. J. Bot. 126: 52-54, 1993; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 310, 1994; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 79, 2006; Cheek & al., Pl. Kupe…: 440, 2004; Harvey & al., Pl. Bali Ngemba…: 137, 2004; Akoegninou & al., Fl. anal. Bénin: 125-126, 2006; Sosef & al., Check-list pl. vascul. Gabon: 153, 2006; Figueiredo & Smith, pl. Angola: 183, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 178, 2011; Masharabu & al. in Adansonia, Sér. 3, 34: 159, 2012 (Burundi). – Icon.: Fl. Trop. E. Afr., Dioscor.: 4, 1975; Hamon & al. (1995): 57, 52 (map); Kew Bull. 56: 364, 389, 2001; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 367, 2006; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 123, 2007; Lisowski, Fl. Rép. Guinée 2: fig. 492, 2009; Fl. Zambes. 12/2: 113, 129, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 774, photo. 774, 2010.

syn.: *D. cayenensis* Lam. var. *praehensilis* (Benth.) A. Chev.; *D. odoratissima* Pax; *D. angustiflora* Rendle; *D. costermansiana* De Wild. & T. Durand; *D. liebrechtsiana* De Wild. & T. Durand (sometimes accepted as a distinct species).

Herbaceous twining glabrous vine to 20 m long, less when climbing on low vegetation, usually dying back annually; tuber 1, present alongside withered tuber of previous season, to 5 cm Ø, at least 60 cm long, cylindric, descending vertically; stems right-twining, prickles concentrated on larger, cataphyll-bearing stems, most dense near stem base; leaves opposite, rarely alternate; blade with apex *acuminate* to *long-acuminate* (usually longitudinally *folded* along midrib *in herbarium specimens*), base *truncate* to *cordate;* male inflorescences of 2-8 spikes, simple; female single; capsule pendent to patent, 1,5-2,4 × 2,8-4,3 cm, glaucous, seeds with wing all around margin.

In a broad range of forest and grassland habitats; woodland riverbanks; palm woods; cultivated areas; fallows; termite hills; forest margins; sandy-clayey soils; forest gallery; 200-1800 m alt.

W African populations with spiny root cluster around apex of tuber, not found in E African populations (named *D. odoratissima*). Much human selection has taken place and introgression with other species possible. *D. praehensilis* is the most important edible wild yam in Africa. Many local races are known. The broader relations with the other cultivated *Dioscorea* and other wild allies are not clear. Plants from Mozambique may be attributable to *D. sagittifolia*. Pan-African research is needed on the systematics of this complex of *Dioscorea* species, in which human selection and possible multiple origins obscure the patterns of morphological variation and species limits (Wilkin in Fl. Zambes. 12/2: 128, 2009).

BILOSO, A. M. & H. B. KATUKA (2010). Etude des déterminants de l'exploitation du Dioscorea praehensilis sur les plateaux Batéké de Kinshasa en R. D. Congo. *Scripta Bot. Belg.* (Aetfat 19, Madagascar 2010): 80.

In Angola specimens previously identified as *D. cayenensis* are *D. praehensilis* (Figueiredo & Smith, l.c.).

D. praehensilis figuring in Fl. Eth. & Eritrea 6: 61-62, 1997, and in Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 205-206, 2003, are not identified. The plant is not mentioned by Sebsebe & Nordal in Aloes & other lilies, ed. 2, 2010.

DIOSCOREA

D. preussii Pax; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 666, 1985; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Schols & al. in Bot. J. Linn. Soc. 136: 311, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 229, 2002; Cheek & al., Pl. Kupe…: 440, 2004; Harvey & al., Pl. Bali Ngemba…: 137, 2004; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 364, 2006; Sosef & al., Check-list pl. vascul. Gabon: 154, 2006; Akoegninou & al., Fl. anal. Bénin: 126, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Lisowski, Fl. Rép. Guinée 1: 414, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 118, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 150, 2010; Onana, Vascul. pl. Cameroon…: 164, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 223, 2011; M. Renier, Flore du Kwango 1: 99, 1948. – Icon.: Ann. Mus. Congo, Bot., Sér. 1, 1/5: pl. 55 (as *D. thonneri*), pl. 56 (as *D. pterocaulon*), 1899; De Wildeman & T. Durand, Pl. Thonn. Congol.: pl. 21, 1900 (as *D. thonneri*); Engler, Pflanzenreich 4, 43, Dioscor.: 222, 1924 (as *D. hylophila*); Fl. Trop. E. Afr., Dioscor.: 4, 1975 (as *D. hylophila*); Berhaut, Fl. ill. Sénégal 9: 364, 365, 1988; Hamon & al (1995): 29, 26 (map); Kew Bull. 56: 364, 369, 2001; Hawthorne & Jongkind, o.c.: 365; Fl. Zambes. 12/2: 113, 2009 (subsp. **hylophila**); Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 775, photo. 775, 2010.

Robust non-spiny climber, left-twining, to 10-24 m long; tuber annual, deep-buried, cylindrical, to 40 cm long, with thickened horizontal branches to 30 cm long, 3,5 cm Ø; stems often *6-winged*, subglabrous, with a few, ± caducous T-shaped hairs; leaves alternate; petiole to 15-25 cm long; blade heart-shaped, to 12-28 × 15-30 cm, apex with acute acumen 1-2 cm long, with dense to sparse *woolly-medifixed hairs;* inflorescences pendulous, *racemose*; male to 5 in leaf-axils, to 22 cm long; female inflorescence *spicate*, axillary, to 34 cm long; flowers *solitary*, directed *downwards;* capsule oblong, with a narrow wing along each suture, 4-5,5 × 2,3 cm Ø; seeds *winged* at *both ends*.

Rain-forest; *Acacia zygia* woodland; secondary bushland; farmbush; riverine vegetation; forest edges; degraded forests; clearings; regrowths; palm woods; woods among huge rocks; secondary transitional forest with *Harungana madagascariensis;* 50-1700 m alt.

Comprises 2 subspp.: – subsp. **preussii**, incl. var. *glabra* Burkill (syn.: Enum 3: 97, 1995), subglabrous plant with single pedicellate male flowers; – subsp. **hylophila** (Harms) Wilkin (bas.: *D. hylophila* Harms), plants with dense indumentum on stems, lower leaf surface, inflorescences, and male flowers in cymules of 2-6 flowers.

D. pynaertii De Wild.; Jacques-Félix, Rev. Bot. Appl. Agric. Trop. 27: 133, 1947; Belg. J. Bot. 126: 49-50, 1993; Sosef & al., Check-list pl. vascul. Gabon: 154, 2006.

syn.: *D. praehensilis* sensu Fl. Trop. Afr. 7: 418, 1898, p.p. quoad spec. Smith, non Benth.

Near *D. burkilliana* but: tubers in rounded clumps under a woody corm, ellipsoid or digitate-cylindrical, breaking off easily; stem to 15 m long, 1-1,5 cm Ø at base; stipules 2-2,5 cm long; leaves in inflorescences bract-like, 0,45-0,75 cm long, persistant; capsule 2,5-3,5 × 3-4,5 cm; seeds ellipsoidal. Tubers edible.

Fallows; thickets; secondary forests; forest gallery; sandy soils; 200-1400 m alt.

Ivory Coast ? (fide Nkounkou, Belg. J. Bot., l.c.).

DIOSCOREA

D. quartiniana A. Rich., incl. var. *cryptantha* (Baker) Burkill, var. *forbesii* (Baker) Burkill, var. *phaseoloides* (Pax) Burkill, var. *hochstetteri* Engl., var. *pentadactyla* Pax, var. *schweinfurthiana* (Pax) Burkill, var. *holstii* (Harms) Burkill, var. *stuhlmannii* (Harms) Burkill, var. *dinteri* (Schinz) Burkill, var. *apiculata* (De Wild.) Burkill, var. *subpedata* Chiov., var. *excisa* (R. Knuth) Burkill, var. *latifolia* R. Knuth, var. *vestita* R. Knuth, var. *schliebenii* Burkill, etc. – Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 666, 1985; Wilkin in Kew Bull. 54: 1-18, 19-39, 1999; Schols & al. in Bot. J. Linn. Soc. 136: 311, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 199-200, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 309, 2010; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 79, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; idem in Haseltonia 15: 74, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 61, 2012. – Icon.: A. Richard, Tent. Fl. Abyss. 2: pl. 96A, 1851; Bot. Mag. 111: pl. 6804, 1885 (as *D. crinita*); Engler, Pflanzenreich 4, 43, Dioscor.: 152, 1924; Fl. Trop. E. Afr., Dioscor.: 5, 1975; Berhaut, Fl. ill. Sénégal 9: 366, 1988; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 139, 1994; Hamon & al. (1995): 35, 30 (map); Fl. Eth. & Eritrea 6: 56-57, 1997; Kew Bull. 56: 365, 367, 2001; Settesoldi & al., Esploratori italiani nell'Africa orientale 1870-1930: 29, 2005 (as *D. beccariana*); Puff & Sileshi, Pl. Simen: 217, 2005; Burrows & Willis, Pl. Nyika Plateau: 304, 2005; Akoegninou & al., Fl. anal. Bénin: 126, 2006; Fl. Zambes. 12/2: 114, 2009.

syn.: Enum. 3: 98, 1995; *D. crinita* Hook. f.; D. *anchiatasi* Harms; *D. anchietae* Harms ex R. Knuth; *D. excisa* R. Knuth; *Botryosicyos pentaphyllus* Hochst. 1844 (Friis, Fragm. Flor. Geobot., Suppl. 2/1: 194, 1993); *Dioscorea pentaphylla* sensu A. Rich. 1851, non L. 1753; Wilkin in Kew Bull. 54: 16-17, 1999, and 56: 394-395, 2001; World Checklist of Selected Plant Families, Dioscoreaceae, Roy. Bot. Gard., Kew.

Slender vine 5-6 m long, climbing up trees or spreading over lower shrubs, sometimes trailing along ground, glabrous to ± pubescent; tuber c. 10 cm long, ovoid, lobed or a main tuber with several smaller tubers in dense clusters 2,5-7 cm Ø, with dense fibrous roots; indumentum of simple straight hairs 0,1-0,6 mm long; stems unarmed, left-twining, c. 5 mm Ø, sometimes with small bulbils in leaf axils; leaves alternate, *digitately 3-7-foliolate*, rarely entire; petiole 0,5-10 cm long; petiolules 0,5-5 mm long; leaflets elliptic to oblanceolate to obovate or linear or rhombic, 1-15 × 0,4-6 cm, each leaflet with *1 midrib,* excurrent forming an apiculus 2-9 mm long, densely woolly-pubescent above and beneath to pubescent only on veins and margins; male inflorescences with peduncle 0,4-3,8 cm long, 1 or 2-7 looking like *catkins*, 3-6 cm long, in axils of upper leaves, or often in pendulous leafless panicles to 40 cm long, flowers *hidden by bracts;* female inflorescences pendulous, spicate, to 17 cm long; flowers sweet-scented; capsule ± oblong, 1,5-3,4 × 1-1,8 cm, ± hairy; seed *winged* on basal side only, *3,5-7 mm long*.

Open spaces in rain-forest; riverine forest; forest edges; termite hills; scrub; thickets; often on hillsides and near rock outcrops; *Acacia*, *Commiphora* woodland; deciduous wooded grassland with *Anogeissus*, *Boswellia*, *Acacia*, *Cussonia* spp.; broken sandstone; 0-2650 m alt. – The most widespread *Dioscorea* in Africa.

Polymorphic species, and a number of forms exist, and there are intermediates between all the forms, which make an infraspecific classification impossible. Plants are exceptionally variable in morphology of leaves and floral bracts. A list of various combinations of morphological characters is given by Wilkin in Kew Bull. 56: 396-397, 2001, and in Fl. Zambes. 12/2: 133, 2009.

Caprivi Strip, S. Africa, Botswana, Swaziland; Madagascar.

DIOSCOREA

D. sagittifolia Pax; Lisowski, Fl. Rép. Guinée 1: 414-415, 2009; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Belg. J. Bot. 126: 63, 1993; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 367, 2006; Hamon & al. (1995): 63, 58 (map); Thiombiano & al., Cat. pl. vasc. Burkina Faso: 61, 2012. – Var. **lecardii**: Fl. Trop. E. Afr., Dioscor.: 12-13, 1975; Burkill, Useful pl. W. Trop. Afr., ed. 2: 664, 1985; Akoegninou & al., Fl. anal. Bénin: 125, 2006; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 205, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 318, 2010; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 153, 2010; M. Renier, Flore du Kwango 1: 99, 1948. – Icon.: Berhaut, Fl. ill. Sénégal 9: 360, 1988; Fl. Eth. & Eritrea 6: 57, 1997.

Climber *unarmed*, glabrous, right-twining, 4-8 m long; tuber replaced annually, descending vertically, protected by thorny roots; leaves opposite or occasionally alternate, glabrous, stipules absent; petiole to 2,5-4 cm long; blade *ovate-lanceolate* or more usually *deltoid*, with *basal corners sometimes auriculate*, rounded or very obscurely cordate at base, to 9-11 × 2,5-5 cm, apex *acute;* inflorescences glabrous; male: 1-4 spikes, simple, in leaf axils; female: 1-2 spikes, 15-20 cm long, in leaf axils; capsule not glaucous, to 4 cm Ø; seed winged all round.

Quartzite hills; edges of thickets and forests; rocky outcrops; sometimes climbing among tall grasses; open forest with *Trichilia dregeana;* grassy to wooded savannas; clearings in rain-forest; sand; gallery; inundated places; 200-1800 m alt.

Comprises 2 vars.: – var. **sagittifolia**, with leaves 4-8 times longer than wide, triangular, hastate at base; – var. **lecardii** (De Wild.) Nkounkou [bas.: *D. lecardii* De Wild.; syn.: *lecardii* var. *chevalieri* De Wild.; *D. zara* Boudon; *D. mildbraedii* R. Knuth], with leaves 5-10 times longer than wide, usually not hastate at base.

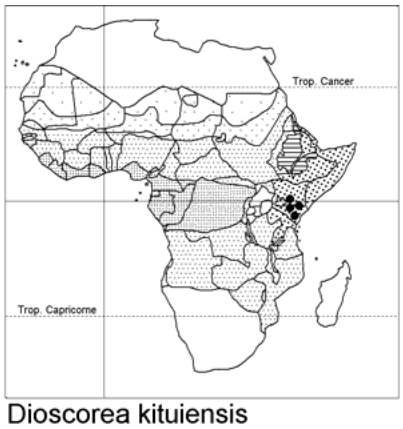
Sometimes confused with *D. praehensilis*, *D. abyssinica*, *D. cayenensis* (see above under *D. praehensilis*).

D. sansibarensis Pax; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 668-669, 1985; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 229, 2002; Cheek & al., Pl. Kupe…: 440, 2004; Akoegninou & al., Fl. anal. Bénin: 127, 2006; Sosef & al., Check-list pl. vascul. Gabon: 154, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Lisowski, Fl. Rép. Guinée 1: 415, 2009;

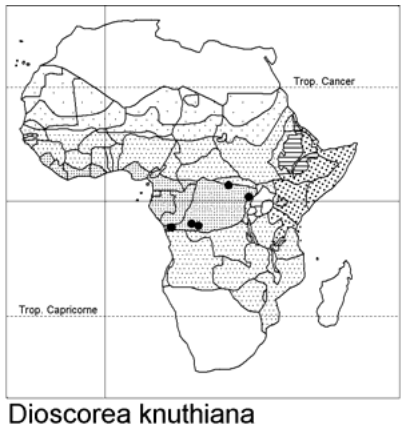
Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Onana, Vascul. pl. Cameroon…: 164, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Figueiredo & al., Annot. cat. S. Tomé & Príncipe: 53, 2011. – Icon.: Engler, Pflanzenreich 4, 43, Dioscor.: 86, 1924 (as *D. macroura*); Fl. Trop. E. Afr., Dioscor.: 4, 8, 1975; Hamon & al. (1995): 49, 44 (map); Kew Bull. 56: 364, 369, 2001; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 305, 2006; Fl. Zambes. 12/2: 113, 2009.

syn.: Enum. 3: 98, 1995; *D. toxicaria* Bojer, nom. nud.

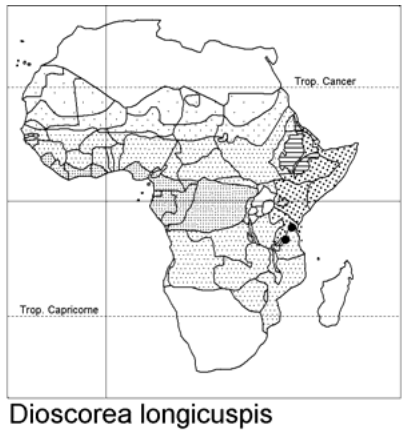
Glabrous non-spiny climber to 25-30 m long, stems left-twining, often with axillary bulbils to 5,5 cm Ø often glossy and black, or green (immature) or brown; tuber solitary, *perennial*, becoming very large with age, depressed globose, flattened below, developing roundish lobes with age, to 50 cm Ø and 22-30 kg in weight; leaves usually *opposite;* petiole 8-26 cm long; blade *heart-shaped*, to 20-*46* × 23-58 cm, apex abruptly acuminate *5-20 cm long;* blades of young plants *variously shaped and lobed;* inflorescences pendulous, spicate; male: 1-2 per leaf-axil or forming a terminal leafless panicle; spikes to 50 cm long; capsule glaucous, elongated, *2,5-5 cm* × 1-2,5 cm Ø; seeds winged at both ends.



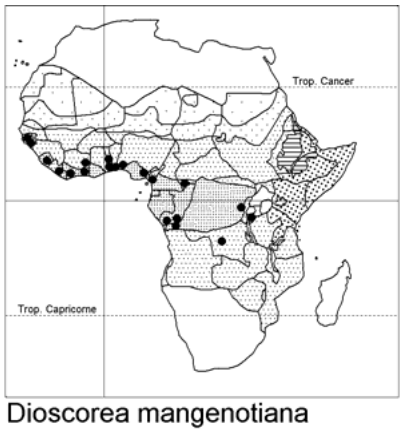
Dioscorea kituiensis



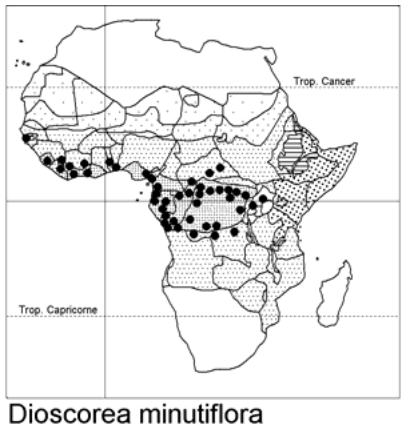
Dioscorea knuthiana



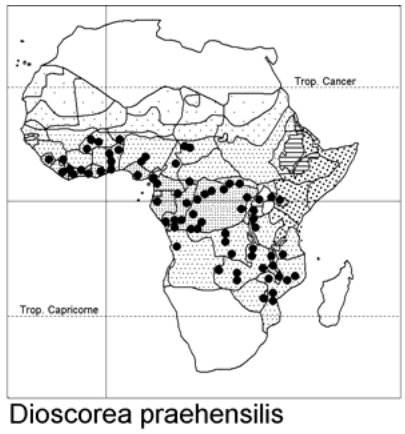
Dioscorea longicuspis



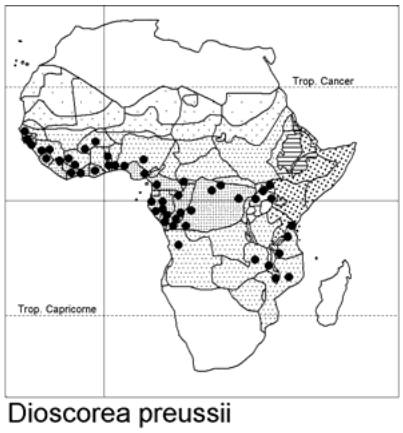
Dioscorea mangenotiana



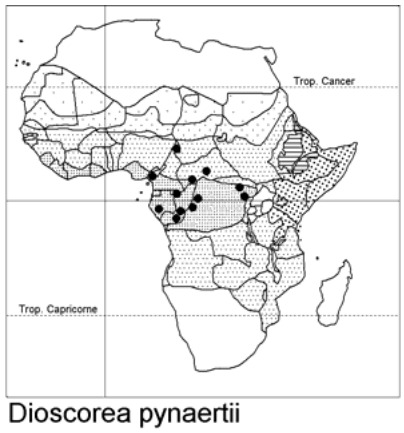
Dioscorea minutiflora



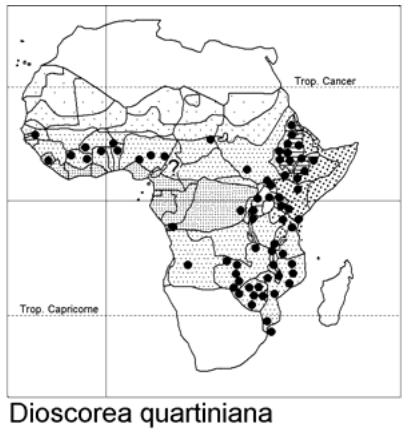
Dioscorea praehensilis



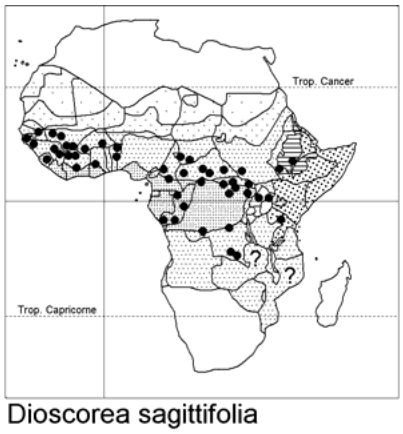
Dioscorea preussii



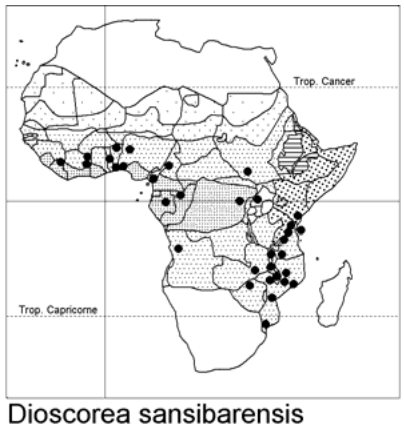
Dioscorea pynaertii



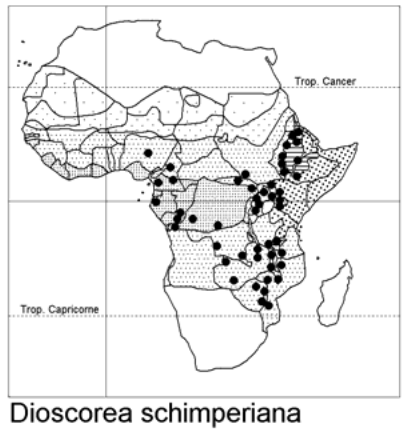
Dioscorea quartiniana



Dioscorea sagittifolia



Dioscorea sansibarensis



Dioscorea schimperiana

Fallows; termite mounds; secondary forests; forests sometimes flooded, with *Lannea*, *Pseudospondias*; dry forests and thickets; rain-forest; riverine forest; *Acacia* woodland; coastal evergreen bushland; often close to water; 0-900 m alt.

S. Tomé; Madagascar, Mauritius (fide Fl. Mascareignes 182, Dioscor.: 2-3, 1978). – In Zimbabwe only in the Zambezi valley. Newly naturalised in Taiwan (Collection Res. 25: 25-29, 2012).

The leaves with glands filled with a fluid holding nitrifying bacteria (Burkill, l.c.). The whole plant is very toxic (Choo in Gardenwise 32: 17, 2009).

D. schimperiana Hochst. ex Kunth, incl. var. *vestita* Pax, and var. *adamaouensis* Jacq.-Fel., but excl. var. *nigrescens* Uline ex R. Knuth (= *D. longicuspis*); Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 669, 1985; Fl. Eth. & Eritrea 6: 60, 1997; Cheek & al., Pl. Mt Oku...: 176, 2000; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 203, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 314-315, 2010; Harvey & al., Pl. Bali Ngemba…: 137, 2004; Strugnell, Checklist spermat. Mt Mulanje, Malawi: 79, 2006; Sosef & al., Check-list pl. vascul. Gabon: 154, 2006; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 150, 2010; Fischer & al., Annot. Checklist vascul. pl. Kakamega For.: 178, 2011; Onana, Vascul. pl. Cameroon: 164, 2011. – Icon.: Ann. Mus. Congo, Bot., Sér. 5,3: pl. 64 (as *D. hockii*), pl. 67 (as *D. stellatopilosa*), 1912; Fl. Trop. E. Afr., Dioscor.: 4, 1975; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 140, 1994; Hamon & al. (1995): 41, 36 (map); Kew Bull. 56: 364, 372, 2001; Fl. Zambes. 12/2: 113, 2009; White & al., Evergreen for. fl. Malawi: fig. 38, 2001.

syn.: Enum. 3: 98, 1995; *D. stellatopilosa* De Wild., incl. var. *cordata* De Wild.

Robust climber, right-twining, or scrambling, 3-8 m long; stem stout, densely appressed-pubescent, rarely with small prickles below; indumentum of stellate to dendroid hairs; bulbils often present in leaf axils, subglobose, to 1 cm Ø, ± ovoid, tuberculate, soon falling; tubers solitary, replaced annually, cylindric, descending vertically into soil, to 75 cm long, 4,5 cm Ø, branched for at least 15 cm; petiole to 10-14 cm long; blade *heart-shaped*, to 14 cm long and broad, with *dense greyish stellate hairs* beneath, acumen acute, thickened; inflorescence descending, spicate; male: to 5-8 per leaf-axil, or at leafless nodes at ends of the branches, to 10-20 cm long; flowers *sessile, 6 stamens fertile;* perianth *cup-shaped, c. 2 mm* across; female: to 4 per leaf-axil, to 16-20 cm long; capsule stellate-pubescent, 2,5-3,3 cm Ø; seeds winged all round.

Wooded grassland with *Combretum molle*, *C. collinum*, *Entada abyssinica*, *Erythrina abyssinica*, *Pennisetum purpureum*, *Hyparrhenia rufa* (grasses dominant); edges and clearings in rain-forest; riverine forest; woodland; tall-grass grassland; often on termite hills; ravines; road-sides; among rocks; riverbanks; *Brachystegia* woodland; generally in more open or disturbed areas; *Acacia seyal*, *Entada abyssinica*, *Stereospermum kunthianum* woodland; dark-brown loamy soil or lava; clayey-sandy soils; 200-2100 m alt.

Very variable, in particular in indumentum of leaves and colour of hairs on inflorescences, and in shape of fruits.

Near *D. hirtiflora*.

D. semperflorens Uline, incl. var. *hypotricha* (Uline) Burkill, var. *vera* (Uline) Burkill; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 229, 2002; Sosef & al., Check-list pl. vascul. Gabon: 154, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Onana, Vascul. pl. Cameroon…: 164, 2011 ["semperflorus"]. – Icon.: Hamon & al. (1995): 43, 36 (map).

syn.: Enum. 3: 98, 1995.

Near *D. hirtiflora* and *D. schimperiana* but: tepals *0,45-1,2 mm* long, tepals caught together at the tip so that the open flower has 3 slits wherein stand the *3* fertile *stamens*, *without staminodes;* seeds ?

Rain-forest (in breaks where fallen trees on rivers or footpaths let light fall under the canopy); secondary forest; clearings; it seems commonest along large rivers; hills; *Manihot* cultivation; fallows; regrowth; sandy-clayey soils: 100-1150 m alt.

D. smilacifolia De Wild & T. Durand, incl. var. *alternifolia* De Wild.; Fl. Trop. E. Afr., Dioscor.: 13-14, 1975; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 669, 1985; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 229, 2002; Cheek & al., Pl. Kupe…: 440, 2004; Akoegninou & al., Fl. anal. Bénin: 127, 2006; Sosef & al., Check-list pl. vascul. Gabon: 154, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Lisowski, Fl. Rép. Guinée 1: 415, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Cheek & al., Pl. Mefou prop. natl. Park Yaoundé, Cameroon : 223, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; M. Renier, Flore du Kwango 1: 100, 1948; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 61, 2012. – Icon.: Hamon & al (1995): 25, 20 (map); Hawthorne & Jongkind, Woody pl. west. Afr. for.: 367, 2006.

syn.: Enum. 3: 98, 1995; *D. demeusei* De Wild. & T. Durand

Climber; stems right-twining, with scattered prickles below, 6-20 m long, 0,4-0,6 cm Ø at base, resembling *D. minutiflora* but not rooting at nodes; tuber probably annual, *digitate,* roots unarmed; leaves opposite, sometimes alternate, simple; petiole 2,5-9 cm long; blade *ovate, elliptic, rarely suborbicular*, 4,5-13,5 × 2,5-11 cm, *3-5-nerved*, veins displaced *towards margin*, apex apiculate-glandular; base rounded, often with 2 tiny lobes (1 mm long) at base of midrib; inflorescences: male in 5-6 spikes or in panicles of racemes 15-50 cm long; female in panicles of racemes to 45 cm long in fruit; capsule 2,5-3 × 2,8-4,5 cm; seeds winged all round.

Rain-forest; edges of fields; savanna with *Loudetia*, *Annona*, *Hymenocardia;* forest edges; swampy forests; forest gallery; forest gaps and regrowths; with *Musanga cecropioides*, *Zingiberaceae* spp.; secondary forests; sandy-clayey soils; 5-1400 m alt.

Bioko/Fernando Poo.

Sometimes grown on a small scale (fide Burkill, l.c.).

This species and *D. minutiflora* may intergrade (fide Figueiredo & Smith, l.c.).

DIOSCOREA

(**D. sublignosa** R. Knuth); Chevalier, Bull. Mus. Natl. Hist. Nat., Paris, Sér. 2, 8: 549, 1936.

According to the description (Engler, Pflanzenreich 4, 43: 304, 1924) the plant is a long climber; stems terete or barely angular, little-branched; leaves alternate and opposite; blade rotundate-cordate, 5-veined, 9 × 6,5 cm, glabrous, apex with acumen 2 cm long, base broadly cordate and yet cuneate-decurrent on petiole; petiole to 6 cm long, thick, canaliculate above; female spikes simple, solitary in leaf axils, c. 7 cm long. – In leaf form similar to *D. preussii* if one compares species occurring in the same area.

Milne-Redhead (Fl. Trop. E. Afr., Dioscoreaceae: 14, 1975) comments on this species. Two herbarium sheets are known. One is a badly prepared fruiting specimen collected by Braun (Nr. 1563 Herb. Amani, now in EA) in 1907 in Tanzania, Tanga Distr., Muheza (5°10'Sx38°48'E), later named by Burkill as *D. minutiflora* Engl. The other specimen (holotype; B) has some fruits in a packet; it is not annotated by Burkill.

Milne-Redhead excludes this name from the synonymy of *D. minutiflora*; the plant is "probably a cultivar…and best treated as an insufficiently known taxon". – Perhaps a form of *D. praehensilis*.

A. Richard (l.c.) compares Braun's plant with specimens collected by himself in Togo (in 1905) and in Ivory Coast (in 1930) and which he believes are derived from *D. minutiflora***.**

D. sylvatica Eckl., incl. var. *rehmannii* (Baker) Burkill, var. *paniculata* (Dummer) Burkill, var. *multiflora* (Marloth) Burkill, var. *brevipes* (Burtt Davy) Burkill, and subsp. *lydenburgensis* Blunden, Hardman & F. J. Hind – Wilkin in Kew Bull. 56: 400-402, figs. p. 365, 371 (2001); Fl. Zambes. 12/2: 136-137, fig. p. 114 (2009). – Icon., mostly horticult. literature: Rowley in Egli, ed., Sukkulenten-Lexikon, 1, Monocot.: fig. 27.g, 2001; G. F. Smith & N. R. Crouch, Guide succulents south. Afr.: 90, 2009; Schmid in Kakteen & Sukk. 60: 151, 2009; Durst (2009): 39 (text p. 46).

syn.: *Testudinaria montana* Eckl. & Zeyh. in sched.; *T. sylvatica* Hort. Berol. ex Kunth; *T. sylvestris* Hort. Berol. ex Kunth, non *Dioscorea sylvestris* Vell., nec De Wild.; *T. paniculata* Dummer; *T. multiflora* Marloth; *Dioscorea brevipes* Burtt Davy; *D. marlothii* R. Knuth; *D. montana* Eckl. & Zeyh. ex R. Knuth, as *D. montanta* (Eckl. & Zeyh.) Spreng.; *D. montana* (Eckl. & Zeyh.) R. Knuth var. *glauca* R. Knuth, var. *lobata* Weim., var. *sagittata* Suess.; *D. rehmannii* Baker; *D. junodii* Burtt Davy; *Testudinaria rehmannii* (Baker) G. D. Rowley; *T. sylvatica* Kunth var. *rehmannii* (Baker) G. D. Rowley, var. *paniculata* (Dummer) G. D. Rowley, var. *multiflora* (Marloth) G. D. Rowley, var. *brevipes* (Burtt Davy) G. D. Rowley, var. *lydenburgensis* (Blunden, Hardman & F. J. Hind) G. D. Rowley; see also World Checklist of Selected Plant Families, Dioscoreaceae, Roy. Bot. Gard., Kew.

Vine, left-twining, unarmed, glabrous, to > 4 m long, stems (1 to many) annual from a perennial solitary subterranean tuber to 30 cm Ø, entire to deeply lobed, irregularly ovoid; surface of tuber corky, rough, cracked, sometimes reticulate; stems without bulbils; leaves *alternate, entire to 3-lobed*, heart-shaped *to deltoid;* apex triangular, 1-2 mm long; inflorescences racemose; male simple, flowers solitary on pedicels or sometimes in cymose pairs; female to 10 cm long; tepals *1,9-3,2* mm long, spreading; capsule 1,6-2,8 × 1-2 cm; seeds winged at apex, occasionally with a very narrow basal wing.

Often in rocky places, kopjes, in *Brachystegia* or mopane woodland; sandy soils; termite mounds; disturbed habitats; 0-1800 m alt. – Tolerant of heavy metal-rich soils in Zimbabwe (Great Dyke).

DIOSCOREA SYLVATICA

Variable species with many varieties described.

S. Africa, Swaziland.

Very near *D. elephantipes* (L'Hér.) Engl. in S. Africa, belonging to a distinctive group of *Dioscorea* described as a genus, *Testudinaria;* they have subterranean to exposed perennial tubers with thick corky surface and seeds with apical wings. The specific delimitation of *D. sylvatica-D.elephantipes* needs investigation as leaf shape seems to be the main difference. Wilkin & al. (Kew Bull. 65: 423, 2010) present a table summarizing the morphological characters of the species involved.

The species has a complex nomenclatural history – see Wilkin in Kew Bull. 56: 401-402, 2001.

Grown in special collections. Readily propogated from divided tuber (caudex) lobes.

D. togoensis R. Knuth; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 670, 1985; Akoegninou & al., Fl. anal. Bénin: 127, 2006; Lisowski, Fl. Rép. Guinée 1: 415, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 229, 2011; Thiombiano & al., Cat. pl. vasc. Burkina Faso: 61, 2012. – Icon.: Hamon & al. (1995): 51, 44 (map).

Weak climber, right-twining, 0,6-10 m long; tuber slender, digitate, deep-rooted, replaced annually; roots unarmed; stem *mottled*, green or red, glabrous, ± spiny, with caducous bulbils, *0,3-1,6 cm*, with 1-2 buds between leaves and spikes; leaves opposite, thick; petiole 1-3,5 cm long; blade lanceolate or ovate-lanceolate, 6-10 × 3-7 cm, base rounded or truncate, rarely slightly cordate, apex slightly acuminate; inflorescence spikes *2-4* in leaf-axils, *5-6 cm* long, reflexed upwards; capsule *1,7-2,1* × *2,2-2,6 cm;* seed winged.

Savanna; open forest; rocky places in forest; regrowths; also colonizing well-cultivated land reverting to scrub.

SYNONYMS:

Dioscorea acarophyta De Wild. = **Dioscorea minutiflora**

aculeata Balb. ex Kunth = **D. cayenensis** subsp. **cayenensis**

aculeata Roxb., incl. var. *spinosa* (Prain) Roxb. ex Prain & Burkill = **D. esculenta**

anchiatasi Harms = **D. quartiniana**

anchietae Harms ex R. Knuth = **D. quartiniana**

andongensis Rendle = **D. preussii** subsp. **preussii**

angolensis R. Knuth = **D. quartiniana**

angustiflora Rendle = **D. praehensilis**

anthropophagorum A. Chev. = **D. bulbifera**
var. *sylvestris* A. Chev. = **D. hirtiflora** subsp. **hirtiflora**

apiculata De Wild. = **D. quartiniana**

armata De Wild. = **D. minutiflora**

baya De Wild. var. *subcordata* De Wild. = **D. baya** var. **baya**

beccariana Martelli = **D. quartiniana**

berteroana Kunth = **D. cayenensis** subsp. **cayenensis**

brevipes Burtt Davy = **D. sylvatica**

brevispicata De Wild. = **D. minutiflora**

buchholziana Engl. = **D. dumetorum**

caillei A. Chev. ex De Wild. = **D. togoensis**

camerunensis R. Knuth = **D. cayenensis** subsp. **cayenensis**

cayenensis Lam. var. *praehensilis* (Benth.) A. Chev. = **D. praehensilis**
var. *pruinosa* Chev. 1936 (type Chevalier 6482) = **D. cayenensis**

chevalieri De Wild. = **D. preussii** subsp. **preussii**

colocasiifolia Pax = **D. alata**

costermansiana De Wild. & T. Durand = **D. praehensilis**

crinita Hook. f. = **D. quartiniana**

crispata Roxb. = **D. bulbifera**

cryptantha Baker = **D. quartiniana**

dawei De Wild. = **D. preussii** subsp. **preussii**

demeusei De Wild. & T. Durand = **D. smilacifolia**

demeusei auct., non De Wild., p.p. = **D. minutiflora**

dinteri Schinz = **D. quartiniana**

dumetorum var. *schweinfurthiana (*Pax) A. Chev., 1936 (bas.: *D. schweinfurthiana* Pax), quoad specim. Chevalier 23611, Benin = **D. dumetorum**

dusenii Uline ex R. Knuth = **D. hirtiflora** subsp. **hirtiflora**

ealensis De Wild. = **D. minutiflora**

echinulata De Wild. = **D. smilacifolia**

ekolo De Wild. = **D. minutiflora**

engbo De Wild. = **D. minutiflora**

excisa R. Knuth = **D. quartiniana**

fasciculata Roxb., incl. var. *spinosa* Prain = **D. esculenta**

flamignii De Wild. = **D. smilacifolia**

forbesii Baker = **D. quartiniana**

fulvida Stapf = **D. schimperiana**

gillettii sensu Fl. Trop. E. Afr., Dioscor.: 7, 1975, p.p. = **D. kituiensis**

gossweileri R. Knuth = **D. quartiniana**

grandibulbosa R. Knuth = **D. minutiflora**

hederifolia Griseb. = **D. sylvatica**

heterophylla Roxb. = **D. bulbifera**

hirtiflora Benth. var. *grahamii* Burkill = **D. hirtiflora** subsp. **orientalis**

hirtiflora Benth. var. *nyassica* Burkill = **D. hirtiflora** subsp. **pedicellata**

hirtiflora Benth. var. *trapnellii* Burkill = **D. hirtiflora** subsp. **hirtiflora**

hockii De Wild. = **D. schimperiana**

hoffa Cordem. = **D. bulbifera**

hofika Jum. & H. Perrier = **D. bulbifera**

holstii Harms = **D. quartiniana**

hylophila Harms = **D. preussii** subsp. **hylophila**

hypotricha Uline = **D. semperflorens**

hystrix R. Knuth = **D. minutiflora**

junodii Burtt Davy = **D. sylvatica**

korrorensis R. Knuth = **D. bulbifera**

latifolia Benth. var. *anthropophagorum* A. Chev. = **D. bulbifera**

latifolia Benth. var. *longipetiolata* (Baudon) A. Chev. = **D. bulbifera**

lecardii De Wild., incl. var. *chevalieri* De Wild. = **D. sagittifolia** var. **lecardii**

var. *coriacea* A. Chev., quoad specim. Chevalier 18519 = **D. bulbifera** (fide Lisowski, Fl. Rép. Guinée 1: 414, 2009)

liebrechtsiana De Wild. & T. Durand = **D. praehensilis**

lilela De Wild. = **D. minutiflora**

lindiensis R. Knuth = **D. hirtiflora** subsp. **orientalis**

litoie De Wild. = **D. minutiflora**

longipetiolata Baudon = **D. bulbifera**

longispicata De Wild. = **D. preussii** subsp. **preusii**

macabiha Jum. & H. Perrier = **D. sansibarensis**

macroura Harms = **D. sansibarensis**

malchairii De Wild. = **D. preussii** subsp. **preussii**

malifolia Baker = **D. cotinifolia**

marlothii R. Knuth = **D. sylvatica**

mildbraediana R. Knuth = **D. buchananii**

mildbraedii R. Knuth = **D. sagittifolia** var. **lecardii**

moma De Wild. = **D. cayenensis** subsp. **cayenensis**

montana Eckl. & Zeyh. ex R. Knuth [as *D. montana* (Eckl. & Zeyh.) Spreng.] = **D. sylvatica**

montana (Eckl. & Zeyh.) Spreng. var. *duemmeri* R. Knuth, var. *glauca* R. Knuth, var. *lobata* Weim., var. *paniculata* (Kuntze) R. Knuth, var. *sagittata* Suess. = **D. sylvatica**

multiflora Engl. ex Pax = **D. minutiflora**

occidentalis R. Knuth = **D. cayenensis** subsp. **cayenensis**

odoratissima Pax = **D. praehensilis**

orbicularis A. Chev. ex De Wild. = **D. smilacifolia**

pendula R. Knuth = **D. minutiflora**

pentadactyla (Pax) Welw. = **D. quartiniana**

pentaphylla sensu A. Rich. 1851, non L. 1753 = **D. quartiniana**

perrieri R. Knuth = **D. bulbifera**

peteri R. Knuth = **D. quartiniana**

phaseoloides Pax = **D. quartiniana**

polyantha Rendle = **D. hirtiflora** subsp. **hirtiflora**

praehensilis Benth. var. *minutiflora* (Engl.) Baker = **D. minutiflora**

praehensilis auct. (FTA, p.p.), non Benth. = **D. cayenensis, D. pynaertii**

pruinosa A. Chev., 1913, nom. subnud., quoad specim. Chevalier 6482 (Centr. Afr. Rep.) = **D. cayenensis** subsp. **cayenensis**

pterocaulon De Wild. & T. Durand = **D. preussii** subsp. **preussii**

pulchella Roxb. = **D. bulbifera**

pynaertioides De Wild. = **D. minutiflora**

rehmannii Baker = **D. sylvatica**

rhacodes Peter ex R. Knuth = **D. buchananii**

rogersii Prain & Burkill = **D. bulbifera**

rotundata Poir. = **D. cayenensis** subsp. **rotundata**

rubella Roxb. = **D. alata**

rubiginosa Benth. = **D. hirtiflora** subsp. **hirtiflora**

sapinii De Wild. = **D. alata**

sativa auct. (Rendle 1911), non L. nec Thunb. = **D. asteriscus**

sativa Thunb., non L. = **D. bulbifera**

sativa fa. *domestica* Makino, var. *elongata* F. M. Bailey, var. *rotunda* F. M. Bailey = **D. bulbifera**

schimperiana Hochst. ex Kunth var. *nigrescens* Uline ex R. Knuth = **D. longicuspis**

DIOSCOREA

schlechteri Harms = **D. semperflorens**

schliebenii R. Knuth = **D. quartiniana**

schweinfurthiana Pax = **D. quartiniana**

stellatopilosa De Wild., incl. var. *cordata* De Wild. = **D. schimperiana**

stolzii R. Knuth = **D. cochleariapiculata**

stuhlmannii Harms = **D. quartiniana**

sylvestris De Wild. = **D. bulbifera**

thonneri De Wild. & T. Durand = **D. preussii** subsp. **preussii**

toxicaria Bojer = **D. sansibarensis**

triphylla Schimp. ex A. Rich., incl. var. *abyssinica* R. Knuth, var. *dumetorum* (Kunth) R. Knuth, var. *rotundata* R. Knuth, var. *tomentosa* Rendle = **D. dumetorum**

ulugurensis R. Knuth = **D. quartiniana**

verdickii De Wild. = **D. quartiniana**

violacea Baudon = **D. bulbifera**

vulgaris Miq. = **D. alata**

welwitschii Rendle = **D. sansibarensis**

zara Baudon = **D. sagittifolia** var. **lecardii**

var. *violacea* (Baudon) A. Chev. = **D. bulbifera**

(HELMIA)

Helmia bulbifera (L.) Kunth = **Dioscorea bulbifera**

dregeana Kunth = **D. dregeana**

dumetorum Kunth = **D. dumetorum**

(POLYNOME)

Polynome alata (L.) Salisb. = **Dioscorea alata**

bulbifera (L.) Salisb. = **D. bulbifera**

TACCA (see **Taccaceae**)

(TAMUS)

Tamus sylvestris Kunth = **Dioscorea sylvatica**

(TESTUDINARIA)

Testudinaria glaucescens Hügel = **Dioscorea sylvatica**

montana Eckl. & Zeyh. in sched. = **D. sylvatica**

montana Burch., incl. var. *paniculata* Kuntze = **D. sylvatica**

multiflora Marloth = **D. sylvatica**

paniculata Dummer = **D. sylvatica**

rehmannii (Baker) G. D. Rowley = **D. sylvatica**

sylvatica Hort. Berol. ex Kunth, incl. var. *brevipes* (Burtt Davy) G. D. Rowley, var. *lydenburgensis* (Blunden, Hardman & F. J. Hind) G. D. Rowley, var. *multiflora* (Marloth) G. D. Rowley, var. *paniculata* (Dummer) G. D. Rowley, var. *rehmannii* (Baker) G. D. Rowley = **D. sylvatica**

sylvestris Hort. Berol. ex Kunth = **D. sylvatica**

TACCACEAE */ 1 g. / 1 sp.*

Recently placed in *Dioscoreaceae* (a table in Govaerts & al., 2007: VII, shows the morphological differences between the genera retained by them). A single genus with 10 species (9 in the Old World tropics, 1 in S. America). Centre of variation in SE Asia and Polynesia. A few species only are cultivated.

CADDICK, L. R. (2002). Yams reclassified: a recircumscription of Dioscoreaceae and Dioscoreales. *Taxon*: 51: 103-114.

GOVAERTS, R. & al. (2007). See above under **Dioscoreaceae**.

KUBITZKI, K. (1998). Taccaceae. *In:* KUBITZKI, K. ed., *The Families and Genera of Vascular Plants 3. Flowering plants. Monocotyledons: Lilianae (except Orchidaceae):* 425-428. Springer-Verlag, Berlin etc.

ZHANG, L. & al. (2011). Phylogeny and evolution of bracts and bracteoles in Tacca (Dioscoreaceae). *J. Integrative Pl. Biol.* 53/11: cover page, 901-911.

ZHAO, Y.-M. & L. ZHANG (2011). Using DNA barcoding in genus Tacca (Dioscoreaceae). *Pl. Divers. Resources* 33: 674-682.

(CHAITAEA)

Chaitaea tacca Sol. ex Seem. = **Tacca leontopetaloides**

(LEONTICE)

Leontice leontopetaloides L. = **Tacca leontopetaloides**

TACCA / *1*

Tacca leontopetaloides (L.) Kuntze; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 183-184, 2000; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 207-208, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 320, 2010; Strugnell, Checklist spermat. Mt. Mulanje: 179, 2006; Sosef & al., Check-list pl. vascul. Gabon: 400, 2006; Figueiredo & Smith, Pl. Angola: 207, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 260, 2011; Onana, Vascul. pl. Cameroon…: 187, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 121, 2012; Gereau & al., Lake Nyasa florist. checklist: 108, 2012. – Icon: Fl. Trop. E. Afr., Taccac.: 2, 1962; Busson, Pl. aliment. Ouest afric.: 437, 1965; Fl. Afr. C., Taccac.: pl. 1, 1976; Fl. Eth. & Eritrea 6: 64, 1997; Akoegninou & al., Fl. analyt. Bénin: 255, 2006; Fl. Gabon 38: 56-57, 2009; Lisowski, Fl. Rép. Guinée 2: fig. 569, 2009; Fl. Zambes. 12/2: 139, 2009; Zhang & al. (2011): 903.

bas.: *Leontice leontopetaloides* L.

syn.: Enum. 3: 107, 1995; *Tacca pinnatifida* J. R. Forst. & G. Forst., incl. subsp. *involucrata* (Schumach. & Thonn.) H. Limpr., subsp. *interrupta* Warb. ex H. Limpr., subsp. *madagascariensis* H. Limpr., var. *acutifolia* H. Limpr., var. *paeoniifolia* Domin, var. *permagna* Domin, fa. *obtusata* Limpr.; *T. pinnatifolia* Gaertn.; *T. madagascariensis* Bojer; *T. abyssinica* Hochst. ex Baker; *T. oceanica* Seem.; *T. viridis* Hemsl.; for full synonymy, see World checklist selected plant families, Dioscoreaceae, Roy. Bot. Gard., Kew., and Govaerts & al. (2007): 60.

Herb to 2 m tall, annual from a fleshy tuber to 10 cm Ø, buried deep in the soil; leaves 1-3; sheathing cataphylls 2-3, to 5 cm long, enclosing the bases of the petioles and flowering stems; petiole ridged longitudinally, to 1-1,8 m long; blade trifid at apex of the petiole, each segment 1-3-pinnatisect, to 90 × 60 cm; lobes ovate-acuminate, to 12 × 7 cm, smaller orbicular lobes between them to 3 × 2,5 cm; flowering stem 1, to 1,7 m tall, hollow; inflorescence bracts 4-8, forming an involucre with floral buds, erect to spreading at anthesis, green with purple margins and apices; floral bracts numerous, filiform, pendent, to 25 cm long, dark

TACCA LEONTOPETALOIDES

purple, paler towards apex; flowers 10-40, pale green to white, yellowish or brown, tinged purple; tepals 6, thick, fleshy, fused at base; fruit berry-like, subglobose, 6-ridged, 2-3 × 1,7-3 cm, pendent, orange.

Wet river banks; forest gallery; lake shore forest; grassland; bushland; open woodland; under shade in savanna; dembos; usually on open sandy soils; road sides; termitaria; dunes; swamps; beaches; thickets; as a weed in plantations; 0-1500 m alt.

Various leaf forms have been described as distinct species. But the size and shape of the lobes seem to depend on environmental conditions.

From Tropical Africa E-wards through Tropical Asia and the Pacific, Marquesas Isl., Hawaii (general map in Blumea 20: 379, 1972). – Presence uncertain in the Gulf of Guinea islands (Figueiredo & al., Annot. cat. S. Tomé & Príncipe: 73, 2011).

Tubers edible, rich in starch, but those of wild plants generally poisonous. More widely cultivated in the past, also as source of fibre.

The plant is perhaps not indigenous in Africa. "It may have been brought from Asia in prehistoric times with *Dioscorea alata* and bananas" (Wilkin in Fl. Zambes. 12/2: 140, 2009).

Can be confused with *Amorphophallus abyssinicus (Araceae)* in vegetative stage, but *Tacca* has a longitudinally ridged petiole.

BURMANNIACEAE – THISMIACEAE

5 + 1 ? g. / *23 + 1* ? spp.

Now treated as 2 families: *Burmanniaceae* (with 8 genera and c. 90 species, pantropical) and *Thismiaceae* (with 5 genera and c. 60 species, pantropical). For the distinction of the two families, see, e.g. Cheek in Fl. Zambes. 12/2: 141, 2009. *Burmanniaceae* s.l. includes thus c. 150 species in 13 genera, distributed in tropical and warm-temperate countries of the World. Cameroon is the most species-diverse country in Tropical Africa.

Little known plants. In our area the underground stem (or vegetative part) is unknown in 2 species (= > 8%); the leaves are unknown in 1 species (= > 4%); the flower colour is not recorded for 1 species (= > 4%); fruits and seeds are unknown in 6 species and the fruit is unripe in one further species (= 6+1 = c. 26%); 8 (+1 ?) species (= c. 35%) are known only from the type.

CHEEK, M. (2006). African saprophytes: new discoveries. *In:* GHAZANFAR, S. A. & H. J. BEENTJE, eds., *Taxonomy and ecology of African plants, their conservation and sustainable use*: 693-697. Kew Publishing, Royal Botanic Gardens, Kew.

GOVAERTS, R. & al. (2007). *World checklist of Dioscoreales. Yams and their allies*: 1-13, Kew Publishing, Royal Botanic Gardens, Kew.

IMHOF, S. & al. (2013). Subterranean morphology and mycorrhizal structure. *In:* MERCKX, V. S. F. T. ed., o.c: 157-214 [see p. 163-167].

MAAS-VAN DE KAMER, H. (1998). Burmanniaceae. *In:* KUBITZKI, K., ed. *The families and Genera of Vascular Plants 3. Flowering Plants. Monocotyledons: Lilianae (except Orchidaceae)*: 154-164. Springer-Verlag, Berlin, etc.

MERCKX, V. S. F. T. & al. (2006). Phylogeny and evolution of Burmanniaceae (Dioscoreales) based on nuclear and mitochondrial data. *Amer. J. Bot.* 93: 1684-1698.

MERCKX, V. S. F. T. & al. (2013a). Taxonomy and classification. *In:* MERCKX, V. S. F. T. ed., *Mycoheterotrophy. The biology of plants living on fungi*: 19-101 [see p. 38-49]. Springer, New York, etc.

MERCKX, V. S. F. T. & al. (2013b) Biogeography and conservation. *In:* MERCKX, V. S. F. T. ed., o.c.: 103-156 [see p. 109-111].

SAINGE, M. N. & al. (2010). Distribution of myco-heterotrophic (saprophytic) plants of Cameroon. *In:* VAN DER BURGT, X. & al., eds., *Systematics and conservation of African plants*: 281-288. Kew Publishing, Royal Botanic Gardens, Kew.

AFROTHISMIA / *12*

Endemic to the African rain-forest. They are extremely rare, most being known only from the type gathering. Until 2003 only 3 species had been published. They are highly reduced achlorophyllous myco-heterotrophic herbs with cylindric rhizome, each node with a cluster of small tuberous bulbils each with root; flowers zygomorphic with a short basal tube; fruit a pyxidium with a sterile column enormously distending, pushing aside the lid-like receptacle, lifting the seeds above the fruit bottom (Blumea 49: 453, 2004). Flowers and fruits are produced during the rainy season and most of the life cycle is spent under ground, "hidden from the collector's eye".

The plants mostly grow superficially attached to leaf litter or soil surface, only few are shallowly rooted in the soil. They occur in undisturbed submontaneous rain-forest, thus highly endangered by habitat destruction (Bot. J. Linn. Soc. 157: 31, 2008). They are difficult to cultivate.

Afrothismia is not closely related to other *Thismiaceae* genera.

Summary of our insufficient knowledge: in 1 species no underground stem seen; leaves unknown in 1 species; flower colour not reported for 1 species; fruit and seeds unknown in 5 species; 7 + 1 ? species known only from the type.

IMHOF, S. & M. N. SAINGE (2008). Ontogeny of the mycoheterotrophic species Afrothismia hydra (Burmanniaceae). *Bot. J. Linn. Soc.* 157: 31-36.

MERCKX, V. & E. SMETS (2010). The affinities of the mycoheterotrophic genus Afrothismia. *Scripta Bot. Belg.* (AETFAT 19, Madagascar): 300.

MERCKX, V. & al. (2007). The affinities of the African myco-heterotrophic genus Afrothismia Schltr. (Burmanniaceae). *In:* ACHOUNDONG, G., ed., *XVIIIth AETFAT Congress 26-February-2 March 2007 Yaoundé, Cameroon, Abstracts*: 38.

ONANA, J.-M. (2010). Endémisme floristique du Cameroun: inventaire systématique et conservation de la biodiversité. *In:* VAN DER BURGT, X. & al., eds., *Systématique et Conservation des Plantes Africaines*: 509-521 [p. 516]. Royal Botanic Gardens, Kew.

SAINGE, M. N. & al. (2005). A new species of Afrothismia (Burmanniaceae, tribe Thismieae) from Korup National Park, Cameroon. *Willdenowia* 35: 287-291.

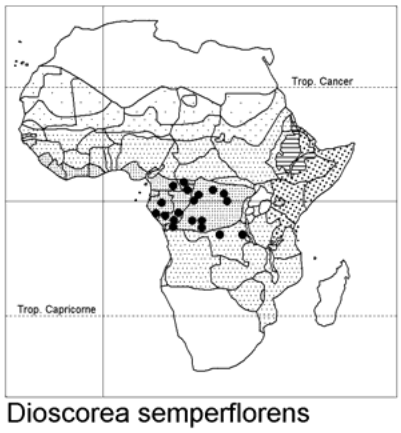
Afrothismia amietii Cheek; Onana & Cheek, Red Data Book flow. pl. Cameroon: 357-358, 550 (map), 2011. – Icon.: Kew Bull. 61: 606, 2007.

Achlorophyllous mycotrophic herb c. 3 cm tall; rhizome succulent, provided with several clusters of 10-20 bulbils, 4-7 mm Ø; each bulbil 1,2-2 × 0,8-1 mm, ellipsoid; flowering stem vertical c. 2 cm long, c. 1 mm Ø; leaves unknown; flower single, strongly zygomorphic, colour unknown; fruit and seeds unknown.

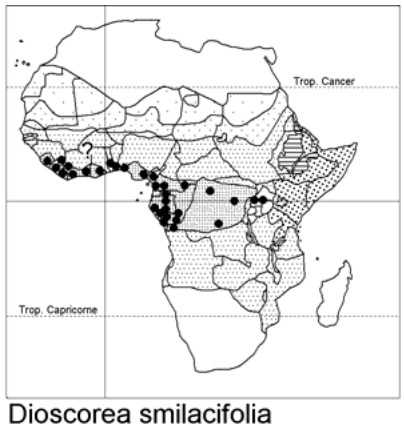
Evergreen forest, bare ground under shade of a rock; c. 850 m alt.

Only known from the type collected in 1970 (one specimen). Appears extremely vulnerable (illegal logging followed by agriculture).

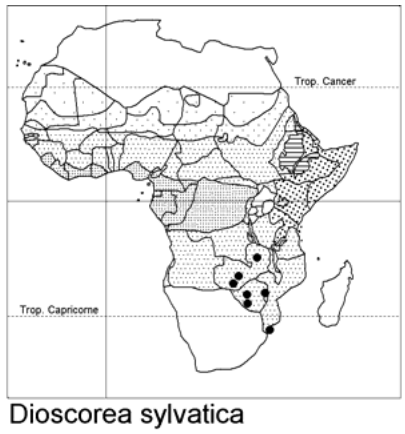
Related to *A. foertheriana*, *A. saingei*, *A. baerae.*



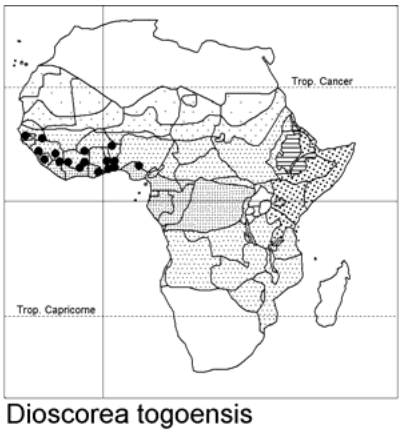
Dioscorea semperflorens



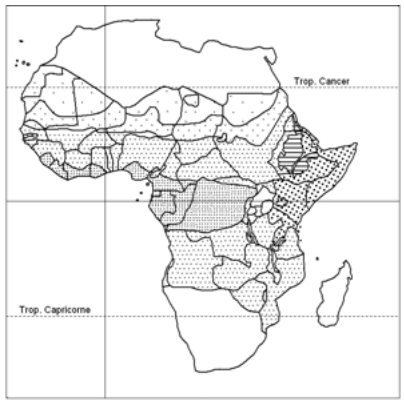
Dioscorea smilacifolia

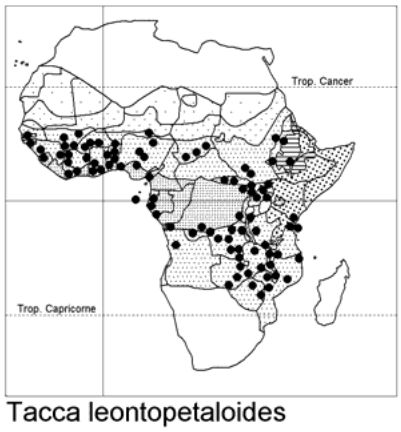


Dioscorea sylvatica

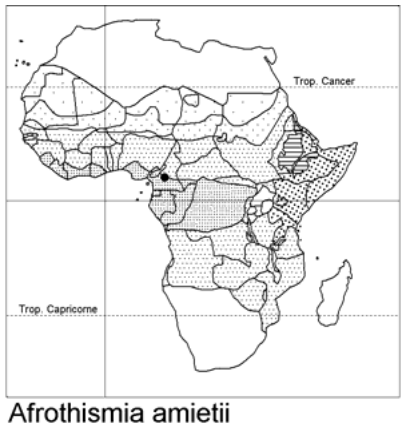


Dioscorea togoensis

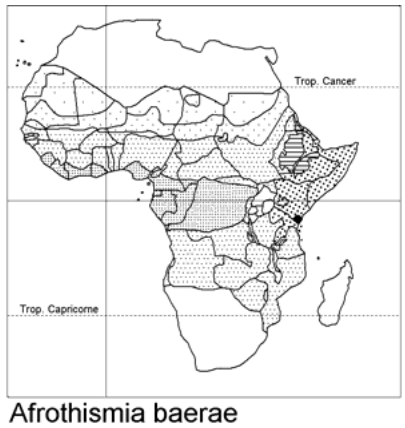




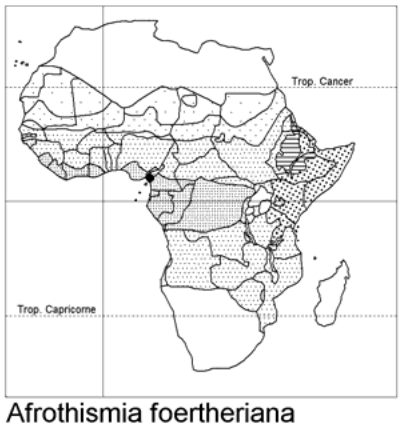
Tacca leontopetaloides



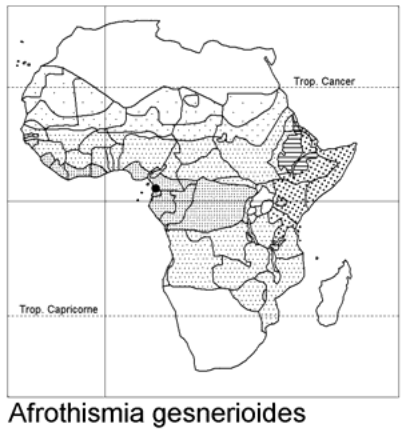
Afrothismia amietii



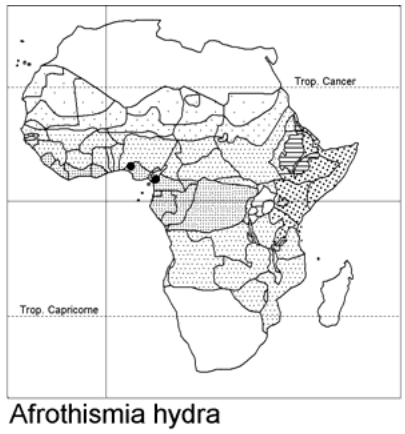
Afrothismia baerae



Afrothismia foertheriana



Afrothismia gesnerioides



Afrothismia hydra

AFROTHISMIA

A. baerae Cheek – Icon.: Kew Bull. 58: 953, 2003.

Achlorophyllous mycotrophic herb c. 3 cm tall; rhizome succulent, provided with several clusters c. 6 mm Ø of 20-30 bulbils, each bulbil c. 1,5 mm Ø, globose to broadly ellipsoid; flower-bearing stems vertical, 3-6 cm long, c. 2,5 mm Ø; leaves 1-2 per stem, alternate, pale brown, ovate, 3,5-4 × 2,5-3,5 mm; flowers 2-3 per stem, single in bract axils, slightly zygomorphic, perianth tube dark purple; fruit and seeds unknown.

Evergreen coastal forest remnant with *Antiaris* sp., *Milicia* sp., *Lovoa* sp., *Celtis mildbraedii*, *Quassia undulata*, *Hymenaea* sp., *Julbernardia* sp., etc…on deep, well-drained red soil formed from well-weathered Margarine Sands overlying Shimba Grit and Mazeras Sandstone; 360-400 m alt.

Extremely vulnerable. Known only from the type collected in 2002 (seven specimens).

Related to *A. amietae*.

Differs from all other previously known species in having a completely erect perianth tube.

A. foertheriana T. Franke, Sainge & Agerer; Onana & Cheek, Red Data Book flow. pl. Cameroon: 356-357, 549 (map), 2011. – Icon.: Blumea 49: 453-454, 2004.

Myco-heterotrophic herb; stem whitish to yellowish, with scale-like leaves, sometimes branched, distinctly ribbed, to 3,7 cm long, 1,7 cm Ø; leaves ± triangular, 2,7-5 × 1,1-2,5 mm; inflorescence 1-2-flowered; flowers sessile, zygomorphic, epigynous; fruit a pyxidium 3,8 × 5,8 mm.

On a narrow terrace, nestled into a deep slope, covered by open forest with *Antidesma vogelianum, Cola flavo-velutina, Craterispermum aristatum, Dicranolepis disticha, D.* sp., *Diospyros cinnabarina*, etc… Growing not in company with other myco-heterotrophic plants; growing in groups of scattered individuals; 220 m alt.

The type locality belongs to one of the richest plant diversity centres in Africa. Critically endangered (illegal logging, oil palm and cocoa cultivation).

Known from the type collected in 2002, and perhaps at 2 other spots (Onana & Cheek, l.c.).

Related to *A. amietii*.

A. gesnerioides H. Maas; Imhof in Canad. J. Bot. 84: 852-861, 2006 (with figures of root structures, histology); Onana & Cheek, o.c.: 357, 550 (map). – Icon.: Blumea 48: 476, 2003; Imhof & al. (2013): 168.

Achlorophyllous, whitish brown, mycotrophic herb, 4,5-6 cm tall; rhizomes with several clusters 0,5-1 cm Ø of 20-35 root tubercles, these ovoid, 2-3 mm long, 1-2 mm Ø; leaves bract-like, 1 per stem, ovate-triangular, 3-5 × 2-4 mm; flowering stem white, 4,5-6 cm long, 1-2 mm Ø; inflorescence terminal, 2-3-flowered, sympodially branched; flowers purplish, strongly zygomorphic, similar to a gesnerial flower (neotropical), 1,7-2,1 cm long; fruit obconical to subglobose, 5-6 × 5-6 mm Ø.

Riverine forest along stream, marshy spot; 600 m alt.

Only known from the type collected in 1996. Site threatened by slash and burn agriculture.

A. hydra Sainge & T. Franke; Imhof & Sainge in Bot. J. Linn. Soc; 157: 31-36, 2008; Onana & Cheek, o.c.: 357, 549 (map). – Icon.: Nord. J. Bot. 23: 300-301, 2005; Imhof & al. (2013): 164; Merckx & al. (2013a): 38, 46.

AFROTHISMIA HYDRA

Myco-heterotrophic herb; stem whitish to yellowish, with clusters of proximally inflated roots and few scale-like leaves, sometimes branching, distinctly ribbed, 1,7-7 cm long, 1,2-2 mm Ø; leaves triangular, lanceolate, 3-4,3 × 2-2,1 mm; inflorescence 1-6-flowered, a scorpioid cyme; flowers epigynous, zygomorphic; fruit, pyxidium, with a distending column-like structure lifting the placenta 0,9-1,2 cm above the receptacle, exposing the seeds.

Growing in groups of scattered individuals within leaf litter; in primary forest with *Piptostigma* sp., *Polyceratocarpus parviflorus*, *Uvariodendron giganteum*, *Uvariopsis korupensis*, *Tabernaemontana brachyantha*, etc…; 60-1040 m alt.

Related to *A. winkleri* but only half the size.

First collected in 1949 in Nigeria and proposed as a distinct species by Mildbraed and Keay. First discovered in Cameroon in 2001.

A. insignis Cowley; Blumea 48: 478, 2003 (in key).

Saprophytic herb with whitish stem partly underground with clusters of bulbils, above ground branched or not, ribbed, scaly or irregularly papillose, 7-18 cm tall, ridged or winged just below inflorescence; leaves alternate, colourless, boat-shaped, clasping the stem at base, 3-7 × 3-5 mm; flowers single, zygomorphic; fruit and seeds unknown.

In thick leaf-litter, in gorge with high forest; 1650 m alt.

Only known from the type collected in 1962.

Near *A. winkleri*.

(**A. kamerunica** Pax & K. Hoffm.)

Erroneously cited so in our Enum. for **Afrotrewia kamerunica** Pax & K. Hoffm., *Euphorbiaceae*. See our Trop. Afric. Flow. Pl…2: 26, 2006.

A. korupensis Sainge & T. Franke; Onana & Cheek, Red Data Book flow. pl. Cameroon: 357, 550 (map), 2011. – Icon.: Sainge & al. in Willdenowia 35: 288, 2005.

Dull white myco-heterotrophic herb; shoots with clusters of proximally inflated roots and few scale-like leaves 1,7-3(-4,4) × 2-3,3 mm; epiterranean part of stem distinctly ribbed, often branching, 2,5-12 cm long, 1-2 mm Ø; inflorescence 1-2-flowered, flowers opening subsequently, zygomorphic, with *erect* perianth tube with a horizontally directed mouth (unusual in *Afrothismia*); fruit subspherical, 3,8-4,2 mm high, 3,3-3,8 mm Ø.

Stony, very nutrient-poor soil on the floor of evergreen rain-forest, on a hill slope; with *Amphimas ferrugineus*, *Angylocalyx oligophyllus*, *Araliopsis soyauxii*, *Cola praeacuta*, *Deinbollia unijuga*, etc…; c. 220 m alt.

Only known from the type collected in 2002.

A. mhoroana Cheek – Icon.: Kew Bull. 60: 595, 2005.

Achlorophyllous mycotrophic herb c. 3 cm tall; underground rhizome provided with several clusters, each of 20-30 bulbils; each bulbil globose to broadly ellipsoid, c. 1 mm Ø; flowering stems vertical, 3-6 cm long, c. 2,5 mm Ø; leaves 1-4 per stem, alternate, ovate, 1,5-4 × 1-1,5 mm; flowers 1-2 per stem, zygomorphic, lower part of tube subglobose, papillate; fruit unknown.

Bare soil on path or under thin litter in evergreen forest on steep rocky slope, canopy open, c. 40 m tall with *Albizia* sp., *Markhamia* sp., *Tabernaemontana* sp., *Rauvolfia caffra*, etc…; 775-910 m alt.

Near *A. insignis*, *A. winkleri*.

Discovered in 2001. Known from a single site threatened by logging. Might be overlooked. When discovered, the plants were scattered over several hundreds of meters along a path.

AFROTHISMIA

A. pachyantha Schltr. ("*pachyandra*" sphalm. in Enum. 3: 107, 1995); Blumea 48: 478, 2003 (in key); Onana & Cheek, Red Data Book flow. pl. Cameroon: 358, 2011. – Icon.: Bot. Jahrb. Syst. 38: 139, 1906; Engler Pfl. Welt Afr. 2/1: 401, 1908.

syn.: *Thismia pachyantha* (Schltr.) Engl.

Tiny saprophyte 2-4 cm tall; rhizome provided with clusters of numerous bulbils; stem simple, rounded, glabrous, with ovate scale-like leaves; flowers 1-4, scattered, zygomorphic, c. 1 × 0,8 cm; whole flower and ovary deciduous after flowering; no fruit described.

Evergreen forest; c. 700 m alt.

Known from Mt Cameroon "(almost certainly extinct there)" and Mt Kupe. Type collected in 1905.

A. saingei T. Franke; Onana & Cheek, l.c. – Icon.: Syst. Geogr. Pl. 74: 29-30, 2004; Nord. J. Bot. 25: 269, 2007 (as *A. gabonensis*); Fl. Gabon 41, Thismiaceae: 61, 2010; Imhof & al. (2013): 166

syn.: *A. gabonensis* Dauby & Stévart

Myco-heterotrophic herb; stem whitish to yellowish or pale brown, with clusters of proximally inflated roots 3,5-6 mm Ø, each cluster with 20-70 tubercles, each tubercle ovoid, 0,8-1 mm Ø; stem sometimes branching, ribbed, to 3,8-6 cm long, 1-2, 4 mm Ø; leaves few, scale-like, adaxially concave, triangular 2,5-5,3 × 1,9-3,2 mm; inflorescence 1-3-flowered; flowers epigynous, zygomorphic; fruit a pyxidium with a distending column-like structure, shallowly to broadly triangular, 5,5-6 × 1,4-2 mm, lifting the placenta, exposing the seeds.

Evergreen rain-forest on terra firma with *Cola flavo-velutina*, *Palisota ambigua*, *Leptonychia echinocarpa*, *Antidesma vogelianum*, etc…, common plants surrounding the locality; population of "*A. gabonensis"* is about 30 individuals on c. 10 m2; thick layer of organic matter, on nutrient-poor sandy soil covered by numerous decaying branches; a second locality is known about 4 km apart; a total of > 250 individuals is estimated for the two localities; in Cameroon the plant was growing in a thick layer of organic matter with *Cola cauliflora*, *C. verticillata*, *Garcinia* sp., etc…; *A. saingeri* was growing solitarily; 500-1000 m alt.

Discovered in 2002 *(A. saingei),* and 2006 *(A. gabonensis),* respectively. With affinities to *A. winkleri*.

A. winkleri (Engl.) Schltr.; Blumea 48: 478, 2003 (in key); Onana & Cheek, l.c. – Icon.: Engler, Pfl. Welt. Afr. 2/1: 400, 1908; Imhof & al. (2013): 164.

bas.: *Thismia winkleri* Engl.

Saprophytic herb with stem above ground 2,5-15 cm tall, simple or sometimes with 1-flowered side branch, sometimes irregularly papillose, ridged just below flower; rhizome to 4 cm long with spherical clusters of bulbils; leaves ovate, pale brown, c. 2,5-5 × 1 mm; inflorescence a 1-3-flowered cyme; fruit pale yellow (after flowering, only the placenta-column and the 3 free fertile placenta-tops remain as a globular body beset with brown oblong seeds).

Among dead leaves in dense shade on forest floor; evergreen forest; 0-1200 m alt.

Comprises 2 vars.: – var. **winkleri** in Cameroon; – var. **budongensis** Cowley, with smaller flowers, in SW Uganda.

Not in Nigeria (= *A. hydra*).

For fungal morphotypes, see Imhof in Canad. J. Bot. 84: 856-858, 2006.

Seems closely related to *A. hydra*. Material from Malawi previously misidentified as *A. winkleri*, is *A. zambesiaca*.

AFROTHISMIA

A. zambesiaca Cheek – Icon.: Fl. Zambes. 12/2: 142, 2009.

syn.: *A.* ? sp. nov.

Herb with stem above ground reduced to the inflorescence, or absent; underground part not seen; leaves colourless, rare or absent, scale-like, spreading, c. 2,5 × 1 mm; inflorescence 1-2-flowered; perianth tube gently S-shaped, lobes strongly unequal in length (differences from *A. winkleri* and *A. insignis*); capsule c. 2 × 6 mm, apex with seeds exposed, the placenta mass c. 2,2-5,5 mm raised from capsule cavity on the axile column.

Understorey of evergreen forest; invisible unless in flower; 660 m alt.

Only known from the type collected in 1955.

Critically endangered (< 50 individuals in a single site threatened by tree cutting).

Previously determined as *A. winkleri*.

BURMANNIA / *2*

About 55 species in the tropics of both hemispheres; typically with blue and yellow-winged flowers and a small basal rosette of green leaves or the whole plant dull or bright white and flowers without wings. Capsule with persistent perianth, 3-winged or angled. Many species still contain chlorophyll and there are apparently many independent changes from autotrophy to heterotrophy or vice versa (Merckx & al. in Amer. J. Bot. 93: 1684, 2006); usually autotrophic species in grassland, saprophytes in lowland rain-forests.

ZHANG, D.-X. (2001). Phylogenetic reconstruction of Burmannia L. (Burmanniaceae): a preliminary study. *Acta Phytotax. Sinica* 39: 203-223.

Burmannia hexaptera Schltr.; Sainge & al. (2010): 284. – Icon.: Bot. Jahrb. Syst. 38: 142, 1906; Imhof & al. (2013): 173.

Erect saprophytic herb 2-8 cm tall; stem usually simple bearing 1-2 sessile flowers at top; radical leaves absent; stem leaves ovate, appressed, 1-3 mm long; flowers erect, c. 8 mm long, white, lower part orange-yellow; wings corresponding with the outer perianth-lobes c. 6,5 × 1/3 mm, long wings corresponding with the inner lobes 5 mm long; fruit unknown.

Rain-forest; 1-200 m alt.

B. madagascariensis Baker ! 1883; Sosef & al., Check-list pl. vascul Gabon: 94, 2006; Figueiredo & Smith, Pl. Angola: 175, 2008; Bothalia 39: 193, 2009 (Baum, Kunene Exp.); Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 216, 2011. – Icon.: Rev. Bot. Appl. Agric. Trop. 16: 115, fig. 11, 1936 (as *B. bicolor*); Fl. Madagascar 48: 5, 1946; Fl. Pl. Afr. 36: pl. 1427, 1964; N. H. Ayodele Cole, The vegetation of Sierra Leone: 172, 1968 (as *B. liberica*); Fl. Congo, Rwanda, Burundi, Burmann.: 5, 1970; Berhaut, Fl. ill. Sénégal 9: 100, 1988; Fl. Zambes. 12/2: 144, 2009; Lisowski, Fl. Rép. Guinée 2: fig. 473, 2009; Fl. Gabon 41, Burmann.: 13, 2010.

syn.: *B. bicolor* Mart. var. *africana* Ridl. and var. *micrantha* Engl. & Gilg; *B. liberica* Engl.; *B. chariensis* Schltr.; *B. le-testui* Schltr.; *B. obscurata* Schltr.; *B. welwitschii* Schltr.; *B. capensis* Mart.; *P. paniculata* Willd. ex Schult. & Schult. f.; *B. blanda* Gilg; *B. bakeri* Hochr.; *B. inhambanensis* Schltr.; *B. madagascariensis* Mart. 1823, nom. nud.; *B. latialata* Hua ex Pobég.; *B. tisserantii* Schltr.; *B. inaequialata* Engl., nom. – We follow Geerinck (Fl. Congo, etc., l.c.) in his circumscription of the species, thus including *B. latialata*, *B. le-testui*, *B. welwitschii*, etc., in *B. madagascariensis* (see also Cowley in Fl. Trop. E. Afric., Burmann.: 2, 1988). – The variation within this species is discussed by Obermeyer in Fl. Pl. Afr. 36: pl. 1427, 1964.

BURMANNIA MADAGASCARIENSIS

Annual herb, (partly or) non-saprophytic, 2-40 cm tall, with rhizome; stems usually simple, filiform, pale green and/or tinged purplish; basal leaves 1-10, rosulate, linear, to 12 × 1-2 mm; stem leaves lanceolate to ovate, 2-5 × 1 mm; flowers 1-9 in a bifid cyme, subsessile, 0,3-1,5 cm long, cyme branches to 1,5 cm long; flowers 5-8 mm long; purple, lilac, mauve, pale blue, white, yellow or green; perianth tube trigonous, 2-3 mm long; wings decurrent from base of perianth lobes to base of ovary or pedicel, 2-13 × 1-5 mm; capsule obovoid.

Dambos and other open areas of shallow water, often with *Xyris, Eriocaulon, Utricularia, Drosera, Cyperaceae;* sweating flagstone with moss, *Utricularia* sp.; wet places along streams; marshes; edges of lakes; damp places near rock outcrops; swamp; peat-bog on humid sandstone (vide Rev. Bot. Appl. Agric. Trop. 16: 114-115, 1936); on inselbergs: *Burmannio madagascariensis-Loudetiopsietum glabratae* assoc. (Phytocoenol. 36: 583-584, 2006); ephemeral flush vegetation (ibid. 35: 392, 393, 2005); temporary swamp on rock with *Afrotrilepis pilosa*; 1-1700 m alt.

S. Africa; Madagascar, Mauritius.

B. bicolor Mart. is a common but different species from Tropical America.

SYNONYMS (see also above under the species):

Burmannia aptera Schltr. = **Campylosiphon congestus**

congesta (C. H. Wright) Jonker = **C. congestus**

densiflora Schltr. = **C. congestus**

CAMPYLOSIPHON / *1*

Genus of 2 species, one in tropical S. America (*C. purpurascens* Benth.), one in Tropical Africa (below).

Campylosiphon congestus (C. H. Wright) Merckx ex Maas (in Fl. Gabon 41, Burmann.: 67, 2010); Fl. Congo, Rwanda, Burundi, Burmann.: 3, 1970 (as *Burmannia congesta*); Figueiredo & Smith, Pl. Angola: 175, 2008; Lejoly & al. Fl. Tshopo in Taxonom. 24: 29, 2008; idem, Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 71, 2010; Sainge & al. (2010): 284 (as *Burmannia congesta, B. densiflora*). – Icon.: Bot. Jahrb. Syst. 38: 142, 1906 (as *Burmannia aptera, B. densiflora*); Fl. Gabon 41, Burmann.: 17, 2010; Kew Bull. 55: 86, 2010; Imhof & al. (2013): 172; Merckx & al. (2013a): 38.

bas.: *Gymnosiphon congestus* C. H. Wright

syn.: *Burmannia congesta* (C. H. Wright) Jonker; *B. aptera* Schltr.; *B. densiflora* Schltr.

Erect saprophytic herb 3-30 cm tall, bright yellow, with tuberous rhizome; stem simple with at top 2-7 sessile flowers; stem leaves scale-like 1-6 mm long; flowers not winged, 5-10 mm long, tube white rarely purple, lobes white to yellow; capsule obovoid, 2 mm long.

Swampy forests; damp silty soil; 0-460 m alt.

"Parasite" on roots of *Lasiodiscus mannii* (Léonard 1620, Zaire).

(DESMOGYMNOSIPHON / *1*)

Monotypic genus of uncertain status. Put in synonymy under *Gymnosiphon* by Maas-van de Kamer in Kubitzki, o-c.: 162.

(**Desmogymnosiphon chimeicus** Guinea). Aedo & al., Bases document. fl. Guinea Equat.: 325, 1999. – Icon.: Anal. Jard. Bot. Madrid 6/2: 467, 481, 464 (map), 1946.

Annual saprophytic herb, straw-coloured, 7-10 cm tall, incl. inflorescence; stem nearly filiform in lower part, with small scale-like, ? green leaves; inflorescence cymose, 5-9-flowered; flowers 7-8 mm long, pedicels 2-3 mm long, perianth cream-coloured; outer lobes ovate-cuneiform, margins eroded; stigmatic appendages filiform; capsule globose, 2-3 mm Ø.

Primary forest in moist humus; 800 m alt.

Collected in 1945.

S. Imhof [(Myco-heterotrophic Plants *http://mhp.myspecies.info/content/desmogymnosiphon-chimeicus-guinea*), edited on Thu, 03/24/2011 – 08:42] has compared this plant with other *Burmanniaceae*, and comes to the conclusion that it might be conspecific with *Gymnosiphon longistylus* (but outer tepals not 3-lobed). However, he leaves the question open "until a direct comparison of the type specimen of Guinea Lopez (1946) has been directly compared to other West African *Gymnosiphon* spp."

(DICTYOSTEGA)

Dictyostega longistyla Benth. = **Gymnosiphon longistylus**

usambarica (Engl.) Engl. = **G. usambaricus**

GYMNOSIPHON / *7*

Pantropical genus of c. 25 species, most of them in the Neotropics, 2 in Madagascar. Achlorophyllus heteromycotrophs, confined to moist forest understorey. A species recently described from Madagascar, *G. marieae* Cheek, was first thought to be a *Labiatae* due to its zygomorphic flowers (Nord. J. Bot. 26: 230, 2008).

CHEEK, M. & X. VAN DER BURGT (2010). Gymnosiphon samoritoureanus (Burmanniaceae) a new species from Guinea, with new records of other achlorophyllous heteromycotrophs. *Kew Bull.* 65: 83-88.

Gymnosiphon afro-orientalis Cheek; Kew Bull. 65: 83, 2010. – Icon.: Fl. Zambes. 12/2: 147, 2009.

Achlorophyllous perennial erect herb 6-10 cm tall, rarely branched, glabrous; base of stem 2-5 cm underground, dilated, with an ellipsoid *cluster* of globose *tubers* 4-9 × 3-4,5 mm, each tuber 1-2 mm wide; stem purple, terete, c. 1 mm Ø; scale-leaves ± triangular, c. 1,5 × 1,5 mm; inflorescence single, terminal, then 2-branched and 3-7-flowered; flowers white, mouth yellow; *inner tepals absent*; *ovary ribbed;* fruit subellipsoid, c. 2,5 × 2,5 mm, style 4-5 mm long.

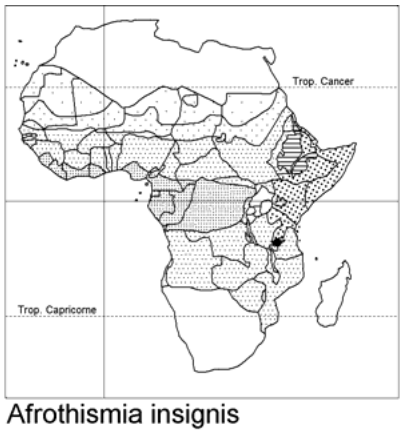
Moist evergreen forest, often near watercourses; 1100-1400 m alt.

Near *G. usambaricus*, and previously determined as that.

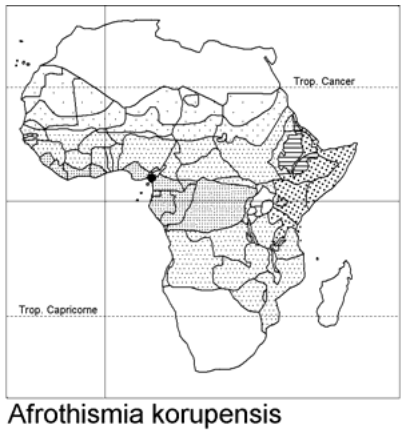
G. bekensis Letouzey; Sosef & al., Check-list pl. vascul. Gabon: 94, 2006; Sainge & al. (2010): 284. – Icon.: Fl. Gabon 41, Burmann.: 17, 2010; Kew Bull. 65: 86, 2010.

Saprophytic herb, ivory white; stem 10-15 cm tall, 1 mm Ø, usually simple; leaves scale-like, ± triangular, 1,2 × 1 mm; inflorescence cymose; *flowers sessile*, white; *tube 1,2 cm long*, not constricted at top; open flower lobes horizontal, 1,2-1,5 cm Ø, lobes 5-6 mm long; capsule subglobose, 3 mm Ø.

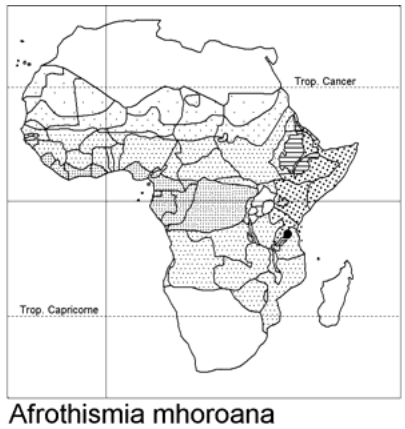
Wet humus near watercourses; swamp forests; *Raphia* swamp.; sometimes with *Campylosiphon congestus*, *Gymnosiphon longistylus;* c. 700 m alt. (Gabon).



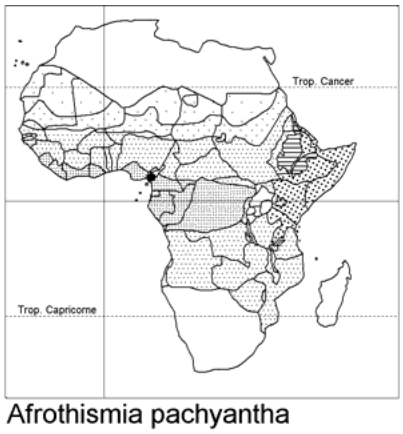
Afrothismia insignis



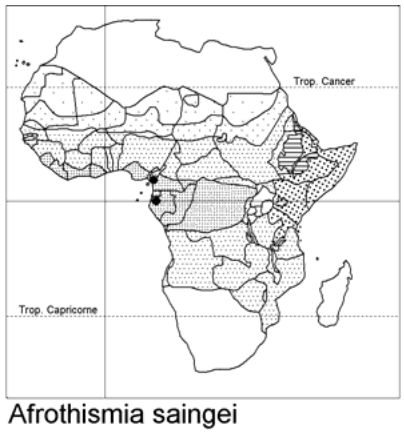
Afrothismia korupensis



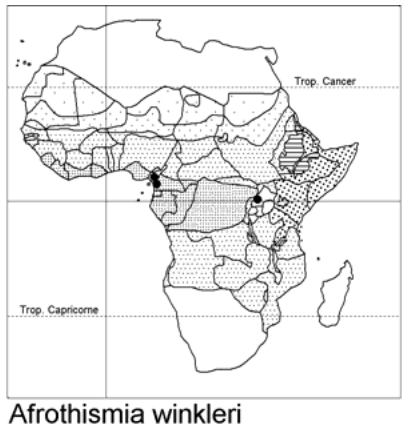
Afrothismia mhoroana



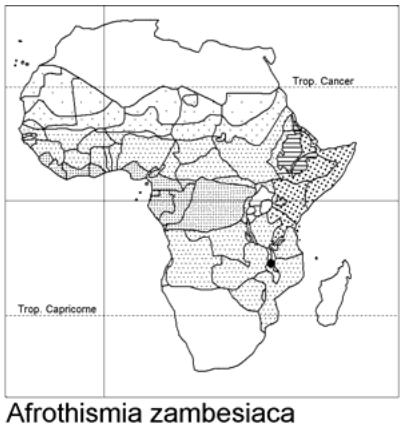
Afrothismia pachyantha



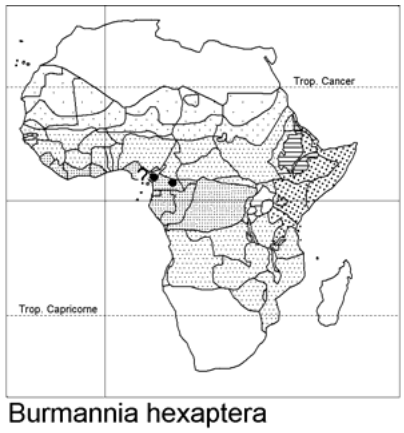
Afrothismia saingei



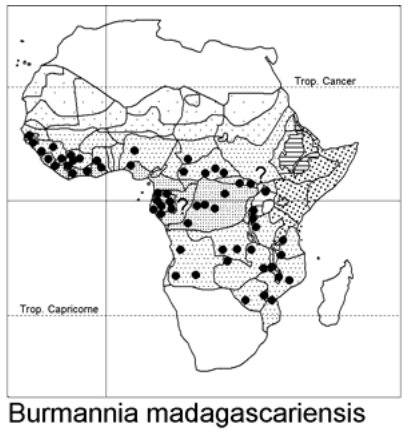
Afrothismia winkleri



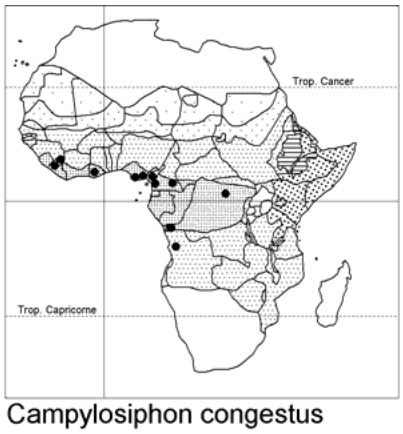
Afrothismia zambesiaca



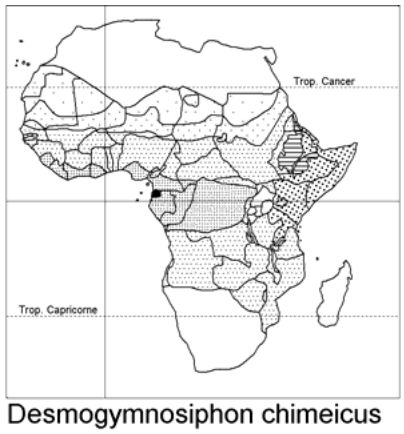
Burmannia hexaptera



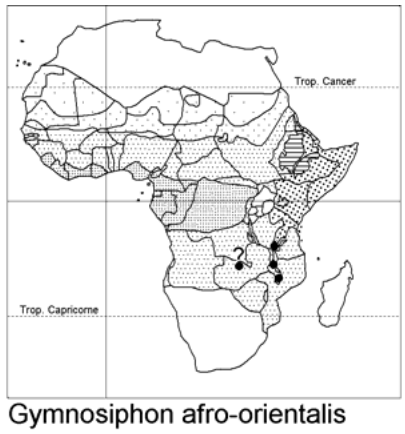
Burmannia madagascariensis



Campylosiphon congestus



Desmogymnosiphon chimeicus



Gymnosiphon afro-orientalis

GYMNOSIPHON

G. constrictus Maas & H. Maas, Fl. Gabon 41, Burmann.: 67, 2010. – Icon.: ibid.: 19.

Saprophytic herb 5-20 cm tall; stem simple or rarely ramose, purple to red; leaves triangular-linear, 1-2,5 mm long; inflorescence few- to many-flowered, often bifurcate; flowers 0,5-1 cm long, cream to yellowish white; tube 1-2 mm long, *constricted at apex*, lobes 4-6 mm long, inner ones linear 1 × 0,2 mm, outer obovate, 3-lobed, 4-6 mm long; fruit subglobose 3-4 × 3-4 mm.

Rain-forests; 300-600 m alt.

G. danguyanus H. Perrier – Icon.: Fl. Madagascar 48: 5, 1946; Fl. Trop. E. Afr., Burmann.: 5, 1988.

Saprophytic herb; stem usually simple, 3,5-10 cm tall; leaves triangular, scale-like, 0,5-1 mm long; flowers white or ? blue, 1-7 in a lax bifid cyme; cyme branches to 3 cm long; perianth tube dilated abruptly into a broad band towards the mouth, 2,5-5 mm long; outer tepals 3-lobed, inner ones reduced to minute scales; fruit ellipsoid or obovoid, to 4 × 1-3 mm.

Stream valley forest floor; 800-1600 m alt.

Madagascar.

G. longistylus (Benth.) Hutch.; Sosef & al., Check-list pl. vascul. Gabon: 94, 2006; Lejoly & al., Fl. Tshopo in Taxonoman. 24: 29, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 71, 2010; Sainge & al. (2010): 285; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 216, 2011. – Icon.: Fl. Congo, Rwanda, Burundi, Burmann.: 5, 1970; Kew Bull. 65: 86, 2010; Fl. Gabon 41, Burmann.: 21, 2010; Merckx & al. (2013a): 38.

bas.: *Dictyostega longistyla* Benth.

syn.: *Ptychomeria squamata* (C. H. Wright) Schltr.; *Gymnosiphon squamatus* C. H. Wright

Saprophytic herb 3,5-25 cm tall; stem usually simple, white or yellowish white, purple or red; leaves scale-like, triangular-linear, 1-1,5 mm long; inflorescence a bifid, 3-many-flowered cincinnus; flowers spaced, 3-10 mm long; tube 2-5 mm long; 6 filiform stigmatic appendages visible in the perianth throat or exserted from the throat of the tube; capsule globose, 1,5-3 mm Ø.

Rain-forest floor amongst decaying leaves; swampy forest; 0-900 m alt. (Gabon).

Desmogymnosiphon chimeicus Guinea is perhaps a synonym (see above under that genus).

G. samoritoureanus Cheek – Icon.: Kew Bull. 65: 85-86, 2010.

Erect, probably perennial herb 2,2-5,2 cm tall, glabrous, pale yellow, archlorophyllous; stem terete, single, unbranched, 1-2 cm long, 0,5 mm Ø; scale-leaves on aerial stem ± ovate, 1-2 × 0,6-0,8 mm, apex acute; stem extending vertically several cm underground, also with scales with roots among these; inflorescence 1-5-flowered, cymose, initially single-flowered, then biparous; flowers pale yellow in bud, yellow or white at anthesis, erect, actinomorphic, 5,5-8 mm long, 0,9-1,3 mm Ø; *tube 3,8-4,3 mm long;* fruit (immature) ellipsoid, 2,5-3 × 1,8-1,9 mm, with 6 longitudinal ribs.

Evergreen forest usually with *Gymnosiphon longistylus*, often in wet areas, e.g. *Raphia* swamps; old *Hevea* plantation; also growing with *Sebaea oligantha;* 550-975 m alt.

Near *G. minutus* Snelders & Maas from S. America (fig. in Fl. Neotrop. 42: 110, 1986).

GYMNOSIPHON

G. usambaricus Engl.; Kew Bull. 65: 83, 2010. – Icon.: Bot. Jahrb. Syst. 20: pl. 5, 1895; Fl. Trop. E. Afr., Burmann.: 5, 1988.

syn.: *Dictyostega usambarica* (Engl.) Engl.; *Ptychomeria usambarica* (Engl.) Schltr.

Achlorophyllous saprophytic herb lacking bulbils; stem often shortly decumbent, then erect, usually ribbed, occasionally branched, white, cream, pink, or brown, 5-35 cm tall; basal and scale-leaves to 5 mm long; flowers few to many in a lax bifid cyme; cyme branches 1-7 cm long; tube white, 4-10 mm long; outer tepals white to yellow, 3-lobed, inner ones small; fruit greyish, to 4 mm long.

Amongst leaf-mould on evergreen forest floor; 900-2200 m alt.

Has been confused with *G. afro-orientalis* in SW Tanzania.

A very similar specimen has been collected in SW Cameroon (Korup Natl. Park, Sainge 873), fide Sainge & al. (2010): 285.

SYNONYMS:

Gymnosiphon congestus C. H. Wright = **Campylosiphon**

squamatus C. H. Wright = **Gymnosiphon longistylus**

OXYGYNE / *1*

Genus of 3 species, 2 in Japan, one in Africa.

Oxygyne triandra Schltr.; Onana & Cheek, Red Data Book flow. pl. Cameroon: 358, 551 (map), 2011; Sainge & al. (2010): 285.

Saprophytic herb c. 4 cm tall; underground part unknown; stem 1-flowered; leaves scale-like, ovate, acute, 3 × 2 mm; flowers erect, c. 2,2 cm long; perianth narrowly campanulate; tube c. 1 cm long, 0,7 cm Ø; lobes with basal part quadrangular-trapeziform, abruptly narrowed, very acute, 1,2 cm long; fruit truncate-obovoid.

Lowland rain-forest.

Only known from the type collected in 1905, the single site, Mt Cameroon. Not rediscovered despite searches.

(PTYCHOMERIA)

Ptychomeria squamata (C. H. Wright) Schltr. = **Gymnosiphon longistylus**

usambarica (Engl.) Schltr. = **G. usambaricus**

(THISMIA)

Thismia pachyantha (Schltr.) Engl. = **Afrothismia pachyantha**

winkleri Engl. = **A. winkleri**

HYPOXIDACEAE / *2* g. / *31 + 2* ? spp.

Sometimes included in *Liliaceae* s. l., or *Amaryllidaceae*.

Family of 9 genera and c. 120 species in grasslands and woodland in tropical and subtropical regions of all continents, in particular of the Southern hemisphere, with a centre of diversity in S. Africa. Geophytes with rhizomes growing in the apical part and kept underground by conspicuous contractile roots. The leaves die back in the dry season, and replaced by new seasonal growth. Adapted to survive heavy grassland fires due to the well protected subterranean parts. A few are grown as ornamentals.

NORDAL, I. (1998). Hypoxidaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants. 3. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae):* 286-295. Springer-Verlag, Berlin, etc.

RUDALL, P. J. & al. (1998). Anatomical and molecular systematics of Asteliaceae and Hypoxidaceae. *Bot. J. Linn. Soc.* 127: 1-42.

ZIMUDZI, C. (1996). A synopsis of the Hypoxidaceae in the Flora Zambesiaca area. *Kirkia* 16: 11-19.

CURCULIGO / *1*

Genus of 2 species: *C. pilosa* in tropical and subtropical regions of the World. *C. seychellensis* Bojer ex Baker in the Seychelles. Other species formerly included in *Curculigo* are now placed in *Molineria*.

The main feature distinguishing the genus from *Hypoxis* is the floral tube, usually called rostrum. – The fruits are fleshy, the seeds have a conspicuous swollen hooked funiculus. The seed dispersal is particular as the fruits develop underground.

WILAND, J. (1997). The genus Curculigo (Hypoxidaceae) in Central Africa (Zaire, Rwanda, Burundi). *Fragm. Florist. Geobot*. 42: 9-24.

Curculigo pilosa (Schumach. & Thonn.) Engl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 413-414, 1994; Zimudzi (1996): 13; Sosef & al., Check-list pl. vascul. Gabon: 196, 2006; Figueiredo & Smith, Pl. Angola: 186, 2008; Lejoly & al., Fl. Tshopo (RD Congo) in Taxonom. 25: 31, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 230, 2011; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 156, 2010; M. Renier, Flore du Kwango 1: 98, 1948 (as *C. gallabatensis*); Thiombiano & al., Cat. pl. vasc. Burkina Faso: 62, 2012; Gereau & al., Lake Nyasa florist. check-list: 66, 2012. – Icon.: Fl. W. Trop. Afr., ed. 2, 3/1: 173, 1968; Fl. Congo, Rwanda, Burundi, Hypoxid.: 3, 1971; Fl. Gabon: 28: 51, 49 (seed), 1986; Fl. Cameroun 30: 43, 47, 1987; Fl. Eth. & Eritrea 6: 89, 1997; Wiland (1997): 12, 13, 15, 18, 21, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 174, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 269-270, 2010; Fl. Trop. E. Afr., Hypoxid.: 21, 2006; Puff & Sileshi, Pl. Simen: 219, 2005; Lisowski, Fl. Rép. Guinée 2: fig. 496, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 780, 2010.

bas.: *Gethyllis pilosa* Schumach. & Thonn.

syn.: *Curculigo gallabatensis* Schweinf. ex Baker; see also Fl. Trop. E. Afr., Hypoxid.: 22-23, 2006 for subspecies.

Herb 20-55 cm tall; rhizome fusiform or ovoid, 1,4-11 × 0,3-3 cm, sometimes divided in two; tunic *membranous;* roots ribbon-like; rhizome surmonted by old leaf-bases, for up to 12 cm; leaves sometimes creating a white pseudostem, often reddish at base, linear or lanceolate, 6-75 × 0,2-2 cm, apex acute, sessile or nearly so, pilose or almost glabrous; scapes 1-5, 1,2-9 cm × 0,5-2,5 mm; flowers yellow, orange, pinkish, solitary, rarely in 2-5-flowered racemes, hermaphrodite or male; tepals 0,6-2 × 0,2-0,5 cm; rostrum 1,6-7,5 cm long, pilose; fruit *subterranean*, *indehiscent*, fusiform, 0,9-3,3 × 0,3-0,7 cm.

Brachystegia woodland on Kalahari sand; (wooded) grassland; swamp edge; bowé; rarely in forest; savanna in moist sandy or seasonally marshy places; alluvial soils near rivers; mopane and mixed deciduous woodlands and scrub; riparian forest; seems to be favoured by frequent burning; black alluvium; limestone; with *Cyperus margaritaceus* (Senegal); loamy soils; clayey-muddy deep soil; 25-3000 m alt.

Madagascar.

Comprises 3 subspp.: – subsp. **pilosa**, with leaves 0,4-2 cm wide, rostrum 2,4-2,9 cm long, tepals c. 1 cm long, also in Madagascar; – subsp. **major** (Baker) Wiland (bas.: *C. gallabatensis* var. *major* Baker), with linear leaves, 0,3-1 cm wide, rostrum 5,5-7,5 cm long, tepals 1,7-2 cm long; – subsp. **minor** (Guinea) Wiland (icon.: Guinea in Anales Jard. Bot. Madrid 6/2: 478, 1946; bas.: *C. minor* Guinea; syn.: *C. multiflora* C. Zimudzi), with 1-5-flowered inflorescences, linear leaves 0,1-0,5 cm wide, rostrum 1,6-6 cm long, tepals 0,7-1 cm long.

The distinction of 3 subspp. is unsatisfactory in delimiting material from, for instance, the Flora Zambesiaca area.

CURCULIGO PILOSA

A record, sterile plant, from NW Somalia originally identified as *C. gallabatensis* does not belong in *Hypoxidaceae* (fide Thulin, Fl. Somal. 4: 31, 1995). The record from Angola (Golungo Alto, Queta) figuring in Rendle, Cat. Welwitsch's Afr. pl. 2/1: 31-32, 1899, seems plausible.

SYNONYMS:

Curculigo baguirmiensis A. Chev. = **Hypoxis angustifolia** var. **luzuloides**

capitulata (Lour.) Kuntze = **Molineria capitulata**

djalonis A. Chev., nom. = **Hypoxis angustifolia** var. **luzuloides**

gallabatensis Schweinf. ex Baker = **Curculigo pilosa** var. *major* Baker = **C. pilosa** subsp. **major**

glabra Merr. = **Molineria capitulata**

minor Guinea = **Curculigo pilosa** subsp. **minor**

multiflora C. Zimudzi = **C. pilosa** subsp. **minor**

recurvata W. T . Aiton = **Molineria capitulata**

(*GETHYLLIS, Amaryllidaceae*)

Gethyllis pilosa Schumach. & Thonn. = **Curculigo pilosa**

HYPOXIS / *30 + 2* ?

The largest genus is *Hypoxidaceae* comprising some 90 species (a very approximate number) distributed in tropical and subtropical regions of all continents except Europe, but also present in N. America (13 species). *Hypoxis* is largely apomictic, with problematic species delimitation.

"Due to distinctive flowers, the recognition of the genus itself is not problematic, determination of the lower taxa is a challenging task. Flowers of various species are often very similar, which in the absence of the leaves often makes determination of the species almost impossible…Because of the similarity to grasses, the non-flowering plants are often overlooked in the field. The underground parts…are often difficult to excavate, do not dry well and are therefore not always collected…the seeds, which can provide valuable taxonomic features…are very small and their sculpture is clearly visible only under scanning microscope" (Wiland-Szymańska, 2009: 3).

"Until recently (Wiland, 1997), there has been much reluctance among taxonomists to describe further new species in *Hypoxis* due largely to a lack of understanding of the seemingly chaotic patterns of morphological variation that tend to obscure species limits. In fact, most regional treatments of the genus in Africa indicate a reduction to synonymy of published taxa" (Singh, S. Afr. J. Bot. 73: 360-361, 2007).

SINGH, Y. (1999). Hypoxis: yellow stars of horticulture, folk remedies and conventional medicine. *Veld & Flora* 85: 123-125.

SINGH, Y. (2006). Hypoxis (Hypoxidaceae) in Africa: list of species and infraspecific names. *Bothalia* 36: 13-23.

SINGH, Y. (2007). Hypoxis (Hypoxidaceae) in southern Africa: Taxonomic notes. *S. Afric. J. Botany* 73: 360-365.

SNIJMAN, D. A & A. KOCYAN (2013). The genus Pauridia (Hypoxidaceae) amplified to include Hypoxis sect. Ianthe, Saniella and Spiloxene, with revised nomenclature and typification. *Phytotaxa* 116: 19-33.

WILAND, J. (1997). New species of the genus Hypoxis (Hypoxidaceae) in Central Africa (Zaire, Rwanda, Burundi). *Fragm. Flor. Geobot.* 42/4: 411-422.

WILAND-SZYMAŃSKA, J. (2001). The genus Hypoxis (Hypoxidaceae) in Central Africa. *Ann. Missouri Bot. Gard.* 88: 302-350.

WILAND-SZYMAŃSKA, J. (2006). Morphological variability of seeds in East African species of the genus Hypoxis L. (Hypoxidaceae). *Biodiv. Res. Conserv.* 1-2: 31-33.

WILAND-SZYMAŃSKA, J. (2009). The genus Hypoxis L. (Hypoxidaceae) in the East Tropical Africa: variability, distribution and conservation status. *Biodiv. Res. Conserv.* 14: 1-129.

HYPOXIS

Hypoxis abyssinica Hochst. ex A. Rich.; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 171-173, 2003 (names see synonyms below); idem, Aloes & lilies Eth. & Eritrea, ed. 2: 265-267, 2010 (idem synonyms). – Icon.: Chiovenda & al., Missione Biol. Borana 4, Racc. botan.: 329 (as *H. boranensis*), 331 (as *H. neghellensis*), 333 (as *H. tristachya*), 1939; Fl. Eth. & Eritrea 6: 88, figs. 1-4, 1997 (as *H. villosa* complex, *abyssinica* form); Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 171, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 266, 2010.

syn.: *H. simensis* Hochst.; *H. petitiana* A. Rich.; *H. villosa* L. f. var. *schweinfurthii* Harms, nom.; *H. schweinfurthiana* Nel; *H. boranensis* Cufod.; *H. neghellensis* Cufod.; *H. tristachya* Cufod.

Herb with subglobose to cylindrical corms 1-6 × 1-4 cm; leaves linear, with strong ribs, most often recurved to almost prostrate, but seem to turn more erect during the growing season, 5-20 × 0,5-1 cm; hairs whitish or yellowish, dense on margin and midrib, scattered on lamina; peduncles 2,5-10 cm long; raceme with pedicels 0-1,5 cm long; flowers 1-4, tepals yellow, 0,8-1 cm long; capsule 5-7 mm long; seeds black, glossy, almost without papillae, c. 1 mm Ø.

This description agrees with the most widespread form in Ethiopia; but some variants (apomictic) exist under names cited above as synonyms. Some forms are confused with *H. angustifolia* or are close to *H. fischeri* or *H. urceolata*. This plant is usually treated under *H. villosa*, an apomictic polyploid complex difficult to identify. However, the true *H. villosa* is a South African plant.

Disturbed woodland and grassland; evergreen bushland; *Eucalyptus* plantations; forest; ericaceous belt; 1800-3100 m alt. – The variant *H. tristachya* also occurs in rocky places.

Not in Sudan (= *H. angustifolia*, *H. fischeri*).

H. angustifolia Lam. var. **luzuloides** (Robyns & Tournay) Wiland; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 414, 1994; Zimudzi (1996): 15; Cheek & al., Pl. Mt Oku...: 184, 2000; Chapman & Chapman, For. Taraba & Adamawa States, Nigeria: c50, 2001; Fl. Zambes. 12/3: 6-7, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 170, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 264-265, 2010; Cheek & al., Pl. Kupe…: 449, 2004; Sosef & al., Check-list pl. vascul. Gabon: 196, 2006; Singh (2006): 14; Figueiredo & Smith, Pl. Angola: 186, 2008; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 186, 2011. – Icon.: Robyns, Fl. spermat. Parc Natl. Albert 3: 389, 1955; Fl. Congo, Rwanda, Burundi, Hypoxid.: 7, 1971; Boissiera 33: 184, 1989; Nord. J. Bot. 5: 18, 19, 1985 (inflorescence, seed, anther, stigma); Fl. Gabon 28: 47, 49, 1986; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 142, 1994; Thulin, Fl. Somalia 4: 31, 1995; Fl. Eth. & Eritrea 6: 88, 1997 (details); Ann. Missouri Bot. Gard. 88: 310, 338 (details), 341 (map), 2001; Novon 12: 143, 146, 2002 (style, stamen, seed); Wiland-Szymańska (2006): 32, 2006 (seed); Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Lisowski, Fl. Rep. Guinée 2: fig. 497, 2009; Wiland-Szymańska (2009): 50-52.

bas.: *Hypoxis luzuloides* Robyns & Tournay

syn.: *Curculigo djalonensis* A. Chev., nom.; *C. baguirmiensis* A. Chev.

Herb to 10-53 cm tall; corm 1-3,6 cm long, 0,8-2,8 cm Ø, white inside, tunic *membranous*, *outer leaf remnants membranous*; leaves forming a whitish pseudostem to 5 cm long; leaves 4-14, ± erect, sessile, linear, to c. 50 × 0,15-1 cm, sparsely appresseed-pilose with white to golden soft, 2-branched, to 2,5 mm long hairs; inflorescences 1-6, scapes 5-20 cm × 1 mm; flowers 1-7

HYPOXIS ANGUSTIFOLIA VAR. LUZULOIDES

in lax corymbs; pedicels *1,2-4 cm* long; perianth *1-1,8 cm Ø when open*; outer tepals deep yellow inside, light green outside sometimes with a reddish midrib; inner tepals yellow inside, light yellow-green outside; capsule turbinate-cylindrical, 3,5-15 × 2-4 mm, green, pubescent, with persistent perigon, splitting in 3 *longitudinal lobes*.

Loudetia grassland at edge of rain-forest with *Albizia*, *Macaranga*, *Croton;* open woodland and bushland; most frequent in treeless and seasonally water-logged grassland, often heavily grazed; black to red, ± heavy clay soils; burnt and secondary grassland; forest margins; shallow soil over rock; termitaria; sandy soils and pastures; 0-3000 m alt.

S. Africa; Yemen, Socotra, Madagascar, Mauritius, Réunion.

The species comprises 3 other vars.: – var. **angustifolia** [syn.: *H. biflora* Baker 1876] in the Mascarenes (fig. in Fl. Mascareignes 179, Hypoxid.: 2, 1978); – var. **buchananii** Baker [syn.: *H. woodii* Baker; *H. obliqua* Jacq. var. *woodii* (Baker) Nel] in S. Africa, Swaziland; – var. **madagascariensis** Wiland (ill.: Novon 12: 150, 2002) in Madagascar.

Corms eaten dried, taste of roast chestnuts.

PETERS, C. R. (1999). African wild plants with rootstocks reported to be eaten raw: The monocotyledons, part IV. *In.:* TIMBERLAKE, J. & S. KATIVU, eds., *African Plants: Biodiversity, Taxonomy and Uses*: 483-503. Royal Botanic Gardens, Kew [see p. 492-493].

WILAND-SZYMAŃSKA, J. & Z. ADAMSKI (2002). Taxonomic notes on Hypoxis angustifolia (Hypoxidaceae) from Africa, Madagascar, and Mauritius. *Novon* 12: 142-151.

H. angustifolia is a diploid sexual species (fide Nordal & al. in Biol. Skr. 54: 248, 2001).

(**H. argentea** Harv. ex Baker var. *sericea* (Baker) Baker)

bas.: *H. sericea* Baker

This taxon is treated by Singh (2007): 361 in the following way:

syn.: *H. sericea* var. *dregei* Baker, *H. argentea* var. *flaccida* (Baker) Baker; *H. dinteri* Nel, known only from the type, Dinter 634, Namibia, but in 2001 also identified in Zaire (Bulaimu 58, Lubumbashi; Detilleux 229, Keyberg; D'Hose, Mokambo-Tela) and Zambia (K. Linley, Kitwe) by Wiland-Szymańska (2001): 317, with Fig. 6C p. 315 drawn from Bulaimu 58, Zaire. See our map on p. 197.

However, the specimen Detilleux 229 was identified by Geerinck (Fl. Congo…, Hypoxid.: 6, 1971) as *H. angustifolia*.

The specimens cited by Wiland-Szymańska were not seen by Singh. The latter, on the other hand, examined specimens from Tanzania (Guebson 947, T8, Lindi Distr., Nachingwea, and Robertson 374A, T6, Morogoro Distr., Nguru Mts); these he matched with *H. argentea* var. *sericea*, thus extending the distribution area of the plant.

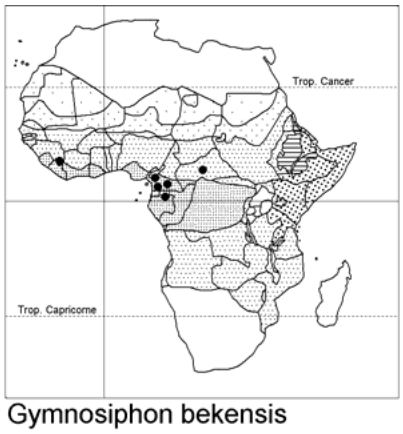
H. sericea var. *dregei* [*H. dregei* (Baker) Nel], was based on syntypes Cooper 1811 (referable to *H. filiformis*) and Drège 8525 (referable to *H. argentea* var. *sericea).* Nordal & Zimudzi (Fl. Zambes. 12/3: 10, 2001) consider *H. sericea* var. *dregei* specim. Cooper 1811 [*H. dregei*, idem] as a synonym under *H. filiformis*.

H. argentea Harv. ex Baker, incl. var. *sericea*, seems to be confined to southern Africa, i.e. S. Africa, Swaziland, Lesotho, and if *H. dinteri* Nel is included, also in Namibia. See also Peters (1999): 493-495 (cf. above under *H. angustifolia*).

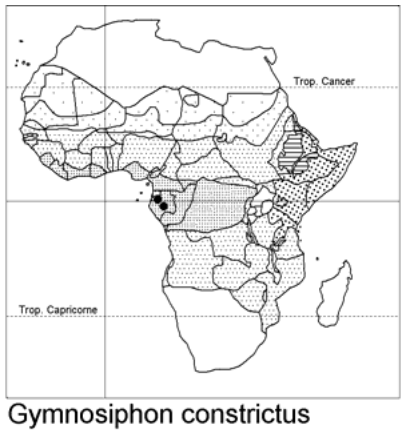
The taxon has ensiform falcate firm leaves 7-22 × 0,2-0,8 cm, densely persistently silky all over both surfaces, with distinct long fine bifurcate hairs; tunics fibrous.

Miombo; natural pasture; dembo; gritty yellow soil; c. 1250 m alt.

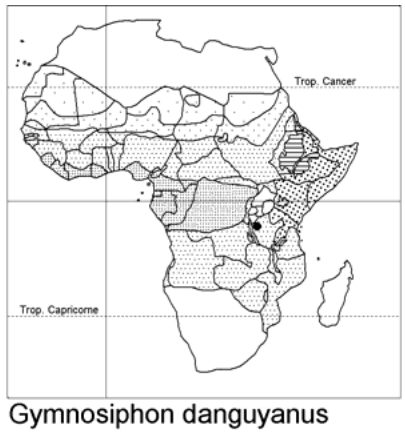
Namibia.



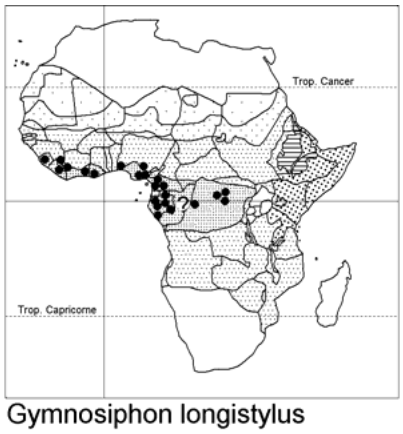
Gymnosiphon bekensis



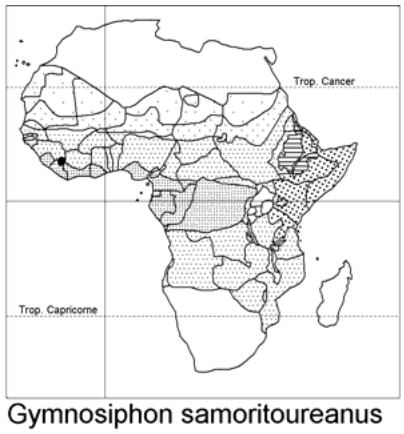
Gymnosiphon constrictus



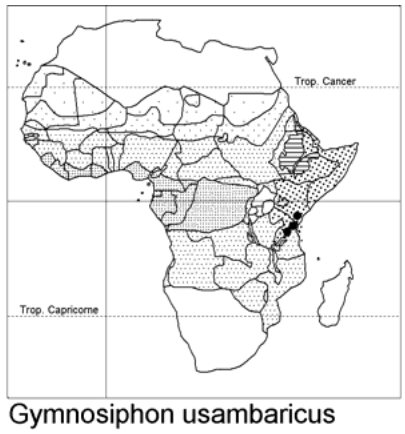
Gymnosiphon danguyanus



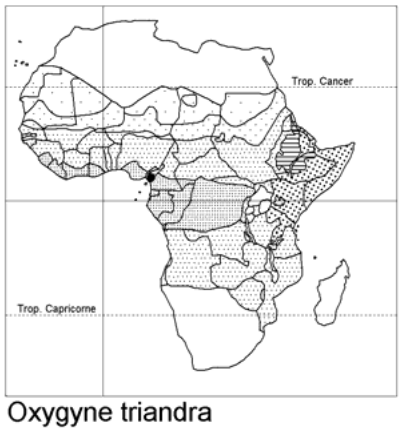
Gymnosiphon longistylus



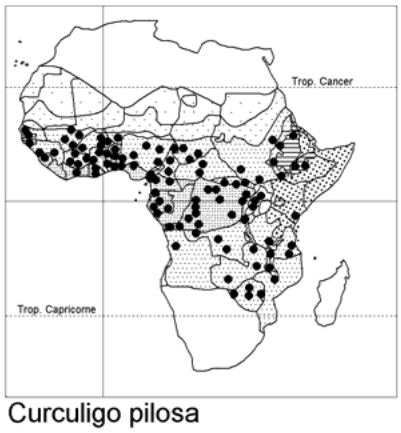
Gymnosiphon samoritoureanus



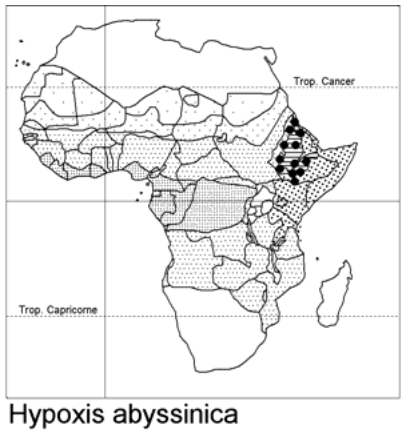
Gymnosiphon usambaricus



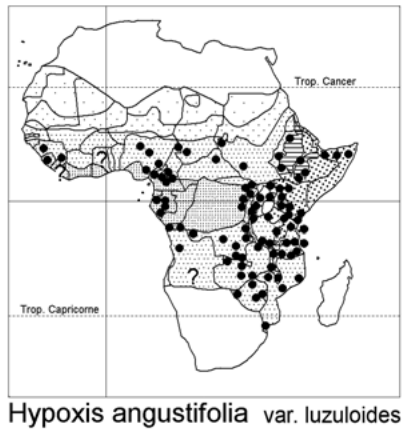
Oxygyne triandra



Curculigo pilosa



Hypoxis abyssinica



Hypoxis angustifolia var. luzuloides

HYPOXIS

H. bampsiana Wiland; Fl. Zambes. 12/3: 8, 10, 2001; Fl. Trop. E. Afr., Hypoxid.: 9-10, 2006; Singh (2006): 14. – Icon.: Bull. Jard. Bot. Natl. Belg. 66: 209, 211, 1997; Ann. Missouri Bot. Gard. 88: 312-313, 342 (map), 2001; Novon 18: 272-273, 270 (map), 2008 (subsp. **tomentosa**); Biodiv. Res. Conserv. 14: 56 (57 map), 2009 (seed coat, subsp. **tomentosa**).

syn.: see Fl. Zamb., l.c., Fl. Trop. E. Afr., l. c.

Herb to 45 cm tall; rhizome ovoid, c. 5,5 × 4,5-6 cm; outer leaves 4-7, ovate, cuspidate, keeled, reflexed, 1,3-18 × 1-5 cm, glabrous above, tomentose below, with trichomes tufted, *red-brown;* inner leaves 6-7, ovate or lanceolate, erect or slightly reflexed, 12-56 × *3-7,6 cm*, 95-*190-nerved*; scapes 6-9, 14,5-30 cm long, 2-4 mm Ø, short-winged, ciliate in lower 2/3, tomentose in apical 1/3; raceme 6-14-flowered, floral *anthesis from below upwards* (acropetal); tepals yellow, ovate, 1,3-1,5 cm long, 0,5 cm wide.

Grassland; pasture; wooded grassland; woodland; plateau and escarpment miombo; often on rocky slopes and outcrops; sandy or rocky soils; 1250-2300 m alt.

Comprises 2 subspp.: – subsp. **bampsiana** in W part of range; – subsp. **tomentosa** Wiland, with leaves pubescent on both surfaces, more widespread, in E part of range (map in Novon l.c.).

Related to the sympatric *H. goetzei*, both with very similar seeds, but indumentum of leaves and types of inflorescence are different.

H. camerooniana Baker; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 414, 1994 (as *H. recurva*); Cable & Cheek, Pl. Mt Cameroon: 166, 1998; Harvey & al., Pl. Bali Ngemba…: 140-141, 2004; Singh (2006): 14. – Icon.: Fl. Cameroun 30: 39, 47, 1987.

syn.: *H. villosa* L. f. var. *recurva* Baker; *H. recurva* (Baker) Nel; *H. lanceolata* Nel; *H. ledermannii* Nel; *H. petrosa* Nel; *H. thorbeckei* Nel

Herb ± covered with *golden* hairs, from a tuber 2-4 × 2-3 cm, with white roots and masses of old leaf fibres; leaves tristichous, to 50 × 0,5-2 cm, recurved and ± prostrate to erect; scape to 25 cm tall with 5-7 (or less) crocus-like flowers, before the leaves; tepals 6, *lanceolate*, 6-12 × 4-5,5 mm.

Meadows; forest-grassland transition; recently burned wooded savanna, with many bushes; lava; 1420-2700 m alt.

? SE Nigeria (Juley 583); not in Ethiopia (= *H. angustifolia*).

Listed by Figueiredo & Smith, Pl. Angola: 186, 2008 (erroneously ?).

H. canaliculata Baker; Fl. Zambes. 12/3: 11, 2001; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Ann. Missouri Bot. Gard. 88: 315, 347 (map, correct ?), 2001.

Resembling *H. filiformis* in habit, but: tunics fibrous, leaves 1 mm wide, flowers larger, tepals c. 1 cm long and densely whitish strigose-sericeous, with appressed stellate hairs on leaf margins and upper part of scape; also resembling *H. symoensiana* but seeds black with a thin cuticle.

Sandy hill-pastures, plentiful.

Originally described from Angola (known only from the type, Welwitsch 4057, collected in December 1859, January 1860). According to Fl. Zambes. 12/3: 15, 2001, "the like of which has not been seen in the Flora Zambesiaca area". However, cited by Wiland-Szymańska (2001: 314) also from Zambia, Malawi, Zimbabwe, Zaire/Shaba, Muhila (see our map p. 197). The species occurs perhaps there, but more studies are needed to confirm its presence outside Angola.

HYPOXIS

H. cuanzensis Welw. ex Baker; Figueiredo & Smith, Pl. Angola: 186, 2008; Fl. Zambes. 12/3: 7, 2001.

Herb with a large compact tuber; flowers bright yellow; leaves erect to patulous, coriaceous, subfleshy (Rendle in Cat. Welwitsch's Afric. pl. 2/1: 31, 1899). Closely related to *H. schimperi*, but they differ somewhat in seed cuticular folding: testa papillose, each papilla *without* a minute wrinkled cuticle and 3-4 longitudinal narrow wing-like ribs; leaves somewhat narrower, with more prominent veins; perianth limb 0,6 cm long.

Damp meadows.

Originally described from Angola, but very close to *H. schimperi* (E Africa), also very near *H. monanthos* (C. Africa). The relations between the 3 taxa need further investigation (Fl. Trop. E. Afr., Hypoxid.: 6, 2006). Zimudzi (1996: 15) suggested *H. macrocarpa* E. M. Holt & Staubo to be a synonym, followed by Fl. Zambes., l.c. for N Zambia and N & E Zimbabwe, but put in synonymy under *H. schimperi* in Fl. Trop. E. Afr. Our treatment follows the latter interpretation.

H. filiformis Baker; Burrows & Willis, Pl. Nyika Plateau, Malawi: 309, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 109, 2006; Figueiredo & Smith, Pl. Angola: 186, 2008; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Nord. J. Bot. 5: 17, 19, 1985 (as *H. malosana;* indumentum, seed, inflorescence); Ann. Missouri Bot. Gard. 88: 315, 347 (map) as *H. filiformis*, and 332, 334, 343 (map) as *H. malosana*, 2001; Fl. Zambes. 12/3: 9, 2001 (capsule, seed); Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 14: 58, 59, 61 (map), 62, 2009.

syn.: *H. malosana* Baker; *H. caespitosa* Baker; *H. biflora* De Wild. 1913, non Baker 1876 (= *H. angustifolia*) nom. illegit.; *H. dregei* (Baker) Nel var. *biflora* (De Wild.) Nel; *H. muenzneri* Nel; *H. sericea* Baker var. *dregei* Baker, p.p. quoad specim. Cooper 1811.

Herb, slender, 20-50 cm tall; tuber cylindrical, 1-5 × 1-4 cm, often dividing into several smaller, white to yellow inside; roots white; tunics fibrous, stiff, black, to c. 6 cm long; outer leaves 1-3, ovate, 3-14 × 0,4-1 cm, pilose beneath with 2-branched hairs; inner leaves 5-11, linear, 3-16 × *0,1-0,3 cm*, margins and midrib beneath hispid, with 2-branched hairs white to golden (herbarium); scapes 1-10, 2,5-50 cm long, < 1 mm Ø, often tinged red, ciliate in lower half, pubescent in upper half; flowers single or cymes 2-4-flowered, pedicels of various length; tepals lemon to orange- yellow inside, with green stripe outside, elliptic, 6-12 × 2-3 mm; capsule obovoid, 3-5 × 2-3 mm, pubescent.

Rocky wet grassland; swampy and dambo grassland; coastal swampy grassland; peat bogs; *Protea* woodland; grassy glades; pastures; near cultivations; often following annual fires; on limestone, clay, sandy soil, black volcanic soil; locally very common; 0-960-3100 m alt. (most common 1500-2500 m).

S. Africa, Lesotho, Swaziland.

H. canaliculata is very close (cf. above under that species).

In Flore du Congo…, Hypoxid.: 5, 1971, the plants cited under *H. angustifolia* partly belong to *H. filiformis* (and *H. kilimanjarica*).

HYPOXIS

H. fischeri Pax; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Fl. Cameroun 30: 41, 47 (seed testa), 1987; Ann. Missouri Bot. Gard. 88: 322, 323 (seed), 345 (map), 2001, as *H. hockii*, incl. vars.; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 172, 2003, as *H.* cf. *multiflora;* idem, Aloes & lilies Eth. & Eritrea, ed. 2: 268, 2010; Fl. Trop. E. Afr., Hypoxid.: 4 (seed), 15, (var. **zernyi**), 2006, incl. vars.; Biodiv. Res. Conserv. 1-2: 32, 2006 (seed), incl. vars.; idem 14: 65, 67-74, 2009, incl. vars., with maps and seeds.

syn.: *H. multiflora* Nel; *H.* sp. cf. *multiflora* sensu Sebsebe Demissew & al. (2003): 173 & fig. 39; *H. subspicata* sensu Fl. Congo…, Hypoxid.: 6, 1971, p.p. See also below under the vars.

Herb to 78 cm tall; corm subglobose to cylindrical, 3-9 × 3-6 cm, crowned with fibrous remnants of old leaves; leaves tristichous, forming a short pseudostem, ± rigidly *erect*, becoming lax, usually conduplicate, linear-lanceolate, 0,1-1 m × 0,8-5,7 cm, ciliate on margin and midrib with tufted hairs, on lamina *densely-pubescent* on both surfaces or only beneath, with tufted to 8-armed or bifurcate silvery-strigose hairs; inflorescences 1-12, scape to 37-50 cm long, 2,5 mm Ø, overtopped by the mature leaves; flowers *3-25* in ± *spike-like* arrangement; floral anthesis from below upwards (acropetal); pedicels *0,2-2,5 cm* long; tepals 1-1,8 × 0,4-0,8 cm, yellow; capsule turbinate, 4-9 × 3-6 mm; seed testa *without cuticular folding*.

Often in sandy soils and on Kalahari sand; usually after fires; recently burnt terrain; fireswept eroded hillside; dry forest; grassland; woodland; scattered tree grassland; pasture; among rocks; miombo woodland; 1400-2600 m alt.

Very heterogenous taxon, particularly variable in leaf indumentum, seed coat sculpture, shape of floral parts. Distinct forms can be distinguished (probably apomictic). Specimens lacking seeds cannot be referred to a particular variety, only to *H. fischeri* s. l. (cf. Fl. Trop. E. Afr., Hypoxid.: 12, 2006).

Comprises 5 vars. (see key in Fl. Trop. E. Afr., Hypoxid.: 13, 2006): – var. **fischeri** [syn.: see above under the species; *H. obtusa* complex sensu Nordal & al. in Nord. J. Bot. 5: 28, 1985, p.p.; *H. polystachya* sensu Nordal & Zimudzi, Fl. Zambes. 12/3: 14-15, 2001, p.p., quoad syn. *H. multiflora* Nel], in N & NE part of range; with leaves c. 3 cm wide, hairy mainly beneath, inflorescence 12-30-flowered; – var. **colliculata** (Wiland) Wiland & Nordal [bas.: *H. hockii* De Wild. var. *colliculata* Wiland], in NC part of range; all parts with tufted hairs; – var. **hockii** (De Wild.) Wiland & Nordal [bas.: *H. hockii* De Wild.; syn.: *H. pedicellata* Nel; *H. polystachya* sensu Nordal & Zimudzi, Fl. Zambes; 12/3: 14-15, 2001, p.p., quoad syn. *H. pedicellata*], in C part of range, with leaves 0,8-1,5 cm wide, with dense white long tufted hairs, inflorescence 9-11-flowered; – var. **katangensis** (De Wild.) Wiland & Nordal [bas.: *H. katangensis* De Wild.; syn.: *H. aculeata* Nel; *H. obtusa* complex sensu Nordal & al. in Nord. J. Bot. 5: 28, 1985, p.p.; *H. polystachya* sensu Nordal & Zimudzi, Fl. Zambes. 12/3: 14-15, 2001, p.p., quoad syn. *H. katangensis* Nel; *H. hockii* De Wild. var. *katangensis* (De Wild.) Wiland], in SC part of range, with leaves 0,8-1,4 cm wide, sparsely hairy, inflorescence 10-13-flowered; – var. **zernyi** (G. M. Schulze) Wiland & Nordal [bas.: *H. zernyi* G. M. Schulze; syn.: *H. matengensis* G. M. Schulze; *H. obtusa* complex sensu Nordal & al. in Nord. J. Bot. 5: 28, 1985, p.p.] in S tropical part of range; with leaves 1,2-2 cm wide, pubescent, hairs 2-branched; inflorescence 6-7-flowered.

May be confused with *H. polystachya* which has, however, inner leaves hairy only beneath, and with basipetal floral anthesis.

HYPOXIS

H. galpinii Baker; Zimudzi (1996): 16; Fl. Zambes. 12/3: 11-12, 2001. – Icon.: Tredgold & Biegel, Rhodes. wild flowers: 10, 1979 (as *H. pungwensis*); Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 1-2: 32, 2006 (seed); Biodiv. Res. Conserv. 14: 76-78, 2009.

syn.: *H. infausta* Nel; *H. stricta* Nel; *H. pungwensis* Norl.; *H. costata* sensu Nordlind, Bot. Not. 1937: 164, p.p., quoad specim. Fries & al. 3088, 3564.

Herb *to 40 cm* tall with *subterranean pseudostem*, from tuber subglobose or elongated, 4-5,5 × 1,5-3,7 cm; tunic fibrous, brown or black; leaves yellow green to deep green, sheathing basal part, forming a short white pseudostem, drying dark purple; outer leaves 2-5, lanceolate, acuminate, slightly carinate, recurved, 4,5-25 × 0,8-3 cm, covered below with tufted trichomes 3-4-branched, to 3 mm long; inner leaves 4-10, lanceolate, 14-40 × 1-2,2 cm with hairs on margins and midrib below, glabrous on both surfaces or with sparse indumentum below, trichomes tufted, 3-12-armed, to 5 mm long; inflorescences 2-7, *spicato*-racemose; scapes 11,5-30 cm long, 1,5-3 mm Ø, pubescent in upper part; flowers 4-10, *alternate*, in spiciform arrangement, pedicels *2-8 mm* long; tepals 4-6, golden yellow inside, green outside, ± elliptic, 7-11 × 3-5 mm; capsule ± turbinate-clavate, 5-10 cm long, c. 5 mm Ø.

Grassland with scattered trees; secondary grassland; rocky black mineral soil, or loamy; 1500-2600 m alt.

Variable in habit and shape of leaves (cf. Fl. Trop. E. Afr., l.c.).

S. Africa, Swaziland.

Near *H. rigidula*.

H. goetzei Harms; Burrows & Willis, Pl. Nyika Plateau, Malawi: 309, 2005; Singh (2006): 14. – Icon.: Nord. J. Bot. 5: 17-18, 1985 (indumentum, inflorescence); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 141, 1994; Ann. Missouri Bot. Gard. 88: 313, 318, 328, 346 (map), 2001; Fl. Zambes. 12/3: 9, 2001; Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 14: 80-82, 2009.

syn.: Enum. 3: 105, 1995; *H. turbinata* Nel; *H. subspicata* sensu Geerinck, Fl. Congo…, Hypoxid.: 6, 1971, p.p., quoad syn. *H. esculenta* De Wild.

Herb to 80 cm tall; corm subglobose, *white* inside, ± conical, 2-5,7 cm Ø, prominently crowned by black fibrous remnants of old leaves; leaves vivid green, white at base, ± conduplicate, outer ones arching, inner ones rigid, twisted when mature, 11-80 × 2-7 cm, margins and midrib below ciliate, *glabrous above;* trichomes tufted, 3-12-armed, to 2 mm long, *red brownish* to *dark golden;* inflorescences 1-10, stout 8-27 cm long, 0,5-0,8 cm Ø; flowers usually appearing *before leaves*, 4-14 in a spiciform cyme, *opening from top towards base* (*basipetal anthesis*); tepals 6, yellow inside, pale green and pubescent outside, ovate, keeled, 1-1,8 × c. 0,5 cm; capsule green, turbinate, 0,4-1 × c. 0,5 cm.

Burnt grassland; *Brachystegia* woodland; forest margins; plateau and escarpment miombo; dambo; wet grassland on slope of stream valley; usually in sandy stony soil; 850-2600 m alt.

Rhizome edible *(H. esculenta).*

Critically endangered in Zambia according to Bingham & al. in Sabonet News 5/2: 95, 2000.

HYPOXIS

H. gregoriana Rendle – Icon.: Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 1-2: 32, 2006 (seed); idem 14: 84-86, 2009.

syn.: *H. araneosa* (non *arenosa*) Nel; *H. obtusa* complex sensu Nordal & al., Nord. J. Bot. 5: 28, 1985, p.p.

Herb to 60 cm tall; corm yellow to deep orange, elongated, 8,5-10 × 1-3,4 cm, crowned with fibrous black remnants of old leaf bses; leaves creating a short pseudostem, linear, 10-75 × 1-2,5 cm, *recurved*, covered with white appressed or spreading, *sparse*, *tufted trichomes*, mostly below; hairs 3-5-branched, 1,5-4 mm long; inflorescences 1-6, 5-55 cm long, 1-2 mm Ø; flowers *2-6* in a *corymbose* raceme, 3-4 cm long; pedicels *2-3 cm* long; tepals 6, yellow inside, greenish outside, *araneoso-villous;* capsule obovoid, 5-8 mm long.

Grassland, either dry or swampy (e.g. black cotton soil); burnt grassland; wooded or scattered tree woodland; pasture; black volcanic soil; red sandy loam; 1000-3650 m alt.

Near *H. fischeri*. Can be confused with *H. urceolata* but this species has tufted trichomes only on leaf midrib and margin beneath; seed surface different.

H. hemerocallidea Fisch., C. A. Mey. & Avé-Lall. – African Potato – Fl. Zambes. 12/3: 12, 2001; Singh (2007): 362-363. – Icon.: Bot. Mag. 14: pl. 5690, 1868 (as *H. elata*); Veld & Flora 85: 125, 1999; Plantlife 21: 34, 35 (map), 1999; Ingens Bull. 25: 26, 2002; J. S. Afric. Bot. 73: 361, 2007; B.-E. Van Wyk & al., Medicin. pl. S. Africa, ed. 2: 179, 2009.

syn.: *H. rooperii* T. Moore, incl. var. *forbesii* Baker; *H. elata* Hook. f., nom. illegit.; *H. obconica* Nel; *H. patula* Nel

Herb to 40 cm tall; rhizome vertical, turbinate to subglobose 3-8 × 2,5-7 cm, or cylindrical to 14 × 4 cm, equatorially ringed by stout roots; leaves 7-16, ternate, conduplicate, arcuate, gradually tapering to a narrowly acute apex, imbricately overlapping at base; lamina 10-60 × 1,4-4,8 cm, strigose or *sericeous-pubescent below*, sparsely so above; hairs mostly *2-armed;* inflorescences 2-14, usually appearing with leaves; scapes to c. 21-30 cm long, flattened in cross-section, to 5 mm wide, densely strigose in upper part; flowers 2-10 in raceme-like arrangement 3-10 cm long; tepals lanceolate-elliptic, 1,2-2 × 0,4-0,8 cm, coriaceous, yellow, densely hairy outside.

Rocky hillsides; short grassland on sandy soils; sometimes in cultivated land; 350-1850 m alt.

Botswana, S. Africa, Lesotho, Swaziland.

Corms used in Africa for centuries, traditionally to boost the body's immune system (Ingens Bull., l.c.; anti-bacterial and anti-oxidant activity). It is so popular that the plant is threatened by over-harvesting (see Katerere & Eloff in S. Afric. J. Bot. 74: 613-616, 2008). Propagated from seed (see Plantlife 21, l.c.). Also cultivated as an ornamental in Europe (Cullen & al., eds., European Garden Flora…1, ed. 2: 234, 2011).

Younger plants appearing different from older ones, can be mistaken for other species. Near *H. obtusa*.

HYPOXIS

H. kilimanjarica Baker – Icon.: Troupin, Fl. Rwanda, Spermat. 4: 83, 1988; Ann. Missouri Bot. Gard. 88: 325-326, 392 (map), 2001; Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park, Rwanda: 477, 2008; Biodiv. Res. Conserv. 14: 89-90, 2009.

syn.: Enum. 3: 106, 1995; *H. angustifolia* sensu Fl. Congo…, Hypoxid.: 56, 1971, p.p., quoad spec. Christiaensen 1501, 1620 (subsp. **kilimanjarica**).

Herb 20 cm tall; corm subglobose, 0,6-1,4 × 0,6-1,3 cm, white inside, with remnants of old leaves mainly *membranous*, occasionally with some soft fibers; leaves linear, erect-recurvate or prostrate, often spathe-like in basal part, 3,5-22 × 0,1-0,4 cm, sparsely pilose on margins and midrib below, sometimes also on blade surface; trichomes 2- to 3-branched; inflorescences 1-4; scapes 2-16 cm long, 0,3-1 mm Ø, usually *bending downwards after flowering*, base narrowly winged, ciliate; flowers single, rarely 2; tepals (3-4-)6, elliptic to ovate, acute, 4-7 × 1,5-3 mm, clear yellow inside, greenish and with branched hairs outside; capsule obovoid, 4-8 × 2,5-3,5 mm, ± glabrous.

Grassland; often on wet soil; formations with *Erica;* open glades; road sides; humid rocks; 1650-3500 m alt.

Comprises 2 subspp.: – subsp. **kilimanjarica** with erect-recurved leaves, scape 4-16 cm long; – subsp. **prostrata** E. M. Holt & Staubo, with prostrate leaves, flowers and fruits at ground level, at high altitudes in W Kenya-N Tanzania.

Near *H. filiformis*.

H. lejolyana Wiland, Fragm. Florist. Geobot; 42: 418, 1997. – Icon.: Ann. Missouri Bot. Gard. 88: 328 (seed), 347 (map), 2001.

syn.: *H. angustifolia* sensu Fl. Congo…, Hypoxid.: 5, 1971, p.p., quaod specim. Overlaet 712.

Herb to 29 cm tall; rhizome ovoid, c. 4 cm Ø; tunic *stiff*, *fibrous*, with *2-3 mm wide blades* to 7 cm long, often *covered with indumentum;* outer leaves 2-3, linear, 5 × 0,8 cm, basally with membranous margins, pubescent on upper half with 2-branched white or yellow hairs; inner leaves 3-5, to 29 × *3 mm*, ciliate on margins and midribs with tufted hairs, hispid below, sparsely pilose above; scapes 2-4, to 25 cm long, *0,2 cm* Ø, winged, pubescent in upper half; cymes 2-5-flowered; tepals 6, ovate, c. 8 × 3 mm, pubescent beneath; capsule turbinate, 6-7 × 4 mm, pubescent. *Basipetal flower anthesis*.

Wooded grassland with *Parinari* sp.; pasture with natural vegetation on Kalahari sand.

Near *H. polystachya* (with tepals 1,3-1,5 cm long).

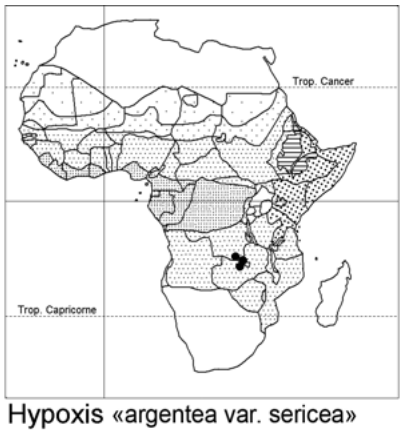
(**H. leucotricha** Fritsch); Figueiredo & Smith, Pl. Angola: 186, 2008.

Corm not described; leaves 5-12; blade linear-ensiform, 20-27 × 1,2 cm, acuminate, glabrous above, with white hairs on margins and midrib beneath; scapes 2, 20-30 cm long, with white ± erect hairs; inflorescences raceme-like, 8-11 cm long, c. 15-flowered, pedicels to 1 cm long, hairy; tepals elliptic-lanceolate, 12 mm long, apiculate-acuminate, hairy outside; fruit unknown.

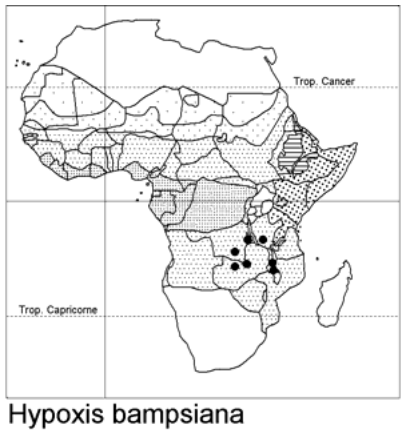
Slopes along brooks.

Known only from the type (Dekindt) from Angola, Huila. Not mapped.

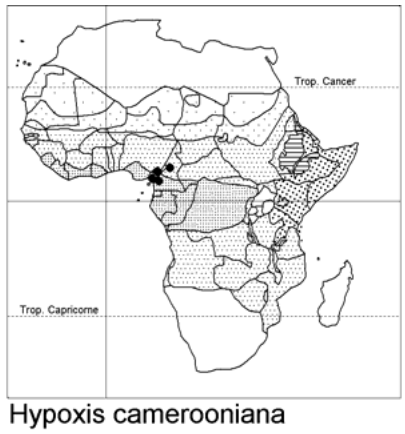
Said to be near *H. polystachya* but in *H. leucotricha* the leaf blade is narrower (not 2-5,8 cm wide), the inflorescence with fewer flowers (not with 20-30 flowers), the pubescence denser. Also compared with *H. obtusa* whose inflorescence is only 6-8 flowered with larger flowers, and very short deltoid filaments (not subulate, 2,2-3 mm long).



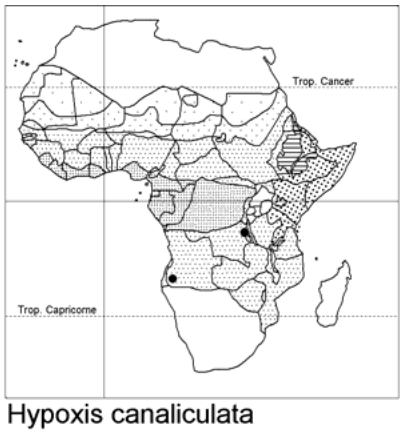
Hypoxis «argentea var. sericea»



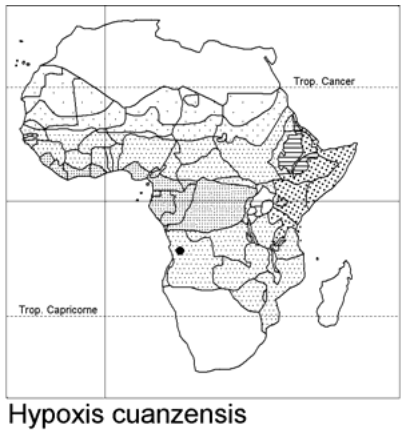
Hypoxis bampsiana



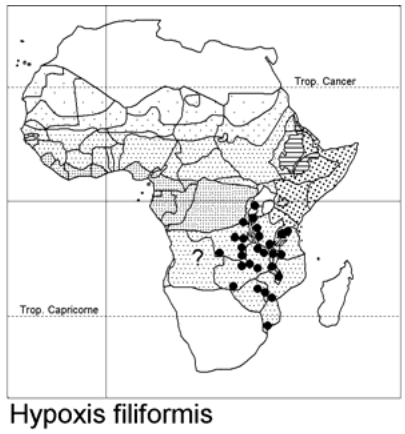
Hypoxis camerooniana



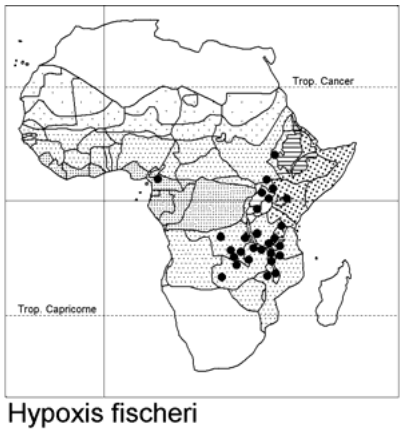
Hypoxis canaliculata



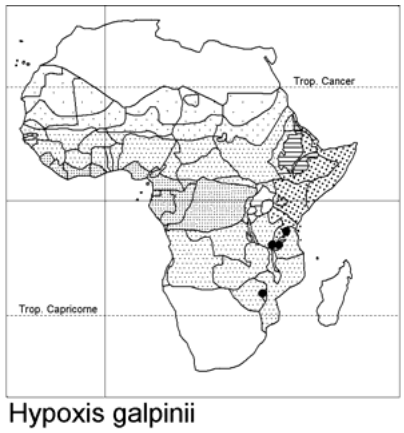
Hypoxis cuanzensis



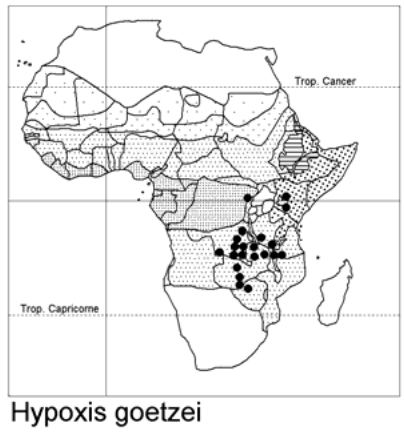
Hypoxis filiformis



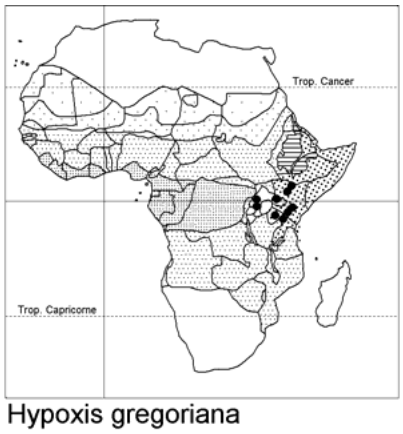
Hypoxis fischeri



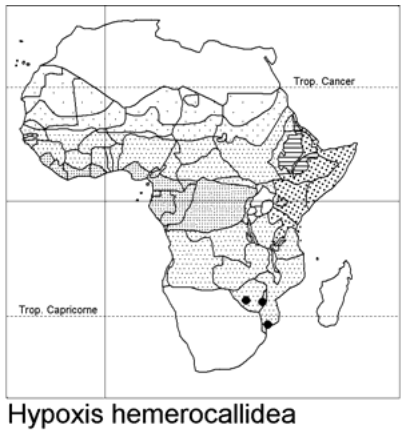
Hypoxis galpinii



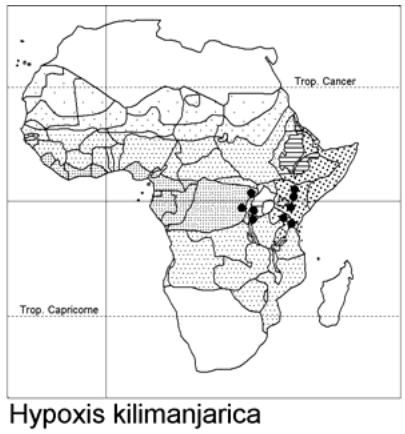
Hypoxis goetzei



Hypoxis gregoriana



Hypoxis hemerocallidea



Hypoxis kilimanjarica

HYPOXIS

H. lusalensis Wiland, Fragm. Florist. Geobot. 42: 421, 1997. – Icon.: Ann. Missouri Bot. Gard. 88: 316, 325, 342 (map), 2001.

Herb to 24 cm tall; rhizome globose, 1,5 cm Ø; tunic membranous and fibrous, 2-5 cm long; outer leaves 3-5, 2,5-8,5 × c. 1,4 cm, base glabrous, apically pubescent below; indumentum *grey;* trichomes tufted, c. 6-branched, 0,4-3 mm long; inner leaves 4-6, 0,5-2,4 × *0,2-0,3 cm*, *villous-hispid* on margins and midrib below, sparsely pilose above; scapes 2-4, 5-12 cm long, 1-1,5 mm Ø, sparsely ciliate in basal half, prominently hispid in upper half, trichomes tufted; flowers 1-2; tepals lanceolate, *1,4-2 cm* long, 2-3 mm wide, hispid below; capsule fusiform, 8 × 3,5 mm.

Grassland; river valleys; mountain summit; 1700-2450 m alt.

Relationships to other species unknown.

H. malaissei Wiland; Fl. Trop. E. Afr., Hypoxid.: 7, 2006. – Icon.: Fragm. Florist. Geobot. 42: 419-420, 1997; Ann. Missouri Bot. Gard. 88: 331 (seed), 342 (map), 2001; Biodiv. Res. Conserv. 1-2: 32, 2006 (seed); idem 14: 92, 2009.

Herb 15-36 cm tall; tuber globose, 1 cm Ø, surrounded by membranous and fibrous black old leaf-bases, for to 2 cm; outer leaves 2, 7-11 × 1 cm, spathe-like in basal part, pubescent beneath with 2-branched and tuft trichomes; inner leaves ± 4, linear, 7,5-36 cm × 2,5-4 mm, hispid, apex acute; scapes 1-5, 9,5-20 cm long, 1,5 mm Ø, *erect*, more intensively hispid apically; inflorescence a 2-5-flowered corymb, sometimes only one flower developing; pedicels *0,7-1,2 cm* long; tepals 6, yellow, elliptic, c. 7 × 2,5-3 mm, hairy on lower midrib outside; seed testa *honeycombed*.

Degraded miombo with *Dichrostachya cinerea*, *Euphorbia matabelensis*, *Brachystegia* cf. *wangermeeana;* 1208 – c. 2000 m alt.

Only known from 2 collections made in 1971.

H. monanthos Baker; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Ann. Missouri Bot. Gard. 88: 325-326, 344 (map), 2001.

Herb to 16 cm tall; rhizome subglobose, 1,3-1,7 × 1-1,3 cm; tunic fibrous, membranous, to 3,5 cm high, sometimes absent; outer leaves 3-4, ovate, 2-20 × 0,6-1 cm, margins ciliate, trichomes 2-3-branched; inner leaves 3-9, narrow-linear, often reflexed, 1,1-3,4 × 0,2-0,4 cm, sparsely pilose on margins and midrib below, sometimes also on blade above; scapes 1-4, 7-20 cm long, 0,5-1 mm Ø, narrowly winged and ciliate at base, villous above, usually *bent downward* after anthesis; trichomes 2-branched, grey or golden; flowers *1-2*; pedicels *0,5 mm* long, *bent* slightly *inward* (seed dispersal in humid habitats); tepals 4 or 6, elliptic, 7-9 × 2,5-3 mm, pubescent outside.

Wet habitats: swamps; temporarily inundated grassy savanna, dembo; shortly-grassed stream margins with *Cyathea arborescens;* 1200-1900 m alt.

Seed coat structure similar to that of *H. schimperi* according to Fl. Trop. E. Afr., Hypoxid.: 6, 2006, and morphological differences small between the two species. The relations need further investigation. Also similar to *H. angustifolia*.

Malawi fide Ann. Missouri Bot. Gard. 88: 333, 2001, but not cited in Fl. Zambes. 12/3, 2001.

HYPOXIS

H. muhilensis Wiland – Icon.: Fragm. Florist. Geobot. 42: 412-413 (subsp. **muhilensis**), 415-416 (subsp. **kansimbensis**), 1997; Ann. Missouri Bot. Gard. 88: 332, 336, 345 (map) and 308, 346 (map) 2001 (the two subspp., respectively).

Herb 16-*35 cm tall;* rhizome ovoid or almost spherical, 1,3 × 1,4 cm; tunic membranous *and fibrous*, to 7 cm long; outer leaves c. 5, ovate, narrowing toward apex, acute, 2-11,5 × 0,6-1 cm, midrib and margins densely pubescent, blade *sparsely* pubescent in apical part below, trichomes 2-branched or tufted; inner leaves c. 6, narrowly elliptical or linear, 9,5-35 × *0,3-0,5 cm*, densely hispid on midrib and margins below, *sparsely* pubescent above, trichomes 2-3-branched; scapes 4-5, 6-20 cm long, 0,1-0,2 cm Ø, narrowly winged, ciliate in basal half, hispid or pilose apically; cyme with *dense* indumentum, *3-4*-flowered, *loose*; pedicels 0,4-2 cm long, *rigid;* seeds *brown*.

Grasslands; wooded grasslands; woody mountain savanna; 1400-1690 m alt.

Comprises 2 subspp.: – subsp. **muhilensis**, with tepals 12-13 × 4 mm, seed coat with smooth cuticle, and cells with long filiform projections; – subsp. **kansimbensis** Wiland, with tepals 10 × 2,5 mm, seed coat with wrinkled cuticle and short-pointed cells.

Similar to *H. angustifolia*.

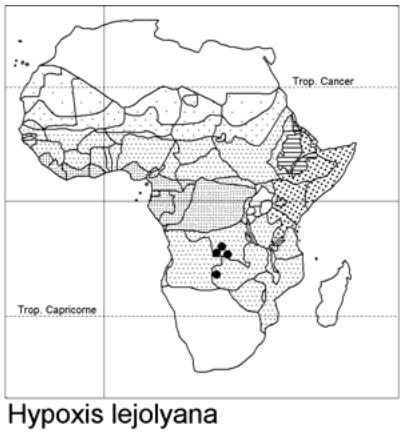
H. nyasica Baker; Fl. Zambes. 12/3: 16-17, 2001; 16-17, 2001; Burrows & Willis, Pl. Nyika Plateau, Malawi: 309, 2005; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Cribb & Leedal, Mount. flow. S. Tanzania: pl. 46C, 1982 (as *H. obtusa*); Fl. Trop. E. Afr., Hypoxid.: 17, 2006; Biodiv. Res. Conserv. 1-2: 32, 2006 (seed); idem 14: 94-96, 2009; Salter & Davenport, Orchids & wildflowers Kitulo Plateau: 64, 2011.

syn.: *H. campanulata* Nel; *H. engleriana* Nel, incl. var. *scottii* Nel; *H. ingrata* Nel; *H. probata* Nel; *H. retracta* Nel; *H. obtusa* complex sensu Nordal & al., Nord. J. Bot. 5: 28, 1985, p.p.; *H. villosa* sensu Zimudzi, Kirkia 16: 17, 1996, p.p.

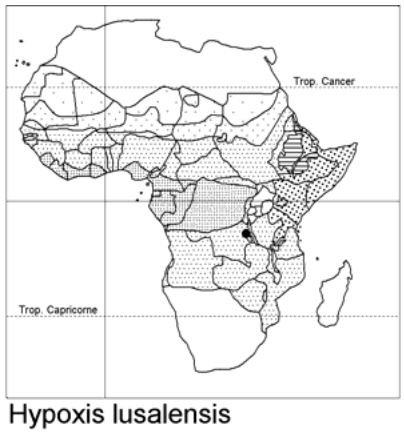
Herb 15-90 cm tall; tuber *yellow* inside, elongated or ovoid, 1,5-3 × 1-2,5 cm, often in large connected groups or divided into many smaller sprouts in apical part, sometimes few tubers connected with stolonlike roots, or 2 tubers one above the other moniliform; tunic fibrous; pseudostem to 4 cm long; outer leaves spathe-like in basal part, above oblong, 1-1,4 cm wide, apex acuminate, pubescent beneath with 2-branched and tuft trichomes; inner leaves grass-like, 20-90 × *0,3-2,2 cm*, ± *erect*, *margins thinly loosely pubescent and* also *main veins*, sometimes a *few hairs on lamina*, golden brown in herbarium, to 1,7 mm long; inflorescences 1-8, racemose; scape to 42 cm long, 1-3 mm Ø; flowers 2-11; tepals all similar, yellow inside, ± elliptic, 8-11 × 3-6 mm; seed testa with periclinal cell wall *convex*.

Grassland; *Brachystegia* woodland; open woodland; disturbed forest; usually appearing after fire; dambo grassland; often beside streams; dambo edges; miombo on rocky hillsides; laterite, brown sandy loam, muddy black soil; 100-2350 m alt.

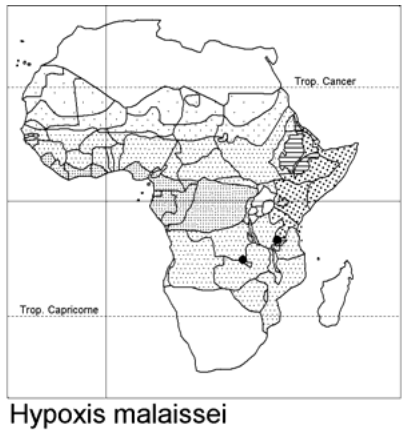
Near *H. urceolata*, young stages of which can be confused with mature *H. nyasica*. These 2 species are vicariants geographically.



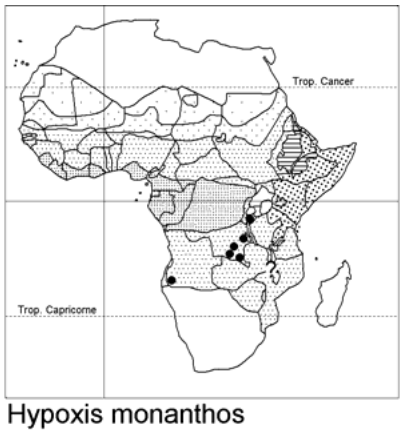
Hypoxis lejolyana



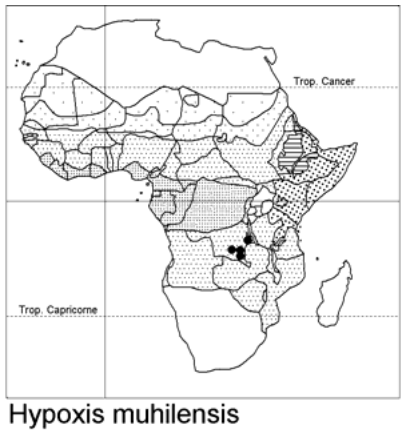
Hypoxis lusalensis



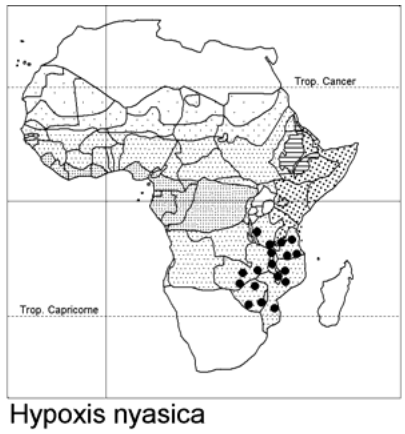
Hypoxis malaissei



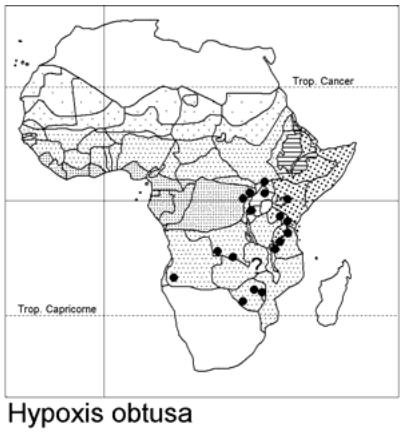
Hypoxis monanthos



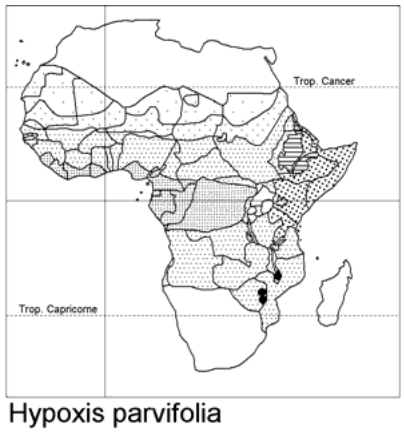
Hypoxis muhilensis



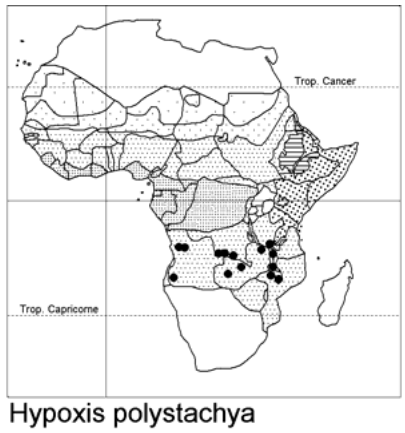
Hypoxis nyasica



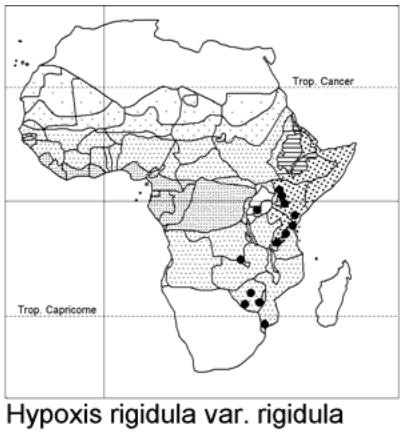
Hypoxis obtusa



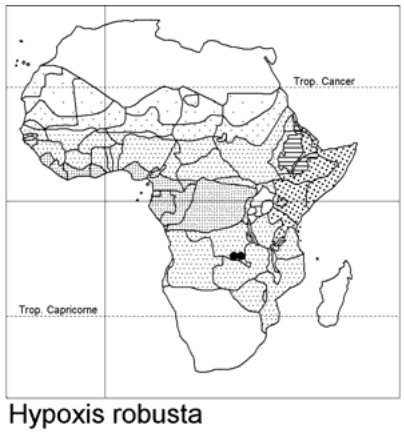
Hypoxis parvifolia



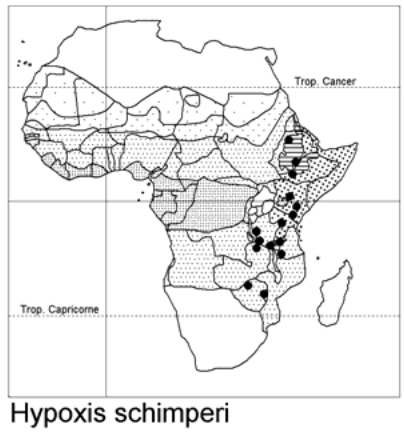
Hypoxis polystachya



Hypoxis rigidula var. rigidula



Hypoxis robusta



Hypoxis schimperi

HYPOXIS

H. obtusa Burch. ex Ker Gawl., incl. var. *chrysotricha* Nel; S. Afric. J. Bot. 73: 363, 2007; Fl. Trop. E. Afr., Hypoxid.: 11-12, 2006; Fl. Zambes. 12/3: 13-14, 2001; Singh (2007): 363-364; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Ann. Missouri Bot. Gard. 88: 307-308, 342 (map), 2001 (as *H. angolensis*); Biodiv. Res. Conserv. 14: 98-100, 2009.

syn.: *H. angolensis* Baker; *H. demissa* Nel; *H. protrusa* Nel; *H. obtusa* complex sensu Nordal & al., Nord. J. Bot. 5: 28, 1985, p.p., *H. villosa* complex sensu Zimudzi in Kirkia 16: 14, 1996, p.p.; *H. iridifolia* Baker; *H. nitida* I. Verd.; *H. villosa* L. f. var. *obtusa* (Burch. ex Ker Gawl.) T. Durand & Schinz; *H. villosa* sensu Friis & Vollesen, Biol. Skr. 51: 506-507 (2005), p.p.

Herb 16-100 cm tall; corm ovoid or cylindrical, 4-11 × 3,5-6 cm, crowned by black or brown *fibrous* remnants of former leaves, often *very copious;* leaves forming a short pseudostem, tristichous, conduplicate at least towards base, 10-70 × 0,6-3 cm, *glabrous*, margin and midrib above with *densely matted white strigose appressed tufted* hairs, 3-6-armed; veins *uniformly broad*; inflorescences 1-13, appearing before leaves; scapes 13-30 cm long, 0,3-0,5 cm Ø; flowers *7-15* in a raceme; tepals 6, clear yellow inside, green outside, ovate, 9-16 × 3-5 mm, hispid outside. Floral *anthesis from below upwards* (acropetal).

Scattered tree grassland; swamp edge; open dry grasslands; dambo margins; mixed deciduous woodlands; sandy soil; short-thicket-grown sandy hills, with clayey subsoil; 1000-2750 m alt.

Botswana, S. Africa, Lesotho, Namibia, Swaziland.

H. parvifolia Baker ("parviflora" Nel, Bot. Jahrb. Syst. 51: 307, 1914); Fl. Zambes. 12/3: 17-18, 2001; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 109, 2006.

Herb *3-15 cm* tall; rhizome vertical, ± cylindrical, 10-15 × 0,6-0,9 cm, equatorially ringed by roots, surmounted by persistent membranous leaf remnants; leaves 5-8, conduplicate, arcuate, gradually tapering to a narrowly acute apex, with broad membranous funnel-shaped sheaths; blade *1,5-18* × 0,3-0,8 cm (folded sides spread apart), sparsely hispid or glabrous above, glabrous below, *conspicuously ciliate on margins and midrib below;* hairs 1-3 mm long, *U-shaped*, *2-armed;* pseudostem to c. 3 cm long; inflorescences 1-5, usually appearing *after leaves;* scapes to 11 cm long, base ± flattened, *patent hispid* as on leaf margins; flowers 1-2, pedicels to 6 cm long; tepals yellow, elliptic, 9 × 3 mm, hispid or strigose outside.

Shallow peaty ground on seepage slopes; cracks in bare rock; rocky soil; 1800-2385 m alt.

S. Africa, Swaziland.

H. polystachya Welw. ex Baker, incl. var. *andongensis* Baker; Fl. Zambes. 12/3: 7-8, 2001 (as *H. subspicata*; note: *H. polystachya* sensu ibid. p. 14-15 is a misinterpretation for *H. fischeri,* p.p. excl. syn. *H. orbiculata* Nel); Figueiredo & Smith, Pl. Angola: 186, 2008; Gereau & al., Lake Nyasa florist. checklist: 66, 2012. – Icon.: Ann. Missouri Bot. Gard. 88: 323 (seed), 345 (map), 2001 (as *H. subspicata*); Burrows & Willis, Pl. Nyika Plateau, Malawi: 308, 2005; Biodiv. Res. Conserv. 1-2: 32, 2006 (seed); Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 14: 102-104, 2009.

syn.: *H. subspicata* Pax; *H. orbiculata* Nel; *H. polystachya* sensu Fl. Zambes. 12/3: 14, 2001, excl. syn. *H. multiflora*, *H. katangensis (= H. fischeri); H. subspicata* sensu Geerinck in Fl. Congo…, Hypoxid.: 6, 1971, p.p. quoad syn. *H. orbiculata* Nel; *H. villosa* L. f. complex sensu Zimudzi (1996): 17, p.p., quoad syn. *H. orbiculata* Nel

Herb to 1 m tall; corm subglobose to elongated, 5-11 × 4-5 cm; leaves tristichous, arching when mature, ± lanceolate, 0,4-1 m × 2-5,8 cm; blade *white pilose-pubescent below*, *glabrous above*,

HYPOXIS POLYSTACHYA

margins and midrib below densely white-lanate; hairs *silvery-white* to c. 3 mm long, tufted, 3-10-armed; inflorescences 1-7; scape to 18 cm long; flowers 8-26, in dense cylindrical raceme; pedicels 0,2-1 cm long; tepals 6, yellow, densely hispid outside, ovate, 12-15 × 7-8 mm; seed testa with each papilla with a minutely *wrinkled cuticle* and *3-4 longitudinal* narrow *wing-like ribs* or with *wrinkled cuticula without wings*.

Degraded grassland with *Terminalia*, *Diplorhynchus;* damp sandy meadows on river banks; miombo, dambos, woodland; thicket-grown hillsides; 1000-1800 m alt.

In E trop. Africa the only *Hypoxis* species cultivated for medicinal uses.

Near *H. bampsiana*.

H. rigidula Baker var. **rigidula**; Zimudzi (1996): 16-17; Fl. Zambes. 12/3: 12-13, 2001; Singh (2007): 364. – Icon.: Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 14: 106-108 (2009).

syn.: *H. elliptica* Nel; *H. laikipiensis* Rendle; *H. cordata* Nel; *H. volkmanniae* Dinter; *H. robusta* sensu Wiland-Szymańska, 2001, quoad specim. Lisowski & al. 12984; *H. obtusa* complex sensu Nordal & al., Nord. J. Bot. 5: 28, 1985, p.p.

Pilose herb to 0,8-1 m tall, rhizome orange or yellow inside, vertical, turbinate to hemispheric, 3-8 × 1,5-6 cm, equatorially ringed by roots; leaves 5-9, erect, ± rigid, flat or ± conduplicate above, with narrow funnel-shaped sheaths; blade 0,3-1,3 m ×(0,3)0,5-2,2 cm, gradually tapering to a narrowly acute apex; leaves creating a *pseudostem 6-15 cm long;* pilose with tufted whitish to silvery greyish hairs along margins and midrib and with 2-3-branched hairs on the blade; inflorescences 1-5; scapes 30-70 cm long, 1,5-2 mm Ø; flowers 3-23, *alternate*, in a *spicate raceme* to 15 cm long; tepals light yellow inside, green outside and sometimes with a red stripe, ± lanceolate, 5-12-18 × 5-7 mm; capsule turbinate, 8 mm long, densely villose. – Floweirng after recent fire.

Open grassland or woodland; dry or wet grassland; bushland; seepage bog; fallows; fallow maize field; laterite or black soil rich in humus; dambo; 10-2300 m alt.

Namibia, S. Africa, Lesotho, Swaziland.

Subsp. **pilosissima** Baker (syn.: *H. arnottii* Baker) occurs in S. Africa, Lesotho, Swaziland.

H. robusta Nel – Icon.: Ann. Missouri Bot. Gard. 88: 330 (seed), 346 (map), 2001.

syn.: *H. subspicata* sensu Geerinck, Fl. Congo…, Hypoxid.: 6-7, 1971, p.p., quoad syn. *H. robusta* Nel et specim. Verdick 198, Schmitz 5921, etc.

Herb to 80 cm tall; rhizome subglobose, 3,2-5,2 cm Ø; tunic black, stiff, 8-12 cm long; outer leaves 3-4, sword-like, 5-9 × 3-4 cm, tomentose below, sparsely pubescent above, hispid on edges and midrib below; trichomes tufted, white; inner leaves c. 7, linear, acute, 12,5-90 × 1-1,7 cm; indumentum as on outer leaves; *inner* leaves *appearing after* inflorescences; scapes 3-6, 10-18 cm long, 3-4 mm, Ø, ciliate in lower half, tomentose apically; trichomes tufted, white; raceme c. 10-flowered; anthesis from below upward (acropetal); pedicels 0,1-1 cm long, tomentose; tepals 6, *lanceolate*, *acute*, 12-17 × 3-6 mm; anthers 0,5-*1,4* cm long; stigma *deeply divided* into 3 free lobes; seed black as in *H. fischeri* but *seed coat sculpture different* (vide Ann. Missouri Bot. Gard. 88: 323 fig. sub nom. *H. hockii* var. *colliculata* and p. 330, 2001).

HYPOXIS ROBUSTA

Grassland; wooded grassland; often after burning; dembo; sandy soil; border of radioactive valley; c. 1600 m alt.

Near *H. fischeri*.

H. schimperi Baker; Fl. Eth. & Eritrea 6: 89, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 170, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 265, 2010; Fl. Trop. E. Afr., Hypoxid.: 6, 2006. – Icon.: Nord. J. Bot. 5: 19 (seed), 1985 (as *H. macrocarpa*); Biodiv. Res. Conserv. 14: 110-111, 2009.

syn.: *H. macrocarpa* E. M. Holt & Staubo; *H. cuanzensis* sensu Nordal & al., Fl. Zambes. 12/3: 7, 2001, non Baker, and sensu Zimudzi in Kirkia 16: 15, 1997.

Herb to 45 cm tall; corm ± cylindrical, 2-4,5 × 1,5-3 cm; outer leaf remnants *fibrous;* leaves forming a whitish pseudostem to 5 cm long, ± erect, lanceolate, to c. 45 cm × 1,5-6 mm, glabrous or thinly pilose, mostly on margins and midrib below with 2-armed hairs; inflorescences 1-6; scape to 21 cm long, 0,7-1 mm Ø; flowers most often solitary; pedicels *2-6 mm* long; flowers *1,8-3,1 cm* Ø when open, tepals 4, 5 or 6, to *1,2 cm* long, bright yellow inside, green with yellow margin and thinly pilose outside; capsule with *circumscissile opening*.

Grassland; swampy grassland; dambos; flat valley bottoms with grassland with high water table; growing between tussocks; *Podocarpus* forest; often on black soils; 900-2700 (? 3400) m alt.

Closely related to *H. cuanzensis* (type from Angola), and the distinction at species level between them is uncertain. The relations to *H. monanthos* also need further investigation.

H. suffruticosa Nel; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c50, 2001; Onana & Cheek, Red Data Book flow. pl. Cameroon: 381, 559 (map), 2011. – Icon.: Morton, W. Afr. Lil. Orch.: pl. 9 fig. 35, 1961 (as *H. urceolata*); Fl. Camer. 30: 39, 47, 1987.

syn.: *H. urceolata* sensu Morton, l.c. et Fl. W. Trop. Afr., ed. 2, 3: 172, 1968.

Herb from a tuber 5-7 × 4,5-7 cm, orange inside, side with stout white roots, apex with fibrous leaf remnants; leaves tristichous, 6-12, erect, blade linear, 20-50 × 1 cm (2 cm at base), covered when young with dense *grey-ashy to white hairs;* scapes 1-4, to 30 cm tall with *dense indumentum*, appearing before the leaves; inflorescence corymbose, 2-7-flowered; tepals ovate, c. 10 × 4 mm; seeds *black*, testa *smooth without wrinkles*.

Rocky soils; often in burned meadows; grassland often wooded; 1420-2100 m alt.

Near *H. camerooniana*. Can be confused with *Curculigo pilosa* (with ovary far below the tepals !).

H. symoensiana Wiland, Fragm. Florist. Geobot. 42: 421-422, 1997. – Icon.: Ann. Missouri Bot. Gard. 88: 315, 340 (seed), 346 (map), 2001.

Herb to *7,5-10 cm* tall; rhizome c. 2,5 cm Ø; tunic *fibrous*, *glabrous*, 3-5,5 cm high; outer leaves c. 3, ovate, 3,3-5,5 × 0,8-1,2 cm, margins and midrib ciliate below; inner leaves narrow-linear, 4,5-10 × 0,2-0,3 cm, margins and midrib long hispid below; scapes 4-5, 4,5-9,5 cm long, 0,2 cm Ø (just below inflorescence), narrowly winged and ciliate at base, pubescent; inflorescence *racemose;* raceme 2-4-flowered; tepals 6, ovate, acute, c. 7 × 3 mm, pubescent outside along lower half of midrib; seed *red-brown*, cuticle *thick*.

Grasslands; miombo; 1650-2050 m alt.

Resembling *H. canaliculata*, *H. angustifolia*.

Known from only 3 collections.

HYPOXIS

H. upembensis Wiland – Icon.: Fragm. Florist. Geobot. 42: 417, 1997; Ann. Missouri Bot. Gard. 88: 315, 340 (seed), 344 (map), 2001.

Herb to 21 cm tall; rhizome globose, 1,5 cm Ø, tunic *not conspicuous*, *membranous and fibrous*, to c. 5 cm long; leaves 5-10, subulate, 7-21 × 0,2 cm, margins membranous in basal part; young leaves *sparsely pilose* on margins and midrib below with 2-branched trichomes; scapes 3-4, 11,5-21 cm long, 0,1 cm Ø, basal part very narrowly winged, *glabrous* or with *several trichomes*, in upper half *sparsely* pilose with 2-branched trichomes; inflorescence *2-flowered, clustered;* pedicels to *6 mm* long, pilose, with tufted trichomes; outer tepals elliptic, c. 10 × *5 mm*, pilose (golden yellow) outside; seed coat sculpture with more elongated papillae than in *H. angustifolia*.

Grassland; c. 1750 m alt.

H. urceolata Nel – Icon.: Troupin, Fl. Rwanda 4: 83, 1988 (as *H. obtusa*); Ann. Missouri Bot. Gard. 88: 338-339, 2001; Fl. Trop. E. Afr., Hypoxid.: 4, 2006 (seed); Biodiv. Res. Conserv. 14: 114-116, 2009.

syn.: *H. apiculata* Nel; *H. arenosa* (non *araneosa*) Nel; *H. crispa* Nel; *H. cryptophylla* Nel; *H. textilis* Nel; *H. bequaertii* De Wild.; *H. obtusa* complex sensu Nordal & al., Nord. J. Bot. 5: 28, 1985, p.p.; *H. villosa* sensu Friis & Vollesen, Biol. Skr. 51: 506-507, 2005, p.p.; *H. obtusa* sensu Champluvier in Fl. Rwanda 4: 84, 1987, non Ker Gawl.; *H. subspicata* sensu Geerinck in Fl. Congo…, Hypoxid.: 6, 8, 1971, p.p., quoad syn. *H. bequaertii* De Wild. et specim. Lebrun 3755, Bequaert 4919, 5198, et specim. ex Rwanda.

Herb to 60 cm tall; tuber ovoid, 3,3-6,5 × 2,3-4,3 cm, (bright) yellow inside, bluish when exposed to air; tunic fibrous; outer leaves 1-5, oblong-ovate, 4,5-13 × 0,8-2,4 cm; inner leaves 5-15, linear, 11-95 × *0,8-2 cm;* trichomes on leaf edges and midrib *tufted* but on blade surface *2-branched;* scapes 4-9, 8-45 cm long, 2-3 mm Ø, ciliate on lower half, pubescent above; trichomes tufted, c. 5-branched, golden; racemes *2-7-flowered;* tepals 6, yellow or orange inside, green outside, ovate, 8-15 × 4-6 mm, pubescent along midrib outside; seed black, testa colliculate with ± *flat* papillae.

Brachystegia woodland; grassland with xeromorphic shrubs; *Combretum* woodland; disturbed bushland; pastures, wet or dry; after burns; often on slopes; termite mounds; fallow fields; water flows; rocky kaolin soil; sandy soil over quartzite; rocky or gravel soils; dark grey sandy clay loam; red brown clay loam; cotton soil; 305-2835 (3100) m alt. (most often 1000-2000 m).

In Sudan ? (or *H. fischeri*). Reports from W. Africa and Ethiopia are doubtful as to their identity.

Near *H. gregoriana*, *H. nyasica*.

TAXON OF UNCERTAIN STATUS:

Hypoxis sp. A. sensu Fl. Zambes. 12/3: 15-16, 2001.

Herb 35-45 cm tall; rhizome vertical, turbinate, 1,5-2 × 2-3,5 cm, with stout contractile roots; leaves 5-12, conduplicate, ± arcuate, blades 10-30 × 1-2 cm, thinly strigose to glabrescent, with 2-8-armed hairs; with short pseudostem; inflorescences 1-3, appearing with the young leaves; scape to 35 cm tall, somewhat flattened; flowers 1-6 in a racemelike arrangement; tepals all similar, elliptic, 6-12 × 2,5-6 mm, white sericeous or brownish villose outside; seeds black, glossy; testa densely papillate, papillae dome-shaped to sharply pointed, cuticle smooth.

Grassland, rocky hillsides; 400-2300 m alt.

Recorded from E Zimbabwe, S Malawi, C Mozambique. Perhaps also present in Swaziland.

Placed near *H. fischeri-H. nyasica*.

HYPOXIS

SYNONYMS:

Hypoxis aculeata Nel = **Hypoxis fischeri** var. **katangensis**
alpina R. E. Fries = **H. kilimanjarica** subsp. **kilimanjarica**
angolensis Baker = **H. obtusa**
angustifolia sensu Fl. Congo, Rw., Bur., p.p. = **H. kilimanjarica** subsp. **kilimanjarica**, **H. lejolyana**
apiculata Nel = **U. urceolata**
araneosa (non *arenosa*) Nel = **H. gregoriana**
arenosa (non *araneosa*) Nel = **H. urceolata**
argentea Haw. ex Baker var. *flaccida* (Baker) Baker = **H. argentea** var. **sericea**
arnottii Baker = **H. rigidula** subsp. **pilosissima**
bequaertii De Wild. = **H. urceolata**
biflora Baker, 1876 = **H. angustifolia** var. **angustifolia**
biflora De Wild., 1913 = **H. filiformis**
boranensis Cufod. = **H. abyssinica**
caespitosa Baker = **H. filiformis**
campanulata Nel = **N. nyasica**
cordata Nel = **H. rigidula**
costata sensu Nordal p.p. = **H. galpinii**
crispa Nel = **H. urceolata**
cryptophylla Nel = **H. urceolata**
cuanzensis sensu Nordal & al., 2001 & Zimudzi, 1997 = **H. schimperi**
demissa Nel = **H. obtusa**
dinteri Nel = **H. argentea** var. **sericea**
dregei (Baker) Nel var. *biflora* (De Wild.) Nel = **H. filiformis**
elliptica Nel = **H. rigidula**
elata Hook. f. = **H. hemerocallidea**
engleriana Nel, incl. var. *scottii* Nel = **H. nyasica**
esculenta De Wild. = **H. goetzei**
hockii De Wild. = **H. fischeri** var. **hockii**
hockii De Wild. var. *colliculata* Wiland = **H. fischeri** var. **colliculata**
hockii De Wild. var. *katangensis* (De Wild.) Wiland = **H. fischeri** var. **katangensis**
incisa Nel = **H. kilimanjarica** subsp. **kilimanjarica**
infausta Nel = **H. galpinii**
ingrata Nel = **H. nyasica**
iridifolia Baker = **H. obtusa**
katangensis De Wild. = **H. fischeri** var. **katangensis**
laikipiensis Rendle = **H. rigidula**
lanceolata Nel = **H. camerooniana**
ledermannii Nel = **H. camerooniana**
luzuloides Robyns & Tournay = **H. angustifolia** var. **luzuloides**
macrocarpa E. M. Holt & Staubo = **H. schimperi**
malosana Baker = **H. filiformis**
matengensis G. M. Schulze = **H. fischeri** var. **zernyi**
multiflora Nel = **H. fischeri** var. **fischeri**
muenzneri Nel = **H. filiformis**
neghellensis Cufod. = **H. abyssinica**
nitida I. Verd. = **H. obtusa**
obconica Nel = **H. hemerocallidea**

HYPOXIS

obliqua Jacq. var. *woodii* (Baker) Nel = **H. angustifolia** var. **buchananii**
obtusa Burch. ex Ker Gawl. var. *chrysotricha* Nel = **H. obtusa**
obtusa complex sensu Nordal & al., p.p. = **H. fischeri** var. **fischeri**, var. **katangensis**, and var. **zernyi**, **H. gregoriana**, **H. nyasica**, **H. obtusa, H. rigidula**, **H. urceolata**
obtusa sensu Fl. Rwanda 4: 84, 1987 = **H. urceolata**
orbiculata Nel = **H. polystachya**
«parviflora» sensu Nel = **H. parvifolia**
patula Nel = **H. hemerocallidea**
pedicellata Nel = **H. fischeri** var. **hockii**
petitiana A. Rich. = **H. abyssinica**
petrosa Nel = **H. camerooniana**
polystachya sensu Nordal & Zimudzi, 2001, p.p. = **H. fischeri** var. **fischeri**, var. **hockii**, var. **katangensis**, **H. polystachya** excl. syn.
probata Nel = **H. nyasica**
protrusa Nel = **H. obtusa**
pungwensis Norl. = **H. galpinii**
recurva (Baker) Nel = **H. camerooniana**
retracta Nel = **H. nyasica**
robusta sensu Wiland-Szymańska, p.p. = **H. rigidula**
rooperi T. Moore, incl. var. *forbesii* Baker = **H. hemerocallidea**
rubiginosa Nel = **H. goetzei**
schnizleinia Hochst. = **Xerophyta schnizleinia** *(Velloziaceae)*
schweinfurthiana Nel = **Hypoxis abyssinica**
sericea Baker = **H. argentea** var. **sericea**
sericea var. *dregei* Baker p.p. = **H. argentea** var. **sericea**, **H. filiformis**
simensis Hochst. = **H. abyssinica**
sp. cf. *multiflora* sensu Sebsebe & al. = **H. fischeri** var. **fischeri**
stricta Nel = **H. galpinii**
subspicata Pax = **H. polystachya**
subspicata sensu auctt. p.p. = **H. fischeri**, **H. goetzei**, **H. polystachya**, **H. robusta**, **H. urceolata**
textilis Nel = **H. urceolata**
thorbeckei Nel = **H. camerooniana**
tristachya Cufod. = **H. abyssinica**
turbinata Nel = **H. goetzei**
urceolata sensu Morton, 1968 = **H. suffruticosa**
villosa sensu Friis & Vollesen 2005, p.p. = **H. obtusa**, **H. urceolata**
villosa sensu Zimudzi 1996, p.p. = **H. nyasica, H. obtusa, H. polystachya**
villosa L. f. var. *obtusa* (Ker Gawl.) T. Durand & Schinz = **H. obtusa**
villosa var. *recurva* Baker = **H. camerooniana**
villosa var. *schweinfurthii* Harms = **H. abyssinica**
volkmanniae Dinter = **H. rigidula**
woodii Baker = **H. angustifolia** var. **buchananii**
zernyi G. M. Schulze = **H. fischeri** var. **zernyi**

[**MOLINERIA**]

[**Molineria capitulata** (Lour.) Herb.] – Icon.: Fl. Males., Ser. 1, 11/2 : 368, 1993.

syn.: *Curculigo capitulata* (Lour.) Kuntze ; *C. recurvata* W. T. Aiton ; *C. glabra* Merr.

Giant perennial, 1-2 m tall ; leaves long-petiolate, elliptic ; raceme head-like, deflexed, to 7 cm long and wide ; flowers yellow, villous ; fruit fleshy.

Native of tropical and subtropical Asia to Australia (NE Queensland) ; and naturalised in many areas of the World (cf. Fl. Mascareignes 179 : 3, 1978), is reported from Zaire.

VELLOZIACEAE / *1* g. / *29* (+*2* ?) spp.

A relatively well-defined family previously included in *Amaryllidaceae*. With c. 300 species, the number of genera has been controversial : 8 or 9 or 5. According to Mello-Silva & al. (Ann. Bot. 108 : 87-102, 2011), there are 5 vicariant genera from Gondwana : *Xerophyta-Talbotia* (c. 30 spp.) are African extending to Madagascar and SW Arabia ; *Acanthochlamys* has one species in SW China ; *Vellozia*, incl. *Nanuza* (c. 120 spp.) occur in N S. America ; *Barbacenia*, incl. *Aylthonia*, *Burlemarxia*, *Pleurostigma* (c. 100 spp.) are native in NE S. America ; and *Barbaceniopsis* (4 spp.) are Andean (map ibid.: 99).

Plants with fibrous, mostly erect stems covered with persistent leaf sheaths ; leaves linear, spirally set, crowded at ends of stems, forming a sheath around the stem ; flowers regular, showy ; tepals 6, stamens 6, ovary inferior, fruit a capsule.

Members of *Velloziaceae* are important mat-formers which are mostly poikilohydric, i.e. they are unable to compensate for fluctuations in the availability of water/evaporation ; their water contents varies according to the humidity of the surroundings, they are so-called resurrection plants drying out completely during the dry season. Several other plants are epiphytes on such mats or on stems of *Velloziaceae*, often orchids (cf. Porembsky, 2005 a & b ; Williamson, 2009).

The plants are of little economic importance, their leaves or stems are sometimes used as tying material, to make brooms or tooth brushes.

Some species are incompletely known in our area : fruit unknown in 1+X ? species, ecology not recorded for 1 (+1 ?) species, and 2+1 ? species known only from the type locality.

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(BARBACENIA)

Barbacenia aequatorialis (Rendle) Harms = **Xerophyta spekei**
amica Baill., nom. nud. = **X. schnizleinia**
capillaris (Baker) Pax in Engl. = **X. capillaris**
goetzei Harms = **X. goetzei**
helenae Buscal. & Muschl. = **X. spekei**
hildebrandtii Pax = **X. schnizleinia** var. **schnizleinia**
humilis (Baker) Burtt Davy = **X. humilis**
minuta (Baker) Dinter = **X. humilis**
naegelsbachii Dinter ex Friedr.-Holzh. = **X. naegelsbachii**
scabrida Pax = **X. scabrida**
schlechteri (Baker) Burtt Davy = **X. schlechteri**
"schnitzleiniana" (Hochst.) Pax, sphalm. = **X. schnizleinia**
spekei (Baker) Harms = **X. spekei**
splendens (Rendle) Harms = **X. splendens**
tomentosa Pax = **X. spekei**
velutina (Baker) Pax = **X. velutina**
villosa (Baker) Burtt Davy & Pott-Leendertz = **X. villosa**
violacea (Baker) Burtt Davy = **?**
wentzeliana Harms, incl. var. *rhodesiana* R. E. Fr. = **X. wentzeliana**

(SCHNIZLEINIA)

Schnizleinia amica Steud. ex Hochst. = **Xerophyta schnizleinia**

(VELLOZIA)

Vellozia acuminata Baker = **Xerophyta acuminata**
aequatorialis Rendle = **X. spekei**
argentea Wild = **X. argentea**
capillaris (Baker) Welw. ex B. J. Jacks. and ex Baker = **X. capillaris**
equisetoides (Baker) Baker = **X. equisetoides**
equisetoides sensu Watson, 1903 = **X. trichophylla**
equisetoides var. *trichophylla* = **X. trichophylla**
eylesii Greves = **X. eylesii**
hildebrandtii (Pax) Baker = **X. schnizleinia** var. **schnizleinia**
humilis Baker = **X. humilis**
kirkii Hemsl. = **X. kirkii**
minuta Baker = **X. humilis**
monroi Greves = **X. monroi**
rosea Baker = **X. schlechteri**
scabrida (Pax) Baker = **X. scabrida**
schlechteri Baker = **X. schlechteri**
schnizleinia (Hochst.) Martelli "*schnizleiniana"*, incl. var. *brevifolia* Chiov. and var. *somalensis* Terracc. = **X. schnizleinia** var. **schnizleinia**
schnizleinia var. *occidentalis* Milne-Redh. = **X. schnizleinia** var. **occidentalis**
somalensis (A. Terracc.) Chiov. = **X. schnizleinia** var. **schnizleinia**
spekei (Baker) Baker = **X. spekei**
splendens Rendle = **X. splendens**
squarrosa (Baker) Welw. ex Baker 1880, ex B. J. Jacks. 1895 = **X. squarrosa**
stenophylla (Baker) Welw. ex B. J. Jacks. = **X. stenophylla** = **?**
suaveolens Greves = **X. suaveolens**

tomentosa (Pax) Baker = **X. spekei**
trichophylla (Baker) Hemsl. = **X. trichophylla**
velutina (Baker) Welw. ex Baker 1880 = **X. velutina**
villosa Baker = **X. villosa**
violacea Baker = **?**
viscosa sensu Fl. Zambes. p.p. = ? **X. schlechteri**
wentzeliana (Harms) Greves = **X. wentzeliana**

XEROPHYTA / *29* (*+2* ?)

Genus of 45 species in Tropical and S. Africa, Madagascar (25 species), SW Arabia (1 species). "Each known species is confined to one geographical region and this relative isolation is supported by DNA data…" (Behnke & al., 2013 : 22).

Note : The references to Behnke & al. (2013) are not always given below.

Xerophyta acuminata (Baker) N. L. Menezes ; Thulin, Fl. Somalia 4 : 77, 1995. – Icon.: Audru & al., Pl. vascul. Djibouti 2/2 : 806, 1994.

bas.: *Vellozia acuminata* Baker

Stem short ; leaf-sheaths brownish, after abscission of the blade dividing into course fibres ; blade to 30 × 0,6 cm, entire, glabrous, but setose-serrate near apex on margin and on midnerve beneath ; peduncles at stem apex, 10-12,5 cm long, *glandular*-hairy, particularly above ; tepals white or flushed with purple, linear-lanceolate, 1,6-2,2 cm long, glandular outside ; ovary oblong, covered with short *dark* gland-tipped hairs, and with a *dark globular gland* at apex.

Rocky places and watercourses ; lithosoil (broken rhyolite) ; c. 1500 m alt.

Close to *X. arabica* (Baker) N. L. Menezes from SW Saudia Arabia and Yemen.

X. argentea (Wild) L. B. Smith & Ayensu

bas.: *Vellozia argentea* Wild

Herb to shrub, 0,3-4 m tall ; stem erect, to 2,3 cm Ø, unbranched or sparsely so, branches with mantle of closely packed leaf-bases ; leaves 3-7 tufted at branch-ends ; leaf-sheath base 1-2,5 cm long, scale-like ; blade rigid, linear, attenuate, 4-30 × 0,1-0,5 cm, margin entire, silvery, densely tomentose below (trichomes *in bundles*), sparsely hairy to subglabrous above ; flowers 1-4 at branch-ends, sweet-scented ; peduncle 2,5-16,5 cm long ; perianth blue, light purple or pinkish ; segments oblong-elliptic, *rounded*, 1,5-3,5 × 0,35-1,4 cm.

Rocky grassland, common among quartzite crags on cliff-ledges ; 1500-2150 m alt.

Known only from the type locality.

X. capillaris Baker ; Fritsch in Bull. Herb. Boiss., Sér. 2, 1 : 1111, 1901 ; Figueiredo & Smith, Pl. Angola : 207, 2008 ; Fl. Zambes. 12/2 : 159, 2009, excl. specim. Richards 14966 *(= X. wentzeliana).*

syn.: *Barbacenia capillaris* (Baker) Pax in Engl. ; *Vellozia capillaris* (Baker) Welw. ex B. J. Jacks. (Ind. Kew. 2 : 1173, 1895), ex Baker 1898.

Rhizomatous undershrub or shrub, 0-2-2 m tall ; stem erect, branched, branches woody, 1-1,2 cm Ø ; leaves 4-10 in terminal rosettes ; leaf-sheath base brown, 1,5-2,5 cm long ; blade linear, 5-15 × 0,35-0,8 cm, ± *aristate*, margins *ciliate*, with regularly arranged *resinous glands on both surfaces ;* flowers 2-3 at shoot ends ; peduncle 6-7,5 cm long, with black glandular trichomes ; perianth white to violet-pink, pale lilac or blue ; segments 2-5 × 0,5-0,7 cm ; ovary black-glandular ; stigma *subapical*, capsule glandular.

Rocky places, often in crevices ; rather lofty thickets on the edges of woods ; lofty plain ; 152-1700 m alt.

Comprises 2 vars.: – var. **capillaris**, with glabrous leaf-blade ; – var. **occultans** L. B. Sm. & Ayensu, with pubescent leaf-blade.

X. concolor L. B. Sm. & Ayensu ; Figueiredo & Smith, Pl. Angola : 207, 2008.

Near *X. capillaris* but : – blades c. 50 × 0,7 cm, *concolorous*, *not resinous*; stigma linear, *apical*, much longer than the style-base.

Ecology unknown ; 1950 m alt.

? Only known from the type collected in 1940.

X. demeesmaekeriana P. A. Duvign. & Dewit ; Fl. Zambes. 12/2 : 172, 2009 (as *X. zambiana*).

syn.: *X. zambiana* L. B. Sm. & Ayensu, p.p.

Shrubby herb 50-80 cm tall ; stems ± undivided, 3-5 cm Ø, branched at base ; branches covered with brownish parallel fibres (split leaf sheaths) ; leaves linear, to 50 × 1,7 cm, deciduous, in terminal pseudo-rosette ; young leaves with whitish silky, glossy hairs 1-1,5 mm long appressed on both surfaces, spreading at margins ; older ones densely covered with long appressed hairs ; flowers solitary ; *peduncle* covered with *woolly hairs, replaced by sessile glands towards apex ;* tepals 2-4,5 cm long, pink to mauve inside, greenish outside, glandular ; ovary with sessile glands.

Steppe on slope with *Cryptosepalum* on Cu-soil (broad endemic sensu Faucon & al., Plant Ecol. Evol. 143 : 9, 2010) ; *Brachystegia* or *Uapaca* woodland ; rocky places ; 500-1250 m alt.

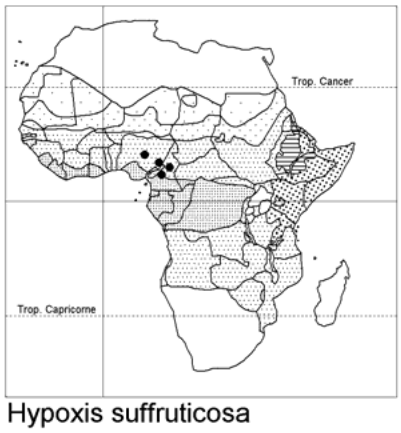
X. equisetoides Baker ; Fl. Trop. E. Afric., Velloz.: 3-4, 1975 ; Figueiredo & Smith, Pl. Angola : 207, 2008 ; Fl. Zambes. 12/2 : 165-168, 2009. – Icon.: Tredgold & Biegel, Rhodes. wild flowers : pl. 6/1, 1979.

syn.: *Vellozia equisetoides* (Baker) Baker ; *Xerophyta retinervis* Baker var. *equisetoides* (Baker) Coetzee and var. *setosa* L. B. Sm. & Ayensu ; *X. melleri* Baker

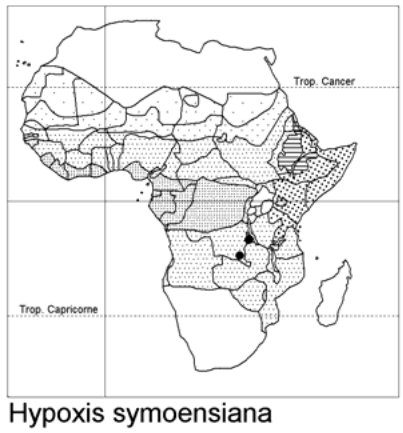
Shrub with short stem c. 20 cm Ø, often dichotomously branched ; stem and branches fibrous, coated with many pleated leaf-bases resembling *Equisetum ;* leaves 3-8, linear, tufted at end of branches ; sheath base 2-6 cm long, dark red-brown, short-pubescent or bristly ; blade stiff, 10-30 × c. 1 cm, subulate or 3-angled, often sharp-pointed, glabrous to softly-hairy on both surfaces ; flowers single at ends of branches ; peduncle 1-18 cm long, ± wiry, densely covered with short or minute ascending bristle-like trichomes ; perianth purple or pink, pale mauve or white ; segments ± lanceolate, c. 2,5 × 0,3-1,3 cm ; trichomes on ovary *0,2-0,6 mm* long, *appressed ;* capsule brittle.

Forest, rocks, on very acid soil ; *Brachystegia*, *Julbernardia* or mopane woodlands ; hill slopes ; rocky places ; shallow sandy soils ; stream banks ; granite and serpentine rock outcrops ; supposed Cu-endemic (Faucon & al., Pl. Ecol. Evol. 143 : 11, 2010) ; 450-1600 m alt.

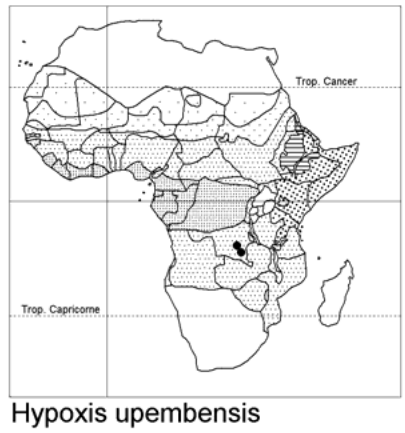
S. Africa, Namibia, Swaziland.



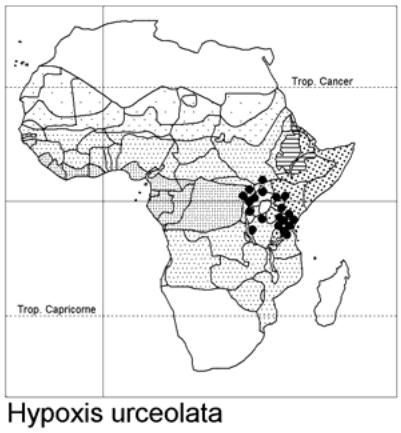
Hypoxis suffruticosa



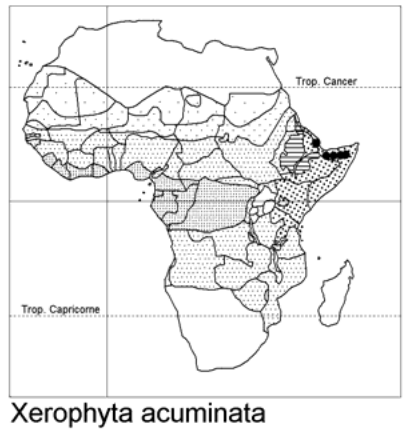
Hypoxis symoensiana



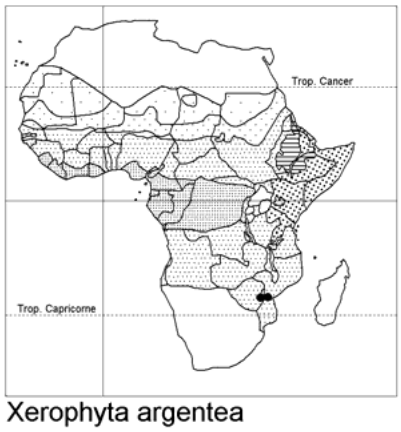
Hypoxis upembensis



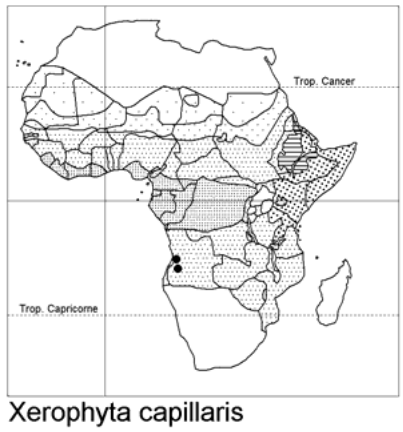
Hypoxis urceolata



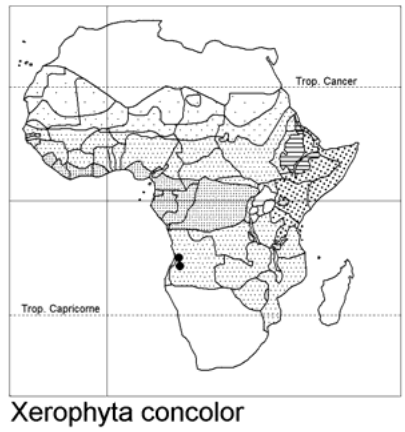
Xerophyta acuminata



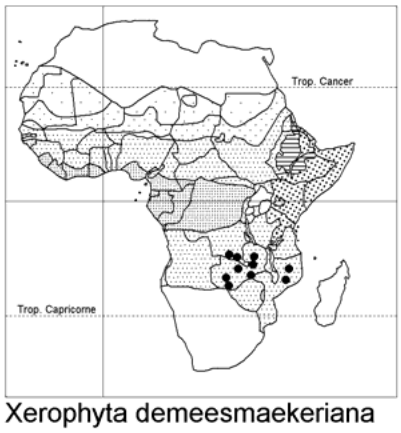
Xerophyta argentea



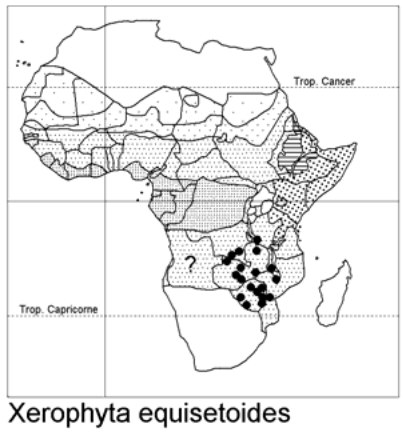
Xerophyta capillaris



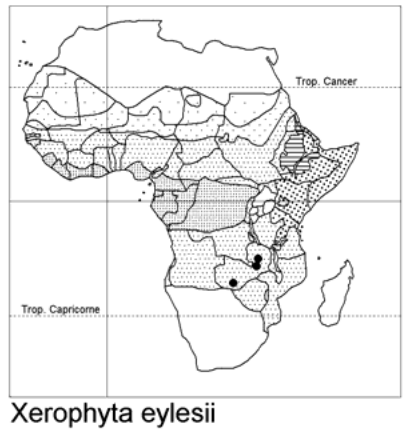
Xerophyta concolor



Xerophyta demeesmaekeriana



Xerophyta equisetoides



Xerophyta eylesii

XEROPHYTA

X. eylesii (Greves) N. L. Menezes – Icon: J. Bot. 59 : 274, 1921 (hairs on ovary).

bas.: *Vellozia eylesii* Greves

syn.: *X. zambiana* L. B. Sm. & Ayensu, p.p. quoad. specim. Angus 886, West 6132.

Shrub 15-30 cm tall; stem fibrous, 2,5-5 cm Ø, unbranched or forked at top; leaves and flowers arising separately from twin apices; leaves 4, tufted at ends; leaf sheath base 3-5,5 cm long; blades linear, 5-42 × 0,1-1,1 cm, thickly covered with short fine trichomes above, similar but less so below, margins softly-hairy; flowers solitary at shoot ends; peduncle 12-16,5 cm long, hairy; perianth pale to dark mauve or pale purple, 4,5-5 cm long; trichomes on ovary *shield-shaped*, *fringed* with *single deciduous bristles;* capsule known ?

Miombo woodland with *Loudetia*, *Hyparrhenia* grasses; mopane woodland; *copper* outcrops, from apparently different habitats; 1000-1550 m alt.

X. goetzei (Harms) L. B. Sm. & Ayensu

bas.: *Barbacenia goetzei* Harms

Shrub; stem erect, branched, 1-2 m tall; branches 0,8-1 cm Ø; leaf sheaths convex, dark castaneous, densely pubescent beneath toward apex; blade linear, 14-23 × 0,4-0,8 cm, subsericeous-pubescent; flowers solitary; peduncle 4-7 cm long, glabrous; perianth pale blue; tepals *4-5 cm* long; ovary *glabrous;* fruit unknown.

Gregarious, among rocks; dry sunny slopes; 600 m alt.

X. hirtiflora Behnke & E. Hummel, Bot. J. Linn. Soc. 172: 64-66, 2013 (fig. p. 65).

syn.: *X. equisetoides* sensu Seine, Veget. Inselbergen Zimbabwe: 89, 1996.

Shrub; stem erect, 12 cm Ø at base, divided into 2-3 branches c. 15 cm long and 6 cm Ø, with many new shoots at apex; young branches covered with brown fibres (disintegrated leaf sheaths), tips feathery and whitish grey; leaves linear, 40-70 × 0,5 cm, both surfaces with long white woolly hairs; flowers solitary on 10-15 cm long woolly-hairy peduncles; tepals 4-4,5 cm long, faintly mauve, with woolly hairs outside and basally; ovary turbinate, c. 1 cm long, densely woolly-hairy; fruit unknown ?

Inselbergs; c. 1220 m alt.

Similar to *X. villosa* and *X. trichophylla*.

X. humilis (Baker) T. Durand & Schinz; Fl. Trop. E. Afr., Velloz.: 2, 1975; Sebsebe Demissew & al. Flow. Eth. & Eritrea…: 213, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 328-329, 2010; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 12/2: 162-163, 2009. – Icon.: Tredgold & Biegel, Rhodes. wild flowers: 10 fig. 6, 1979; Fl. Eth. & Eritrea 6: 313, 1997; Pickering & Roe, Wild flowers Victoria Falls area: 113, 2009.

bas.: *Vellozia humilis* Baker

syn.: *V. minuta* Baker 1903, non *Xerophyta minuta* Baker 1875; *Barbacenia minuta* (Baker) Dinter; *B. humilis* (Baker) Burtt Davy

Squat perennial *2-10 cm* tall, sometimes forming mats to 25 cm across, brown when dry, green when moist, without or with a stem to 2,5 cm long, seldom branched; rhizome horizontal, reaching 7 cm in length; leaves grass-like, erect or slightly curved; sheath 0,6-1,9 cm long, fraying; blade 2-23 × 0,2-0,7 cm with minute teeth along margins and keel; flowers 1-2 at ends of stems,

XEROPHYTA HUMILIS

many per plant; peduncle 1,5-13 cm long, purplish with dense stalked black glands; perianth pale yellow, bright blue to pink or white, often with pink on back, lilac or purple, with dark purple glands outside; segments *0,4-1,6* × 0,15-0,3 cm, sometimes green with a pink keel, *outermost bristle-tipped;* capsule with black glandular trichomes.

Open mopane; miombo; *Acacia* woodland and grassland; over rocks, stony soils; shallow soil and crevices on large granite inselberg; *Commiphora* bushland on red soil; 150-1600 m alt.

S. Africa, Namibia, Botswana, Swaziland. – Apparently disjunct (cf. Fl. Trop. E. Afr., l.c.).

X. kirkii (Hemsl.) L. B. Sm. & Ayensu; White & al., Evergreen for. fl. Malawi: 110, 2001. – Icon.: Fl. Zambes. 12/2: 173, 2009.

bas.: *Vellozia kirkii* Hemsl.

Subshrub to tree 0,9-2 m tall; stem fibrous, erect, branched or unbranched, 1,3-2,5 cm Ø, with short thick primary branches *1,5 cm* Ø and numerous short flowering shoots, thickly coated with compact leaf-bases, the whole often 30-40 cm across at base; leaves 3-10 in apical tufts, suberect to pendulous; sheath *1,5-4 cm* long, apex *rounded;* blade 1,5-30 × c. 1 cm, apex acute, gland-spotted; flowers 1-6 in tufts at tips; peduncle ± erect, 4,5-12 cm long, sticky; perianth white or with a very pale lilac or mauve tint, reddish-lilac or dusky violet, sometimes the throat green at base; segments 2,5-6,5 × 0,5-1,2 cm; capsule sometimes with viscous exudate, indehiscent.

Savanna; grassland; rocky outcrops; 1200-2150 m alt.

Near *X. splendens* (for differences, see White & al., l.c.).

X. monroi (Greves) N. L. Menezes; Behnke, Bot. J. Linn. Soc. 172: 66, 2013.

bas.: *Vellozia monroi* Greves

Stem erect, straight, 5-10 cm tall, c. 3 cm Ø (incl. leaf sheaths); sheaths dark brown, c. 5 cm long, splitting into fibres hairy at apex; leaves in (sub-)terminal rosettes; blade linear, 40-55 × 0,5 cm, tip long attenuate, with soft hairs towards base, and with a heavily thickened papillate epidermis and knobs; flowers solitary; peduncle c. 15 cm long, woolly-hairy; tepals mauve, outer ones with woolly hairs on midvein.

Rock, slopes.

Considered a synonym of *X. villosa* by Gonçalves in Fl. Zambes. 12/2: 163, 2009. Differs from *X. villosa* by less densely hairy leaves and by shorter hairs on the ovary.

X. naegelsbachii (Dinter ex Friedr.-Holzh.) Behnke, Bot. J. Linn. Soc. 172, 69, 2013.

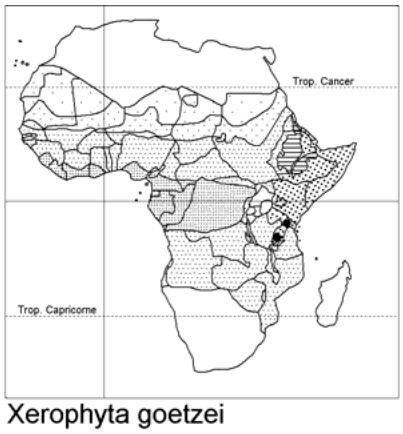
bas.: *Barbacenia naegelsbachii* Dinter ex Friedr.-Holzh.

syn.: *Xerophyta wentzeliana* sensu Sölch & Roessler in Merxmüller, Prodromus Fl. SW-Afrika 152: 2, 1969, non (Harms) Sölch; *X. equisetoides* Baker var. *pauciramosa* sensu Fl. Trop. E. Afr., Velloz.: 4, 1975, p.p., quoad syn. *Barbacenia naegelsbachii* specim. Naegelsbach s.n.

Shrub, much branched; stem short, woody, 1-1,5 cm Ø; branches covered with fibres of squarrose leaf sheaths c. 3 cm long; leaf blade linear, 15-30 × 0,8 cm, glabrous beneath, with short emergences above; flowers solitary; peduncle c. 6,5 cm long with short hairs in upper part; tepals c. 4 cm long; ovary c. 0,8 cm long, with short emergences.

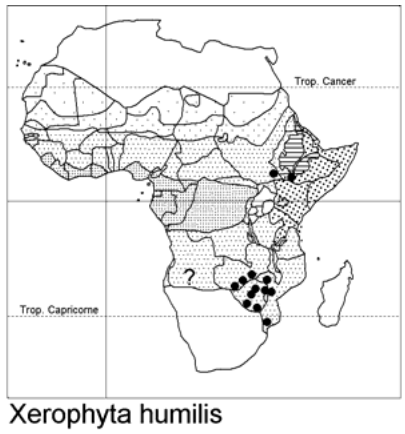
Mountain slopes ?

Namibia.

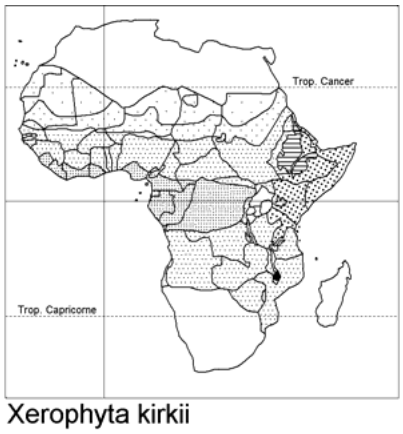


Xerophyta goetzei

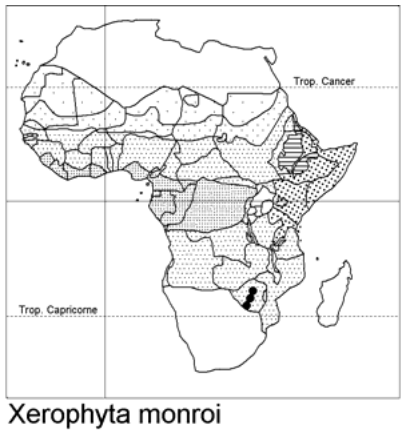
Xerophyta hirtiflora



Xerophyta humilis

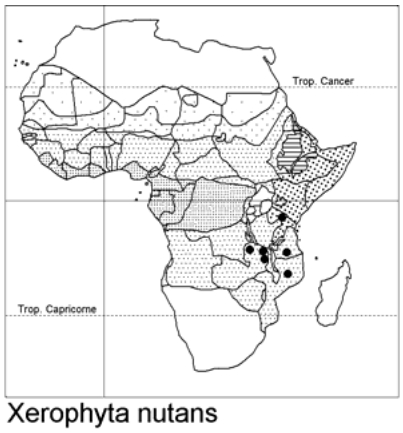


Xerophyta kirkii

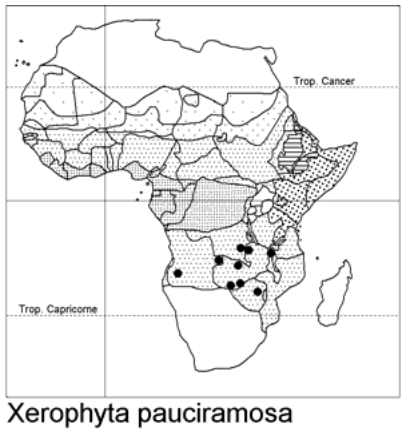


Xerophyta monroi

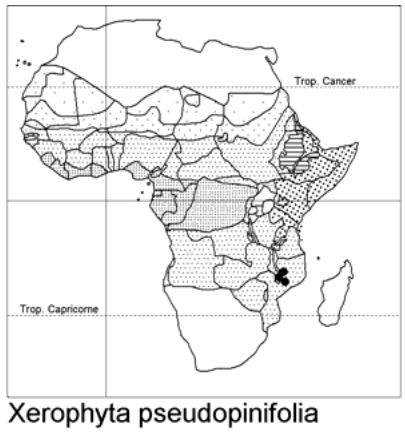
Xerophyta naegelsbachii



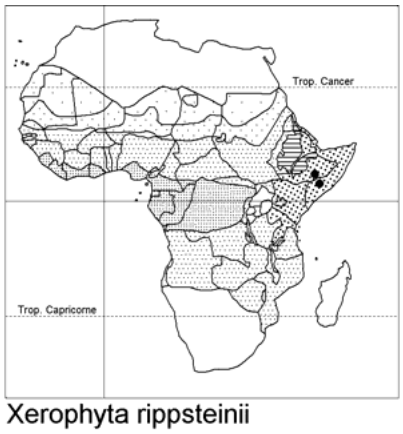
Xerophyta nutans



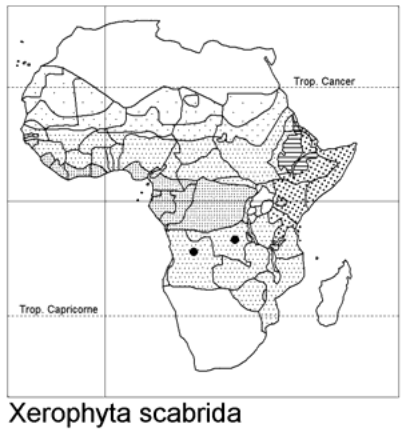
Xerophyta pauciramosa



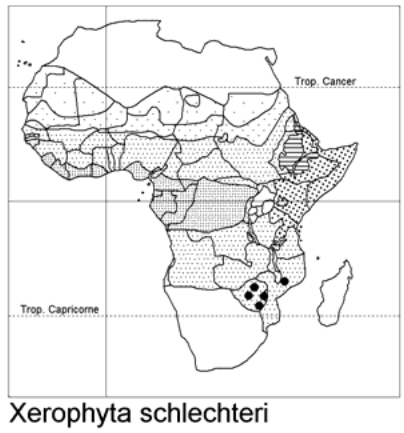
Xerophyta pseudopinifolia



Xerophyta rippsteinii



Xerophyta scabrida



Xerophyta schlechteri

XEROPHYTA

X. nutans L. B. Sm. & Ayensu; Fl. Trop. E. Afr., Velloz.: 7, 1975; Fl. Zambes. 12/2: 170-171, 2009.

Shrubby herb 0,2-0,5 m tall, with a fibrous, few-branched stem, the main branch to 3 cm Ø, flowering branches short; leaves arcuate, 2-10 tufted at ends; sheath 2-4,5 cm long, blackish-brown; blade 3,5-40 cm × 1-8 mm, filiform-attenuate towards apex, covered with *flat linear-lanceolate grey trichomes below* !, *glabrous above* !, minute prickle-like trichomes spaced along margins; flowers 1-4, in tufts at ends of small branches; peduncle 5-14 cm long, stellate-pubescent; perianth pale lilac; segments 2,5-3 × 0,5-0,8 cm.

Abundant in *Brachystegia* woodland forming extensive patches; common over large areas on rocky slopes and ridges; smooth exposed rocky slab; 510-2130 m alt.

Comprises 2 vars.: – var. **nutans**; – var. **plumosa** Behnke, Bot. J. Linn. Soc. 172: 71, 2013.

X. pauciramosa (L. B. Sm. & Ayensu) Behnke, Bot. J. Linn. Soc. 172: 67-68, 46 (fig.), 2013.

bas.: *X. equisetoides* Baker var. *pauciramosa* L. B. Sm. & Ayensu

syn.: *X. pauciramosa* L. B. Sm. in sched.; *X. equisetoides* var. *pauciramosa* sensu Fl. Trop. E. Afr., Velloz.: 3, 1975, p.p., excl. Goetze 1409, Naegelsbach s.n., and sensu Fl. Zambes. 12/2: 167, 2009, excl. Goetze 1409.

Stem to 50 cm tall with branches c. 1 cm Ø, covered with grey-brown leaf sheaths with broad yellow-brown apical parts when young; leaf blade linear, to 15 × 0,8 cm, glabrous, acute; flowers 1-3, on pedicels with emergences in upper part; tepals c. 2,5 cm long, white or pink to lilac; ovary 0,8 cm long, densely covered with short emergences.

In cracks of extensive bare granite outcrop; 1300 m alt.

S. Africa. Also in Tanzania and Malawi ?

X. pseudopinifolia Behnke, Bot. J. Linn. Soc. 172: 60, 2013. – Icon.: Fl. Zambes. 12/2: 157, 2009 (as *X. pinifolia* var. *pinifolia*).

syn.: *X. pinifolia* Lam. var. *pinifolia* sensu Fl. Zambes. 12/2: 158, 2009.

Undershrub; stem 0,5-0,75 m tall, erect, branched, covered with appressed leaf bases and soft scales; leaves in terminal pseudorosettes, linear-lanceolate, 3-8 cm × 1,5-3,5 mm, tapering to a rigid point 1-3 mm long, both surfaces tomentose with soft scales; flowers solitary; peduncle 1-2 cm long, glandular; tepals 1-1,5 cm long, white, outer ones glandular outside, pointed; ovary obovate, 2-3 mm long, glandular.

Riparian forest; *Brachystegia-Combretum* woodland; sometimes on slopes growing among rocks; 600-1700 m alt.

X. pinifolia Lam. is a Madagascan species.

H. rippsteinii L. B. Sm., J.-P. Lebrun & Stork; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 213, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 328, 2010; Thulin, Ogaden…in Symb. Bot. Upsal. 35/2: 89, 2011. – Icon.: Fl. Eth. & Eritrea 6: 314, 1997.

Herb forming fairly dense tussocks of unbranched stems from short rhizomes; stem densely covered in persistent fibrous leaf-sheats; leaf sheaths 0,5-1 cm long, brown when young, breaking up into grey fibres; blades few, linear, strongly recurved, to 10 × 0,7 cm, *densely covered* with soft *cylindrical* hairs *and some complex* hairs below, upper surface with simple hairs or glabrous; flowers solitary, peduncle 2-5 cm long; top of peduncle and ovary densely covered with thick stiff simple hairs; mature seeds unknown.

XEROPHYTA RIPPSTEINII

Coarse sandy soil with outcrops of whitish-grey rock; locally common with *Sporobolus ruspolianus;* 400-500 m alt.

Near *X. schnizleinia*.

X. scabrida (Pax) T. Durand & Schinz; Fl. Trop. E. Afr., Velloz.: 8, 1975 p.p., quoad specim. Pogge 423; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 12/2: 160, 2009, p.p., quoad specim. Pogge 423.

bas.: *Barbacenia scabrida* Pax

syn.: *Vellozia scabrida* (Pax) Baker

Shrubby plant with short stem covered with fan-like leaf sheaths to 3 cm long; blade 10-15 × 0,5-0,7 cm; flowers solitary; peduncles 7-10 cm long, glandular especially toward apex; perianth white to pale mauve; tepals 2,5-3,5 cm long, glandular; anthers mostly 1,2-1,6 cm long; ovary turbinate c. 1 cm long, densely glandular.

Ecology ?

X. schlechteri (Baker) N. L. Menezes – Icon.: Fl. Zambes. 12/2: 161, 2009, excl. specim. Philcox & Leppard 8850 (= *X. seinei*).

syn.: Enum. 3: 107, 1995; *Barbacenia schlechteri* (Baker) Burtt Davy; ? *Xerophyta viscosa* sensu Fl. Zambes. 12/2: 175, 2009, p.p., quoad specim. Wild A18, Harris 326, non Baker

Rhizomatous herb or subshrub 10-30 cm tall, erect, sticky, ± stemless; leaves 8-16, rosulate at top of plant at ground level; sheath 1,5-3 cm long; blade *persistent*, slowly and *irregulary disintegrating* with age, 5-30 × 0,1-0,7 cm, acuminate, glabrous, margins serrate; flowers solitary at ends of stems; peduncle 12-15 cm long; perianth white; segments lanceolate, *1,2-3 × 0,15-0,17* cm, gland-dotted; stigmatic region of ovary *3-5 mm long*; ovary sticky.

Open savanna; rocky hillsides; dambos; shallow soil over rock; sometimes on bare granite hills or associated with the Great Dyke (Zimbabwe) and *serpentine* soils; often forming pure colonies or close mats to 3 m wide; 300-1750 m alt.

Botswana, S. Africa.

X. schnizleinia (Hochst.) Baker, incl. var. *brevifolia* (Chiov.) Cufod., var. *somalensis* (A. Terracc.) Lye; Fl. Trop. E. Afr., Velloz.: 4, 1975. – Icon.: Thulin, Fl. Somalia 4: pl. 4/B, 1995; Fl. Eth. & Eritrea 6: 313, 1997; Puff & Sileshi, Pl. Simen: 235, 2005; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 212, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 327, 2010.

bas.: *Hypoxis schnizleinia* Hochst. (cf. Friis in Fragm. Florist. Geobot., Suppl. 2/1: 199, 1993).

syn.: *Schnizleinia amica* Steud. in sched., nom., ex Hochst., Flora 27: 31, 1844, in syn.; *Barbacenia amica* Baill., nom. nud.; *Vellozia schnizleinia* (Hochst.) Martelli ("*schnizleiniana"*), incl. var. *somalensis* A. Terracc., and var. *brevifolia* Chiov.; *Barbacenia schnizleinia* (Hochst.) Pax ("*schnizleiniana"*); *B. hildebrandtii* Pax; *Xerophyta hildebrandtii* (Pax) T. Durand & Schinz; *Vellozia hildebrandtii* (Pax) Baker; *V. somalensis* (A. Terracc.) Chiov.; *Xerophyta somalensis* (A. Terracc.) N. L. Menezes 1971 (also made by Cufodontis 1972). – All of var. **schnizleinia**.

Herb with stem *simple* or rarely few-branched from base, *1-50 cm* tall, 0,5-1,5 cm Ø at base; leaf sheaths convex, carinate, dull brown; blade linear, 3-30 × 0,2-0,6 cm, *glabrous*, margins setose-serrate near apex and so on midnerve below; peduncles 1-3 at apex of stem, 1-28 cm long, setose near apex; perianth

XEROPHYTA SCHNIZLEINIA

white or flushed with mauve or pink; tepals ± linear, 0,5-4 cm long; ovary *subglobose*, with stiff hairs. Vary variable in size of all parts.

Rocks or sunk in soil; rock crevices, particularly in lava flows, also on limestone, or sandy or stony soils in grassland or open *Acacia*, *Commiphora* woodland; shallow soil pockets on rocks; gypsum; 30-1800 m alt.

Area apparently disjunct.

Comprises 2 vars.: – var **schnizleinia;** – var. **occidentalis** (Milne-Redh.) Behnke, Bot. J. Linn. Soc. 172: 39, 2013 [bas.: *Vellozia schnizleinia* var. *occidentalis* Milne-Redh.], with long stem (to 50 cm) and longer leaves, in Nigeria.

"… var. *somalensis* has nothing but small size to distinguish it and subsequent collections show such integration as to make in untenable" (Smith & Ayensu in Thulin, Fl. Somal., l.c.).

X. seinei Behnke, K. Kramer & E. Hummel – Icon.: Taxon 51: 57-62, 2002; Fl. Zambes. 12/2: 161, 2009, quoad specim. Philcox & Leppard 8850.

Herb erect, subshrubby, branched, forming a dense mat; stem to c. *10 cm* tall; branches 0,5-1 cm Ø, entirely covered by persistent dry leaf blades; leaves 6-10, tristichous, glabrous, curved; blade ± linear, *4-8 × 0,4-1 cm*, with glands all over, long acuminate, margins slightly denticulate; flowers solitary, arising from the centre of the leaf-rosette; pedicels 8-10 cm long, c. 1 mm Ø, glandular; perianth white; tepals lanceolate, *2-2 × 0,5* cm, outer ones with dark glands on outside; stigma of ovary c. *0,6 cm* long; capsule hanging from the bent scape.

Granite slopes of inselbergs in various habitats (see Taxon 51: 64, 65 for details); 1470 m alt.

Known only from the type locality.

Resembling *X. schlechteri*.

X. simulans L. B. Sm. & Ayensu; Fl. Zambes. 12/2: 158-159, 2009. – Icon.: Fl. Trop. E. Afr., Velloz.: 5, 1975.

Herb often shrubby; stem 0,1-*2,4 m* tall; ultimate *branches* erect, very short, 1 cm Ø; leaf sheaths c. 4 cm long, dark castaneous, quickly disintegrating after abscission; blade linear, to 30 × 0,7 cm, *sparsely pubescent* at least *near base* with straight white, ± plumose hairs; peduncles 1-4 at apex of each branch, 1-5 cm long; perianth white or pale mauve; tepals 2-4 cm long; ovary *narrowly ovoid* to *subcylindric*, densely hairy; stigmatic region 11-17 mm long.

Dry rocks; short turf over granite outcrops; stony hillsides; round gneiss rocks, following *Selaginella njamnjamensis* in succession from bare rock; almost bare rocky slopes with *Boswellia papyrifera*, *Terminalia brownii*, *Lannea fulva*, *Euphorbia magnicapsula*, etc..; sometimes gregarious; 750-1400 m alt.

Near *X. suaveolens*.

X. spekei Baker; Fl. Trop. E. Afr., Velloz.: 7-8, 1975; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 214, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 329, 2010; Fl. Zambes. 12/2: 171-172, 2009. – Icon.: Fl. Eth. & Eritrea 6: 313, 1997.

syn.: *Vellozia aequatorialis* Rendle; *V. tomentosa* (Pax) Baker, nom. illegit.; *Barbacenia tomentosa* Pax, nom. illegit.; *Xerophyta tomentosa* (Pax) T. Durand & Schinz; *X. aequatorialis* (Rendle) N. L. Menezes; *Barbacenia aequatorialis* (Rendle) Harms; *B. spekei* (Baker) Harms; *B. helenae* Buscal. & Muschl.; *Vellozia spekei* (Baker) Baker

XEROPHYTA SPEKEI

Herb or tree 0,5-2-5 m tall; trunk 10-13 cm Ø; stems *much branched*; rootstock stout, 1,2-1,5 m Ø, decumbent, rooting at base, with erect woody branches 0,6-1,8 cm Ø, densely covered with coarse dry leaf bases; leaf sheaths convex, typically with the midnerve enlarged into a broad subapical umbo, dark castaneous, not *disintegrating;* blade grass-like, 7-70 × 0,3-1,2 cm, *pilose beneath* at least toward base, margins setose-serrate near apex and on midnerve beneath; flowers 1-5 in tufts among leaves; peduncle flexuose, 2-17 cm long, black-glandular in upper half; perianth white to pale blue-lilac or mauve; tepals ± lanceolate, *2-5* × 0,3-0,8 cm, base glandular; ovary glabrous, viscous-glandular, capsule also so.

Rock outcrops; rocky slopes; *Brachystegia* woodland; 300-1900 m alt.

Very variable in stature, size of flowers.

X. splendens (Rendle) N. L. Menezes; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 183, 2006; Fl. Zambes. 12/2: 174-175, 2009; Harris & al. in Kew Bull. 66: 249 Table 1, 2011.

syn.: *Barbacenia splendens* (Rendle) Harms

Subshrub or tree 0,45-6 m tall, glandular, with ascending branches; stems 0,8-1,2 cm Ø, unbranched or forked 1,5-3 (or more) cm Ø at base; stem and branches coated with mass of closely packed leaf-bases; leaves 4-8, rosulate on top of branches, glabrous, slightly sticky; sheaths *4-7,5 cm* long, *truncate* at end; outermost leaf blades 30-62 × 0,8-1,7 cm, innermost 10-20 × 0,2-0,4 cm, prominent midrib on both surfaces; flowers 1-10, tufted at tips, in axils of bracts; peduncles 14-24 cm long, glandular; perianth lilac or white, sometimes with faint red or bluish strips, fragrant; segments 4,5-7 × 0,8-1,8 cm; capsule 2,5-2 cm, with viscous exudate, indehiscent.

Abundant on rocky slopes and ledges in grassland; 1650-2450 m alt. – Extremely fire-resistant. "Most individuals are fire-scarred and it can withstand fires hot enough to kill *Protea*…" (White & al., Evergreen for. fl. Malawi: 110, 2001).

According to Behnke & al. (2013): 57-58, endemic to Mt. Mulanje. But: "decline in habitat due to grazing livestock (Mt Namuli, Mozambique) and threat of fires" (Harris & al., l.c.).

Near *X. kirkii*.

X. squarrosa Baker; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 12/2: 159-160, 2009. – Icon.: Dinteria 9: 18-20, 1973.

syn.: *Vellozia squarrosa* (Baker) Welw. ex Baker 1880, nom. in syn. (ex B. J. Jacks. 1895, Baker 1898).

Shrub 0,9-1,5 m tall, much branched; stem 3,6-4,8 cm Ø at base; stem and branches coated in mantle of closely packed rough leaf-bases and roots; leaves 4-9, near shoot ends and on small lateral branches among leaf-bases; sheath 1-2 cm long, with fibres or bristles; blade linear, 4-40 × 0,1-1,2 cm, *smooth*, acuminate, entire or denticulate with short spinescent trichomes on upper margins; flowers 1-3 at ends of stems; peduncles 8,5-12,5 cm long, densely covered with spreading stalked glandular trichomes in upper half; perianth pinkish white to bluish white; segments ± linear, 1,8-4 × 0,3-0,4 cm (outer), 2-3,6 × 0,4-0,8 cm (inner); anthers *0,9-1,2 cm* long; ovary with long-stalked glands (also in fruit); stigmatic region *1-1,2 cm long*.

Bare rock; rocky slopes; sometimes in thick masses; c. 600 m alt.

Angola, ? Namibia. Also in NC Mozambique according to Fl. Zambes. 12/2: 160, 2009 (specim. Mendonça 905).

Near *X. scabrida*.

XEROPHYTA

X. suaveolens (Greves) N. L. Menezes; Fl Trop. E. Afr., Velloz.: 6, 1975; Figueiredo & Smith, Pl. Angola: 207, 2008. – Icon.: J. Bot. 59: 275, 1921 (hairs on ovary); Fl. Zambes. 12/2: 169, 2009.

bas.: *Vellozia suaveolens* Greves

Shrub 0,15-2 m tall, with blackish fibrous erect stem arising from base 5-20 cm Ø, irregularly branched; leaves 3-13 in apical tufts; sheath 3-6 cm long, dark brown, quickly disintegrating into stiff fibres; blade linear, 3-66 × 0,15-1,3 cm, *glabrous below*, *scabrous above* with fine ascending *hook-like trichomes*, margins glabrous or ciliate; flowers 1-8 tufted at ends of branches, precocious; peduncle 2,5-16 cm long; perianth greenish-cream of white to mauve, pink, deep purple to blue; segments lanceolate, 2-6,5 × 2,5-1,6 cm; ovary with erect forked or stellate and shortly stiff-rayed hairs; capsule trigonal, 0,7-2,2 × 0,4-1,7 cm; seeds minute, numerous.

Mopane-*Acacia*- and miombo woodland; rocky places; sandy slopes; stream banks; often in dry situations; bare exposed rocks; cliff in *Brachystegia* woodland; termitaria; savanna; 250-1700 m alt.

Botswana, S. Africa.

Comprises 2 vars.: – var. **suaveolens** with leaf blades glabrous beneath, scabrous above; – var. **vestita** L. B. Sm. & Ayensu, with long hairs above or on both surfaces.

Near *X. nutans*.

X. tanzaniana Behnke, Bot. J. Linn. Soc. 172: 62, 2013.

syn.: *X. scabrida* sensu Smith & Ayensu, Fl. Trop. E. Afr., Velloz.: 8, 1975, p.p., quoad specim. Leippert 5463, non (Pax) T. Durand & Schinz; *X. scabrida* sensu McPherson & al. in Novon 7: 390, 394, 1997, quoad specim. Balslev 42.

Shrub, erect; stem 0,5-1 m tall, branched; leaf sheaths c. 1,2 cm long, 1,6 cm wide, appressed to stem, with splitting tips; blade linear, 15-20 × 0,5-0,8 cm, tip long attenuate, shiny above, lower surface with resinous secretions between the veins; flowers solitary; peduncle 10-12 cm long; tepals 2,5-3 cm long, white, glabrous inside, glandular outside; ovary turbinate, c. 9 mm long, glandular.

Mountain slopes; to c. 1900 m alt.

X. trichophylla (Baker) N. L. Menezes; Behnke & al. in Bot. J. Linn. Soc. 172: 74, 2013. – Icon.: Bot. Mag. 130: pl. 7962, 1904 (under *Vellozia*).

bas.: *Vellozia equisetoides* (Baker) Baker var. *trichophylla* Baker

syn.: *V. trichophylla* (Baker) Hemsl.; *Xerophyta equisetoides* Baker var. *trichophylla* (Baker) L. B. Sm. & Ayensu; *X. barbarae* P. A. Duvign. & Dewit, incl. subsp. *cuprophila* P. A. Duvign. & Dewit; *Vellozia equisetoides* sensu W. Watson in Gard. Chron. Ser. 3, 34: 425, 1903, non Baker; *X. equisetoides* var. *trichophylla* sensu Fl. Zambes. 12/2: 166, 2009, p.p., excl. specim. Chisumpa 115, Fanshawe 2609, Salubeni 1235.

Shrub; stem woody, short, > 20 cm Ø, with a few thick primary branches, all covered in fibres of split leaf sheaths; leaf blade linear, acute, to 40 × 1,2 cm, both surfaces with simple long hairs surrounded by a multicellular base of emergences; flowers 1-3; tepals c. 2,5 cm long, pale blue to mauve; ovary ovoid, 8 mm long, densely covered with emergences.

Rock outcrops; forest; *Brachystegia-Julbernardia* or mopane woodland; hill slopes; on shallow sandy soils; 450-1450 m alt.

XEROPHYTA

X. velutina Baker; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 12/2: 155, 2009.

syn.: *Vellozia velutina* (Baker) Welw. ex Baker 1878, nom. in syn., ex Baker 1880; *Barbacenia velutina* (Baker) Pax

Erect shrub 0,4-0,75 m tall; branches 1,2-1,8 cm Ø, clothed with the rigid appressed truncate mucronate leaf sheaths; leaves 8-10, tufted at end of branches, ± linear, 15-25 × 0,6-1,4 cm, finely pilose on both surfaces (trichomes *simple*); flowers solitary, produced at stem ends; peduncles 3,7-5 cm long, with black glands upwards; perianth segments blue, 2,5 cm long, *acuminate;* ovary densely dark-sticky.

Sandy schistose rocks near river banks; 720-1140 m alt.

Near *X. argentea*.

X. villosa (Baker) L. B. Sm. & Ayensu; Fl. Zambes. 12/2: 163-164, 2009. – Icon.: J. Bot. 59: 273, 1921 (hairs on ovary); Dinteria 9: 17, 20, 1973.

syn.: Enum. 3: 107, 1995, excl. *X. monroi* (Greves) N. L. Menezes; *X. bakeri* T. Durand & Schinz, nom. illegit.; *X. mollisima* T. Durand & Schinz, nom. nud.; *Barbacenia villosa* (Baker) Burtt Davy & Pott-Leendertz; see Behnke & al. in Bot. J. Linn. Soc. 172: 67, 2013.

Shrub 0,3-1,5 m tall, stemless or with an unbranched to irregularly branched stumpy stem; stem and branches 2,5 cm Ø at ends, blackish, coated with many leaf-bases; leaves 3-10 tufted at ends of shoots; sheath 2-6 cm long, stiff, scaly; blade linear-lanceolate, 6-50 × 1,2 cm, apex acute or acuminate, the youngest with *thick covering* of *long white* or *brownish trichomes;* flowers 1-4 at ends of shoots; peduncle slender, 4,5-19 cm long, densely covered in long white trichomes; perianth dark blue to purple, violet, pale mauve or whitish; segments 2,4-5 × 0,4-1,1 cm, outermost densely villose; ovary *densely villose* with *long soft spiny or clustered white or brownish eglandular hair-like* trichomes.

Shallow soil over rocks; often on exposed granite slopes; sometimes in dense clumps; 1400-1600 m alt.

S. Africa.

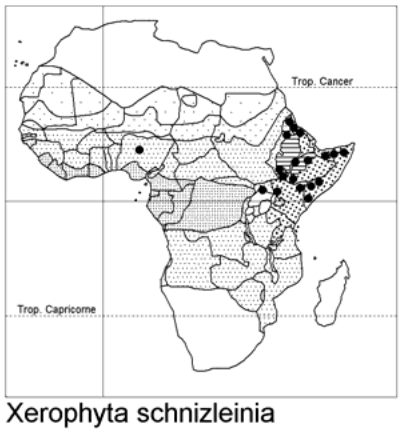
(**X. viscosa** Baker, in our Enum. 3: 107, 1995, with synonyms *Barbacenia viscosa* (Baker) Burtt Davy; *Vellozia hereroensis* (Schinz) Baker; *Barbacenia hereroensis* Schinz) is a plant occurring in S. Africa, Lesotho, Swaziland.

X. viscosa sensu Gozalves, non Baker, in Fl. Zambes. 12/2: 175, 2009, is *X. hereroensis* (Schinz) N. L. Menezes according to Behnke & al. (2013): 49. Other specimens cited are *X. schlechteri* ?

X. wentzeliana (Harms) Sölch; Behnke & al. in Bot. J. Linn. Soc. 172: 68-69, 2013.

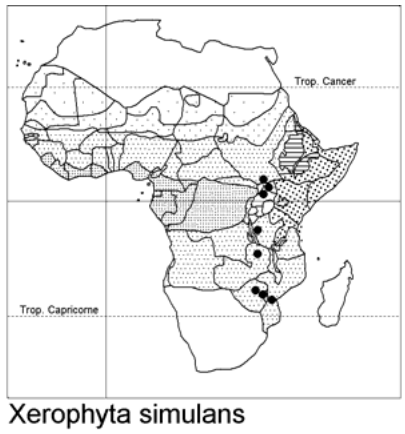
bas.: *Barbacenia wentzeliana* Harms

syn.: *B. wentzeliana* Harms var. *rhodesiana* R. E. Fr.; *Vellozia wentzeliana* (Harms) Greves; *Xerophyta retinervis* Baker var. *wentzeliana* (Harms) Coetzee; *X. equisetoides* Baker var. *pubescens* L. B. Sm. & Ayensu, and var. *pauciramosa* L. B. Sm. & Ayensu, p.p., quoad specim. Goetze 1409 and Milne-Redhead 3001; *X. equisetoides* Baker var. *trichophylla* sensu Fl. Zambes. 12/2: 166, 2009, quoad specim. Chisumpa 115, Fanshawe 2609, Salubeni 1253; *X. suaveolens* var. *vestita* sensu Fl. Zambes. 12/2: 170, 2009, quoad specim. La Croix 2424, Linder 3931; *X. capillaris* Baker var. *occultans* sensu Fl. Zambes. 12/2: 159, 2009, quoad specim. Richards 14966. – All of var. **wentzeliana**.



Xerophyta schnizleinia

Xerophyta seinei



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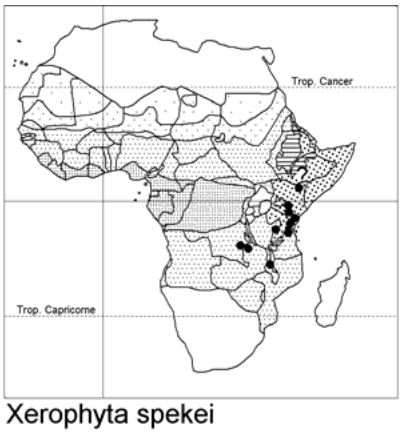

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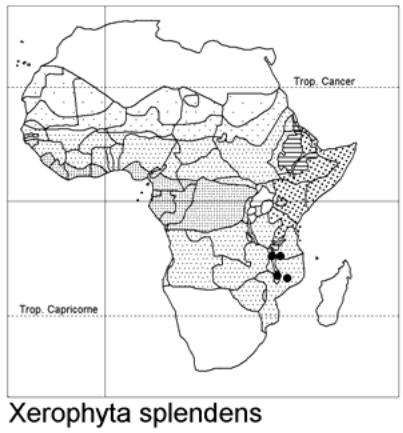
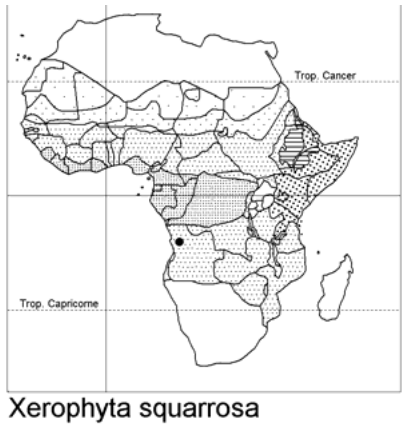
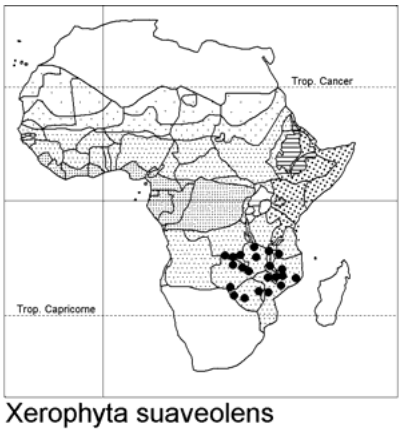


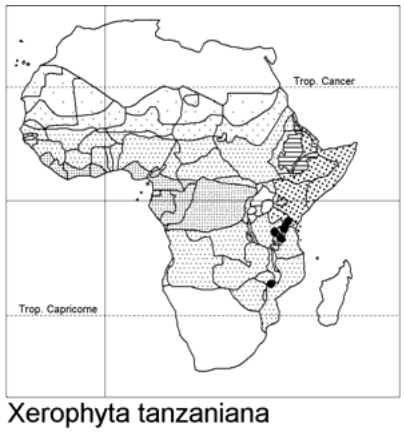
Xerophyta splendens



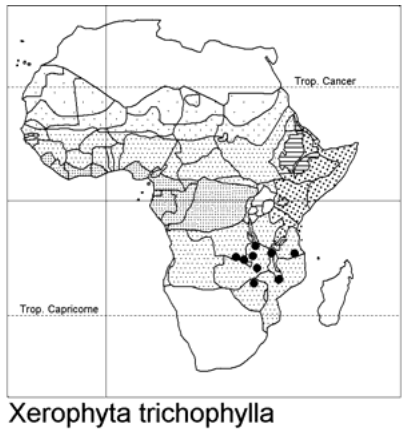
Xerophyta squarrosa



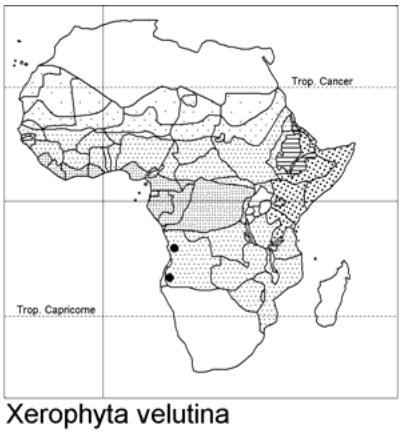
Xerophyta suaveolens



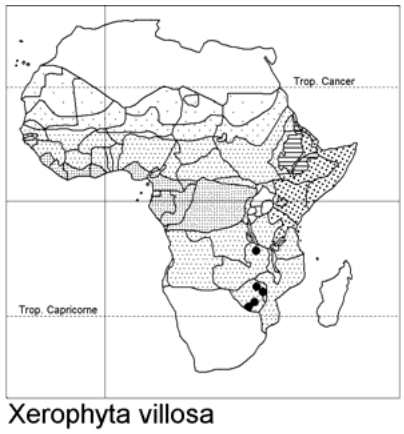
Xerophyta tanzaniana



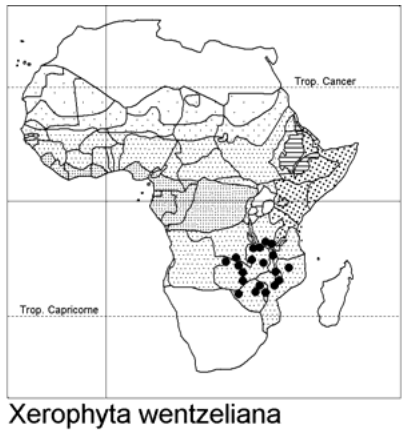
Xerophyta trichophylla



Xerophyta velutina



Xerophyta villosa



Xerophyta wentzeliana

XEROPHYTA WENTZELIANA

Shrub, branched, small, with exserted grey-brown leaf sheaths with yellow-brown apical bands when young; leaf blade linear, acute, to 15 × 0,8 cm, with long hairs on both surfaces (or ± glabrous, but with small roots above = var. **verrucosa**); flowers 1-3, pedicels with emergences in upper part; tepals c. 2,5 cm long, white or pink to lilac; ovary ovoid, 8 mm long, with dense emergences.

Brachystegia woodland; rocky places, often in crevices; stony slopes, on granite rocks, rocky ground, rock outcrops; cobalt-rich rocks with *Vellozia;* forest with *Ficus;* 600-1200 m alt.

Namibia.

Comprises 2 vars.: – var. **wentzeliana**; – var. **verrucosa** Behnke (Behnke & al., l.c.) in Zaire, Katanga.

X. zimbabwensis Behnke & E. Hummel in Bot. J. Linn. Soc. 172: 47-49, 2013. – Icon.: ibid.: 46.

Herb; stem very short (< 1 cm long) formed by the bases of leaf rosettes; leaves *persistent*, linear, 15-30 × 0,3-0,8 cm, viscous in lower part and with white secretions beneath, margins, tips and midribs beneath with bristle-like teeth, apices 2-3 cm long; flowers solitary; peduncle 15-25 cm long, glandular and denser so towards apex; tepals lanceolate, 2-3 × 0,5-0,8 cm, white to faintly lilac, outer ones glandular outside, inner ones glabrous; ovary ± subglobose, 4,5 × 3 mm, glandular.

Soil filled depression; 1470-2005 m alt.

Cultivated at the Botanical Garden, Bonn (Germany).

INSUFFICIENTLY KNOWN SPECIES:

Xerophyta stenophylla Baker; Figueiredo & Smith, Pl. Angola: 207, 2008; Behnke & al., Bot. J. Linn. Soc. 172: 89, 2013.

syn.: *Vellozia stenophylla.* (Baker) Welw. ex B. J. Jacks. 1895; (Baker) Baker 1898.

Shrubby plant; branches 1,2-1,9 cm Ø with rigid remains of fallen leaves at base; leaves 6-8 in a rosette, 15-20 cm long, 0,3 cm wide, rigid, glabrous, acuminate, triquetrous, somewhat scabrid beneath; flowers not seen.

Angola, Moçamedes, near Cazemba; rocky mountainous places, with sand; in dense clusters.

X. violacea (Baker) N. L. Menezes; Behnke & al., l.c.

bas.: *Vellozia violacea* Baker

syn.: *Barbacenia violacea* (Baker) Burtt Davy

Considered a synonym of *Xerophyta villosa* in Fl. Zambes. 12/2: 163, 2009.

Collected by Junod (s.n.) in S. Africa.

SYNONYMS:

Xerophyta aequatorialis (Rendle) N. L. Menezes = **Xerophyta spekei**

bakeri T. Durand & Schinz = **X. villosa**

barbarae P. A. Duvign. & Dewit, incl. var. *cuprophila* P. A. Duvign. & Dewit = **X. trichophylla**

capillaris Baker var. *occultan*s sensu Fl. Zambes., p.p. = **X. wentzeliana**

equisetoides Baker var. *pauciramosa* L. B. Sm. & Ayensu = **X. pauciramosa**

equisetoides var. *pauciramosa* sensu Fl. Trop. E. Afr., Velloz.: 4, 1975 = **X. naegelsbachii**, **X. wentzeliana**

XEROPHYTA

equisetoides var. *pubescens* L. B. Sm. & Ayensu = **X. wentzeliana**

equisetoides var. *trichophylla* (Baker) L. B. Sm. & Ayensu = **X. trichophylla**

equisetoides var. *trichophylla* sensu Fl. Zambes., p.p. = **X. trichophylla**, **X. wentzeliana**

equisetoides sensu Seine 1996, non Baker = **X. hirtiflora**

hildebrandtii (Pax) T. Durand & Schinz = **X. schnizleinia** var. **schnizleinia**

melleri Baker = **X. equisetoides**

mollissima T. Durand & Schinz = **X. villosa**

pauciramosa L. B. Sm. in sched. = **X. pauciramosa**

pinifolia Lam. var. *pinifolia* sensu Fl. Zambes., non Lam. ex Poir. = **X. pseudopinifolia**

retinervis Baker var. *equisetoides* (Baker) Coetzee and var. *setosa* L. B. Sm. & Ayensu = **X. equisetoides**

retinervis var. *wentzeliana* (Harms) Coetzee = **X. wentzeliana**

scabrida sensu Fl. Trop. E. Afr., Velloz.: 8, 1975, p.p. = **X. scabrida**, **X. tanzaniana**

scabrida sensu McPherson & al., 1997, p.p. = **X. tanzaniana**

schlechteri sensu Fl. Zambes. 12/2, 2009, p.p. = **X. seineri**, **X. schlechteri**

schnizleinia (Hochst.) Baker var. *brevifolia* (Chiov.) Cufod. = **X. schnizleinia** var. **schnizleinia**

somalensis (A. Terracc.) N. L. Menezes, 1971 (also Cufod., 1972) = **X. schnizleinia**var. **schnizleinia**

stenophylla Baker = **?**

suaveolens var. *vestita* sensu Fl. Zambes., p.p. = **X. wentzeliana** var. **wentzeliana**

tomentosa (Pax) T. Durand & Schinz = **X. spekei**

violacea (Baker) N. L. Menezes = **?**

viscosa sensu Fl. Zambes. 12/2: 175, 2009, p.p., non Baker = **X.** ? **schlechteri**

wentzeliana sensu Sölch & Roessler, non (Harms) Sölch = **X. naegelsbachii**

zambiana L. B. Sm. & Ayensu, p.p. = **X. demeesmaekeriana**, **X. eylesii**

DRACAENACEAE / *2* g. / *97 + 18* ? spp.

Family kept separate here, with 2 genera. Most of the c. 120 species occur in tropical and subtropical regions of the Old World. A few are present in the Canary and Cape Verde Isl., Morocco, S. Africa, Socotra, Arabia, Madagascar, SE Asia, N Australia, and in C. America, Cuba, Hawaii. Widely introduced and naturalised elsewhere.

Dracaenaceae has been "in and out of various families – Liliaceae, Asparagaceae, Haemodoraceae, Agavaceae, and Dracaenaceae…Ruscaceae … [and] in an enlarged Asparagaceae…" (Newton in Sansevieria 22: 19, 2010).

APG II family: *Convallariaceae* (but *Ruscaceae* has priority over *Convallariaceae*, and then *Ruscaceae* is the correct name; cf. Kew Bull. 62: 613, 2007). APG III family: *Asparagaceae*.

DRACAENACEAE

"The flowers of *Dracaena* and *Sansevieria* are virtually identical and some authors, notably Bos…., consider that it is not possible to separate them and that *Sansevieria* should be included in *Dracaena*. However, there are differences in pollen morphology and in the fruit" (I. la Croix in Fl. Zambes. 13/2 : 13-14, 2010). In fact, the fruits of *Dracaena* are ± globose berries with 3 large seeds, those of *Sansevieria* resemble a berry, but the wall of the trilocular ovary falls away and the seeds develop a fleshy sarcotesta, thus resembling a berry (not a true berry !). It "seems more appropriate to keep the two genera separate" (I. la Croix, l.c.).

In Africa *Dracaena* are widespread in humid vegetation, *Sansevieria* in drylands. These plants are of horticultural interest, mainly due to leaf variegation, cultivated as indoor plants in temperate zones. The many cultivars (of a limited number of species) are propagated vegetatively. *Dracaenaceae* species from Africa were introduced very early to S. America, in particular Brazil, prior to the slave trade. Since then most introductions into Europe came from S. America rather than from Africa. They are placed second after *Ficus* as indoor foliage plant in Europe (Bos, 1998).

Many species in our area are incompletely known. The habit of 1 species is unknown, the underground parts of another one not seen. The inflorescence in the wild is unknown in one species ; flowers are lacking in 3 species (= c. 3 %) ; the fruit is not known in 19 + 4 ? species (= c. 20 %), and no mature fruit in a further species ; the ecology is not recorded for 4 + 3 ? species (= c. 4 %) ; and 4 + 1 ? species (= c. 4 %) are known only from the type gathering.

BOS, J. J. (1998). *Dracaenaceae*. *In :* KUBITZKI, K., ed., *The families and genera of vascular plants. 3. Flowering plants. Monocotyledons : Lilianae (except Orchidaceae)* : 238-241. Springer-Verlag, Berlin & Heidelberg.

JANKALSKI, S. (2003). Sansevieria versus Dracaena. *Sansevieria* 8 : 17-18.

NEWTON, L. E. (2010). Sansevieria family relationships. *Sansevieria* 22 : 19.

(ACYNTHA)

Acyntha abyssinica (N. E. Br.) Chiov., incl. var. *sublaevigata* Chiov. = **Sansevieria forskaoliana**
bracteata (Baker) Kuntze = **S. bracteata**
conspicua (N. E. Br.) Chiov. = **S. conspicua**
conspicua Chiov. 1916 = **S. forskaoliana**
cylindrica (Bojer ex Hook.) Kuntze = **S. cylindrica**
ehrenbergii (Schweinf. ex Baker) Kuntze = **S. ehrenbergii**
elliptica Chiov. = **S. forskaoliana**
guineensis (L.) Medik. = **S. hyacinthoides**
longiflora (Sims) Kuntze = **S. longiflora**
massae Chiov. = **S. nilotica**
metallica (Gérôme & Labroy) Chiov. = **S. metallica**
nilotica (Baker) Kuntze = **S. nilotica**
patens (N. E. Br.) Chiov. = **S. patens**
polyrhytis Chiov. = **S. volkensii**
powellii (N. E. Br.) Chiov. = **S. powellii**
robusta (N. E. Br.) Chiov. = **S. robusta**
rorida (Lanza) Chiov. = **S. ehrenbergii**
senegambica (Baker) Kuntze = **S. senegambica**
stuckyi (God.-Leb.) Chiov. = **S. stuckyi**
thyrsiflora (Thunb.) Kuntze = **S. hyacinthoides**

(ALETRIS)

Aletris arborea Willd. = **Dracaena arborea**
fragrans L. = **D. fragrans**
fragrans Hort. Cels. = **D. arborea**
guineensis (L.) Jacq. = **Sansevieria hyacinthoides**
hyacinthoides (L.) L., incl. var. *guineensis* (L.) L. = **S. hyacinthoides**
var. *zeylanica* Ait. = **S. aethiopica**
pumila Donn., non Ait. = **Dracaena ovata**

(ALOE, Aloaceae)

Aloe fragrantissima Jacq. = **Dracaena fragrans**
guineensis (L.) Jacq., p.p. = **Sansevieria hyacinthoides**, **S. trifasciata**
hyacinthoides L. = **S. hyacinthoides**

(BOOPHONE, Amaryllidaceae)

Boophone fischeri Baker = **Sansevieria fischeri**

(CONVALLARIA)

Convallaria racemosa Forssk. = **Sansevieria forskaoliana**

(*CORDYLINE*, *Agavaceae*, see Vol. 7 : 345, 2012)

Cordyline arborea (Willd.) Göpp. = **Dracaena arborea**
cristula (W. Bull) van Geert = **D. cristula**
cylindrica (Bojer ex Hook.) Britton = **Sansevieria cylindrica**
fragrans (L.) Planch. = **Dracaena fragrans**
goldieana (W. Bull ex Mast. & Moore) Kuntze = **D. goldieana**
guineensis (L.) Britton = **Sansevieria hyacinthoides**
hyacinthoides (L.) W. Wight = **S. hyacinthoides**
ovata (Ker Gawl.) Planch. = **Dracaena ovata**
reflexa (Lam.) Planch. = **D. reflexa**
rumphii Hook., p.p. = **D. aletriformis**

DRACAENA / *40 + 13* ?

At least 60 species, mainly in Africa and SE Asia. Includes small perennials and shrubs to large trees (few species) with a trunk. Leaves are leathery (not fleshy). With the ability to resprout from dormant buds ; so they are used as living fences, e.g. *D. arborea, D. mannii, D. fragrans*.

Many species in our area are incompletely known. The habit is unknown for 1 species, the underground parts of another species, the inflorescence (in the wild) of a further species ; flowers unknown in 3 species, fruit in 2 (+ 3 ?) species, the mature fruit in another species ; the ecology not recorded for 2 ? species ; and 1 ? species known only from the type gathering.

JANKALSKI, S. (2008). Subgenera and new combinations in Dracaena. *Sansevieria* 18 : 17-21.

LU, Pei-Luen & C. MORDEN (2010). Phylogeny of the plant genera Dracaena and Pleomele (Asparagaceae). *Botanica Orientalis* 7 : 64-72 [see *Sansevieria* 28 : 25, 2012].

MARRERO, A. & al. (1998). A new species of the wild dragon tree, Dracaena (Dracaenaceae) from Gran Canaria and its taxonomic and biogeographic implications. *Bot. J. Linn. Soc.* 128 : 291-314.

DRACAENA

Dracaena acaulis Baker; Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008.

syn.: *Pleomele acaulis* (Baker) N. E. Br.

Herb with a rhizome 1,2-2,5 cm Ø, diffusely branched, woody, tough; leaves concentrated in a radical rosette, ascending, lanceolate, evergreen, 0,3-1,8 m long, 3,7-5 cm broad at the middle, narrowed gradually to the tip, petiole long channelled, midrib conspicuous below; panicle to 10-12,5 cm long, with many flexuose racemose branches; lower branch-bracts lanceolate, 1,2 cm long, raceme 15-20 cm long; perianth cylindrical, c. 3 cm long.

More lofty woods; stream banks; cataract; 700 m alt. (Gabon).

D. acutissima Hua; Sosef & al., l.c. – Icon.: De Wildeman, Miss. Emile Laurent 2: pl. 22, 1905.

syn.: *D. laurentii* De Wild., incl. var. *linearifolia* De Wild.

Herb with not very crowded, erect, sessile linear leaves, 32 × 0,4-0,7 cm (at the middle), very acute, midrib distinct on both surfaces, 12-15 distinct raised veins below; raceme lax, simple, terminal, ± of the same length as leaves; rachis pubescent; flowers many in cluster; pedicels 0,3 cm long, articulated at base; perianth tube cylindrical, longer than the lobes.

Ecology not recorded; 600 m alt. (Gabon).

D. adamii Hepper; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011. – Icon.: Adam, Fl. Mts Nimba 5: pl. 881, excl. figs. 4 & 8 *(= D. calocephala),* 1981; Bos, Agric. Univ. Wagen. Papers 84-1: 20-21, 1984; Hawthorne & Jongkind, Woody pl. west. Afric. forests: 875, 883, 2006.

Shrub to 1,5-1,7 m tall; stem single, erect, to 3 cm Ø, with annular leaf-scars, densely leafy towards top; new erect shoots sometimes from root crown; leaves ± oblanceolate, 50-100-150 × 6-14 cm, widest at 2/3 of entire length, apex acuminate, parallel nerves invisible; inflorescence erect, 25-65 cm long, purple when fresh, drying black, simple, rarely with ramifications, terminal but growing in a way that it appears lateral; flowers white, 3-3,5 cm long, crowded along peduncle; perianth tube 1,7-1,9 cm long, lobes slightly shorter; fruit globular, whitish becoming orange, c. 1-2 cm Ø.

Drained rain-forest; 450-1000 m alt.

The specimens Adam 21103, 21220, 21407, and Mann 8, and Baldwin (not Linder 10424) belong to *D. calocephala*.

Not in Bioko/Fernando Poo (Mann 8).

D. afromontana Mildbr.; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 178, 2003; Burrows & Willis, Pl. Nyika Plateau, Malawi: 305, 2005; Lovett & al., Field guide moist for. trees Tanzania: 288, 2006; Fl. Trop. E. Afr., Dracaen.: 6-7, 2007; Jankalski in Sansevieria 18: 19, 2008; Fl. Zambes. 13/2: 18-19, 2010; Kalema & Beentje, Conserv. checklist trees Uganda: 47, 2012. – Icon.: Mildbraed, Wiss. Ergebn. Deutsch. Zentr.-Afr. Exp.: pl. 5, 1914; Troupin, Fl. Rwanda 4: 67, 1988; Fl. Eth. & Eritrea 6: 78, 1997; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 313, 2008; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 276, 2010.

Shrub or tree, 2-12 m tall, sometimes straggling with stem to 25 cm Ø; branches few, arching, with a distinct pattern of horseshoe-shaped leaf-scars; leaves sessile, 12-35 × 1,5-3 cm, base clasping, apex acute; inflorescence pendulous, paniculate, 20-60 cm long; flowers in groups of 1-3; pedicels 0,4-1,2 cm long, articulated above middle; flowers white, pale green or purple-tinged outside, 1,5 cm long (tube 1 mm) × 0,2-0,3 mm; fruit orange, globose or lobed, 1,2-2 cm Ø.

DRACAENA AFROMONTANA

Rain-forest; moist forest; bamboo forest; often forming dense stands; forest with *Podocarpus latifolius*, *Olea capensis*, *Syzygium guineense;* sometimes common; 1600-2800 m alt.

Used for marking field boundaries and graves; also found as a pot plant in hotels and offices.

D. aletriformis (Haw.) Bos; Fl. south. Afr. 5/3: 3, 1992; Fl. Trop. E. Afr., Dracaen.: 6, 2007; Fl. Zambes. 13/2: 19, 21, 2010. – Icon.: Bot. Mag., Ser. 3, 3: pl. 4279, 1847 (lectotype of *Cordyline rumphii*); Coates Palgrave, Trees south. Afr., ed. 3: 115, 2002; E. Schmidt & al., Trees & shrubs Mpumalanga…, ed. 2: 63, 2007.

bas.: *Yucca aletriformis* Haw.

syn.: *Cordyline rumphii* Hook., p.p., quoad descr. excl. syn., nom. illegit.; *Dracaena hookeriana*, K. Koch, nom. illegit., type as for *Cordyline rumphii; Pleomele hookeriana* (K. Koch) N. E. Br.; *Draco hookeriana* (K. Koch) Kuntze; *Dracaena latifolia* Regel; *Sansevieria paniculata* Schinz, nom. illegit.

Tree evergreen, 3-5 m tall with erect branched stem; leaves congested towards branch ends, strap-shaped, the oldest ones pendent, sessile, 0,25-1 m × 2,5-11 cm, with scarious white margins c. 1 mm wide; base sheathing, apex acute, tapering gradually into a filiform tip; inflorescence erect, paniculate, green, 0,2-1,5 m long; flowers in groups of 1-4, strongly scented; pedicels 0,5-1 cm long, articulated above middle; perianth greenish white, sometimes flushed with pink, 1,9-4,2 cm long, tube 0,7-1,2 cm long, lobes 1,2-2 cm × 1,5-2 mm; fruit orange or red, usually globose, sometimes lobed, 0,7-1,9 cm Ø.

Evergreen or semi-deciduous forest; bushland on coral rag; coastal bush and forest; 50- c. 750 m alt.

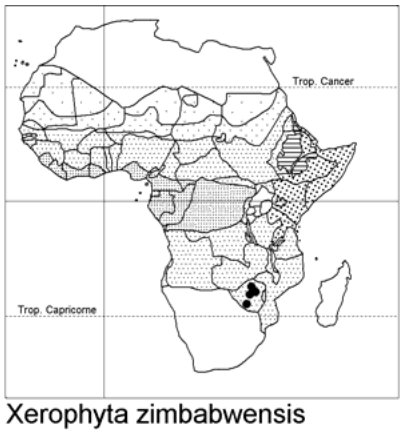
Variable in size of flowers (even on the same plant), size of leaves.

S. Africa, Swaziland. – Rare in tropical Africa, and area very disjunct.

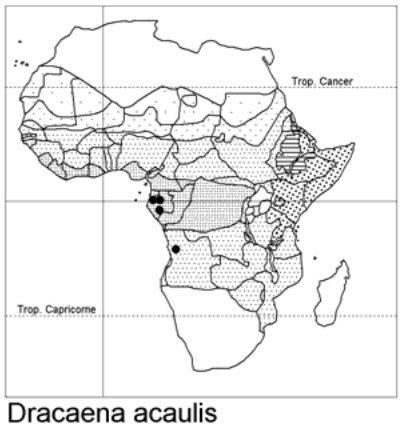
D. arborea (Willd.) Link, incl. var. *baumannii* Engl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 507, 1995; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c49, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 219, 2002; Cheek & al., Pl. Kupe…: 440, 2004; Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Harvey & al., Pl. Lebialem Highl., Cameroon: 153, 2010; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 150, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Onana, Vascul. pl. Cameroon…: 164, 2011; Figueiredo & al., Annot. cat. S. Tomé & Principe: 53, 2011; M. Renier, Flore du Kwango 1: 94, 1948. – Icon.: Harvey & al., Pl. Bali Ngemba… : pl. 7/D, 2004; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 883, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 457, 2009; Malaisse, Guide florist. Parc. Natl. Cantanhez (Guinée-Bissau): pl. 681, 2010; Vivien & Faure, Arbres for. denses Afr. Centr.: 845, 2011.

bas.: *Aletris arborea* Willd.

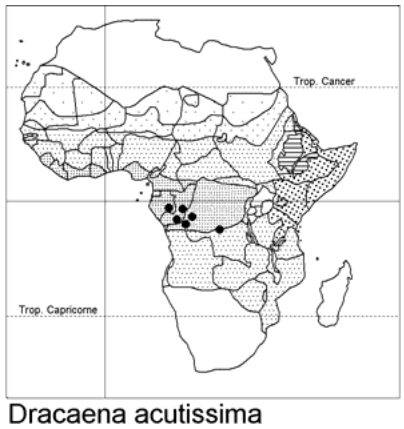
syn.: *Cordyline arborea* (Willd.) Göpp.; *Draco arborea* (Willd.) Kuntze; *Pleomele arborea* (Willd.) N. E. Br.; *Dracaena excelsa* Ten.; *D. knerkiana* K. Koch (*D. kerkiana*, *D. knerckiana*, *D. knerkii* all sphalm.); *Aletris fragrans* Hort. Cels., nom. inval.



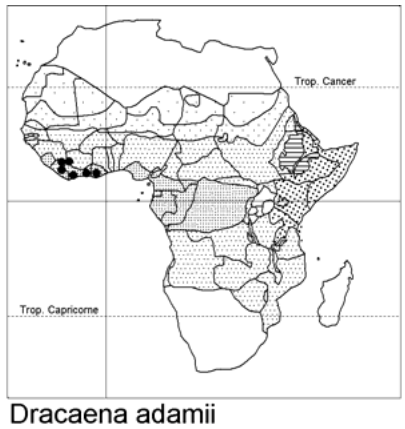
Xerophyta zimbabwensis



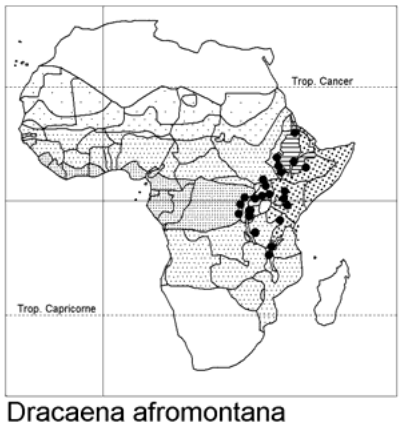
Dracaena acaulis



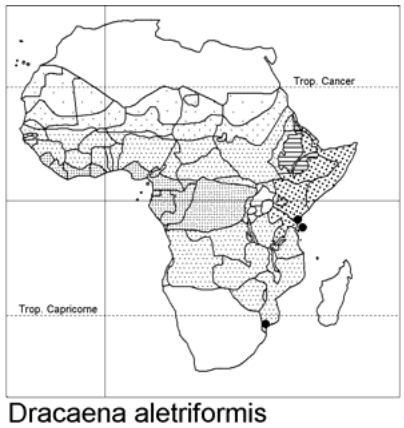
Dracaena acutissima



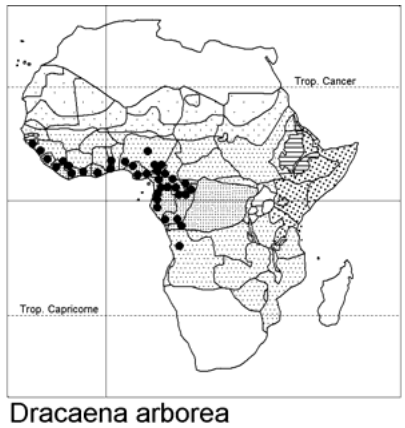
Dracaena adamii



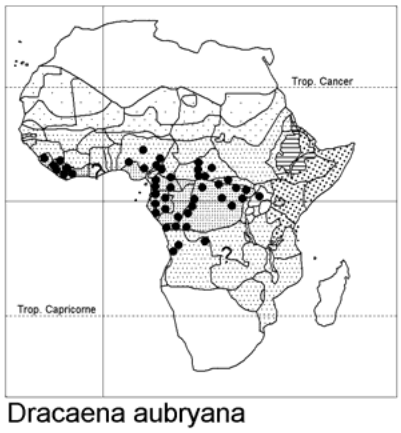
Dracaena afromontana



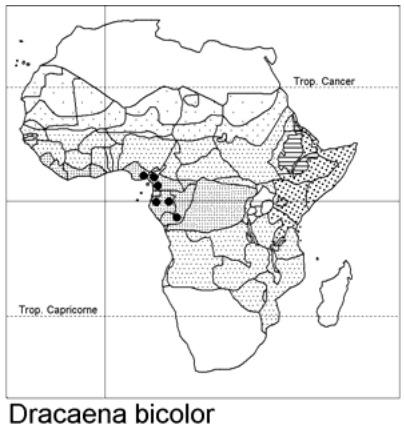
Dracaena aletriformis



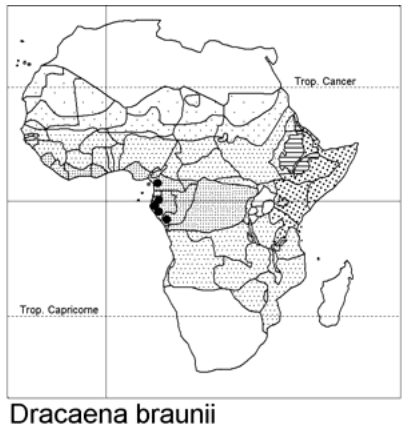
Dracaena arborea



Dracaena aubryana



Dracaena bicolor



Dracaena braunii

DRACAENA ARBOREA

Tree to 20(-30) m tall; trunk to 20-30 cm Ø, frequently producing aerial roots, young stems showing shallowly crescent-shaped long persistent leaf-scars; leaves narrowly oblanceolate to sword-shaped, 0,4-1,5 m × 4-10 cm, tapering to both ends, tip acute, base clasping the stem; inflorescence yellow when fresh, a pendulous, much branched panicle, 1,5-2 m long; flowers in groups of 3-5; pedicels jointed, 0,3-1,3 cm long below the joint; flowers white, 1,7-2,2 cm long, perianth tube 0,5-0,8 cm long, lobes 1-1,3 × 0,3 cm; fruit bright orange, depressed globose, ± distinctly lobed, 1,2-2,4 cm long, 1,2-2,7 cm Ø.

Forest, often near streams; fringing forest; 10-1950 m alt.

S. Tomé, Príncipe.

Also planted as an ornamental, in and around villages, as a boundary fence, before shrines, at entrance to sacred groves. "Its presence in secondary jungle may…indicate the site of an ancient village" (Burkill, l.c.).

In vegetative state confused with *D. fragrans*.

D. aubryana Brogn. ex (C. J.) E. Morren; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 508, 1995; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c49, 2001; Sosef & al., Check-list pl. vascul. Gabon 251, 2006; Fl. Trop. E. Afr., Dracaen.: 3, 2007; Figueiredo & Smith, Pl. Angola: 183, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Onana, Vascul. pl. Cameroon: 164, 2011; M. Renier, Flore du Kwango 1: 94, 1948 (as *D. thalioides*). – Icon.: Belg. Hort. 10: pl. 24, 1860 (as *D. thalioides*); Ann. Mus. Congo, Sér. 5, 2: pl. 65-66, 1907 (as *D. kindtiana*); Sansevieria 9: 22-23, 2004; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 875, 877, 2006.

syn.: Enum. 3: 64, 1995; *Dracaena mooreana* Baker; *Pleomele monostachya* (Baker) N. E. Br.; *P. tholloniana* (Hua) N. E. Br.; *P. kindtiana* (De Wild.) N. E. Br.

Shrub 0,3-2,5 m tall, usually unbranched; stem erect, often twisted spirally; leaves distichous, often asymmetric, ovate, 10-60 × 1,5-15 cm, base rounded or cuneate, apex acute; petiole 5 cm–1 m long; inflorescence terminal but appearing lateral, erect, spicate or paniculate, 9-70 cm long, unbranched or with a few branches near base; flowers 1-7 on distinct knobs; pedicels 0-2 mm long, articulated below middle; perianth white or greenish-white, lobes often with purple-red central band, 1-5,5 cm long, tube 0,5-3 cm long, lobes 1-2 cm × 2,5 mm; fruit shiny bright orange, deeply 1-3-lobed, lobes ovoid, 0,8-1,8 × 0,4-0,9 cm Ø.

Moist forest; locally common; riverine forest; deep shady places in ± undisturbed forests; 1-1440 m alt.

Príncipe. – Only sterile specimens known from Ghana. Reports from N &W Zambia unconfirmed (Fl. Zambes. 13/2: 14, 2010).

Also cultivated: in villages, and as a house-plant e.g., in Zaire, Gabon. Introduced to European gardens in the 19th century; also used as a border plant, resembling an *Aspidistra*, in greenhouses (Jacquemin, Succulentes ornementales: 137, 2000).

DRACAENA

D. bicolor Hook.; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Onana & Cheek, Red Data Book flow. pl. Cameroon: 370, 555 (map), 2011; Fl. Trop. E. Afr., Dracaen.: 2, 2007 (cultivated). – Icon.: Bot. Mag. 87: pl. 5248, 1861.

syn.: Enum. 3: 64, 1995; *Draco bicolor* (Hook.) Kuntze (treated as a distinct species by Sosef & al., Check-list pl. vascul. Gabon: 252, 2006); *Pleomele bicolor* (Hook.) N. E. Br.; *Draco cylindrica* (Hook. f.) Kuntze; *Pleomele cylindrica* (Hook. f.) N. E. Br.

Shrub 1-4 m tall; stem single, c. 1 cm Ø; leaves spread along the stem but more congested towards apex, concolorous, oblanceolate, 10-55 × 2,5-12 cm, tip acuminate with mucro to 5 mm long, pseudopetiole winged 1,5-16 × 0,2-1,1 cm, clasping the stem; inflorescence terminal, subcapitate to thyrsoid, 4-12 cm long, with several transitional leaves; floral bracts triangular, 2-5 cm long, often purple tinged, subtending the closely packed clusters of some flowers; pedicels jointed; flowers white, somewhat purple tinged, 2,5-2,8 cm long, tube 1,5-1,6 cm long, lobes 0,9-1,1 cm long, c. 2 mm wide; fruit drying black, globose, 0,9-1,2 cm Ø.

Closed evergreen forest; 250-800 m alt. (Gabon).

Bioko/Fernando Poo. – Not in Ghana *(= D. congoensis)*.

Material from Nigeria and Bioko was collected 100 and 150 years ago, and not seen in Nigeria since then (Onana & Cheek, l.c.).

D. braunii Engl.; Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Bot. Jahrb. Syst. 15: pl. 20, 1893; Bos, Agric. Univ. Wagen. Papers 84-1: 11, 1984 (photo).

syn.: *D. sanderiana* Sander; *Pleomele sanderiana* (Sander) N. E. Br.; *P. braunii* (Engl.) N. E. Br.

Herb with a rootstock nearly 0,3 m long, branched; sterile stem simple, erect, 10-15 cm long; leaves laxly disposed, sessile, 5-7,5 × 2,5 cm, clasping the stem; fertile stem very short with a single pair of leaves; spike simple, short, lax, with a short erect peduncle; lower flowers 3-4 in a cluster; perianth nearly 2,5 cm long; segments twice as long as the tube; fruit known ?

Seems to be confined to a narrow band few meters wide, closely following the waterfront (of river), fide Bos, o.c.: 108, 1984); 2-100 m alt.

(**D. bueana** Engl.); Cable & Cheek, Pl. Mt Cameroon: LXVII-LXVIII, 157, 1998; Onana & Cheek, Red Data Book flow. pl. Cameroon: 370, 2011.

Resembling *D. arborea* but: leaves twice as long; receptacle above the joint of the pedicel *lacking*.

Open forest, bush, (Buschwald), open places; single specimens often standing out of the vegetation; c. 1000 m alt.

Based on one specimen (Deistel 461) growing in a hedge, collected in bloom in 1900; Cameroon, Buea.

Taxonomic status not resolved, and may be of hybrid origin. No further specimen from Mt Cameroon known since 1900. But a collection made in Ghana by Leeuwenberg in 1984 was judged to be either *D. fragrans* or *D. arborea;* but when the plant developed in cultivation it showed reproductive characters between the two species. The plant is fertile, produces fruit. Living seedlings were distributed to botanical gardens. Further research needed. – Not mapped.

(**D. buettneri** Engl.); Fl. Trop. Afr. 7: 447, 1898.

Leaves moderately dense; petiole slender, 15-20 cm long; blade oblong, 10-15 cm long, apex acute, base cuneate; inflorescence 20 cm long, secondary branches short, distant; flowers clustered with short pedicels; bracts lanceolate, scarious; perianth unknown; berry globose, 1-seeded.

Forest.

Only known from the type (? lost: Büttner 537), Gabon, Munda, Sibange Farm. – Not mapped.

Said to be near *D. glomerata*, *D. densifolia*.

Not listed by Sosef & al., Check-list pl. vascul. Gabon, 2006.

D. calocephala Bos; Lisowski, Fl. Rép. Guinée 1: 376, 2009. – Icon.: Adam, Fl. Mts Nimba 5: pl. 881, quoad figs. 4 & 8, 1981; Hawthorne & Jongkind, Woody pl. west Afric. for.: 883, 2006.

syn.: Enum. 3: 64, 1995.

Shrubby herb, *height unknown*, presumably modest; stems rhizomatous, horizontal, short, slender, covered by 1-2 cm long prophylls, branched, giving rise to erect stems hidden from view by the evenly distributed leaves, or almost acaulescent and subrosulate; leaves obovate-oblong, 18-51 × 3-6,5 cm, acuminate, with inrolled margins; false petiole indistinct, 0,5-1,5 cm wide, with open 2-5 cm long sheath; inflorescence terminal, globose, 5-7 cm long, 6-8 cm Ø, with 1-3 transitional leaves 6-10 cm long, axis bearing several *closely packed sessile clusters* of at least *12-15 flowers* each, subtended by almost *orbicular, strongly cuspidate bracts*, 3-8 × 3-4 cm, *with acuminate tip to 4 cm long;* flowers *presumably* white, 4,9-5,1 cm long, perianth tube c. 3,2 cm long, lobes 1-1,3 × 0,3 cm; fruit *presumably* orange, depressed globose, c. 1,5-x1,5-2 cm Ø; seeds unknown.

Forest; 450-1000 m alt.

Confused with *D. adamii*.

D. camerooniana Baker; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 219, 2002; Akoegninou & al., Fl. anal. Bénin: 128, 2006; Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Fl. Trop. E. Afr., Dracaen.: 4, 2007; Figueiredo & Smith, Pl. Angola 183, 2008; Lisowski, Fl. Rép Guinée 1: 376, 2009; Fl. Zambes. 13/2: 18, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 153, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 223, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011 (sphalm. "cameroonensis"); Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; M. Renier, Flore du Kwango 1: 95, 1948 (as *D. capitulifera*). – Icon.: Ann. Mus. Congo, Bot. 5, 2: pl. 8-9, 1907 (as *D. ueleensis*); Adam, Fl. Mts Nimba 5: 1885, 1981; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 879, 2006.

syn.: Enum. 3: 64, 1995; *Draco camerooniana* (Baker) Kuntze; *Pleomele camerooniana* (Baker) N. E. Br.; *P. interrupta* (Baker) N. E. Br.; *P. lecomtei* (Hua) N. E. Br.; *P. mayumbensis* (Hua) N. E. Br. (kept as a distinct species by Sosef & al., l.c.); *P. silvatica* (Hua) N. E. Br.

Simple shrublet to much branched shrub 0,3-8 m tall; rootcrown periodically giving rise to erect cane-like stems clad in white to pale green prophylls, terminating in a pseudo-whorl of leaves; young stems with prophylls triangular, to 7-10 cm long; leaves obovate, 5-33 × 0,5-8,5 cm, tip acuminate; pseudopetiole 0,5-4 × 0,15-1 cm; inflorescence green to purple-maroon, terminal on stems and branches, usually pendulous, 1-50 cm long, peduncle 0,5-16,5 cm, clad in 3-15 triangular prophylls 1,5-2 cm long, axis

bearing 2-20-flowered glomerules; flowers white, or suffused with purple, 0,75-4,5 cm long; fruit orange scarlet, globular to depressed globose, 0,5-2,1 cm long, 0,5-2,2 cm Ø.

Wet, shady places in forests; swampy gallery forest; drained forest; *Gilbertiodendron dewevrei* forest beside streams; 1- c. 1500 m alt.

D. cerasifera Hua; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 508, 1995; Sosef & al., Check-list pl. vascul. Gabon: 251, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Hawthorne & Jongkind, Woody pl. west. Afric. for.: 875, 880, 881, 2006.

syn.: Enum. 3: 64, 1995; *Pleomele cerasifera* (Hua) N. E. Br.

Single-stemmed to rather well-branched tree-like shrub to 6-8 m tall; main trunk to 50 cm Ø, leafy towards ends of branches; leaves narrow, 5-53 × 0,75-8 cm, tip narrowly acute, base narrowly cuneate; inflorescence terminal, rarely lateral, openly branched panicle with leafy bracteoles and slender pedicels, 17-75 cm long, usually pendulous, but borne erect in single-stemmed young shrubs; clusters of 1-6 flowers each, but the majority of the flowers paired; flowers fragrant, greenish white, sometimes purple-tinged, 1,8-2,9 cm long; tube 0,5-1 cm long, 2,5-3 mm Ø, lobes 0,9-1,7 cm × 2,5-3 mm; fruit bright orange, (depressed) globose, ± distinctly lobed, 1,4-3,2 × 1-3,5 cm Ø.

Deeply shaded sites in fairly undisturbed rain-forest; forest gallery: 1-800 m alt.

D. congoensis Hua, non *D. congensis* Engl., nom. nud.; Burkill, l.c.; Bos in Edinb. J. Bot. 49: 313, 1992; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr; Rep.: 219, 2002; Sosef & al., o.c.: 252; Chatelain & al., l.c.; Onana, l.c. – Icon.: Hawthorne & Jongkind, o.c.: 883.

syn.: Enum. 3: 65, 1995; *Pleomele congoensis* (Hua) N. E. Br.

Single-stemmed tree-like, rarely branched shrub to 1,8 m tall; stem leafy, or the leaves in pseudoverticils towards its apex; leaves ± obovate, 8-70 cm long with lamina 2-10 cm wide, apex subulate (mucro to 0,7 cm long), pseudopetiole "winged", 1-20 × 0,2-1,7 cm, ± surrounding the stem; inflorescence terminal, erect, 8-33 cm long; flowers arranged in 4-8 multiflowered, sessile well separated glomerules; flowers white with reddish tinge, 1,9-2,8 cm long; tube 1-1,5 cm long, lobes 0,7-1 cm × 2-2,5 mm; fruit yellow-orange, globose 0,8-1,6 cm Ø.

Forests; semi-deciduous forest, in rocky or hilly situations; 480-700 m alt. (Gabon).

Confused with *D. camerooniana* (Chevalier 22915, 22921), *D. cylindrica* (Dodd 397, Lyon 2873), *D. fragrans* (Thomas 2305, Lyon 2873, Johnson 730).

D. cristula W. Bull; Burkill, o.c.: 509; Lisowski, Fl. Rép. Guinée 1: 376, 2009; Chatelain & al., l.c. – Icon.: Adam, Fl. Mts Nimba 5: 882-883, 1981 (as *D. elliotii*); Bos in Kubitzki (1998): 239; Hawthorne & Jongkind, o.c.: 875, 877.

syn.: Enum. 3: 65, 1995; *Pleomele elliotii* (Baker) N. E. Br.; *Cordyline cristula* (W. Bull) Van Geert

Shrub 0,2-1(-2) m tall, single-stemmed, unbranched, very rarely forked with two erect parallel stems; stem terminated by a congested pseudowhorl of leaves of which the apical ones may be very much reduced in size; leaves to 35 cm long, blade broadly ovate, 3-17 × 3-13 cm, apex acuminate, base rounded with a winged pseudopetiole 1-20 × 0,3-0,9 cm; inflorescence terminal, tipped by a single glomerule of 10-20 or more flowers, white, c. 1,6 cm long, tube c. 1 cm long, lobes 5 × 2 mm; fruit globose to depressed globose, c. 1-1,5 cm Ø, bright orange.

Humid rain-forest; 450-1100 m alt.

Perhaps also on Mt Cameroon (cf. Cable & Cheek, Pl. Mt Cameroon: 157, 1998).

(**D. cuspidibracteata** Engl.); Onana, Vascul. pl. Cameroon…: 164, 2011.

syn.: *Pleomele cuspidibracteata* (Engl.) N. E. Br.

Shrub or small tree 1-2 m tall, branched; leaves oblong-lanceolate, blade 25 × 7-8 cm, long-acuminate, acumen 2 cm long; petiole 10 cm long, 4-5 mm Ø, channelled; inflorescence 18 cm long, with densely flowered lateral branches, bracts ovate, cuspidate, 1-1,5 cm long, 1 cm wide; pedicels 2 mm long; perianth tube narrowly cylindrical, 1 cm long, 1 mm Ø, lobes oblong-spatulate, 5-6 × 1,5 mm.

Rain-forest.

Near *D. fragrans*.

? Known only from the type (Zenker 1616) collected in 1897; Cameroon, Quamudorf near Bipinde. – Not mapped.

D. densifolia Baker; Bos, Agric. Univ. Wagen. Papers 84-1: 22, 1984; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

syn.: *Pleomele densifolia* (Baker) N. E. Br.; *Draco densifolia* (Baker) Kuntze; *D. "densiflora"* Baker (sphalm.): Mann 1037 !

Stem slender, woody; leaves laxly disposed, ascending, petiole channelled, 10-20 cm long; blade oblong, narrowed to a deltoid-cuspidate apex, 10-15 × 5-7,5 cm, base rounded to the winged apex of the petiole; inflorescence with short peduncle; flowers in few dense clusters at end and sides of the rachis; perianth 2,5 cm long, tube very slender cylindrical, segments shorter.

River banks.

Bioko/Fernando Poo.

D. ellenbeckiana Engl.; Fl. Eth. & Eritrea 6: 77, 1997; Walker in Eggli, Ill. handbook succ. pl.: Monocot.: 260, 2001; Mies, Flora & Vegetationsökologie d. Insel Soqotra: 99, 2001; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 178-179, 2003; Jankalski in Sansevieria 18: 19, 2008; Kalema & Beentje, Conserv. checklist trees Uganda: 47, 2012. – Icon.: Fl. Trop. E. Afr., Dracaen.: 5, 2007; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 277, 2010.

Tree 2-8 m tall, with 10-20 stems from a common base, branches few; leaves clustered at branch ends, narrowly lanceolate, sessile, 22-65 × 1-9 cm, base clasping, apex acuminate; inflorescence paniculate, erect, 20-80 cm long, with 2-3 racemose branches at each node, to 35 cm long, pedicels 1-7 together is fascicles; perianth white, becoming yellow-green; tube 2 mm long, lobes c. 8 mm long; fruit orange-scarlet, globose to 3-lobed, 0,8-0,9 × 0,9-1,4 cm.

Rocky outcrops, escarpments; *Acacia*, *Combretum*, *Lannea* and *Combretum* bushland on reddish-brown loamy soil; open dry forest; locally common; 1050-2100 m alt.

Perhaps in S Somalia.

Seedlings occasionally with variegated leaves (fide Fl. Eth. & Eritrea, l.c.).

(**D. fischeri** Baker); Fl. Trop. Afr. 7: 441, 1898; Fl. Trop. E. Afr., Dracaen.: 9, 2007. Material incomplete, type (Fischer 589, B) probably destroyed.

Leaves unknown; flowers clustered at tips of branchlets in large globose heads; clusters subtended by orbicular scarious bracts 3,5-5 cm long and wide; pedicels short; perianth cylindrical, c. 8 cm long, lobes short; stamens inserted above middle of perianth.

Taxonomic status uncertain.

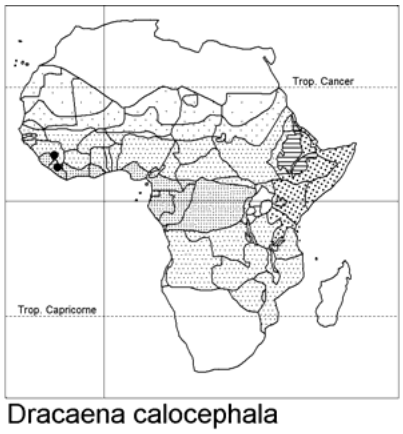
Collected in Tanzania, Singida Distr., Unyamwezi, Usuri (4°39'Sx34°23'E). – Not mapped.

D. fragrans (L.) Ker Gawl., incl. var. *massangeana* (Rodigas) E. Morren, var. *wacheana* Wacha ex Siebert, var. *victoria* (W. Bull) O. F. Cook; Burkill, o.c.: 509 (as *D. deisteliana* and *D. fragrans*); Fl. Eth. & Eritrea 6: 77, 1997; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Cheek & al., Pl. Mt Oku…, Cameroon: 176, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c49, 2001; Harvey & al., Pl. Bali Ngemba…: 137, 2004; Cheek & al., Pl. Kupe…: 441, 2004; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006; Fl. Trop. E. Afr., Dracaen.: 8-9, 2007; Figueiredo & Smith, Pl. Angola: 183, 2008; Harvey & al., Pl. Lebialem Highl., Cameroon: 153, 2010; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 150, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Kalema & Beentje, Conserv. checklist trees Uganda : 47-48, 2012. – Icon.: Bot. Mag. 27: pl. 1081, 1808; idem 101: pl. 6169, 1875 (as *D. smithii* Baker ex Hook. f.); Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 179, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 279, 2010; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 883, 2006; Akoegninou & al., Fl. anal. Bénin: 128, 2006; Sansevieria 18: 19, 2008; Lisowski, Fl. Rép. Guinée 2: fig. 458, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 682, photos. 682 a-b, 2010.

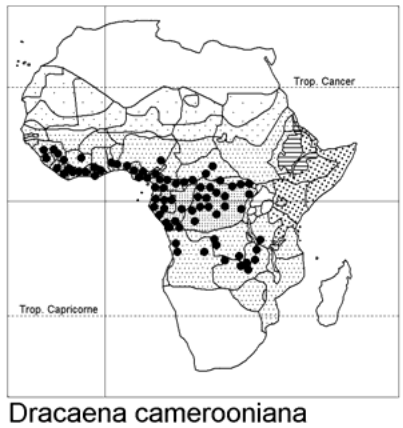
bas.: *Aletris fragrans* L.

syn.: Enum. 3: 65, 1995; *Dracaena lindenii* Linden ex André ! (non *D. linderi* Hort.); *Aloe fragrantissima* Jacq., nom. superfl.; *Pleomele fragrans* (L.) Salisb.; *Sansevieria fragrans* (L.) Jacq.; *Cordyline fragrans* (L.) Planch.; *Draco fragrans* (L.) Kuntze; *Pleomele ugandensis* (Baker) N. E. Br.; *Dracaena aureolus* W. Bull ex Mast.; *D. deremensis* Engl., incl. var. *warneckei* Engl.; *Pleomele deremensis* (Engl.) N. E. Br.; for other synonyms, see World checklist of selected plant families, Asparagaceae, Roy. Bot. Gard., Kew.

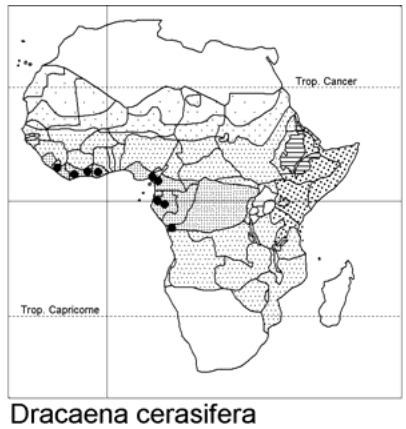
Shrub or tree, 1,5-25 m tall; stem single, to 30 cm Ø, or in forest with a mass of horizontal stems near the ground from which vertical stems arise; leaves sessile, strap-shaped to oblanceolate, 0,7-1,5 m long × 2-12 cm wide, base attenuate, sheathing the stem, apex acute; inflorescence erect, rarely pendent, paniculate,



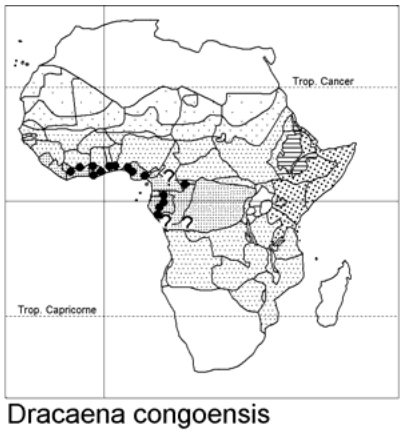
Dracaena calocephala



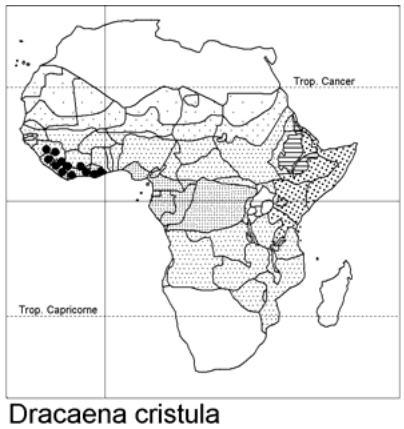
Dracaena camerooniana



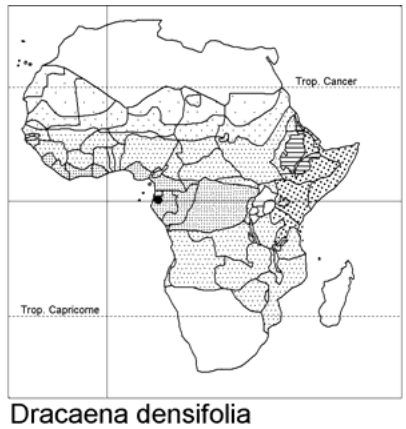
Dracaena cerasifera



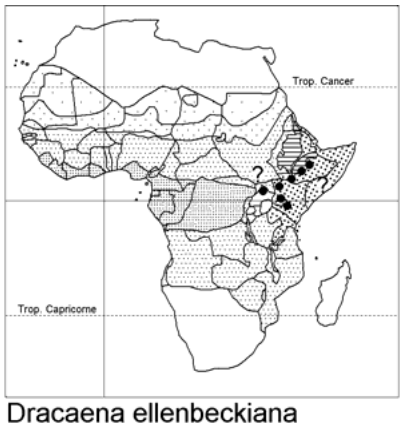
Dracaena congoensis



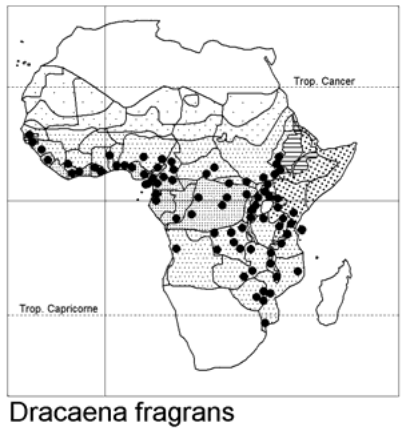
Dracaena cristula



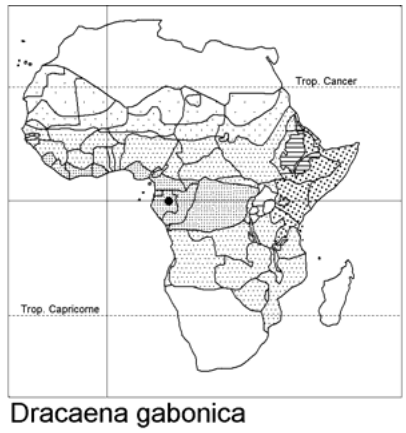
Dracaena densifolia



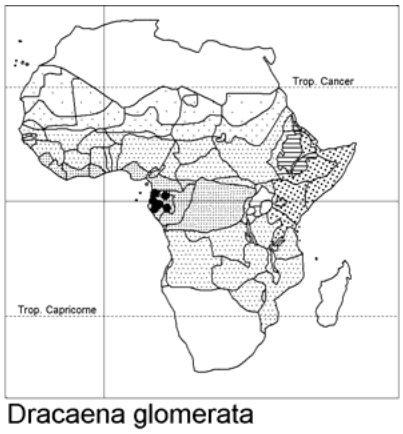
Dracaena ellenbeckiana



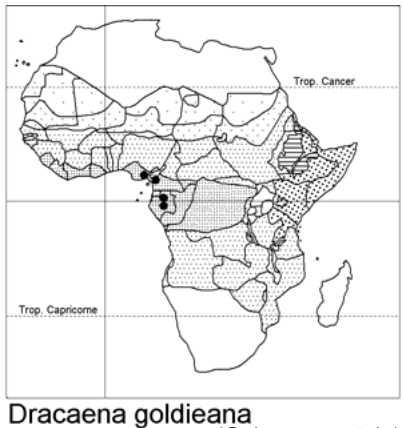
Dracaena fragrans



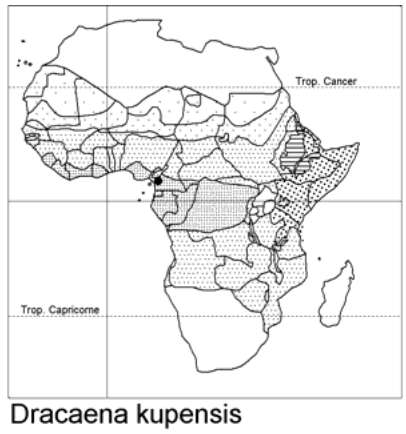
Dracaena gabonica



Dracaena glomerata



Dracaena goldieana
(Gabon uncertain)



Dracaena kupensis

DRACAENA FRAGRANS

0,15-1,6 m long; flowers in multiflowered glomerules, very fragrant, buds purple or pink, flowers with tube white, lobes with a fine red to purple line, 1,5-2,5 cm long, tube 0,5-1,1 cm, lobes 0,7-1,2 cm × 3 mm; fruit bright orange, depressed globose, 1,1-1,9 cm Ø, sometimes lobed.

Rain-forest with *Chrysophyllum albidum*, *Cola gigantea*, *Erythrophleum suaveolens*, *Alstonia boonei*, *Parinari excelsa*, *Milicia excelsa, Albizia gummifera* forest; often near streams; locally common and forming thickets; 600-2250 m alt.

Very variable (extensive synonymy).

Bioko/Fernando Poo.

Used for hedges, living fences; propagation easy from cut twigs; pantropical ornamental; often planted in cemeteries, shrines. Also grown as a pot plant, most frequently variegated cultivars, e.g. in Europe (European Gard. Fl., ed. 2, 1, Monocot.: 190, 2011). Cultivars and cultivar groupings are referred to by Bos in Edinb. J. Bot. 49: 324-331, 1992.

The leaves also yield a fibre used for cloth making.

The distribution is most frequently of anthropogenous origin; and "most if not all specimens in our area [= W. Africa] seem to have been planted" (Hawthorne & Jongkind, o.c.: 882).

D. bueana (see above) has intermediate reproductive characters: *D. fragrans-D. arborea*, and is perhaps of hybrid origin.

D. gabonica Hua; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

syn.: *Pleomele gabonica* (Hua) N. E. Br.

Stem slender; leaves crowded, ascending; petiole channelled, 5-10 cm long, base dilated; blade thin, oblong-cuspid 10-12,5 × 6,2-7,5 cm, base deltoid; raceme simple, lax, peduncle short; flowers few in a fascicle; pedicels short; perianth 1,8-2,1 cm long; segments as long as tube; fruit unknown ?

Damp woods.

D. glomerata Baker; Sosef & al., l.c.

syn.: *Draco glomerata* (Baker) Kuntze; *Pleomele glomerata* (Baker) N. E. Br.

Stem slender, simple, 2,5 m tall; leaves moderately dense, ascending, petiole winged, to 10-12,5 cm long in lower leaves; blade oblong, cuspidate, 10-20 × 6,2-7,5 cm, base deltoid; panicle subsesile, 30 cm long, rachis flexuose with several short spreading simple branches; flowers in dense clusters at tips and sides of branches; pedicels very short; perianth 1,2 cm long, tube very slender, segments 1/3 the length of the tube; fruit unknown ?

? Ecology; 5-800 m alt.

D. goldieana Bullen ex Mast. & Moore; Onana & Cheek, Red Data Book flow. pl. Cameroon: 371, 556 (map), 2011. – Icon.: Gard. Chron. 1882/1: 49 fig. 6, 1882; André in Lindley, Ill. hort. 25: pl. 300, 1878.

syn.: *Draco goldieana* (Bullen ex Mast. & Moore) Kuntze; *Pleomele goldieana* (Bullen ex Mast. & Moore) N. E. Br.; *Cordyline goldieana* (Bullen ex Mast. & Moore) de Vos

Erect shrub 0,3-0,6 m tall; stem to 1 cm Ø, leafy from top to bottom; leaves 9-35 cm long, blade ovate 2,5-11 cm wide, tip acuminate, base rounded, with false petiole 2,5-8 cm long clasping the stem; leaves *very ornamental* with *transverse bars of dark green and silver grey;* wild flowering material not known; but: inflorescence rather dense (like those figured in Bot. Mag.: pl. 6630, 1882) in specimens collected in Cameroon, but

DRACAENA GOLDIEANA

cultivated specimens at WAG have a widely branched inflorescence, and according to Bos & Cullen in the European Garden Flora (ed. 2, 1: 191, 2011, *D. goldieana* Lindley, errore) it is "a congested, head-like, terminal panicle borne between the sheaths of the upper leaves so that it appears to be a common stalk (more rarely an elongated panicle)"; perianth c. 2,5 cm long, tube longer than the spreading lobes, white; cf. also Bos in Agric. Univ. Wagen. Papers 84-1: 76-79, 1984; fruit not known.

Forest. – Known from only 4 locations; there threatened by forest clearance for timber and agricultural land.

Cultivated for its spectacular leaves.

The identity of material from Gabon (in Sosef & al., Check-list pl. vascul. Gabon: 252, 2006) is uncertain; further study needed. Our map (p. 219) indicates the eventual locations in Gabon (250-580 m alt.).

(**D. haemanthioides** Bos, ined.) in Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

"New species not published" from Gabon, Estuary; Reitsma 2105 (WAG), det. Bos 1986.

D. kupensis Mwachala, Cheek, Eb. Fisch. & Muasya; Onana & Cheek, Red Data Book flow. pl. Cameroon: 371, 555 (map), 2011. – Icon.: Kew Bull. 62: 615, 2007.

syn.: *D.* cf. *phanerophlebia* Baker sensu Cheek & al., Pl. Kupe…: 441, 2004.

Single-stemmed shrublet 0,3-0,6 m tall from a horizontal underground rootstock; stem erect, 0,9 cm long, 0,4 cm Ø, terete, enclosed by sheathing leaf bases; leaves ascending, 3-7; blade ± elliptic, 20-28 × 7,4-12 cm, apex acuminate; pseudopetiole 16-21 cm long with wings 1,5-6 mm wide; flowers unknown; infrutescence terminal or sometimes arising from the stem on short leafless branches, racemose, erect, peduncle red or purple, 6-8 × 0,15 cm Ø, 4-20-fruited; pedicels grouped in fascicles; fruits ripening glossy orange from green, globose, to 1 cm Ø.

Primary and secondary forest in undergrowth; 800-1250 m alt.

Only known from some 11 specimens and at 3 broad localities.

Resembling *D. phanerophlebia*.

Has been confused (in the field) with *Araceae*, *Commelinaceae*, *Scadoxus cinnabarinus* (*Amaryllidaceae*; sympatric).

D. laxissima Engl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 510, 1995; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c49, 2001; Burrows & Willis, Pl. Nyika Plateau, Malawi: 305, 2005; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 79, 2006; Fl. Trop. E. Afr., Dracaen.: 3-4, 2007; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 119, 2010; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 150, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 223, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 164, 2011; Figueiredo & al., Annot. cat. S. Tomé & Principe: 53, 2011. – Icon.: Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 555, 2008; Fl. Zambes. 13/2: 20, 2010.

syn.: Enum. 3: 65, 1995; *Pleomele elegans* (Hua) N. E. Br.; *Dracaena "laevissima"* Engl. ex T. Durand & Schinz, nom. invalid. et sphalm.; *Pleomele laxissima* (Engl.) N. E. Br., nom. invalid.; *Dracaena bequaertii* De Wild.; *D. elliptica* sensu Broun & Massey, Fl. Sudan: 376, 1929, non Thunb. & Dalm. 1808 (plant from India, Burma, Java), non *Sansevieria elliptica*.

DRACAENA LAXISSIMA

Shrub 1-10 m tall, often sprawling, sarmentose or scrambling; stem prominently lenticellate; leaves elliptic, 4-20 × 1-7 cm, base cuneate to rounded into an amplexicaule sheath, apex acuminate; petiole 0,5-1,5 cm long; inflorescence horizontal to pendent, paniculate, 5-50 cm long; flowers occurring singly, white, greenish-white or pink, 1,2-2 cm long, tube to 3 mm long, lobes 0,9-1,7 × 2,5 mm; fruit orange-red, globose or lobed, 0,6-1,2 cm Ø.

Moist forest; forest, on river bank; dry forest usually near water; shaded lava; riverine forest; locally common; rain-forest with *Albizia*, *Macaranga*, *Croton*, *Ocotea;* 1-2500 m alt.

São Tomé, Príncipe.

(**D. ledermannii** Engl. & K. Krause); Onana & Cheek, Red Data Book flow. pl. Cameroon: 370, 2011.

Near *D. surculosa* but differs from the latter by its longer leaf sheaths, narrower leaves and somewhat larger inflorescences.

Brushwood with *Spathodea*, *Erythrina*, *Raphia*, oil palm; 800 m alt.

Only known from the type (Ledermann 1483), Cameroon, Santchu, collected in 1908.

Taxonomic status uncertain. – Not mapped.

(**D. letestui** Pellegr.) – Icon.: Pellegrin, Fl. Mayombe 3: pl. 6, 1938.

Near *D. acutissima* but: leaves wider; inflorescence shorter and denser; rachis glabrous (not woolly); flowers wider and larger.

Thickets.

? Only known from the type (Le Testu 1376), Gabon, from Pointe de Panga to Bouméboumé, collected in 1908.

Not in Sosef & al., Check-list pl. vascul. Gabon, 2006.

Not mapped.

D. mannii Baker; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 510-512, 1995; Venter in Aloe 33: 62-63, 1996; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006; Lovett & al., Field guide moist for. trees Tanzania: 288, 2006; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 79-80, 2006; Akoegninou & al., Fl. anal. Bénin: 129, 2006; Fl. Trop. E. Afr., Dracaen: 7-8, 2007; Figueiredo & Smith, Pl. Angola: 183, 2008; idem in Haseltonia 15, 74, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 120, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 224, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; M. Renier, Flore du Kwango 1: 95, 1948 (as *D. reflexa* var. *nitens*). – Icon.: Mildbraed, Wiss. Ergebn. Deutsch. Zentr.-Afr. Exp.: pl. 5, 1914; Fl. south. Afr. 5/3: 2, 1992; White & al., Evergreen for. fl. Malawi: 100, 2001; Coates Palgrave, Trees south. Afr., ed. 3: 116 & illustr. 12, 2002; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 875, 881, 2006; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 127, 2007; Lisowski, Fl. Rép. Guinée 2: fig. 459, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 683, 2010.

syn.: Enum. 3: 65, 1995; *Draco mannii* (Baker) Kuntze; *D. perrottetii* (Baker) Kuntze; *Pleomele mannii* (Baker) N. E. Br.; *P. perrottetii* (Baker) N. E. Br., *P. heudelotii* N. E. Br.; *P. nitens* (Welw. ex Baker) N. E. Br.; *P. usambarensis* (Engl.) N. E. Br.; *Dracaena pseudoreflexa* Mildbr., *D. reflexa* Lam. var. *nitens* (Welw. ex Baker) Baker; *D. gazensis* Rendle; *D. nitens* Welw. ex Baker

DRACAENA MANNII

Shrub or tree 2,4-30 m tall, evergreen, single-stemmed or often multi-stemmed or much branched from near ground; stem with prominent leaf scars, to 2 m Ø; leaves clustered near branch ends, 4-50 × 0,3-4,5 cm, base cuneate but the very base half-amplexicaule, apex acute; inflorescence erect, racemose to paniculate, continous to stem and branches; flowers 2-6 together, rarely solitary, sweet-scented; pedicels 1-9 mm long, orange in fruit; flowers creamy white or pure white, 1,2-5 cm long, yellow-green outside, tips of lobes greenish to purple, tube 0,3-2,5 cm long, lobes 0,8-2,4 × 0,2-0,3 cm; fruit orange to scarlet, globose or lobed, 1-3,2 cm Ø.

Moist forest, often near streams; riverine forest; lakeshore bushland; forest margins; secondary bushland; locally common; transitional woodland; rocky hill; evergreen thickets; 0-2000 m alt.

S. Africa (extreme NE corner; map in Fl. south. Afr., l.c.).

Grown for shade, live fencing, marking graves and boundaries, also as ornamental. Stems also used for fodder. Young shoots formed from core of immature leaves eaten as a vegetable ("asparagus tree or bush"). Easily propagated from seed; truncheons or stem cuttings root easily.

(**D. marina** Bos, ined.); Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

"New species not published" from Gabon, Estuary and Ogoué-Maritime; coastal, 5 m alt.; several collections cited, determined by Bos.

Not mapped.

(**D. mildbraedii** K. Krause) – See *D. viridiflora*. Kept apart by Bos (Agric. Univ. Wagen. Papers 84-1: 89, 91, 1984), and treated as a distinct species by, e.g. Sosef & al., l.c.; Hawthorne & Jongkind, o.c.: 880, 881; Cable & Cheek, Pl. Mt Cameroon: 157, 1998.

D. mokoko Mwachala & Cheek, Nord. J. Bot. 30: 390, 2012. – Icon.: ibid.: 391.

syn.: *D.* sp. aff. *aubryana* Brogn. ex C. J. Morren sensu Cable & Cheek, Pl. Mt Cameroon: 157, 1998.

Herb or shrub, 0,5-2 m tall, erect, glabrous, sometimes growing in clumps; underground parts unknown; stem single, c. 1 cm Ø at apex where up to 10 whorled leaves are clustered; leaves, incl. pseudopetiole (30 cm long), 75-110 × 7-10,5 cm; blade linear-lanceolate, broadest at middle; petiole base with wings 0,5-1,5 cm wide; longitudinal and transverse veins raised beneath (net-like appearance); apex of blade acute, base cuneate narrowing gradually into the pseudopetiole; inflorescence terminal, erect, single, 45-70 cm long, spicate, unbranched; peduncle equal to rachis in length; flowers not seen, but corolla remnants are 2 cm long; fruit erect, ellipsoid, 3-lobed, waxy yellow or orange, 1,5-2,5 cm long, 0,8-1,5 cm Ø.

High forest with *Desbordesia, Strombosia*, etc.; soil red clay with occasional boulders, or red with sand and wet litter or volcanic; 280-320 m alt.

Only 6 specimens known. Less than 50 mature individuals recorded – critically endangered.

Compared with *D. viridiflora*, *D. talbotii*, but relationships need further investigation.

DRACAENA

D. nyangensis Pellegr., Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

Shrub 75 cm tall near *D. congoensis* but: – leaves with 8 parallel, very prominent veins, secondary veins (trabecules) prominent, base attenuate-acute; petiole 0,5 cm wide not clasping at base; inflorescence axis covered with short, rough papillae, base with enclosing bracts.

? Ecology; 275-1020 m alt.

Presence in SE Nigeria (Oban, Talbot 2402) and in S Cameroon needs confirmation (cf. Bos, Agric. Univ. Wagen. Papers 84-1: 120, 1984).

D. oddonii De Wild.; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006. – Icon.: Ann. Mus. Congo Belge, Bot., 5/1: pl. 57, 1906.

Near *D. laxissima* but flowers fasciculate in spike-like inflorescences; petioles 3,5-8 cm long.

Ecology ?

Only known from very few collections.

D. ombet Heuglin ex Kotschy & Peyr., incl. subsp. *schizantha* (Baker) Bos; Marrero & al. in Bot. J. Linn. Soc. 128: 293, 309, 1998; Casper in Haussknechtia, Beih. 10: 12, 2000; Walker in Eggli, ed., Ill. handbook succ. pl.: Monocot.: 260, 2001; Jankalski in Sansevieria 18:19, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 93, 2010. – Icon.: Kotschy & Peyritsch, Pl. tinn.: frontispiece, 1867; Audru & al., Pl. vascul. Rép. Djibouti 2/2: pls. 274, 275, 1994; Thulin, Fl. Somal. 4: pl. 1/E, 1995; Fl. Eth. & Eritrea 6: 78, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 181, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 281, 2010; Boulos, Fl. Egypt. 4: 85, 2005; Chaudhary, Fl. Kingd. Saudi Arabia ill.: 194, 2001.

syn.: *D. schizantha* Baker; *D. rhabdophylla* Chiov.; *Draco ombet* (Heuglin ex Kotschy & Peyr.) Kuntze

Tree 2-8 m tall with forked trunk to 40 cm Ø; crown umbrella-shaped; leaves in dense rosettes at ends of branches, linear, 40-60 × 3 cm, base wide, tip acute, rounded on the back in lower half, keeled in upper part; panicle to 50 cm long, much branched, glabrous or pubescent; tepals whitish, 4-6 mm long, linear; berry orange, globose, 1-1,2 cm Ø, edible.

Woodland; usually on limestone; N-facing escarpments; granitic outcrops; *Acacia*, *Commiphora* bushland; evergreen bushland dominated by *Buxus*, *Acokanthera;* once forming zones in Sudan, now almost extinct; 1000-2040 m alt.

Egypt (Gebel Elba); SW Saudi Arabia.

"The number of trees in Gebel Elba as well as in the Red Sea hills, Sudan, has much decreased during the last 50 years" (L. Boulos, Fl. Egypt 4: 84, 2005). There are efforts to conserve the species in Egypt, see: Marwan El Azzouni in Plant Talk 34: 38-39, 2003, and ibid. 36: 24-25, 2004. One of the last individuals of *D. ombet* in Sudan, Erkowit, is pictured in B. A. Mies, Flora and Vegetationsökologie der Insel Soqotra: 100, 2001.

DRACAENA

D. ovata Ker Gawl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3, 1995; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 224, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Bot. Mag. 29: pl. 1179 !, 1809; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 875, 879, 2006.

syn.: Enum. 3: 65, 1995; *Aletris pumila* Donn, non Aiton, nom. illegit. (also *D. primula*, sphalm.); *Draco afzelii* (Baker) Kuntze; *Pleomele afzelii* (Baker) N. E. Br.; *P. prolata* (C. H. Wright) N. E. Br.; *Cordyline ovata* (Ker Gawl.) Planch.; *Draco ovata* (Ker Gawl.) Kuntze; *Dracaena spathulata* name without status of garden origin (fide Bos., o.c.: 92, 1894).

Shrub 0,5-4 m tall; shoots cane-like; stems regularly covered with prophylls leaving annular scars when deciduous; leaves in pseudowhorls terminating the stems, elliptic, 8-28 × 1,5-8,5 cm, tip acuminate, base with a pseudopetiole 1-3 × 0,2-0,7 cm; inflorescence a terminal raceme, sometimes sub-umbellate, 1-6 cm long; flowers in one or several glomerules, white, fragrant, 2,5-5 cm long, tube 1,5-3,1 cm long, lobes 0,8-1,2 cm × 2,5-3,5 mm; fruit dark green becoming yellow-orange, (depressed) globose, 1,1-2,5 cm Ø.

Undisturbed forest, wet evergreen forest.

Sometimes planted as a hedge.

D. parviflora Baker; Figueiredo & Smith, Pl. Angola: 183, 2008.

syn.: *Pleomele parviflora* (Baker) N. E. Br.

Tree 6-10,5 m tall, dichotomously branched, branches erect-spreading, sometimes almost erect; leaves in a palm-like crown, 0,9-1,2 × 7,5 cm, base dilated; flowers in panicles or thyrsi hanging from the top of the trunk or branches; perianth whitish, 0,8 cm long; fruit only unripe known.

By streams in the loftier woods.

D. phanerophlebia Baker; Sosef & al., Checkl-list pl. vascul. Gabon: 252, 2006; Kew Bull. 62: 614, 2007.

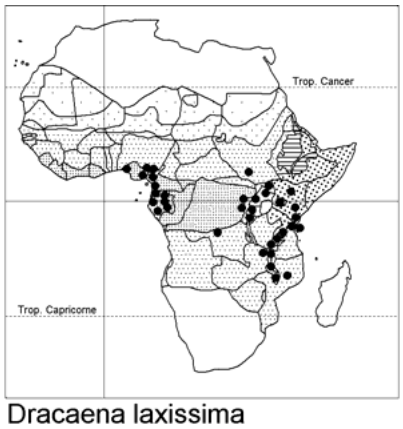
syn.: *Pleomele phanerophlebia* (Baker) N. E. Br.

Subacaulescent herb; leaves few, rosulate, erect, ovate, 15-17 × 10-11 cm, base rounded, apex acuminate, midrib indistinct but with 6-8 deeply impressed secondary nerves; *petiole 20-30 cm long;* inflorescence a globose head, surrounded by large ovate bracts; fruit *globular*.

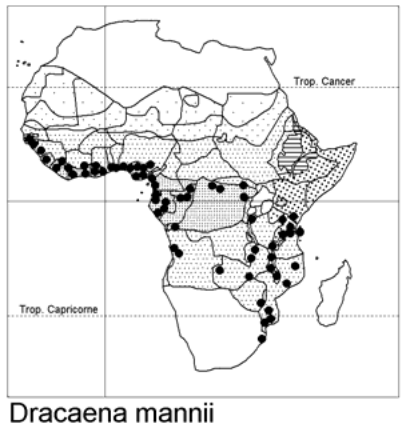
Forest; 550-950 m alt.

Very similar to *D. kupensis* in growth form.

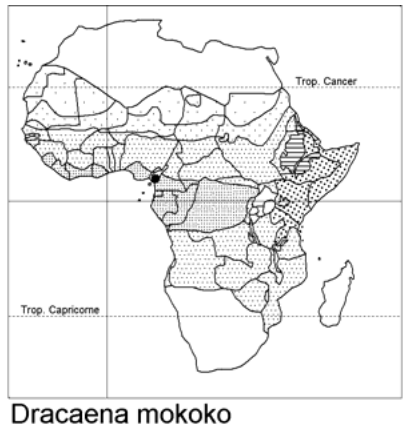
Confused with *D. phrynioides* in W Africa (cf. Côte d'Ivoire, Chatelain & al., Cartes distr. …2011: 211). According to Bos (Agric. Univ. Wagen. Papers 84-1: 101, 1984), *D. phanerophlebia* and *D. phrynioides* are "identical in habit and in variegation" but differ in the shape of the fruit. "Baker's original description of these fruits is manifestly erroneous. *D. phanerophlebia* has never been recorded in West Africa, and its area does not seem to extend much beyond the territory of Gabon".



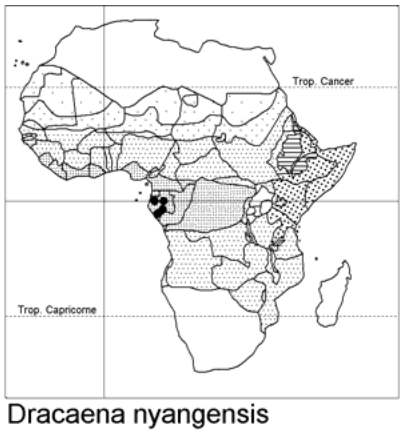
Dracaena laxissima



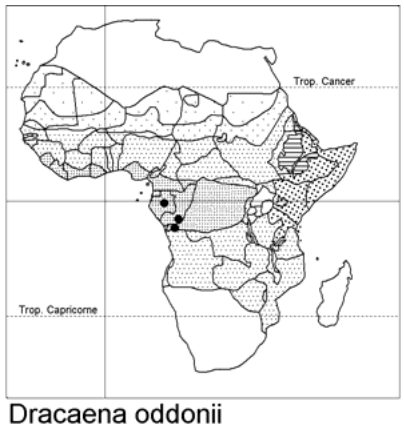
Dracaena mannii



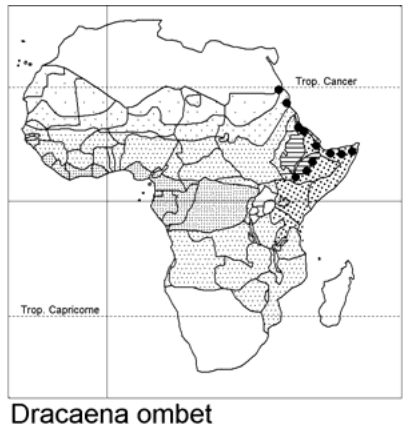
Dracaena mokoko



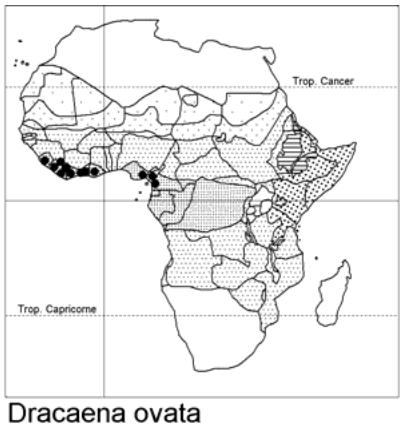
Dracaena nyangensis



Dracaena oddonii

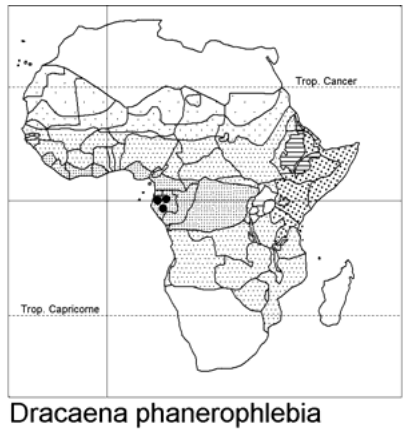


Dracaena ombet

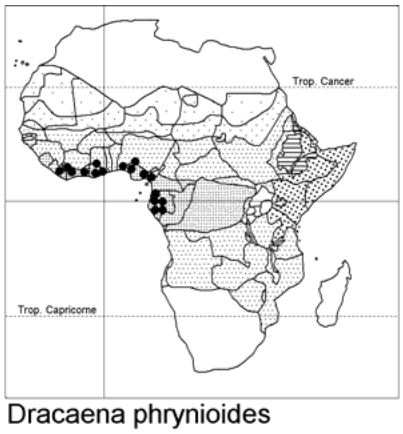


Dracaena ovata

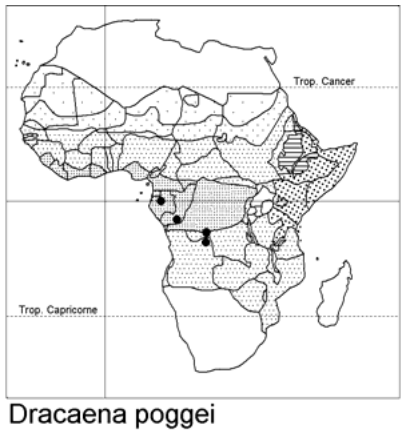
Dracaena parviflora



Dracaena phanerophlebia



Dracaena phrynioides



Dracaena poggei

Dracaena praetermissa

DRACAENA

D. phrynioides Hook.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 512, 1995; Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Cheek & al., Pl. Kupe…: 441, 2004; Harvey & al., Pl. Bali Ngemba…: 138, 2004; Sosef & al., Check-list pl. vascul. Gabon: 252, 2006; Harvey & al., Pl. Lebialem Highl., Cameroon: 153, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Hawthorne & Jongkind, Woody pl. west. Afric. for.: 875, 877, 2006.

syn.: Enum. 3: 65, 1995; *Draco phrynioides* (Hook.) Kuntze; *Pleomele phrynioides* (Hook.) N. E. Br.; *Phrynium maculatum* hort. teste Hook., Bot. Mag., 1862: tab. 5352, nom. invalid.; *Dracaena phrynioides* var. *staudtii* Engl., nom. invalid.

Herb or shrub to c. 70 cm tall, usually unbranched, rarely with to 4 branches from a prostrate part not over 5 cm long, ascending into an erect stem rarely up to 10 cm long; leaves alternate, densely imbricate, their bases hiding the stem, rarely in a distichous spiral, 6-92 cm long; petiole erect, 2-62 cm long, base sheathing 1-15 cm long; blade horizontal, ovate, 4-30 × 3-11 cm, widest below middle, speckled (not always) transversely with pale yellowish elliptic patches; inflorescence terminal, 1,5-10 cm long, usually inclined, 2,5-4 cm Ø, consisting of several closely packed clusters of 3 bracteate sessile flowers each, peduncle 5 cm long; flowers white, sometimes purple tinged towards tip, tube 1,4 cm long, lobes to 8 × 2 mm; fruit orange-scarlet, tip bifid to each lobe, 0,6-1,5 cm Ø.

Rather wet, deep shady sites in fairly undisturbed rain-forest; 50-1500 m alt.

Bioko/Fernando Poo.

Sometimes cultivated but difficult to grow (European Garden Flora, ed. 2, 1: 192, 2011).

Confused with *D. phanerophlebia* (see above).

D. poggei Engl.; Sosef & al., Checkl-list pl. vascul. Gabon: 252, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008.

syn.: *Pleomele poggei* (Engl.) N. E. Br.

Stem 60 cm × 7-8 mm; leaves laxly disposed with petiole 7,5-10 cm long, blade acuminate, 15-30 × 2,5-3,7 cm, base rounded; inflorescence spicate, c. 7,5 cm long; perianth cylindrical, 5 cm long, tube 3,5 cm × 1 mm Ø, segments linear, 1,5 cm × 1 mm; berry 2-3-lobed, 1,2 cm long, 0,8 cm Ø.

Probably river banks; 110 m alt. (Gabon).

D. praetermissa Bos; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011. – Icon.: Hawthorne & Jongkind, Woody pl. west. Afric. for.: 877, 2006.

Shrub to 0,3 m tall, unbranched; aerial stem erect, to 5 cm long, clad in sheathing leaf-bases and sheath-like prophylls 2-5 cm long; leaves spirally arranged, 7-41 cm long; (pseudopetiole 3-27 cm long, blade ovate, 5-19 × 2,5-5,5 cm), base rounded, tip acute, nerves 4-6, impressed above; inflorescence terminal, slender, consisting of a reddish raceme, c. 5 cm long, flowers borne in the terminal 2 cm, single or paired; infrutescences dark reddish; flowers unknown; fruit presumably bright scarlet when fresh and ripe, 0,8-1,8 cm Ø, with 1-3 horned lobes.

Older secondary forest; fairly frequent locally.

Confused with young *D. aubryana*; and non-variegated *D. phrynioides*.

Also in Gabon (Estuary, 600 m alt.) ? Listed by Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

DRACAENA

D. reflexa Lam., excl. var. *nitens* (Baker) Baker (= *D. mannii*); Fl. Zambes. 13/2: 21, 2010.

syn.: *Lomatophyllum reflexum* (Lam.) Bojer; *Draco reflexa* (Lam.) Kuntze; *Pleomele reflexa* (Lam.) N. E. Br.; *Cordyline reflexa* (Lam.) Planch.

Tree to 3 m tall, little branched; leaves clustered at ends of stems, narrowly oblanceolate, 7,5-9,5 × 0,8-1,5 cm, acute to acuminate; inflorescence unbranched, 12-13 cm long; flowers borne singly or in pairs, colour unknown; pedicel remnants 2-3 mm long; berry bright orange, 1,7-2 cm Ø.

Basalt rocks with *Xerophyta, Myrothamnus, Aloe;* 350-550 m alt.

Very variable species, in habit, size and shape of leaves, form of inflorescence. 13 varieties figure in World Checklist of Selected Plant Families, Asparagaceae, Roy. Bot. Gard., Kew; and 14 are listed in Fl. Madagascar 40: 8, 1938.

Madagascar, W Indian Ocean islands.

The plants from coastal Mozambique are slightly different from those in Madagascar, but a collection by Leeuwenberg (14190) from Parcel Isl. agrees with the material from continental Africa. The plant has cream-coloured flowers, green at base, perianth 1,4 cm long, tube 0,8-0,9 cm and lobes 5-6 mm long.

D. rosulata Mwachala & Eb. Fischer, Phytotaxa 88: 6, 2013. – Icon.: ibid.: 7.

Perennial herb with creeping rhizome to 12 cm long, 0,5 cm Ø; leaves in a dense basal rosette, petiole ± lacking; blade broadly elliptic 12-14 × 4,7-7cm, widest at middle, apex acuminate, veins conspicuous beneath; inflorescence 19-25 cm long, erect, from the centre of the rosette, in upper part paniculate with up to 19 glomerules of flowers, each glomerule of 5-8 flowers; perianth white, 1,4-1,6 cm long, fused over basal 0,2-0,3 cm; lobes 6, linear, 1,2-1,4 × 0,1 cm; fruit unknown.

Probably in understorey of lowland rain-forest ("sous-bois").

Known only from the type collected in 1953 (Callens 4158).

Resembling *D. phrynioides* and *D. phanerophlebia* (all rosulate, but differs from these by the sessile leaves and the paniculate inflorescence. Resembling *D. braunii* by the inflorescence, but flowers different.

(**D. rubroaurantiaca** De Wild.) – Icon.: Ann. Mus. Congo Belge, Bot. 5/1: pl. 58, 1906.

Near *D. fragrans* but: fruit with shorter pedicel; ramifications of panicle more developed (flowers not in glomerules); flowers c. 3,7 cm long (not 1,5-2,5).

Ecology unknown.

? Only known from the type (Dewèvre s.n.), Zaire, Malella, collected in 1895. – Not mapped.

D. scabra Bos; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011. – Icon.: Hawthorne & Jongkind, Woody pl. west Afric. for.: 883, 2006.

Shrub to treelet unbranched, single-stemmed to 4-7 m tall, rarely forked; stem 3 cm or more Ø; leaves in terminal tufts, narrowly obovate, 0,4-1,1 m × 5,5-9 cm, tip acute, base clasping the stem; panicle terminal, erect, densely scabrid, 25-70 cm long, branches 6-25 cm long; flowers in apical glomerules of 10 – more 20; flowers white, 2,8-3,2 cm long, tube 1,2-1,8 cm long, lobes 1,4-1,6 cm × 2,5-3 mm; fruit pale orange when ripe, globose, 0,9-2,5 cm Ø.

Possibly restricted to riverine forests; distributed in a narrow band exactly following the limits of grey sediment; also located on the fringes of *Raphia* swamp.

DRACAENA

(**D. soyauxiana** Baker)

syn.: *Pleomele soyauxiana* (Baker) N. E. Br.

Branchlets c. 6 mm Ø, with many leaves, compact, at their ends; blade broadly oblong, 10-13 × 6,5-7 cm, cuspidate, base cuneate; petiole 7,5-10 cm long, dilated at base; peduncle unbranched, c. 10 cm long, dilated at base; peduncle unbranched, c. 10 cm long; flowers in sessile fascicles of 3; pedicels very short, articulated; bracts small, scarious; perianth cylindrical, c. 8,5 cm long, lobes oblanceolate, as long as tube.

Ecology not recorded.

Said to be near "*D. elliptica* Thunb.". – Perhaps a form of *D. surculosa*.

? Only known from the type (Soyaux 158); Gabon, Estuary, Sibange Farm. – Not mapped.

Not in Sosef & al., Check-list pl. vascul. Gabon: 252, 2006.

D. steudneri Engl., excl. var. *kilimandscharica* Engl. *(= D. fragrans);* Coates Palgrave, Trees south. Afr., ed. 3: 116, 2002; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 181-182, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 281-282, 2010; Burrows & Willis, Pl. Nyika Plateau, Malawi: 305, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 80, 2006; Lovett & al., Field guide moist for. trees Tanzania: 288, 2006; Fl. Trop. E. Afr., Dracaen.: 8, 2007; Fl. Zambes. 13/2: 17-18, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 164, 2011; Kalema & Beentje, Conserv. checklist trees Uganda: 48, 2012. – Icon.: Fl. Eth. & Eritrea 6: 78, 1997; Puff & Sileshi, Pl. Simen: 219, 2005; Latham, Plants visited by bees…Umalila, south. Tanz., ed. 3: 72, 2007; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 555, 2008.

syn.: *Pleomele steudneri* (Engl.) N. E. Br.; *P. papahu* (Engl.) N. E. Br.; *Dracaena papahu* Engl.

Tree 3-25 m tall, palm-like; stems single, 20-45 cm Ø, crown branched; leaves clustered at branch ends, outer ones drooping, inner ones erect, sessile, lanceolate, 0,4-1,3 m × 4-16 cm, base narrowed, clasping, apex attenuate towards acute tip; inflorescence erect becoming pendulous in fruit, paniculate, 0,3-2 × 1,5 m, flowers in globose groups to 100 flowers; perianth white, cream or greenish white, 1,9-1,8 × 0,6-1 cm, lobes 0,5-0,8 cm × 0,5-1 mm; fruit globose, bronze to dark purple to blackish red, 1,2-3 cm Ø.

Moist or dry forest; evergreen forest; forest margins; forest remnants; secondary forest; gallery; often gregarious; 700-2300 m alt.

Often planted, for ornament, shade around churches, graves, as live fences, bee forage.

Similar to *D. fragrans* (with shorter leaves, inflorescence branching different).

D. surculosa Lindl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 512-513, 1995; Chapman & Chapman, For. Taraba & Adamawa States, Nigeria: c49, 2001; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 211, 2011; Onana, Vascul. pl. Cameroon…: 164, 2011. – Icon.: Edwards's Bot. Reg. 14: pl. 1169, 1828; Bot. Mag.: 7584, 1898; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 875, 879, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 460, 2009.

syn.: Enum. 3: 65, 1995; *Draco surculosa* (Lindl.) Kuntze; *Pleomele surculosa* (Lindl.) N. E. Br.

Branched shrub 1-8 m tall; rootcrown producing cane-like shoots, the tallest often ± sarmentose, topped by a pseudowhorl of a small number of leaves; leaves elliptic, 1,5-20 × 0,5-7 cm, apex acuminate, base almost rounded with a pseudopetiole 0,2-1,3 × 0,1-0,8 cm; inflorescences terminal on cane and branches,

DRACAENA SURCULOSA

but also axillary; inflorescences with to 7 distinct 1-5-flowered glomerules in the distal part and a 5-45-flowered terminal glomerule; flowers greenish to pure white, 1,5-4,2 cm long, tube 0,7-1,2 cm long, lobes 0,6-1,6 cm long; fruit orange-scarlet, globose or distinctly lobed, to 2 cm Ø.

Primary and secondary forests; 500 (? and less) - 1600 m alt.

Comprises 2 vars.: – var. **surculosa** [syn. : *D. godseffiana* Sander ex Mast.; *Pleomele godseffiana* (Sander ex Mast.) N. E. Br.; *Nemampsis ternifolia* Raf.], with pedicels < 1 cm long, variegation (if present) of small round *white* to *yellow-white* spots on both surfaces; – var. **maculata** Hook. f. [syn.: *Dracaena interrupta* Harv. ex Loudon; *D. surculosa* var. *capitata* Hepper, and var. *verticillata* hort. nom. nud.; *Pleomele globosa* Wang & Tang, ms.], with pedicels 1-2,5 cm long, variegations (if present) as dots, rings or other patterns in *pale green*, not always visible beneath.

Cultivated in W Africa and under glass in temperate countries as ornamental foliage plants (cf. European Garden Flora, ed. 2, 1: 191, 2011; D. Jacquemin, Succulentes Ornementales…: 136, 2000). Propagation easy, also by suckers produced by the plants. Also cultivated the hybrid with *D. fragrans* (*D.* × *maseffiana* Pennock ex Bos cv. 'Pennock') with intermediary characters.

D. talbotii Rendle; Onana & Cheek, Red Data Book flow. pl. Cameroon: 372, 556 (map), 2011. – Icon.: Bos in Agric. Univ. Wagen. Papers 84-1: 90, 1984.

syn.: *Pleomele talbotii* (Rendle) N. E. Br.

Habit unknown, but probably an unbranched shrub 1-2 m tall; leaves congested terminally on stems, linear-oblanceolate, *28-80* × 2,5 cm, *sharply acuminate*, base very gradually tapering, but with an abruptly dilated petiole-base clasping the stem; inflorescence a *dense* terminal *spike* 10-15 cm long, erect; flowers 2,5-3,1 cm long, tube 1,3-2 cm, lobes c. 1-1,1 cm × 2,5 mm; fruit and seeds unknown.

Forest.

Known from the type (Talbot 1532) collected in 1912, and probably 2 collections from Korup Natl. Park, Cameroon (Letouzey 15141, Thomas 5436), cf. Onana & Cheek, l.c.

Similar to *D. mokoko* (with longer leaves, 75-110 × 7-10,5 cm and inflorescence sparsely flowered 45-75 cm long).

(**D. tessmannii** Engl. & K. Krause)

Distinguished from the closely related *D. arborea* by its narrower leaves still more narrowed at base, and by its denser inflorescence.

Ecology unknown; 450 m alt.

Only known from the type (Tessmann 358), Equatorial Guinea, collected in 1908.

Not mapped.

(**D. vanderystii** De Wild.)

Near *D. poggei* but leaves generally shorter and always narrower.

Forest.

Known from 8 collections from Zaire, made between 1903 and 1913.

Not mapped.

DRACAENA

D. viridiflora Engl. & K. Krause (often cited under *D. mildbraedii*); Cable & Cheek, Pl. Mt Cameroon: 157, 1998; Cheek & al., Pl. Kupe…: 441, 2004; Sosef & al., Check-list pl. vascul. Gabon: 252, 253, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 224, 2011; Onana & Cheek, Red Data Book flow. pl. Cameroon: 369-370, 2011; Onana, Vascul. pl. Cameroon: 164, 2011. – Icon.: Bos in Agric. Univ. Wagen Papers 84-1: 90, 1984 (as *D. mildbraedii*); Hawthorne & Jongkind, Woody pl. west. Afr. for.: 881, 2006 (idem).

syn.: *D. vaginata* Hutch., nom. inval.; *D. mildbraedii* K. Krause; *Pleomele viridiflora* (Engl. & K. Krause) N. E. Br.

Shrub or shrubby tree to 5 m tall or more; leaves evenly distributed along the branches, ± linear, 5-25 × 0,7-2 cm, tip acute-subulate to 0,9 cm long, base sheathing 0,8-1,6 cm long, clasping the stem; inflorescence unbranched, 2,5-9 cm long, terminal, sometimes axillary; flowers in 3-5-flowered clusters; flowers to 2,7 cm long, tube c. 1,4 cm long, lobes c. 1,2 × 0,2 cm; fruit orange(-yellow), globose to somewhat depressed globose, 1,4-2,5 cm Ø.

Dense forests; 5-1400 m alt.

Resembling *D. mokoko* (cf. Nord. J. Bot. 30: 389-390, 2012).

SYNONYMS:

Dracaena adamii sensu Hepper 1968 p.p. = **D. calocephala**

afzelii Baker = **D. ovata**

albanensis Sander ex Mast. = **D. fragrans**

aureolus W. Bull ex Mast. = **D. fragrans**

bequaertii De Wild. = **D. laxissima**

broomfieldii Sander ex Mast., incl. var. *superba* Sander ex Mast. = **D. fragrans**

butayei De Wild. = **D. fragrans**

capitulifera De Wild. & T. Durand = **D. camerooniana**

cf. *phanerophlebia* sensu Cheek & al., 2004 = **D. kupensis**

cylindrica Hook. f. = **D. bicolor**

deisteliana Engl. = **D. fragrans**

"densiflora" Baker = **D. densifolia**

deremensis Engl., incl. var. *warneckei* Engl. = **D. fragrans**

dundusanensis De Wild. = **D. camerooniana**

elegans Hua = **D. laxissima**

elliotii Baker, non Thunb. & Dalm. = **D. cristula**

elliptica sensu Broun & Massey, Fl. Sudan, 1929 = **D. laxissima**

ensifolia L. = **Dianella ensifolia** *(Hemerocallidaceae/Phormiaceae)*

ensifolia var. *greigii* Regel = **Dracaena fragrans**

excelsa Ten. = **D. arborea**

fragrans sensu Fl. W. Trop. Afr., ed. 2, p.p. = **D. congoensis**

frommii Engl. & K. Krause = **D. camerooniana**

gazensis Rendle = **D. mannii**

gentilii De Wild. = **D. camerooniana**

godseffiana Sander ex Mast. = **D. surculosa** var. **surculosa**

hanningtonii Baker = **Sansevieria ehrenbergii**

hirsuta Thunb. = **Palisota hirsuta** *(Commelinaceae)*

hookeriana K. Koch = **Dracaena aletriformis**

DRACAENA

humilis Baker = **D. aubryana**

interrupta Baker = **D. camerooniana**

interrupta Harv. ex Loudon = **D. surculosa** var. **maculata**

janssensii Mast. = **D. fragrans**

"*kerkiana*" K. Koch, sphalm. = **D. arborea**

kindtiana De Wild. = **D. aubryana**

knerkiana (*knerckiana*) K. Koch = **D. arborea**

"*knerkii*" K. Koch, sphalm. = **D. arborea**

"*laevissima*" Engl. ex T. Durand & Schinz, sphalm. = **D. laxissima**

latifolia Regel = **D. aletriformis**

latifolia fa. *rothiana* Siebert = **D. fragrans**

laurentii De Wild., incl. var. *linearifolia* De Wild. = **D. acutissima**

lecomtei Hua = **D. camerooniana**

leonensis Lodd. ex Loudon = **D. ovata**

lindenii Linden ex André = **D. fragrans**

maculosa sphalm. in Gard. Chron. = **D. surculosa** var. **surculosa**

massangeana Rodigas = **D. fragrans**

mayumbensis Hua = **D. camerooniana**

medeoloides L. f. = **Asparagus asparagoides** *(Asparagaceae)*

mildbraedii K. Krause = **Dracaena viridiflora**

monostachya Baker, incl. var. *angolensis* Baker = **D. aubryana**

mooreana Baker = **D. aubryana**

nemorosa (Lam.) Steud. = **Dianella ensifolia** *(Hemerocallidaceae/Phormiaceae)*

nitens Welw. ex Baker = **Dracaena mannii**

oculata Linden = **D. phrynioides**

odum Engl. & K. Krause = **D. camerooniana**

papahu Engl. = **D. steudneri**

perrottetii Baker, incl. var. *minor* Baker = **D. mannii**

phrynioides Hook. var. *staudtii* Engl. = **D. phrynioides**

preussii Engl. = **D. bicolor**

"*primulina*" = **D. ovata**

prolata C. H. Wright = **D. ovata**

pseudoreflexa Mildbr. = **D. mannii**

reflexa Lam. var. *nitens* (Welw. ex Baker) Baker = **D. mannii**

reflexa var. *nitens* p.p. quoad specim. Afr. orient. = **D. afromontana**

rhabdophylla Chiov. = **D. ombet**

sanderiana Sander = **D. braunii**

schizantha Baker = **D. ombet**

scoparia A. Chev. ex Hutch. = **D. cerasifera**

sessiliflora C. H. Wright = **D. ovata**

silvatica Hua = **D. camerooniana**

smithii Baker ex Hook. f. = **D. fragrans**

smithii sensu Fl. W. Trop. Afr., ed. 2, p.p. = **D. congoensis**

sp. affinis *aubryana* sensu Cable & Cheek 1998 = **D. mokoko**

sp. sensu Fl. W. Trop. Afr., ed. 2, p.p. = **D. calocephala**

DRACAENA

spathulata hort. = **D. ovata**
steudneri Engl. var. *kilimandscharica* Engl. = **D. fragrans**
surculosa Lindl. var. *capitata* Hepper and var. *verticillata* hort. nom. nud. = **D. surculosa** var. **maculata**
thalioides Makoy ex Regel = **D. aubryana**
tholloniana Hua = **D. aubryana**
thomsoniana Veitch ex Mast. & Moore = **D. mannii**
ueleensis De Wild. = **D. camerooniana**
ugandensis Baker = **D. fragrans**
usambarensis Engl. = **D. mannii**
vaginata Hutch. = **D. viridiflora**
victoria W. Bull = **D. fragrans**

(DRACO)

Draco afzelii (Baker) Kuntze = **Dracaena ovata**
arborea (Willd.) Kuntze = **D. arborea**
bicolor (Hook.) Kuntze = **D. bicolor**
camerooniana (Baker) Kuntze = **D. camerooniana**
cylindrica (Hook. f.) Kuntze = **D. bicolor**
"*densiflora*" Baker, sphalm. = **D. densifolia**
densifolia (Baker) Kuntze = **D. densifolia**
fragrans (L.) Kuntze = **D. fragrans**
glomerata (Baker) Kuntze = **D. glomerata**
goldieana (Bullen ex Mast. & Moore) Kuntze = **D. goldieana**
hookeriana (K. Koch) Kuntze = **D. aletriformis**
humilis (Baker) Kuntze = **D. aubryana**
mannii (Baker) Kuntze = **D. mannii**
ombet (Heuglin ex Kotschy & Peyr.) Kuntze = **D. ombet**
ovata (Ker Gawl.) Kuntze = **D. ovata**
perrottetii (Baker) Kuntze = **D. mannii**
phrynioides (Hook.) Kuntze = **D. phrynioides**
reflexa (Lam.) Kuntze = **D. reflexa**
schizantha (Baker) Kuntze = **D. ombet**
surculosa (Lindl.) Kuntze = **D. surculosa**
thalioides (Makoy ex Regel) Kuntze = **D. aubryana**

(LOMATOPHYLLUM)

Lomatophyllum reflexum (Lam.) Bojer = **Dracaena reflexa**

(NEMAMPSIS)

Nemampsis ternifolia Raf. = **Dracaena surculosa** var. **surculosa**

(PHRYNIUM)

Phrynium maculatum hort. = **Dracaena phrynioides**

(PLEOMELE)

Pleomele acaulis (Baker) N. E. Br. = **Dracaena acaulis**
afzelii (Baker) N. E. Br. = **D. ovata**
aloifolia Salisb. = **Sansevieria hyacinthoides**

PLEOMELE

arborea (Willd.) N. E. Br. = **Dracaena arborea**
bicolor (Hook.) N. E. Br. = **D. bicolor**
braunii (Engl.) N. E. Br. = **D. braunii**
camerooniana (Baker) N. E. Br. = **D. camerooniana**
cerasifera (Hua) N. E. Br. = **D. cerasifera**
congoensis (Hua) N. E. Br. = **D. congoensis**
cuspidibracteata (Engl.) N. E. Br. = **D. cuspidibracteata**
cylindrica (Hook. f.) N. E. Br. = **D. bicolor**
densifolia (Baker) N. E. Br. = **D. densifolia**
deremensis (Engl.) N. E. Br. = **D. fragrans**
elegans (Hua) N. E. Br. = **D. laxissima**
elliotii (Baker) N. E. Br. = **D. cristula**
fragrans (L.) Salisb. = **D. fragrans**
gabonica (Hua) N. E. Br. = **D. gabonica**
globosa Wang & Tang, ms. = **D. surculosa** var. **maculata**
glomerata (Baker) N. E. Br. = **D. glomerata**
godseffiana (Sander ex Mast.) N. E. Br. = **D. surculosa** var. **surculosa**
goldieana (Bullen ex Mast. & Moore) N. E. Br. = **D. goldieana**
hanningtonii (Baker) N. E. Br. = **Sansevieria ehrenbergii**
heudelotii N. E. Br. = **Dracaena mannii**
hookeriana (K. Koch) N. E. Br. = **D. aletriformis**
humilis (Baker) N. E. Br. = **D. aubryana**
interrupta (Baker) N. E. Br. = **D. camerooniana**
kindtiana (De Wild.) N. E. Br. = **D. aubryana**
laxissima (Engl.) N. E. Br. = **D. laxissima**
lecomtei (Hua) N. E. Br. = **D. camerooniana**
mannii (Baker) N. E. Br. = **D. mannii**
mayumbensis (Hua) N. E. Br. = **D. camerooniana**
monostachya (Baker) N. E. Br. = **D. aubryana**
nitens (Welw. ex Baker) N. E. Br. = **D. mannii**
papahu (Engl.) N. E. Br. = **D. steudneri**
parviflora (Baker) N. E. Br. = **D. parviflora**
perrottetii (Baker) N. E. Br. = **D. mannii**
phanerophlebia (Baker) N. E. Br. = **D. phanerophlebia**
phrynioides (Hook.) N. E. Br. = **D. phrynioides**
poggei (Engl.) N. E. Br. = **D. poggei**
prolata (C. H. Wright) N. E. Br. = **D. ovata**
reflexa (Lam.) N. E. Br. = **D. reflexa**
sanderiana (Sander) N. E. Br. = **D. braunii**
silvatica (Hua) N. E. Br. = **D. camerooniana**
smithii (Baker ex Hook. f.) N. E. Br. = **D. fragrans**
soyauxiana (Baker) N. E. Br. = **D. soyauxiana**
steudneri (Engl.) N. E. Br. = **D. steudneri**
surculosa (Lindl.) N. E. Br. = **D. surculosa**
talbotii (Rendle) N. E. Br. = **D. talbotii**
thalioides (Makoy ex Regel) N. E. Br. = **D. aubryana**
tholloniana (Hua) N. E. Br. = **D. aubryana**
ugandensis (Baker) N. E. Br. = **D. fragrans**
usambarensis (Engl.) N. E. Br. = **D. mannii**
viridiflora (Engl. & K. Krause) N. E. Br. = **D. viridiflora**

(SALMIA)

Salmia guineensis (L.) Cav. = **Sansevieria hyacinthoides**
spicata Cav. = **S. hyacinthoides**

(SANSEVERINIA)

Sanseverinia rorida Lanza = **Sansevieria ehrenbergii**
thyrsiflora Petagna = **S. hyacinthioides**

SANSEVIERIA / *57 + 5* ?

Sansevieria Thunb. 1794, nom. cons. A plea to restore Petagna's (1787) authorship *(Sanseverinia)* published by Menale & al. in Taxon 62: 387-390, 2013.

Some 60 species in Tropical and S. Africa, extending into Madagascar, Mascarene and Comoro Islands, Arabian Peninsula and S Asia.

Sansevieria was treated by Bos (in Kubitzki, 1998) as a synonym of *Dracaena* though he did not make "unnecessary new combinations in *Dracaena*" because several revisions were under way. He found the distinction between the genera "purely traditional and not tenable. The succulence of the leaves of many species of *Sansevieria* is equaled and even surpassed by *D. ombet*…". The two genera can not always be distinguished on the basis of their growth form, nor inflorescence form. Most *Sansevieria* species have flowers in unbranched thyrsose racemes, but others have branched panicles or compact umbel-like inflorescences. However, the fruit of *Dracaena* is a berry with 1-3 seeds. In *Sansevieria* the ovary wall falls away exposing the seeds which have a fleshy sarcotesta that mimics a fleshy berry. The pollen morphology is very different. So Jankalski (Sansevieria 8: 18, 2003) recommended that the two genera be maintained "on the basis of significant differences in fruit, seed and pollen morphology. More information is needed".

Difficult taxonomically partly because the only monograph, published by N. E. Brown in 1915, was based mainly on a study of plants cultivated at Kew Gardens. So variation in the field was not taken into account, type localities are unknown for many taxa, and names were not full typified (not a requirement for valid publication). Out of print, a reprint is now available in serial form of 8 parts in the journal Sansevieria, Volumes 5 (2002) to 13 (2005). This was followed by an Index (Sansevieria 14, 2006), an Update (ibid. 15, 2006), and by a presentation of species described since the monograph (ibid. 17, 2007).

Haworth described many *Sansevieria* species (Synopsis plantarum succulentarum, 1812), figuring in N. E. Brown's monograph. As Newton & Webb (in J. E. Afric. Nat. Hist. 100: 143, 2011) have pointed out, many of Haworth's original specimens are lost. After his death his herbarium of over 20 000 specimens was sold by his widow to H. B. Fielding, who bequeathed it to Oxford University. Fielding threw out many of Haworth's original specimens, especially when he could replace them with "better specimens". As a consequence very few of Haworth's original specimens that would now be recognised as types are extant.

Many Sansevierias were once cultivated in the tropics for fibre obtained from leaves. Many species are grown as ornamentals, the variegated forms of, e.g., *S. trifasciata*, are best known. Identification of herbarium material can be difficult and uncertain; and many specimens were prepared from cultivated plants. "What is needed, of course, in *Sansevieria* is a new monograph. This would involve not only extensive field work in different countries but a great deal of research in herbaria" (I. la Croix, Sansevieria 10: 20, 2004).

I. la Croix's wish is now partly fulfilled with the account of species, "The splendid Sansevieria", published by B. J. Chahinian in 2005 (reviews by A. Butler in Sansevieria 13: 11, 2005; L. Newton in Nature East Africa 35/2: 18-19, 2007; C. C. Walker in Cactus World 24/1: 44, 2006). But Chahinian makes his choice of material clear: "Because the extreme difficulty in correctly identifying *Sansevieria* from herbarium material, the author prefers to cite only recently observed material" [Cactus Succ. J. (U.S.) 72: 132, 2000].

B. Juan Chahinian is the President of the International Sansevieria Society (see Sansevieria 18: 3-4, 2008), run from England and publishing the journal Sansevieria since January 2001 (see To The Point 73/1: 7, 2001; Cactus & Co. 5/1: 51, 2001). Alan J. Butler is Chairman and Editor (Brookside Nursery, Elderberry Farm, Bognor Road, Rowhook, Horsham, West Sussex RH1 3PS, UK; E-mail: *alanbutler1@compuserve.com*). The Society also holds a reference library (Sansevieria 1: 20, 2001).

Sansevierias are used locally as fodder or medicine, and valued for their fibres (Scripta Bot. Belg. 46: 234, 2010). They are cultivated as ornamentals in Africa and elsewhere (Sansevieria 2: 20-21, 2001) since centuries (Sansevieria 7: 7-8, 2003). Taken into cultivation their habit may change dramatically. Examples are given in Sansevieria 11: 9-12, 2005, where A. Butler shows side by side specimens of the same species photographed in nature and in cultivation.

The situation much resembles that of *Haworthia* (*Aloaceae;* see our "Tropical African Flowering Plants" 7: 311, 2012; Sansevieria 11: 13-16, 2005): ecological variants, hybridisation, introduction of plants without correct scientific names, names used incorrectly in cultivation, description of new species based on newly discovered populations of plants with similarities to more than one species, etc. An example of such pitfalls is *Gloriosa superba (Colchicaceae),* described under many different names, resulting in a very long list of synonyms.

Living *Sansevieria* collections in different countries of the World are presented in several issues of Sansevieria, e.g., Numbers 1 (p. 9-10), 2001; 3 (p. 26-28), 2002; 4 (p. 5-9), 2002; 5 (p. 13-15), 2002; 6 (p. 7-9, 14-17), 2003; 12 (p. 5-9), 2005; 14 (p. 5-10, 26-28), 2006. These plants are propagated vegetatively by pieces of rhizomes, by leaf cuttings or from seed (Kikillus in Sansevieria 15: 10-12, 2006; Gamesby, ibid. 2: 22, 2001; Ramos, ibid. 12: 10-11, 2005).

Many species in our area are incompletely known. The fruit is unknown in 16 + 1 ? species, for 4 + 1 ? species no ecology is recorded, and 3 are known only from the type.

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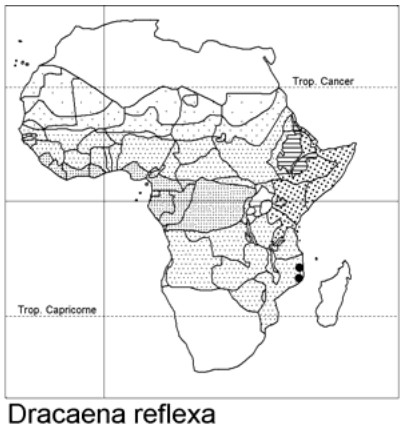
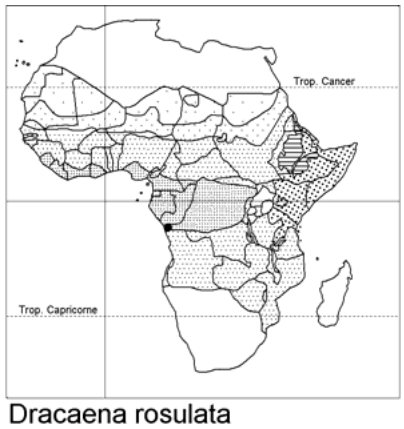
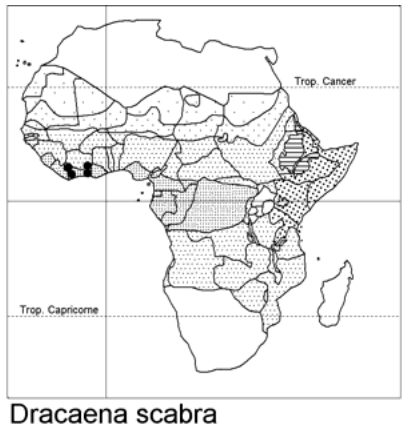


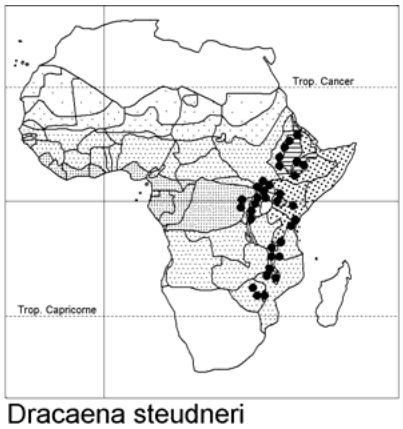
Dracaena reflexa



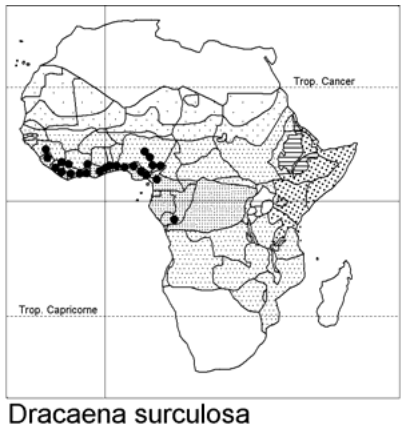
Dracaena rosulata



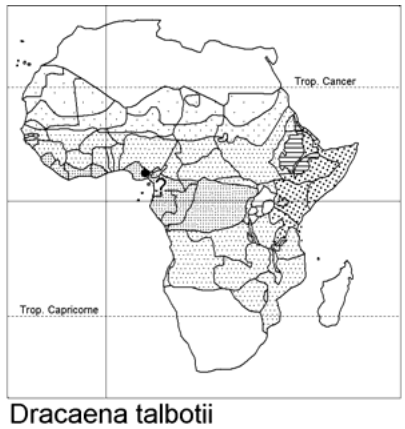
Dracaena scabra



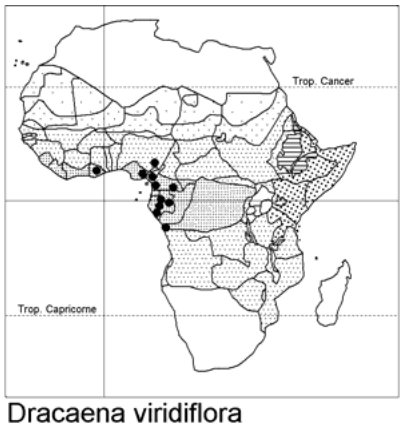
Dracaena steudneri



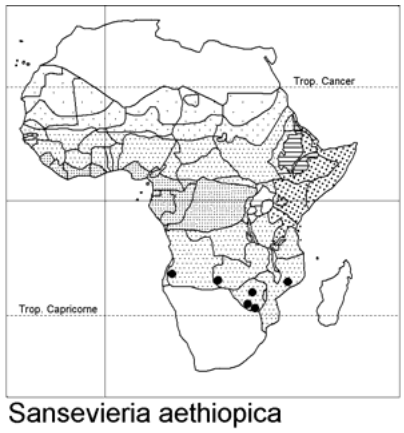
Dracaena surculosa



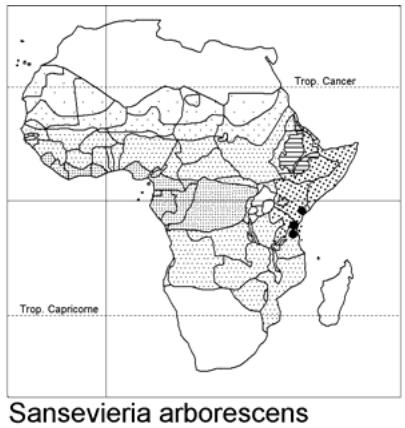
Dracaena talbotii



Dracaena viridiflora



Sansevieria aethiopica



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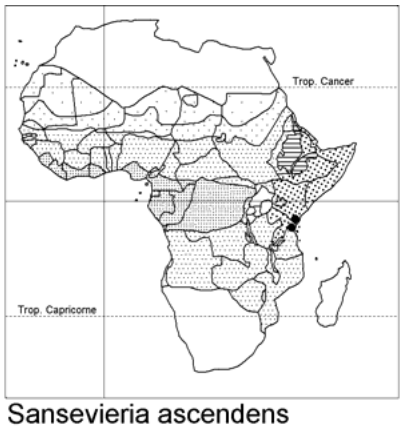
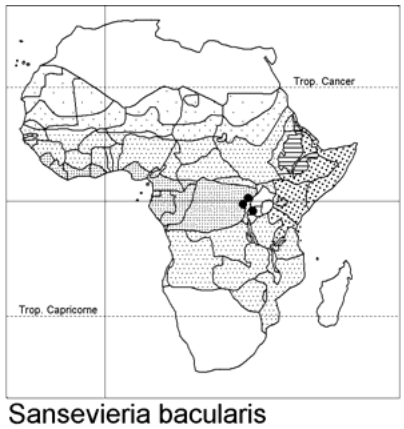
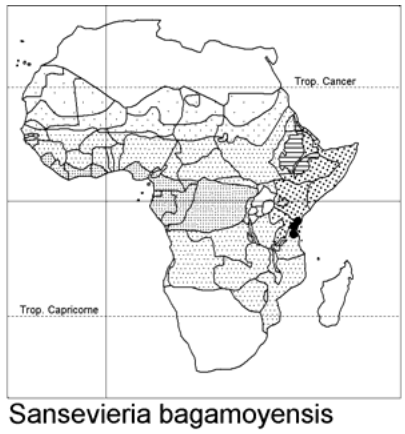


Sansevieria ascendens



Sansevieria bacularis



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syn.: Enum. 3: 66, 1995; *S. caespitosa* Dinter; *S. thunbergii* Mattei; *Aletris hyacinthoides* var. *zeylanica* Ait., nom. illegit.

Rhizomatous perennial forming large colonies; rhizome long, with new shoots placed far apart; leaves in clusters of 3-15, in rosette, partly folded, erect to somewhat recurved, sometimes with paler green transverse bands, 25-40 × 1-2 cm, rough to touch, apex spiny to 1,5 cm long, margins white cartilaginous with inner red line; inflorescence 40-95 cm long, with a dense spike-like pseudoraceme 22-56 × 4-6 cm; peduncle 25-40 cm long; pedicels 0,5-1 cm long; flowers white, (greenish-)cream, sometimes purple-tinged, in clusters of 4-6, opening at night; perianth 3,5-5 cm long, tube 2-3,5 cm, tepals 1,1-2 cm long, fruit 1-3-lobed, red when ripe.

Sand or sandy pockets on rock; open sunny sloping scree with *Euphorbia*, *Commiphora virgata*, *C. glaucescens*, *Boschia tomentosa*, *Acacia mellifera*, etc. (vide Sansevieria 23: 9, 2010); 200-1450 m alt.

S. Africa, Botswana, Namibia. – Discovered in Angola in 2010 (Sansevieria 23: 7, 2010).

Cultivated in Europe since about 1700. Plants in cultivation under the name *S. caespitosa* are *S. parva* (fide Sansevieria 17: 21, 2007).

S. arborescens Cornu ex Gérôme & Labroy, non sensu Fl. Trop. E. Afr., Dracaen.: 40, 2007, except specim. Mgaza 558, 2007; sensu Jankalski in Sansevieria 15: 21, 2006, et ibid. 19: 10, 2009, p.p., excl. syn. *S. bagamoyensis* N. E. Br.; Chahinian in Nature E. Afr. 25/2: 18, 2007; Bradleya 30: 103, 2012. – Icon.: Bradleya 27: 155, 2009; Sansevieria 12: 13 fig 2, 2005; ibid. 24: 17, 19, 2010; ibid. 26: 12, 2012; Chahinian (2005): 20-21. Butler in Sansevieria 29: 25, 2013. – Neotype designated by Newton in Bradleya 30: 106, 2012, Ngwiri sub Newton 5884, EA, Kenya, Coast Province, 36 km S Malindi, edge of Aruboko Sokoke Forest, 8. VIII. 2004.

Rhizomatous perennial, caulescent, leaf succulent; stem erect, to 1,5 m tall, 2 cm Ø, unbranched; leaves spirally arranged, *spreading horizontally, 15-22* × 3-6 cm, *6 mm thick*, base sheathing, margins reddish-brown, apex spiny 1 cm long; inflorescence terminal, to 50 cm long, paniculate, *lower branches to 8 cm long*, secondary branches none, all branches laxly flowered, 3-4-flowers per cluster; perianth tube 5 mm long, 2 mm Ø, white, lobes 5-8 × 1,5 mm; fruit globose, 8-9 mm Ø.

Cliff-top coastal forest; 13-450 m alt.

Resembling an *Aloe*, *A. rabaiensis* Rendle is a shrubby species growing in the same area.

Confused with *S. bagamoyensis, S. dumetescens, S. ascendens*.

S. powellii is supposed to be a hybrid between *S. arborescens* and *S. robusta* (see Butler in Sansevieria 26: 7-12, 2012).

S. ascendens L. E. Newton – Icon.: Sansevieria 24: 18, 19, 2010; ibid. 26: 12, 2012; Bradleya 28: 20, 22, 25, 2010.

Caulescent rhizomatous perennial; stem unbranched, to 1,5 m tall, erect or becoming decumbent or supported by vegetation; leaves spirally arranged, *spreading*, to 60 × 3 cm at base, 1-1,5 cm thick near base; inflorescence to 1 m long, 0,35 m wide, paniculate with c. 20 branches, the lower ones 40 cm long, with secondary branching, branches ascending to 21 cm long on longer branches; panicle glomerulate with clusters of 4-6 flowers (nocturnal, sweet scented); flower tube 5 mm long, 3 mm Ø, pale green at base, white finely speckled brown above, lobes 8 × 1,5 mm, outside white finely speckled brown; fruit spherical, to 9 mm Ø, occasionally 2-3-lobed, becoming yellow-orange.

Disturbed bushland on plain around hill; dry bush; degraded *Cynometra*, *Brachylaena* forest; 160-352 m alt.

Confused with *S. arborescens*. Near *S. dumetescens*.

(**S. aubrytiana** Carrière); Newton in Nature E. Africa 35/2: 18, 2007. Figuring in "World Checklist of Selected Plant Families, *Asparagaceae*, Royal Bot. Gard., Kew". With as synonyms: *S. bracteata* Baker 1878; *Acyntha bracteata* (Baker) Kuntze 1891.

Treated by Mwachala & Mbugua in Fl. Trop. E. Afr., Dracaenaceae, both as a synonym of *S. bracteata* (p. 16) and of *S. kirkii* (p. 32, as nom. nud.).

Note on *S. aubrytiana* Carrière, non Gérôme & Labroy 1903: in Rev. Hort. 1861: 448 and 449 (1861) Carrière names a plant grown at the "Museum" (Paris) together with *"S. canaliculata, zeylania, guineense, longiflora",* and sent from Gabon (locality not given) by M. Aubry-le-Comte. Carrière compares this new plant with *S. longiflora*, which he describes as follows. Leaves coriaceous, very wide already from the base, sometimes reaching 10 cm in width, then very abruptly rounded at apex, ending in a small cylindrical obtuse mucro whitish as the the leaf margins; the upper surface is smooth, shiny as if varnished; the leaves are very strongly cross-banded, a feature which is visible in the old leaves only on the lower surface.

Then he describes *S. aubrytiana*: a very vigorous plant resembling in its habit, but not in its colour and texture, a *Phormium tenax*. Carrière's new plant is distinguished from *S. longiflora* by its much greater vigour, by the not so dark colour of its leaves, which are strongly cross-banded on both surfaces; the leaves are also wider and much more long-acuminate than those of *S. longiflora*.

Chahinian in his "Splendid Sansevieria" (2005): 22, also gives a translation of the original description, as well as a photograph of a cultivated plant (only leaves). He accepts the name as valid and also the eventual identity of a distinct species.

N. E. Brown in his monograph (cf. Sansevieria 13: 24, 225) put Carrière's *S. aubrytiana* among the "imperfectly known and excluded species". He had not seen the plant but thought that *S. bracteata* Baker "may possibly be the same species". However, the plant cultivated at Paris in 1909 under the name *S. aubrytiana* (doubtless of Gérôme & Labory) "proves to be *S. Kirkii* Baker…".

It may be preferable to consider *S. aubrytiana* Carrière, as a doubtful species. It is, however, retained as a distinct species by Mansfeld (2013): 37.

S. bacularis Pfennig ex A. Butler & Jankalski; Jankalski in Sansevieria 7: 26, 2003; ibid. 15: 24, 2006; ibid. 17: 20, 2007; Newton, ibid. 21: 15-16, 2009. – Icon.: Sansevieria 22: 3, 4, 6, 7, 2010; Morgenstern, Sansevierias: fig. 11, 1979, nom. inval.; Chahinian (2005): 127-128 (as *S. sulcata*).

syn.: *S. bacularis* Pfennig, nom. nud. (see Newton, l.c.); *S. cylindrica* sensu De Wild., Pl. Bequaert. 1: 41, 1921, non Bojer ex Hook. 1859; *S. sulcata* hort. in Morgenstern, Sansevierias: fig. 96, 1979, non Bojer ex Baker; *S. sulcata* sensu Chahinian (2005): 127-128; possible synonyms are: *S. stuckyi* sensu Chiov., Fl. Somala 2: 422, 1932 p.p., and sensu Cufod. in Bull. Jard. Bot. Natl. Belg. 41, Suppl.: 1572, 1971, non Godefroy-Lebeuf 1903; *S. robusta* sensu Chiov., Fl. Somala 2: 422, 1932, non N. E. Br. 1915; *S. fischeri* sensu Thulin, Fl. Somalia 4: 29, 1994, non Marais 1986.

Stem 50-70 cm tall, 0,4-0,6 cm Ø, light or dark green, often speckled or shaded with purple; leaves mostly solitary, occasionally 2, verrucose, cylindrical or slightly compressed, 1,25-1,7 m long, 1,1-1,5 cm Ø, dark green with lighter cross-banding, apex soft; inflorescence an unbranched thyrse, peduncle 50-70 cm long, often purple-speckled, fertile part 30-45 cm long;

flowers 2-8 per cluster, white with 6 purple stripes; lobes linear, tip obtuse, reflexed, 1,5-1,7 cm long; fruit unknown.

Cliffs of river valley; edge of lake; xerophyllous thickets on stony soils; 1150-1400 m alt.

Near *S. canaliculata*; confused with *S. cylindrica* but in *S. bacularis* the leaves are usually solitary or in pairs and do not form the 2-ranked growth with 3-4 leaves as in *S. cylindrica*.

The original living collection of *S. bacularis* is of unknown natural origin, grown by Pfennig (PF62), and the only one currently in cultivation, grown in collections in many parts of the world (misnamed as *S. sulcata*). Pfenning certainly intended to publish the name *S. bacularis*, but died before he could finish his work (Newton, l.c.).

S. bagamoyensis N. E. Br.; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 262, 2001; Chahinian (2005): 23; Newton in Sansevieria 12: 12-15, 2005; Fl. Trop. E. Afr., Dracaen.: 38-39, 2007. – Icon.: Jankalski in Sansevieria 20: 23, 24, 2009; Newton in Bradleya 30: 104-105, 2012; Butler in Sansevieria 29: 24-25, 2013.

Shrubby herb; stem erect, height not known; leaves spirally arranged, spreading, *recurved*, closely placed, with sheaths embracing one another at base, linear(-lanceolate), *34-40 × 1,6-2,5* cm, *2,5-3 mm thick*, dark green, narrowed to a c. 4,2 mm long brown hard spine-like tip, margin red-brown with white membranous edge, surface smooth; inflorescence a terminal panicle c. 50 cm long, with c. 17 branches, *lower branches* to *25 cm long*, with *secondary branches* on 3-4 lower branches in large inflorescences; with 15-20 flower clusters per branch, c. 6 flowers per cluster; flowers cream-white, 1,2-1,5 cm long, tube 0,5-0,7 × 1,1 cm, lobes 0,5-0,6 cm long; fruit globose.

Open forest; coastal bushland, in half-shade; in dense shade in a thicket of trees and shrubs; in large clumps; 0-400 m alt.

Are *S. arborescens* and *S. bagamoyensis* conspecific ? Newton is convinced that each of these two entities is distinct, starting his arguments in Sansevieria 12: 12-17, 2005, and in Nature E. Africa 35/2: 18, 2007, the latter as a comment on Chahinian's (2005: 23) opinion that the two species are similar. Jankalski in Sansevieria 15: 21, 2006, in his update of Brown's monograph, considered *S. bagamoyensis* as a synonym of *S. arborescens*, and later (Sansevieria 20: 22-26, 2009), noted that the two names were based on the same specimen Sacleux 672. To cite Newton (Bradleya 27: 154, 2009), Jankalski's "opinion is based on a supposition that the specimen Sacleux 672 (P), the type of *S. bagamoyensis*, represents the plant grown in Paris by Cornu as *S. arborescens*, … assuming that Sacleux would have sent both living and herbarium material of each gathering. However, the specimen Sacleux 672 has a leaf about 38 cm long…which is more than double the leaf length given by Gérôme and Labroy for *S. arborescens*. Nevertheless, Jankalski (2009) has designated the specimen Sacleux 672 as neotype of the name arborescens" (in Sansevieria 20: 22-26, 2009).

So, Newton stated, l.c., that "there is a need to establish the identity of *S. arborescens* in order to clarify the distinction…". Then Butler (Sansevieria 24: 17-20, 2010) reviewed Newton's articles on the caulescent sansevierias, stating that there are two commonly grown forms: "one with relatively narrow, stiff and brittle leaves with a sharp point, and a second with much wider leaves that tend to droop down as they mature…we were led to believe that the one with wide leaves was the real *S. arborescens*…and the one with the short stiff leaves became *S. bagamoyensis*. However this idea turns out to be incorrect…". In answer to this Newton (Bradleya 30: 103-106,

2012) examined plants collected at two localities near Bagamoyo (NE Tanzania), which he then planted in his garden (Kenya, at 1512 m alt.). He also visited Bagamoyo in 2011. He states that characters of the Bagamoyo plants match the protologue although they have wider leaves, etc. His conclusion is that *S. arborescens* and *S. bagamoyenis* are two distinct species with significant differences. "Jankalski…was misled by Brown's failure to realise that the two upper leaves on the type specimen of *S. bagamoyensis* are immature". He also designates the neotype of *S. arborescens* Gérôme & Labroy 1903 (see under that species above).

Due to these confusing arguments we prefer to treat *S. arborescens* and *S. bagamoyensis* separately, although we are not convinced about the distinguishing characters presented and their sympatric distribution areas. Retained as a distinct species by Mansfeld, 2013. Butler (in Sansevieria 29: 24-25, 2013) also takes up the question; his conclusion: " Readers must decide if they accept that these two species are distinct or just variations of a single species, although Newton (pers. comm.) states that no intermediate forms have been seen. Perhaps some DNA research would answer this question and many others about variability in sansevierias."- "Whatever the final conclusion might be, we must be grateful that Len Newton, with his vast experience of succulent plants in Africa, especially in Kenya, continues to spend his time researching sansevierias and benefitting from help from visitors and from his students to gain more information and material."

S. ballyi L. E. Newton; Fl. Trop. E. Afr., Dracaen.: 26, 2007; Jankalski in Sansevieria 17: 12 and 20, 2007. – Icon.: Brit. Cactus Succ. J. 22: 10-12, 2004; Chahinian (2005): 24; Sansevieria 18: 27, 2008; ibid. 22: 10-12, 2010; Kakteen Sukk. 60: 242, 2009; Sansevieria 28: back cover, 2012.

syn.: *Sansevieria* 'Bally 12681', collected by Peter Bally in 1963. See also Sansevieria 17: 20, 2007.

Stoloniferous perennial; stolons to 18 cm long, c. 0,5 cm Ø, at first covered with scale leaves; scales papery, acute, c. 2 cm long, falling off with growth of new stolons; leaves spreading, rosulate, 6-10, laterally compressed and almost cylindrical, mostly 6-12 × 0,6-0,9 cm near base, with alternating transverse bands of dark and light green, apex a pungent red-brown spine to 7 mm long, margins of adaxial groove with a red-brown line and a narrow white edge, surface rough; inflorescence to 15,5 cm long, erect, simple, fertile portion to 8 cm long, sub-dense, 2 flowers per fascicle; flowers nocturnal, sweet-scented; tube 1,8-2,2 cm long, 2-2,7 mm Ø, pale pink; lobes 1-1,3 cm × 1,5 mm, whitish with faint brownish midstripe, fruit ?

Soil pockets on rock faces, amongst sedges; deeper soil in the shelter of taller vegetation; roadside scrub; creeping in semi-shade below shrubs on side of rocky hill; 180-975 m alt.

Cultivated since the 1960s. Cultivars are listed by Jankalski in Sansevieria 17: 12 and 20, 2007; by Newton, ibid. 22: 12, 2010. *Sansevieria* 'Druid Hill' is a hybrid cultivar *S. ballyi* (seed parent) × *S. trifasciata* 'Manda's Dwarf' (Sansevieria 15: 13, 2006).

Sansevieria ballyi Pfennig ms. Herb. B., is *S.* × *itumea* (syn.: *S. aethiopica* subsp. *itumea* Mbugua), probably a hybrid *S. raffillii* × *S. gracilis*).

Belonging to the *S. suffruticosa* group; near *S. gracilis*.

S. gracilis var. *humbertiana* (Guillaumin) Mbugua 1995, nom. inval., refers to *S. ballyi* (fide Jankalski, Sansevieria 17: 23, 24, 27, 2007); also so *S. humbertiana* hort., *S. tsavoensis* Pfenning, 1990, nom. nud.

S. bella L. E. Newton; Newton in Eggli, Ill. handbook succ. pl. Monocot.: 262, 2001; Fl. Trop. E. Afr., Dracaen.: 27-28, 2007; Jankalski in Sansevieria 17: 20, 2007. – Icon.: Cactus Succ. J. (U.S.) 72: 224-225, 2000; Chahinian (2005): 26; Sansevieria 17: 7, 2007.

Sprawling caulescent perennial forming an open clump, with runners branching freely above ground; runners spreading or ascending, to 15 cm long; 1-2 branches arising below the leafy apex to continue the sprawling growth habit; leaves up to 8, ± distichous, ascending, laterally compressed, cylindrical, channelled above from the base to c. ¼ of their length, to 70 cm long, 3,5 cm thick, surface very rough, with distinct dark and light green transverse bands and darker green narrow longitudinal lines; apex a red-brown spine to 5 mm long, pungent or ± blunt, margins with a red-brown line and a narrow colourless flange; inflorescence simple, spike-like, to 60 cm long, fertile portion 55 cm long, dense, with clusters of up to 7 flowers; perianth tube white, 1-1,5 cm long; lobes 1,3-1,8 × 0,3 cm, outside white with pale brownish midstripe; fruit unknown.

Roadside scrub; under shrubs in overgrazed scrub near road; amongst rocks on small rocky rise; rocky bushland, degraded dry bushland; c. 1700-2050 m alt.

Cultivars and synonyms are listed by Jankalski in Sansevieria 17: 7, 13, 2007.

Near *S. suffruticosa*.

S. bracteata Baker – here not treated as a synonym of the imperfectly known *S. aubrytiana* Carrière (see above under that species). N. E. Brown, reprinted in Sansevieria 13: 23, 2005. – Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 262, 2001; Chahinian (2005): 27; as *S. aubrytiana:* Figueiredo & Smith, Pl. Angola: 183, 2008; idem in Haseltonia 15: 74, 2009.

syn.: *Acyntha bracteata* (Baker) Kuntze

Acaulescent rhizomatous perennial; rhizome "very thick, orange-vermillion outside, white inside"; leaves erect, lanceolate, thick and rigid, 38-60 × 5-7 cm, base narrowed in the lower half into a channelled petiole, dark green with wide pale green zigzag bands or blotches on both surfaces, glaucous, tapering at apex into a c. 6 mm long point; margins hard, brownish-red, sometimes with whitish edge; inflorescence 45-60 cm long, simple, spike-like; bracts erect, acute, ± oblong, c. 1,3-1,9 cm long; fertile portion 5-6 cm long, dense; flowers white; tube 8,8-11,5 cm long; lobes 2,5-4,4 × 0,2 cm; fruit not described.

In rather dry rocky places, but rarely flowering although not unplentiful; at a considerable elevation. Angola: Pungo Andongo, districts of Icolo e Bengo and Luanda, from Quicuxe to Mutollo and towards Funda (Welwitsch 3751); between Kubango and Kuito Rivers (Baum 517; stating that the fibre is used for making nets, etc.). Said to be very near *S. longiflora* (Welwitch's Afric. Pl. 2/1: 25, 1899). "Closely allied to *S. aubrytiana* Carrière…possibly a form of it" (N. E. Brown, l.c.).

The circumscription given in Fl. Trop. E. Afr., Dracaen.: 16, 2007, is not followed by us. Not retained as a distinct species by Mansfeld, 2013.

SANSEVIERIA

(**S. braunii** Engl. & K. Krause), non sensu Mbugua in Cactus Succ. J. (U.S.) 70: 311-312, 1998 (= *S. frequens*); Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 262, 2001 and correction in Sansevieria 3: 19-20, 2002; Jankalski in Sansevieria 15: 27, 2006. – Icon.: Chahinian (2005): 28 (type specimen, EA).

Acaulescent rhizomatous perennial; leaves rigid, coriaceous, lanceolate, 50-70 × 7-11 cm, green with few whitish bands or blotches, margins hard, red-brown; inflorescense 45 cm long, simple, *cylindrical*, peduncle reddish; raceme 15 cm Ø, dense; flowers white, pedicels short, *tube c. 8,2 cm long*, lobes *2,5-3 cm long*.

Woodland, in deep shade.

Collected in the Sigi Valley where it was planted, type locality is at Ujiji (*SW Tanzania;* cf. Newton in Nature E. Africa 35/2: 19, 2007; idem in Bull. EANHS 29/3: 18-19, 1999).

The identity of this species is uncertain. Mbugua (l.c.) treated plants from Kenya which are *S. frequens*. The identity of plants in Ethiopia illustrated by Teketay (1995, Sansevieria J. 4/2: 43-58) is still uncertain (discrepancy between number of leaves in his figure 4 and the description, leaves 1-2 to a growth), but is perhaps *S. frequens* (Newton, Sansevieria 3: 19, 2002). According to Butler (Sansevieria 19: 12, 2009), "the characteristics of this plant and *S. longistyla* are very close and they may in fact be conspecific". The herbarium material of *S. longistyla* is from Salima, Malawi, very near the type locality for *S. braunii*. A visit to the locality in Tanzania is required. However, "it seems fairly certain that *Sansevieria braunii* is in cultivation…and…an attractive species at that".

See also below under *S. kirkii. S. longistyla* is perhaps a synonym (type localities very close). Retained as a distinct species by Mansfeld, 2013.

Not mapped.

S. burdettii Chahinian; Newton in Eggli, o.c.: 262-263; Fl. Zambes. 13/2: 24, 2010. – Icon.: Brit. Cactus Succ. J. 18: 133, 2000; Chahinian (2005): 29; Sansevieria 29: front cover, 15-16, 2013. – Type: Chahinian 318 (not 316, see Sansevieria 9: 23, 2004).

Stemless herb, rhizomatous; rhizome underground, creeping, c. 4 cm Ø; leaves 3-6 in 2 opposite rows, to 90 × 2,5 cm, 3 cm thick, basal part with concave channel as wide as leaf, upper part cylindrical in cross-section, dark green, no marking or only very faint cross-banding on young leaves, apex spiny; inflorescence a spike-like pseudo-raceme, many-flowered; peduncle 16-20 cm long, 0,6-1 cm Ø; raceme 12-15 cm long; flowers in clusters of 4-6, white, tinged pinkish brown; tube 2-2,5 cm × 1 mm wide, lobes 1,8-2 × 2 mm; fruit unknown.

Rocky riverine woodland; rocky slopes with scattered trees in shallow soil pockets; growing close to *S. downsii*; river bank; c. 100-500 m alt.

Near *S. cylindrica*. Can be confused with *S. pearsonii.* – Cultivated plants (in nurseries) sold as *S. burdettii* are often *S. erythraeae* (syn.: *S. schweinfurthii*).

SANSEVIERIA

S. canaliculata Carrière; Newton in Eggli, o.c.: 236; Jankalski in Sansevieria 15: 24, 2006; Fl. Zambes. 13/2: 24, 2010. – Icon.: Chahinian (2005): 32-33, 161; Sansevieria 22: 8, 2010 (as *S. pfennigii*); ibid. 29: 18, 2013.

syn.: *S. schimperi* Baker; *S. sulcata* Bojer ex Baker, non hort. (= *S. bacularis*, in Chahinian 2005: 127-128); *S. pfennigii* Mbugua (H. Pfennig, see Sansevieria 11: 7-8, 2005). Jankalski (Sansevieria 17: 24, 2007) places *S. livingstoniae* Rendle (from Victoria Falls) in synonymy, but better placed under *S. cylindrica* Bojer

Stemless perennial herb with creeping rhizome c. 1,3 cm thick; *leaves 1-2* per shoot, terete, 0,35-1 m × 0,5-2 cm, dull green, with 5-6 *longitudinal grooves*, apex with a 3 mm long point; *flowering stem short*, 12,5-13,5 cm long, inflorescence a rather lax, spike-like pseudo-raceme; flowers white, tinged green, in clusters of 3; perianth 3-4,2 cm long, tube 1,8-2,5 cm, lobes 1,2-1,7 cm long; berry globose, blackish when dry.

Near lake-shore, swamp, pools; sometimes in large groups; sandstone outcrops; 50-250 m alt.

Madagascar, Comoros; disjunct distribution.

Still widely used for fibre extraction in NE Mozambique (Sansevieria 25: 3, 2011). – Easy to grow in collections.

Closely allied to *S. bacularis*.

Described from a cultivated plant of unknown origin. Rzepecky (in Sansevieria 29: 22, 2013) writes about the plant's presence in Madagascar: " Just but few words about the origin of the eastern tropical African *Sansevieria canaliculata* Carrière, Henri Perrier de la Bâthie considered it as *probably introduced by the Arabs or by the Antaloatra from Comoros or from Zanzibar*. If so, the plant is naturalised, distributed all along the west of the Anstiranana district, and restricted to coastal sands, as is also the case in the islands of the Comoros archipelago".

S. conspicua N. E. Br.; Fl. Trop. E. Afr., Dracaen.: 18-19, 2007. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 140, 1994; Sansevieria J. 5: 5-6, 1996; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: fig. 28 f: 2001; Chahinian (2005): 39-40; idem in Sansevieria 26: 21, 2012.

syn.: *Acyntha conspicua* (N. E. Br.) Chiov. (Chiov. 1916 = *S. forskaoliana*).

Acaulescent herb, sub-erect to procumbent; rhizome subterranean or surface-branching, reddish or purplish; leaves 3-6, lanceolate, 22-75 × 5-8,1 cm, 0,2 cm thick at middle, acute, smooth, dull green above but with numerous longitudinal lines of darker green; margin brownish red, wavy, narrowly edged with white; inflorescence a spike-like raceme, 30-90 cm long, axis greyish green, suffused with dull purple marked with minute paler specks, 0,6-0,8 cm Ø; flowers 1-3 per cluster; perianth 3,5-4 cm long, tube greenish white, 0,3-0,6 cm long, lobes white, 3,2-3,4 cm long; berry globose, 0,5-0,7 cm Ø.

Littoral forest/evergreen bushland; in crevices and earth pockets in coral; often locally common; rocky outcrops; riverine thickets; 0-1900 m alt.

Improper identification and its subsequent acceptance in horticulture have produced much confusion about the identity of this plant (cf. Chahinian, 2005: 40).

The distribution of this plant may extend to Malawi, Mozambique, Zimbabwe. It is also not clear whether it is perhaps conspecific with *S. hyacinthoides* (Fl. Zambes. 13/2: 29, 2010; Takawira-Nyenya in Ghazanfar & Beentje, Taxon. Ecol. Afric. Pl: 62, 2006).

SANSEVIERIA

S. cylindrica Bojer ex Hook., incl. var. *patula* N. E. Br.; Newton in Eggli, o.c.: 264; Figueiredo & Smith, Pl. Angola: 183, 2008; idem in Haseltonia 15: 74, 2009; Fl. Zambes. 13/2: 25, 2010; Butler & Jankalski in Sansevieria 22: 8-9, 2010 (with cultivars). – Icon.: Chahinian (2005): 41, 42; Sansevieria 17: 15-16, 2007; ibid. 18: 23, 2008; Kakteen Sukk. 60: 242, 2009; ibid. 64: 36, 2013.

syn.: *S. angolensis* Welw. (ex Hook. 1858, nom. nud.) ex Carrière 1861; *S. livingstoniae* Rendle; *S. guineensis* Weiner 1887, non Willd. 1799; *Acyntha cylindrica* (Bojer ex Hook.) Kuntze; *Cordyline cylindrica* (Bojer ex Hook.) Britton

Stemless perennial herb; rhizome creeping to 1(-4) cm Ø; leaves 3-5 per shoot in 2 rows, cylindrical, 1,5-1,8 m long, c. 3 cm wide at middle, stiffly erect, completely round in cross-section (not channelled), with c. 5 longitudinal grooves, base ovate and overlapping, apex sharp; flowering stem 60-90 cm long; peduncle 30-45 cm long; inflorescence a dense, cylindrical spike-like pseudo-raceme to 60 cm long; flowers creamy or pinkish white, in clusters of 4-6; perianth 3,3-4,2 cm long, tube 1,6-2,7 cm long, lobes 1,2-1,8 cm long, c. 1 mm wide; fruit unknown.

Sunny hills; "very plentiful all over the littoral region of Angola" (fide J. J. Monteiro, Angola and the River Congo 1: 45, 103, 1875), but perhaps confused also with *S. longiflora;* termite mounds at base of tall *Euphorbia ingens;* 1000-1400 m alt.

Distinct distribution. Perhaps indigenous only in Angola.

Var. *patula* is described from a cultivated specimen originally from Angola. With recurved, ± spreading leaves and slightly smaller flowers; Probably a cultivar.

The nomenclatural history is confused; Cf. also under *S. canaliculata* (syn. *S. livingstoniae*).

"Grown throughout the world, often left over from colonial attempts to establish it is a fibre crop" (Zona in Sansevieria 17: 15, 2007); e.g., abundant in NE Brazil growing vigorously in open fields, and from there shipped to Miami (Florida) and from there, throughout N. America and Europe. "The plant has many advantages. It is easy to grow but difficult to kill" (l.c.). In the Dutch plant trade, and grows "on almost every Belgian windowsill" (Jankalski in Sansevieria 15: 14, 2006). Propogated from rooted leaves.

Plants commonly cultivated in Egypt under the name *S. schweinfurthii* are often *S. cylindrica* (Jankalski in Sansevieria 9: 18-20, 2004).

For studies on the cytology of *S. cylindrica*, see J. Swamy Bot. Club 18: 45-48, 2001 (chromosome numbers from 58 to 108).

S. dawei Stapf; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 312, 1994; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 264, 2001; Fl. Trop. E. Afr., Dracaen.: 19-20, 2007. – Icon.: Sansevieria 7: 5-6, 2003; Chahinian (2005): 44; Sansevieria 26: 25, 2012 (as *S.* sp. Lake Bogoria).

Acaulescent herb, with creeping rhizome; leaves 1-3 per growth, lanceolate, 0,6-1,5 m × 5,5-13 cm, apex acute, 0,4-0,5 cm long, margins reddish brown, dull green, faintly banded; petiole 15-30 cm long; inflorescence a spike-like raceme with distinct clusters above, dense, 0,6-1,2 m long; flowers in clusters of 3-4; perianth greyish white, 2,7-3,5 cm long, tube 1-2 cm long, lobes 1,6-2 cm long; berry orange.

Dry bushland, especially on rocky outcrops; dry forest; open woodland; 100-1600 m alt.

Confusion with *S. raffillii* possible.

SANSEVIERIA

S. downsii Chahin.; Newton in Eggli, o.c.: 264, 2001; Jankalski in Sansevieria 17: 9 (illustration), 10, 13 (synonyms), 2007; ibid. 17: 20, 2007. – Icon.: Brit. Cactus Succ. J. 18: 134-135, 2000; Sansevieria 5: 12, 2002; Cactus & Succ. J. (U.S.) 77: 103, 2005; Piante Grasse 25/2: 49, 2005; Chahinian (2005): 47; Cactus & Succ. J. (U.S.) 81: 225-227, 2009; Fl. Zambes. 13/2 : 27, 2010.

syn.: *S.* aff. *gracilis* N. E. Br. sensu Thiede in Sansevieria J. 29: fig. 2, 1993; *S.* aff. *gracilis* Downs, Brit. Cactus & Succ. J. 4: 93, fig., 1986; *S.* sp. Malawi, etc. (see Sansevieria 17: 13, 21, 2007); *S. fruticosa* hort., non Blume 1837.

Stemless perennial with creeping stolons covered in leaf sheaths; leaves 6-14, rosulate, recurved, spreading, cylindrical, with a groove on upper face, 14-45 cm long, base 3,2 cm wide, ovate, apex spiny; inflorescence a spike-like pseudo-raceme *to 1,6 m long*, rachis 40-70 cm long; flowers cream, pearly grey or pale purplish-green, in clusters of 3-10; perianth 2-2,4 cm long, tube c. 1 cm long, lobes c. 1,2 cm long; fruit 8 mm Ø.

Termite mounds in dry woodland and *Acacia*, *Euphorbia* bush; *Brachystegia* woodland; 1000-1500 m alt.

Recently collected in N Mozambique, Cabo Delgado Province (Sansevieria 25: 3-4, 2011). In Sansevieria 23 (2010) referred to as *S. suffruticosa*.

Discovered in 1968 by B. Hargreaves, who planted specimens in a botanic garden at a school where he taught, later destroyed. In 1978 listed by Hargreaves for Malawi as *S. suffruticosa*. Downs mentions and photographs an attractive dwarf *Sansevieria* found in 1986, with leaves resembling those of *S. gracilis*. Finally described formally in 2000 by Chahinian [see Cactus & Succ. J. (U.S.) 81: 226-227].

Spreads rapidly by stolons.

Confused with *S. suffruticosa*, *S. gracilis*, *S. longistyla*.

S. dumetescens L. E. Newton – Icon.: Bradleya 27: 156, 2009; Sansevieria 24: 18-19, 2010; ibid. 26: 7, 2012; Newton in Eggli, Ill. handbook succ. pl. Monocot.: fig. 28b, 2001 (as *S. arborescens*).

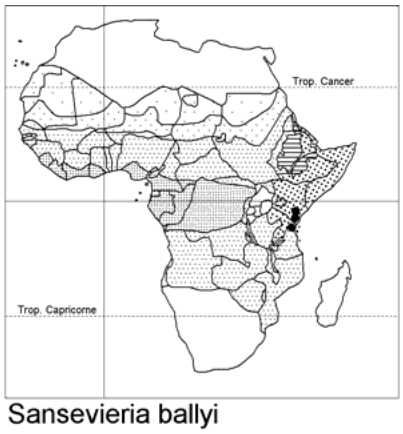
syn.: *S. arborescens* sensu Fl. Trop. E. Afr., Dracaen.: 40, 2007, excl. specim. Mgaza 558, 2007, non Gérôme & Labroy; idem sensu Newton in Eggli, l.c.

Rhizomatous, caulescent herb forming dense clumps of closely packed shoots to 2 m or more Ø; stem erect, to 1,6 m tall, 2-2,5 cm Ø, unbranched; leaves many, densely spiralled, spreading, recurved, above concave-channelled, 40-55 × 3-4,5 cm, base forming a sheath 2-3 cm long, margins slightly wavy, whitish or reddish, apex with a spine 1,3-1,7 cm long; inflorescence to 55 cm long, paniculate and glomerulate, main axis 1 cm Ø at base, with to 18 branches, many with secondary branching, lowermost branches to 20 cm long, uppermost 6-8 cm long; flowers in clusters of 4-6, white, tube 6 mm long, white with pale brown stripes along midrib of fused segments, lobes 9 mm long; fruit unknown.

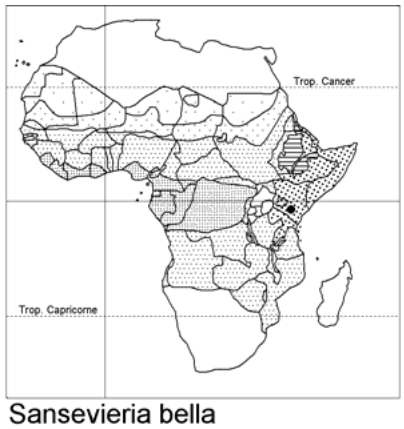
Within or at edge of dry coastal forest and thornbush in diffused light; sometimes fully exposed to sun; degraded *Cynometra*, *Brachylaena* forest; c. 150-160 m alt.

Similar to *S. arborescens, S. ascendens, S. powysii* (cf. Bradleya 28: 25, 2010, cross-sections of leaves).

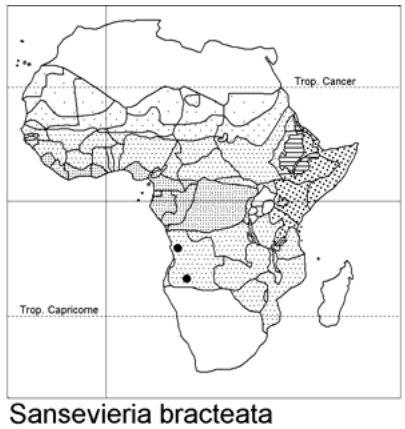
Butler (Sansevieria 26: 7-12, 2012) reports that *S. dumetescens* is one of the parents of a hybrid produced by Pfenning, very much resembling *S. powellii;* the other parent is *S. robusta*.



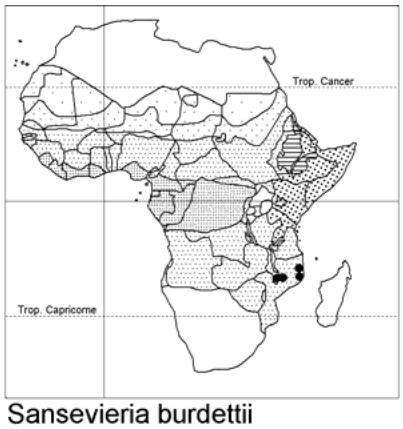
Sansevieria ballyi



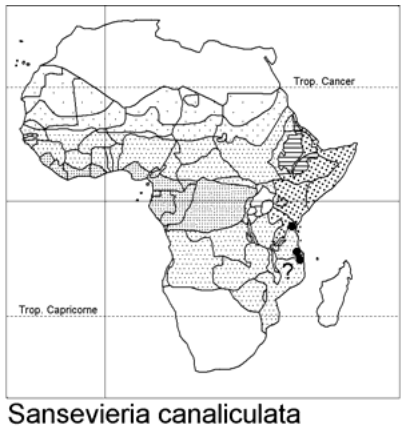
Sansevieria bella



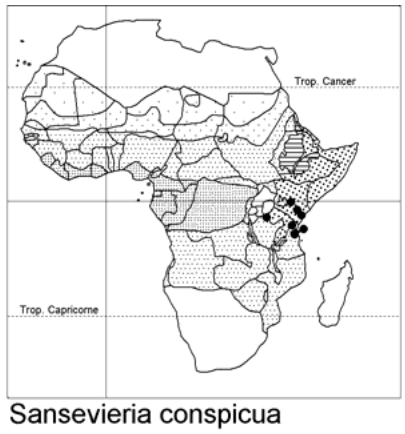
Sansevieria bracteata



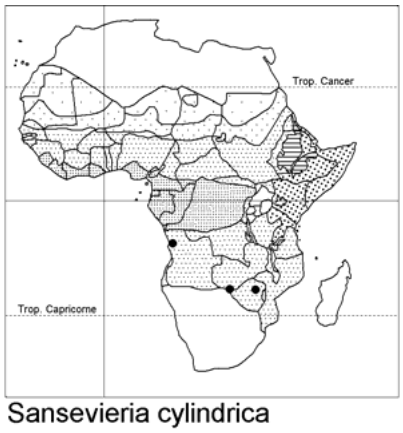
Sansevieria burdettii



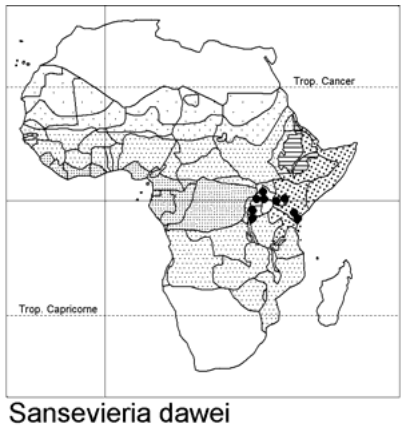
Sansevieria canaliculata



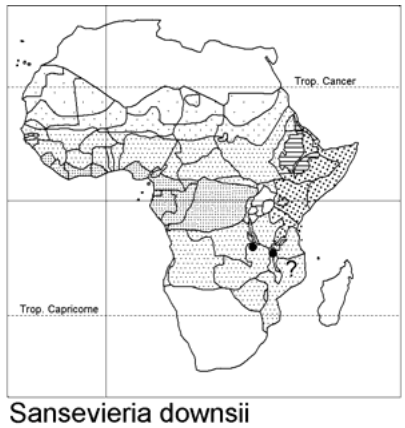
Sansevieria conspicua



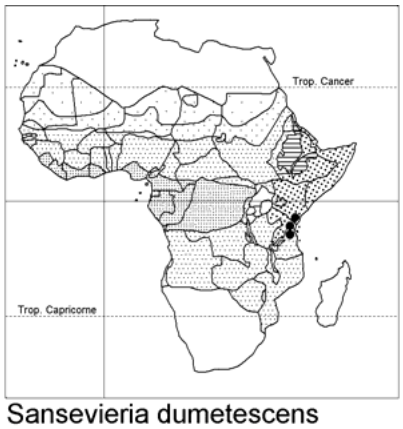
Sansevieria cylindrica



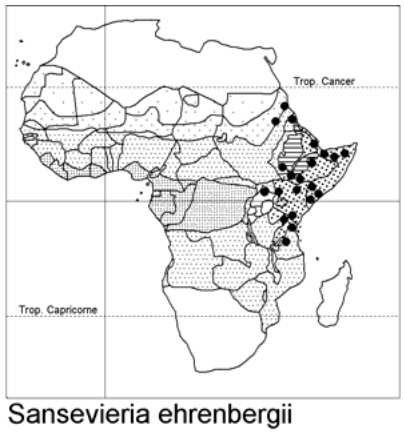
Sansevieria dawei



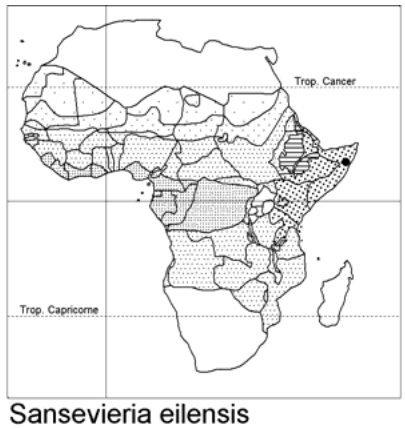
Sansevieria downsii



Sansevieria dumetescens



Sansevieria ehrenbergii



Sansevieria eilensis

SANSEVIERIA

S. ehrenbergii Schweinf. ex Baker, non De Wild.; Teketay in Fl. Eth. & Eritrea 6: 80, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 183, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 284-285, 2010; Newton in Eggli, Ill. handbook succ. pl. Monocot.: 264-265, 2001; Jankalski in Sansevieria 15: 22-23, 2006; Sansevieria 21: 21, 2009. – Icon.: Engler, Pflanzenwelt Ost-Afr. 5: pl. 6, 1895; Thulin, Fl. Somalia 4: 29, 1995; Collenette, Wildflow. Saudi Arabia: 292, 1999; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 195, 2001; Fl. Trop. E. Afr., Dracaen.: 37, 2007; Sansevieria 19, 2009 (from Hook. Ic. Pl. 23: pl. 2269, 1893).

syn.: Enum. 4: 604, 1997; *Acyntha ehrenbergii* (Schweinf. ex Baker) Kuntze; *Dracaena hanningtonii* Baker; *Pleomele hanningtonii* (Baker) N. E. Br. – See also Note below.

Stem to 25 cm tall; leaves 5-9, crowded, in 2 ranks, erect or spreading, 0,75-1,8 m × 2,5-4 cm, laterally compressed with flattened sides, back rounded, with a triangular channel all along above, with 5-12 shallow grooves or lines down the sides and back, tapering upwards, tip spine-like; panicle to 2 m tall, much branched; flowers in clusters of 4-7, purple to white; tube 5-6 mm long, lobes c. 7 mm long.

Dry, open bushland; semi-desert grassland; dunes; dry wooded grassland; thickets; often on rocks or termite hills; coastal bushland; locally common; under shade or in open *Acacia-Combretum* woodland; valley bottoms; banks of dry river beds with *Tamarix aphylla* (photo. in Sansevieria 21: 21, 2009); *Commiphora erythraea-Sansevieria ehrenbergii* community, Borana, Ethiopia, Dalle & al. in Community Ecol. 6: 171, 2005; 0-1900 m alt.

Saudi Arabia, Yemen, Oman (see illustrations cited above). Plants from this area are thought to belong to a quite different, still unnamed species to which Jankalski has given a cultivar name Sansevieria 'Salaf' (Sansevieria 17: 21, 2007, and photo., ibid. 20: 13, 2009; ibid. 22: 11, 2010; ibid. 15: 22-23, 2005); "with thicker leaves with several ridges on the sides" (only two in "true" *S. ehrenbergii*). See also photos. in Mosti & al., The succulents of Dhofar 2: 19-20, in Cactus & Co. 1/10, 2006. – We have compared the drawings of *S. ehrenbergii* in Hook. Icon. Pl. (l.c.) and Fl. Trop. E. Afr. (l.c.), on the one hand and on the other in Chaudhary (l.c.). There seems to be a slight difference between them: the inflorescence of the former has no conspicuous bracts-bracteoles (conspicuous in the latter), and the stamens of the former are as long as the perianth, but in the latter much exceeding the perianth.

In Ethiopia a widespread species producing edible gum; fibres made into soft brushes or used as straps; the stony fruits are used as beads. Cattle and goats eat rhizomes and fruits.

The type specimen is from Nubia (Sudan, on the Red Sea coast), not from Somalia (Herb. P.).

Note: The identity of *S. rorida* is questioned by Butler (Sansevieria 21: 3-7, 2009) as used by Thulin in Fl. Somalia, l.c. Butler cites several collections made in Somalia in the 1960's, 70's and 80's, not figuring in the Flora. Several cultivar names are given to plants from this area (with photographs): *S.* 'Las Anod', 'Xaskul', 'Warshiik', 'Blue Kew'. The plants illustrated by Chahinian (2005: 48, 107) belong here.

Confused with *S. powellii* (with a taller stem); also with *S. perrotii* (syn.: *S. robusta*): Butler in Sansevieria 1: 2-3, 2001; ibid. 8: 4-5, 2008.

SANSEVIERIA

S. eilensis Chahin.; Thulin, Fl. Somalia 4: 30, 1995. – Icon.: Sansevieria J. 4: 9, 1995; Newton in Eggli, Ill. handbook succ. pl. Monocot.: fig. 28g, 2001; Sansevieria 1: 13, 2001; Chahinian (2005): 50.

syn.: *S.* sp. 'Eyl' Lavranos

Stemless herb, to 12 cm tall; leaves from an underground rhizome, 2-3, ascending, 7-18 × 1,9-2,5 cm, slightly rough, cylindric, with to 12 longitudinal lines or grooves and often with a channel all along above, ± curved, tip sharp to 5 mm long, light green with grey-green cross-banding; margins of channel red-brown with a white edge; raceme spike-like, c. 34 cm high including peduncle 8 mm Ø at base; flowers in clusters of 2-4, greenish-white; tube c. 8 mm long; lobes c. 14 mm long, reflexed; fruit unknown.

Shattered limestone; c. 120 m alt.

Discovered in 1973 and 1985 in an area now devastated by civil war (fide Butler, Sansevieria 1: 12, 2001).

Near *S. suffruticosa*.

S. erythraeae Mattei; Sansevieria 15: 27, 2006; ibid. 17: 22, 2007; Fl. Eth. & Eritrea 6: 80, 82, 1997; Newton in Eggli, l.c.; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 185, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 286, 2010. – Icon.: Powys in Sansevieria 9: 13, 14, 17, 2004; ibid. 21: 22, 24, 2009; To The Point 85/3: 57, 2013.

syn.: *S. schweinfurthii* Täckholm & Drar, nom. inval. (based on cultivated plants in Egypt); *S. cylindrica* auct. non Bojer [see Jankalski in Sansevieria 9: 18-21, 2004 (with variegated cultivar)].

Stemless herb, growing in patches; leaves 6-8, irregularly arranged, cylindrical, pointed, erect, smooth, 40-50 cm long, with a channel above and 5 furrows or grooves on lower face; raceme leafy, dense, as tall as the leaves; flowers white, in clusters of 3-5; pedicel 7-8 mm long, slender; tube 5-7 mm long; lobes linear, revolute, subobtuse, > 7 mm; fruit unknown.

River sides in semi-arid areas; 1200-2100 m alt.

Probably also in Sudan.

Belonging to the *S. cylindrica* group (Sansevieria 22: 5, 7-8, 2010).

(**S. fasciata** Cornu ex Gérôme & Labroy); (Brown's monograph in) Sansevieria 12: 24-25, 2005; Newton in Eggli, l.c.; Chahinian (2005): 52-53. – Icon.: Bull. Mus. Hist. Nat., Paris 9: 173, fig. 3 (cross-section of leaf), 1903; De Wildeman, Pl. utiles du Congo 1: 624, 1903; Rev. Hort. 87: 604, fig. 175, 1915.

syn.: *S. lasciata* Gentil 1907, nom. inval.

Stemless perennial; rhizome creeping; leaves 2(-5) in a tuft, basal part erect, upper part recurved-spreading or drooping, coriaceous, smooth, lanceolate, 38-84 × 3,8-11,5 cm, c. 4 mm thick at middle, pale green above, whitish green beneath, with distinct irregular zigzag transverse dark green bands and brighter beneath, with a green acute tip c. 2-6,5 mm long; margins at first green, finally narrowly whitish or reddish; inflorescence and flowers not seen by Brown (Bull. Misc. Inf. Kew 51: 241, 1915), but described in Chahinian (2005): raceme spike-like, stalk 60 cm long; flowers in clusters of 3-4, tube 17 mm long, lobes 20 mm long.

Sent to Paris Bot. Gard. in 1903 from Congo-Brazzaville by Dybowski (1891), Lecomte (1894). A portion of the type plant cultivated at Kew. Brown (monograph) found the leaves very similar to *S. bracteata*. He also believed that plants sent under the name *S. guineensis* Willd. belong to this species.

The plant was said to be common along roadsides near Nassau, Bahamas, where it was introduced.

Plant of uncertain status. Retained as a distinct species by Mansfeld 2013. – Not mapped.

SANSEVIERIA

S. fischeri (Baker) Marais; Sansevieria 15: 24, 2006; ibid. 17: 22, 2007; Thulin, Fl. Somalia 4: 29, 1995; Fl. Eth. & Eritrea 6: 80, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 184, 2003; idem Aloes & lilies Eth. & Eritrea, ed. 2, 286, 2010; Newton in Eggli, l.c.; Fl. Trop. E. Afr., Dracaen.: 34-35, 2007. – Icon.: Sukkulentenkunde 7-8: 126, 1993; L. Newton, A Check-list of Kenyan Succulent plants: back cover, 2003; Sansevieria 7: 26, 2003; Chahinian (2005): 54; Kakteen & Sukk. 60: 240 (cross-sections of young and old leaves), 243 (young and old plants), 2009; Piante Grasse 29/3, 2009; Cactus World 31/1: 37, 2013.

syn.: Enum. 3: 66, 1995; *S. stuckyi* sensu Chiovenda, Fl. Somala 2: 422, 1932 (specim. Calvinos s.n.), non God.-Leb.; *S. robusta* sensu Cufod., Enum.: 1571, 1971 (specim. Guidotti s.n., sterile), non N. E. Br.

Acaulescent perennial; rhizome subterranean; leaves solitary, erect, rigid, cylindric, 0,8-3 m long, 2-3 cm thick at middle, apex prickly; juvenile leaves with a concave channel above and 4-6 longitudinal impressed lines on the sides, dull or bluish green; with numerous closely placed transverse pale green bands disappearing with age; mature leaves greyish green, rounded in cross-section; inflorescence lateral, emerging beside the leaf, crowded-corymbose-capitate, 8-10 cm long, open crown to 12-19 cm Ø; peduncle subterranean; flowers solitary above, erect, white sometimes tinged violet; perianth 2,8-3,5 cm long, 0,2-0,3 cm Ø, tube 1,2-1,6 cm long, lobes 0,8-1,3 cm long; berry globose, 1,3-1,5 cm Ø.

Dry bushland; may form dense stands; sandy soils at edges of thickets; dense bush; along river; c. 60-550 m alt.

Variable in colour patterns of leaves, not always due to ecological factors. The plant can be kept in a permanent juvenile state by restricting pot size and by cutting off new offsets.

Hybrids with, e.g., *S. subspicata (S. concinna)* and *S. raffillii* are cultivated (cultivars cited in Repert. Plant. Succ. 58: 15, 2008; Sansevieria 26: 24, 2012).

Very similar to *S. stuckyi* (both described without flowering material), and both taxa confused in cultivation. Also resembling *S. hallii* from Zimbabwe. Probably such confusions in Takawira-Nyenya in Ghazanfar & Beetje (2006): 69; or are they cultivated ?

S. formosa Chahin., Sansevieria 26: 2, 2012. – Icon.: ibid.: 3-5.

Stemless herbaceous perennial; rhizome underground, grey or orange, 1,8-2,6 cm Ø; leaves of juvenile plants several, with conspicuous cross-banding; leaves of adult plants 1-2, rarely more, strap-shaped, smooth, erect, flat, curved backwards, to 50 × 5 cm (at 2/3 from base), intense grass-green, darkening with age, with faint cross-banding only beneath, rather thick (but not so thick as in *S. hallii*), margins with a thin chestnut-coloured line, tip obtuse; inflorescence a capitate raceme, c. 21 cm long, 10-15 cm Ø, growing from the rhizome, at leaf axil, peduncle mostly underground; flowers fragrant at night, in clusters of 2-4, 9,4 cm long when closed, grey-white with purple tinge, tube c. 8 cm long, 2 mm Ø, lobes c. 3,2 cm long; fruit rugose, orange, globose, c. 1,1 cm Ø.

Collected at the Kapichira Falls, S Malawi (*S. burdettii* was also collected here). Type: Chahinian 319; other specimen: Burdett s.n.

Burdett's collection is apparently the only clone in cultivation and has never been given a cultivar name.

Similar to *S. hallii*.

S. forskaoliana (Schult. f.) Hepper & J. R. I. Wood ('forskoliana'); Sansevieria 15: 26, 2006; ibid. 17: 20-24, 2007 (also under *S. elliptica*, and incl. cultivars); Thulin, Fl. Somalia 4: 30, 1995; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 192-193, 2001; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 265, 2001;

SANSEVIERIA FORSKAOLIANA

Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 185-186, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 287-288, 2010; Fl. Trop. E. Afr., Dracaen.: 19, 2007. – Icon.: Chiovenda, Fl. Somala 2: fig. 239, 1932; Sansevieria J. 4: 8, 1995; Collenette, Wild. flow. Saudi Arabia: 293, 1999; Fl. Eth. & Eritrea 6: 81, 1997 (flower, fruit); Chahinian (2005): 51 *(S. elliptica),* 55; Sansevieria 14: 18, 2006; ibid. 17: back cover, 2007 (flowers, in cultivation); ibid. 20: 11-12, 2009.

syn.: Enum. 3: 66, 1995; & 4: 604, 1997; *S. guineensis* var. *angustior* Engl.; *Acyntha abyssinica* var. *sublaevigata* Chiov.; *A. elliptica* Chiov.

Acaulescent herb; rhizome c. 2 cm Ø; leaves rosulate, erect to subrigid, 2-8 per plant, lanceolate, 65 × 5-7,5 cm, rough, tip hardened and 0,2 cm long; margins 1-2 mm wide, sinuate, with 2 orange to brown stripes alongside a very narrow grey-white membrane along the margin; raceme terminal or subterminal, compact, simple, spike-like, 65-76(-95) cm long, with 6-7 clusters 1,6-2 cm apart, axis 3-5 mm Ø; flowers 4-7 per cluster, dark grey-white, 2,6-4 × 0,2-0,4 cm, tube 2-2,2 cm long, lobes 1,6-1,9 cm long; berry 0,7-1 × 0,6-1,2 cm.

Dry or evergreen bushland, grassland; escarpments; very widespread species; dry rocky places; Combretaceous woodland with tall grasses; riverine vegetation; also under trees and shrubs; 0-2200 m alt.

Very variable in size, number and colour of leaves in different habitats; in drier areas the leaves may reach only 40 cm in height, in wetter places up to 1 m.

Yemen, SW Saudi Arabia.

Harvested in great quantities for fibre extraction, but in later years replaced by cultivated *Agave sisalana*.

Different clones are in cultivation, some rather compact and dwarf; one of the most famous is 'Horwood' (see Sansevieria 2: 23, 2001).

The species has a very rich production of fruits per inflorescence.

Near *S. raffillii.* May also be confused with *S. nilotica* (Thulin, Fl. Somalia 4, l.c.).

S. francisii Chahin. – Butler in Sansevieria 1: 12, 2001; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 265-266, 2001; Fl. Trop. E. Afr., Dracaen.: 23, 2007. – Icon.: Sansevieria J. 4: 14, 1995; Chahinian (2005): 56; Sansevieria 13: 14, 2005.

syn.: *S.* sp. 'FKH 432'.

Caulescent perennial with stolons from stem and/or from among the leaves; stolons to 16 × 0,8-1,4 cm; stem erect, 10-40 cm long, covered in closely packed leaves in whorls of 5; leaves porrect, cylindrical, 8-15 cm long, slightly rough, dark green with grey transverse bands and 4-6 dark green longitudinal lines, margins brownish-red with a white edge, tip acute, spiny, 5 mm long; inflorescence spike-like, erect, or slightly curved, 12-25 cm long; flowers dense in the upper half of inflorescence, 1-2 per cluster; flowers greenish white to brownish green; tube 1,6-1,9 cm long, lobes reflexed 0,8-1 cm long; fruit unknown.

Ecology unknown; low alt.

"A gem for the collector; easily accommodated on a windowsill"; when it gets tall enough to need support, "it is reaching flowering size, and the growth will not then get any bigger, but just offset" (Butler, l.c.).

Known only from the type collected by Frank Horwood in Kenya in 1982.

Very similar to *(S. caulescens =) S. gracilis* but with aerial runners.

S. frequens Chahin.; Jankalski in Sansevieria 17: 23, 20, 2007; Newton in Eggli, o.c.: 266; Fl. Trop. E. Afr., Dracaen.: 17-18, 2007, p.p. – Icon.: Cactus & Succ. J. (U.S.) 72: 131-132, 2000; Sansevieria 1: 16/4, 2001; Chahinian (2005): 57; Newton in Sansevieria 24: 7, 9, 2010.

syn.: *S. braunii* sensu Mbugua in Cactus & Succ. J. (U.S.) 70: 311-312, 1998 (incl. figs.), non Engl. & K. Krause; *S. raffillii* sensu Chahinian, Sansevieria J. 2: 36-37, (incl. fig.), 1994, non N. E. Br.; *S. forskaoliana* sensu auctt., e.g., Teketay in Sansevieria J. 4: 51, 53 (incl. figs.), 1995, non (Schult. f.) Hepper & J. R. I. Wood (cf. Sansevieria 3: 19-20, 2002; Bull. EANHS 29/3: 18-19, 1999).

Acaulescent perennial with sturdy creeping brown rhizome to 5 cm Ø; leaves 4-8, erect, oblanceolate, to 90 × 15 cm, stiff, apex obtuse, margins fibrous, chestnut-brown, edges detaching into fibres; inflorescence 60-90 cm long, crowded in upper part; flowers 4-6 per cluster, greenish white, 3,2-3,4 cm long; tube 1,8-2 cm long, lobes convolute, 2,6-2,8 cm long; fruit orange, globose, 4-6 mm Ø.

Dry bushland; rocky sites; secondary grassland; locally common; 50-2600 m alt.

Coloration of leaves variable: surface sometimes with short longitudinal interrupted lines of darker green.

Ethiopia ?

Near *S. dawei;* confused with *S. raffillii*, *S. braunii* (= ? *S. longistyla*), *S. forskaoliana*.

S. gracilis N. E. Br., excl. var. *somalensis* Chahin., nom. inval. (= *S. gracillima*, cf. note below); Newton in Eggli, l.c.; Brit. Cactus Succ. J. 22/1: 13, 2004; European Garden Flora, ed. 2, 1: 192, 2011. – Icon.: Chahinian (2005): 58, 34 *(S. caulescens);* Sansevieria 12: 4, 2005; ibid. 16: IV, 2007; ibid. 18: 23, 2008 *(S. caulescens);* Fl. Trop. E. Afr., Dracaen.: 24, 2007; Kakteen & Sukk. 60: 244, 2009. *S. caulescens* N. E. Br. is treated as a distinct species by Mansfeld, 2013.

Caulescent perennial, and slightly ascending to spreading; with ascending runners, to 90 cm long, 0,8 cm Ø; stem erect, absent or to 8 cm long, with aerial branching and rooting; runners covered with ovate acute spine-pointed tough scale-leaves, the upper ones turning into leaves 1-4,5 cm long, grey-brown when dry, margins white-membranous; leaves closely packed, rosulate, 6-12 per plant, concave near base, cylindrical above, 25-75 cm long, 0,6-1,3 cm wide at top of sheath, spirally arranged, straight, curved or slightly sinuous, firmly flexible, concave down the face, very rounded on the back, gradually tapering to a very acute spine-like brown or whitish point 0,2-0,6 cm long, surface smooth; inflorescence a lax spike-like raceme 15-30 cm long, axis light green 2-4 cm Ø; flowers 2 per cluster, ascending; lower inflorescence bracts 2-3, 2-4 cm long; perianth white; tube 1,9-2,5 cm long, lobes 1-1,2 cm long; berry globose.

Dry bushland and thicket; often on rocky outcrops in shallow soils; also in grassland and evergreen bushland; may form dense stands; 30-600 m alt.

Very variable in growth habit; in size from very small to very large.

Ethiopia ? (not in Fl. Eth. & Eritrea 6, 1997). Not in Malawi.

Comprises 2 vars.: – var. **gracilis** (syn.: *S. caulescens* N. E. Br.); – var. **humbertiana** (Guillaumin) Mbugua (bas.: *S. humbertiana* ! Guillaumin), a smaller plant (see Notes below).

Notes: C. C. Walker (in Cactus World 24/1: 44, 2006) remarks on "*S. gracillima*, which is accompanied by a photo with the caption *S. gracilis* var. *somalensis*, an invalid name that I presume is the same taxon" [photo in Chahinian, 2005: 60].

"*S. caulescens* is a mystery species" (Newton in Sansevieria 12: 14, 2005). It is distinguished from *S. gracilis* by not producing aerial runners (Jankalski in Sansevieria 17: 8, 10, 2007).

S. gracilis var. *humbertiana* is, according to Jankalski (in Sansevieria 17: 23, 2007) *S. ballyi*. The species are very close.

Confused with *S. downsii* (*S.* aff. *gracilis* sensu J. Thiede, Sansevieria J. 2: 29, 1993, is *S. downsii*, fide Chahinian in Brit. Cactus Succ. J. 18/3: 135-136, 2000).

S. gracillima Chahin.; Jankalski in Sansevieria 17: 10, 23, 2007. – Icon.: Sansevieria 12: 3-4, 2005; Chahinian (2005): 60 (as *S. gracilis* var. *somalensis*).

syn.: *S. gracilis* N. E. Br. var. *somalensis* Chahin., nom. inval.

Stemless perennial with stolons 7-10 cm long, 0,7 cm Ø, covered by withered sheaths; leaves 8-10 to a growth, erect, slightly curving, 6-22 cm long, 0,9 cm thick at middle, smooth, dark green with bands of lighter green regularly placed, texture waxy; flowers 1-3 per cluster, brownish, tube 0,6-0,7 cm long, 2 mm Ø; lobes 1,4-1,5 cm long, whitish tinged brown; fruit unknown.

On inselberg in rather thin leaf mould overlying bare granite. Top of the hill (600 m alt.) with rather dense semi-deciduous forest in the shade of which grow *Aloe hybensis*, *Eulophia petersii; Pyrenacantha* cf. *malvifolia*, etc.

Near *S. gracilis* (perhaps conspecific).

(**S. grandicuspis** Haw.); non sensu Fl. Trop. E. Afr., Dracaen.: 14, 2007. – Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 266, 2001; Chahinian (2005): 60-61; Newton in Sansevieria 19: 21, 2009; Newton & Webb in J. E. Afric. Nat. Hist. 100: 141-144, 2011.

syn.: (given by N. E. Brown; see Sansevieria 11: 24, 2005): *S. ensifolia* Haw.; *S. pumila* Haw. 1812, non Spin (marquis de) 1812 (see Note below).

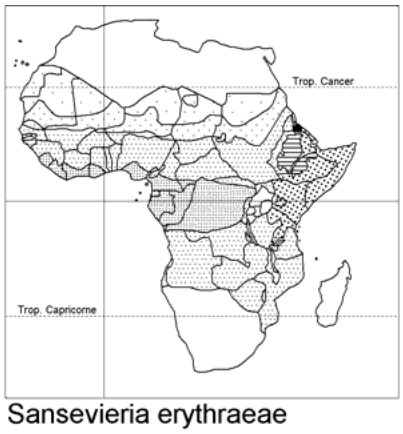
Stemless plant with a stout creeping rhizome; leaves 5-15, rosulate, linear-lanceolate, 17,5-55 × 1,3-3,8 cm, 0,3-0,4 cm thick, channel on inner surface deepest at base to flat at apex, tip subulate, 1,7-6 cm long, horny, petiole 5-15 cm long; blade "somewhat regularly marked with transverse bars of dark and lighter green on both sides of the apex, with 5-7 continuous or interrupted darker green impressed lines or slight furrows on the back" (Chahinian, l.c.); flowers unknown.

Origin unknown. Described from plants reported to have been in cultivation for a long time.

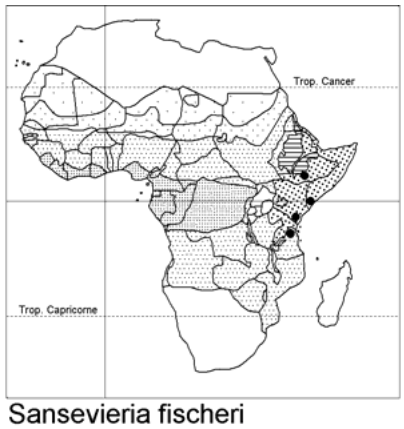
Baker's description in Fl. Trop. Afr. (7: 336, 1898) is based on a living plant at K, without provenance. According to Newton & Webb (l.c.) there are 3 sterile specimens at K, their folder labelled "Cultivated". Two of these were obtained from Leiden Bot. Gard. in 1891 and 1892, respectively, and thus in cultivation at K when Baker wrote his account.

The locality given in Fl. Trop. E. Afr. (l.c.) is Tanzania, Arusha Distr., Lake Duluti (3°23'Sx36°47'E); lake banks of volcanic tuff, ± 1420 m alt. (Beesley 165, Aug. 1965, K). Inflorescence, flowers and fruits were described based on this gathering. Newton, Webb & Bhitala (N° 6074, EA) collected a plant at this site in Dec. 2009. The site is near the type locality of *S. dooneri* N. E. Br. They identified Beesley's collection of *S. grandicuspis* as *S. dooneri*, with a range extension of the latter. *S. dooneri* is very close to *S. parva* and treated below by us as a synonym of the latter (see also map of *S. parva*).

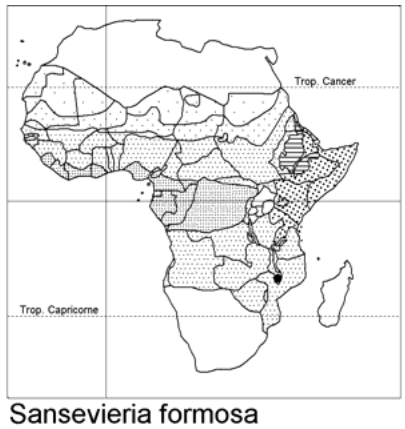
Newton (2009) points out that there were no roads in East Africa in the early 19th century, and that the first collection of any plants from the interior of Tanzania by Europeans was made during an



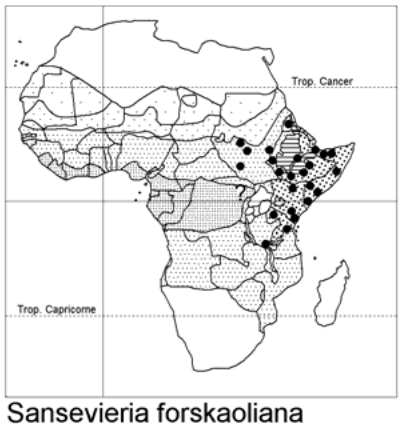
Sansevieria erythraeae



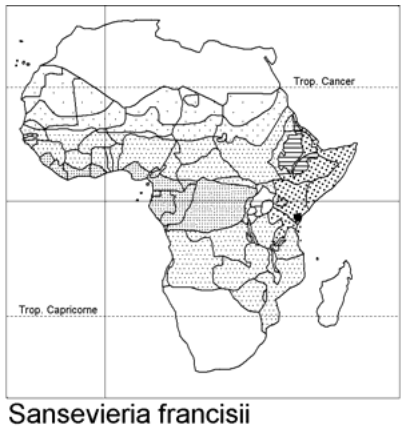
Sansevieria fischeri



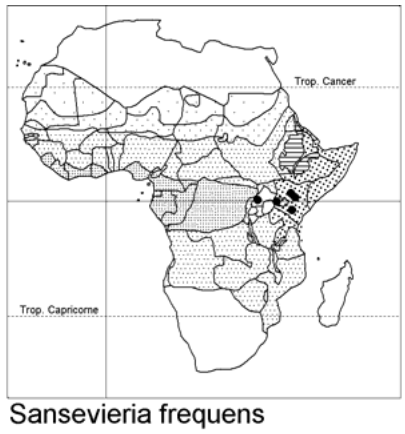
Sansevieria formosa



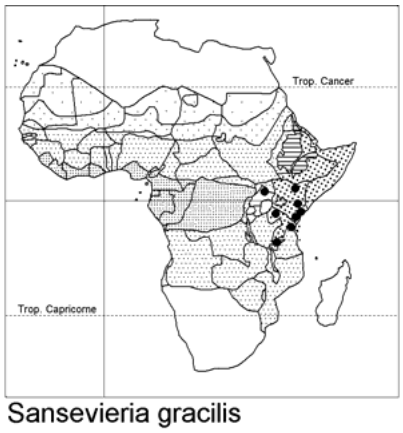
Sansevieria forskaoliana



Sansevieria francisii



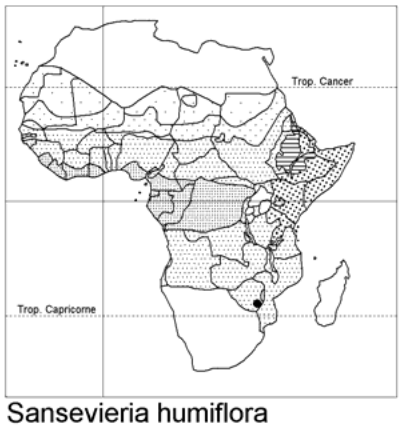
Sansevieria frequens



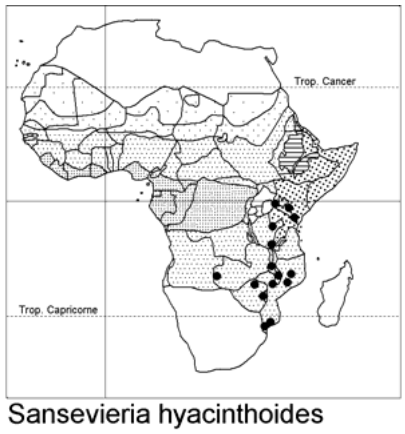
Sansevieria gracilis

Sansevieria gracillima

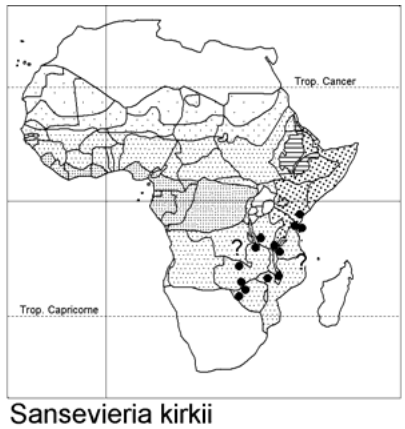
Sansevieria hallii



Sansevieria humiflora



Sansevieria hyacinthoides



Sansevieria kirkii

expedition starting from the coast in September 1860. His conclusion: "We shall probably never know what *S. grandicuspis* was, and the name is of unresolved application".

The synonyms cited above were given by N. E. Brown in his monograph. He writes that *S. pumila* Haw. described at the same time as *S. grandicuspis*, is "evidently only the juvenile state of *S. grandicuspis"*. *S. ensifolia* Haw. is also cited as a synonym by Brown. However, Jankalski (in Sansevieria 17: 21, 2007) refers to it as a probable synonym of *S. ebracteata* (Cavanilles) Suresh (Rheede, Hort. Malab. 11: 83, pl. 42, 1692).

S. grandicuspis sensu N. E. Br. in Bull. Misc. Inf. Kew 1915: 231, 1915, and plants known in cultivation as *S. grandicuspis* belong to *S. roxburghiana* Schult. f. or *S. zeylanica* (L.) Willd. (cf. Jankalski in Sansevieria 15: 24-25, 2006; Chahinian, 2005: 61).

Note: *S. pumila* Spin is cited by Brown (see Sansevieria 11: 24, 2005) as "quite a different plant" from *S. pumila* Haw. The former figures among the "Imperfectly known and excluded species", described in "Le Jardin de St. Sebastien avec des notes sur quelques plantes nouvelles ou peu connues": p. 28, note (12), Turin 1812 (present at G): "This species has not yet flowered in my garden, although I grow it since more than 15 years. It has a knobby root, and from this root leaves arise that are thick, recurved, keeled and marked with dark green spots, and somewhat similar to those of *S. guineensis* a species of which my plant is perhaps only a variety". Brown in his monograph (cf. Sansevieria 13: 25, 2005) cites *S. guineensis* var. Schultes, Syst. Veg. 7: 355 as a synonym. His remark is: "it appears to me that…this was a seedling or juvenile plant of some species that is now probably well known. The juvenile state of several species is very similar to such a plant as De Spin describes".

S. hallii Chahin.; Enum. 3: 295, 1995, and 4: 604, 1997; Newton in Eggli, l.c.; Takawira-Nyenya (2006): 68; Jankalski in Sansevieria 17: 23-24, 27, 2007; Fl. Zambes. 13/2: 26, 2010. – Icon.: Sansevieria J. 5: 7, 10, 1996; Brit. Cactus Succ. J. 16: 100, 1998; Sansevieria 2: 6-7, 2001; ibid. 7: 19-21, 2003; ibid. 21: front cover, 11-12, 2009; Chahinian (2005): 63.

Stemless herb often forming clumps, with a creeping rhizome 1,8-3 cm Ø; leaves 1-3 per shoot, 60-90 × 5 cm, erect, recurved, boat-shaped in cross-section, with inconspicuous transverse bands when young, margins red-brown; flowering stem 12-18 cm long, peduncle to 7 cm long; flowers in dense capitate raceme to 16 cm wide; perianth 5,6-12 cm long; tube purple, 4,5-9,5 cm long; lobes cream or white, recurved, 2-2,5 cm long; fruit globose, c. 1 cm Ø, wrinkled, green turning orange.

Rocky outcrops; 300-360 m alt.

NE S. Africa.

Known in the past as "baseball bat" or "Blue bat".

Three named cultivars are in trade: 'Blue Bat', 'Lundi Bat', 'Pink Bat' (figs. in Chahinian 2005: 64-67; and in Sansevieria 25: 16, 2011; Sansevieria17: 23-24, 2007). A cultivar 'Striated' is shown in Sansevieria 25: 18 fig. 11, 2011.

Resembling *S. fischeri* but much smaller. Also similar to *S. humiflora*.

(**S. hargeisana** Chahin.) See below under **S. phillipsiae**.

S. humiflora D. J. Richards; Jankalski in Sansevieria 17: 24, 2007; Fl. Zambes. 13/2: 28, 2010. – Icon.: Sansevieria 10: 4-6, 2004; Chahinian (2005): 71.

Stemless herb with rhizome 2-3 cm Ø forming tangled clumps; leaves 1-3 per shoot, strap-shaped, recurved, very rigid, 25-45 × to 8 cm, 1-1,5 cm thick at base, margins slightly wavy; peduncule subterranean, 3 cm long, 1,5 cm Ø; raceme dense, capitate, initially purplish, emerging at ground level or slightly below, often hidden by leaves and humus, usually distorted and compressed by leaves; flowers purplish, in clusters of 4; tube to 15 cm long, 4 mm wide; fruit globular, orange red when mature, very wrinkled.

Dry bush, with *Aloe*, *Euphorbia* spp.; c. 300 m alt.

Only known from the type collected in 1986. – Another collection, R 1881, from SE Zimbabwe and discussed by Butler (Sansevieria 23: 18-19, 2010) is provisionally placed under *S. humiflora*. The gathering Philcox & Leppard (PLLP) 8753 may also belong to *S. humiflora*, cultivated under the name 'Kariba Bat' (figs. l.c.).

Near *S. hallii*.

S. hyacinthoides (L.) Druce; Wijnands in Taxon 22: 109-114, 1973; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 266, 2001; Takawira-Nyenya (2006): 70; Fl. Trop. E. Afr., Dracaen.: 20-21, 2007 (incl. *S. grandis*); Jankalski in Sansevieria 15: 26-27, 2006; ibid. 17: 23, 24-25, 2007; Fl. Zambes. 13/2: 28-29, 2010. – Icon.: Commelin, Praeludia botanica: pl. 33, 1703, reproduced in Sansevieria 2: 20, 2001, and ibid. 26: 19, 2012; Taxon 22: 112, 1973; Bot. Mag. 29: pl. 1180, 1809 (sic ! in Bibl. G; pl. 1179 shows *Dracaena ovata*); Redouté, Liliacées 6: pl. 330, 1811; Chahinian (2005): 72; B.-E. Van Wyk & al., Medicin. pl. S. Afr., ed. 2: 257, 2009; G. F. Smith & Crouch, Guide succ. south. Afr.: 92, 2009; Sansevieria 23: 28, 29 (as *S. grandis*), 2010; Kakteen & Sukk. 64: 38, 2013.

syn.: Enum. 3: 67, 1995; *Aletris hyacinthoides* (L.) L., incl. var. *guineensis* (L.) L.; *Cordyline hyacinthoides* (L.) W. Wight; *Aletris guineensis* (L.) Jacq.; *Aloe guineensis* (L.) Jacq.; *Acyntha guineensis* (L.) Medik.; *A. thyrsiflora* (Thunb.) Kuntze; *Veltheimia guineensis* (L.) Neck.; *Salmia guineensis* (L.) Cav.; *Cordyline guineensis* (L.) Britton; *Sansevieria grandis* Hook. f., incl. var. *zuluensis* N. E. Br.; *S. guineensis* (L.) Willd., incl. var. *latifolia* Bojer in Morgenstern, Sansevierias, 1979, nom. inval.; *S. macrophylla* Sastrapradja, ibid., nom. inval.; *S. lancifolia* anon. ibid., nom. inval.; *S. macrophylla* Sastrapradja, ibid. nom. inval., *S. lancifolia* anon., ibid., nom. invalid.; *S. thyrsiflora* Petagna, nom. illegit.; *S. thyrsiflora* (Petagna) Thunb., nom. illegit.; *S. spicata* (Cav.) Haw.; *Salmia spicata* Cav.; *Pleomele aloifolia* Salisb.; *Sansevieria nobilis* Godefroy-Lebeuf, nom. inval.; *S. rufocincta* Baker; *S. angustifolia* Baker, nom. invalid.; see also World checklist selected plant families, Asparagaceae, Roy. Bot. Gard. Kew.

Stemless herb; rhizome c. 1,2 cm Ø; leaves rosulate, 2-8 to a node, ± lanceolate, 15-70 × 3-12 cm, erect, smooth, base narrowed and folded for c. 5 cm, dull green with numerous pale transverse bands, margins whitish with red-brown line; pseudoraceme spike-like, 45-82 cm tall including peduncle 17-53 cm long; raceme c. 7 cm wide; flowers greenish-white, white or pale yellow tinged with brown or mauve, in irregular clusters of 2-6; perianth 3-5 cm long; tube 2-3 cm, lobes 1,4-2 cm; berry 0,6-1 cm wide, bright orange when ripe.

Sandy or stony soils; usually under shade of trees and bushes; termite mounds; *Combretum*, *Mopane* woodland; 50-1050 m alt.

S. Africa, Swaziland.

SANSEVIERIA HYACINTHOIDES

Introduced into Dutch gardens before 1701. Cultivated in gardens in Zimbabwe.

Many specimens of *S. hyacinthoides* are cited in flora lists or labelled in herbaria *S. conspicua* N. E. Br. (Fl. Zambes. l.c.).

(**S. ×itumea** (Mbugua) Jankalski) ; Fl. Trop. E. Afr., Dracaen.: 17, 2007. – Icon.: Butler in Sansevieria 28 : 19-20, 2012 (specim. Pfennig 213 !, not 312 = Peter Bally coll. nr. 14404A).

bas.: *S. aethiopica* Thunb. subsp. *itumea* Mbugua

syn.: *S. ballyi* Pfennig in litt. (1 March 1976) to Peter Bally

According to Fl. Trop. E. Afr., l.c., differs from *S. aethiopica* by shorter and fewer flowers per cluster and fewer leaves per plant.

Kenya, Tana Riv. Distr., 30 km S Galole. Very dry country.

Bally collected (26 Febr. 1971) 2 specimens at the same locality : one with wider ("bromeliad") leaves, one with almost cylindrical leaves, received by Pfennig on 10 Dec. 1971. Pfennig succeeded in flowering the "bromeliad-like form" in early 1976. It produced 4 flower spikes, the second went to HBG and the third to B as herbarium specimens. The fourth was kept in place to be pollinated. The plants flowers with only 2-4 leaves, and sets fruit.

Supposed to be a natural hybrid of *S. raffillii* N. E. Br. and *S. gracilis* N. E. Br. But according to Butler (l.c.) "*S.* x*itumea* does not demonstrate the usual 'hyrbrid vigour' and it is in fact very slow to grow…I reserve judgement on its identity…".

S. kirkii Baker ; Butler in Brit. Cact. Succ. J. 16 : 100, 1998 ; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 267, 2001; Takawira-Nyenya (2006) : 69 ; Jankalski in Sansevieria 15 : 27, 2006 ; Fl. Zambes. 13/2 : 29, 2010. – Icon.: Sansevieria 3 : 5, 2002 ; ibid. 10 : 16-17, 2004 ; ibid. 13 : 22, 2005 (reproduction from N. E. Brown's monograph, 1915) ; Chahinian (2005) : 74, 75-75 (var. **pulchra** and cultivars) ; Sansevieria 15 : front cover, 2006 ; Fl. Trop. E. Afr., Dracaen.: 31, 2007 (drawing from type specimen) ; Sansevieria 19 : 8, 2009 (reproduction of Bot. Mag. 120 : pl. 7357, 1894) ; Sansevieria 25 : back cover, 2009.

syn.: Enum. 3 : 67, 1995 ; *S. raffillii* N. E. Br. var. *pulchra* N. E. Br.

Acaulescent herb with stout rhizome ; leaves 1-3, erect or ascending-spreading to upper part recurved or even drooping, 0,23 -2,7 m × 3-5-10 cm, 0,8-1,4 cm thick at middle, very rigid to stiffly coriaceous towards acute apex, tipped with horny spine 0,8-1,3 cm long, sides very wavy, margins reddish brown but in juvenile plants whitish ivory, surface obscurely mottled with white ; petiole 2,5-3,1cm broad, 3,8 cm thick ; inflorescence capitate-corymbose, dense ; peduncle 18-52 cm long, shorter than leaves, with 5-6 large ovate bracts 6-10 cm long ; rachis 2-7 cm long ; axis dull purplish brown, 1,3-1,9 cm Ø ; flowers erect, pedicel 0,6-1 cm long, 1,5-2 mm Ø ; perianth green on the back and tips, the rest brownish pink, 1,2-14,5 cm long ; tube purplish or dull pink, 11-12,5 cm long, lobes 3-4,5 cm long, spreading ; berry globose, orange, 1,2 cm Ø.

Forest ; thicket ; riverine fringe and forest ; often on thin soil among rocks or on coral cliffs ; dry rocky area in woodland ; termite mounds ; under bushes ; 0-1500 m alt.

Comprises 2 vars.: – var. **kirkii** [syn.: *S. aubrytiana* Gérôme & Labroy 1903, non Carrière 1861, nom. illegit.; *S. longiflora* sensu John Kirk (plant sent to K and cultivated there)] ; – var. **pulchra** N. E. Br. [syn.: *S. longiflora* Gérôme & Labroy (in Bull. Mus. Hist. Nat. 1903 : 172-173, fig. 8, 1903), and sensu De Wild. (Notices pl. utiles Congo 1: 624, fig. 8, 625, 630, 1903, non Sims)]. – Icon.: Brit. Cactus Succ. J. 16 : 100, 1998 ; Sansevieria 3 : 5, 2002 ; ibid. 10 : 17, 2004 ; ibid. 11 : 14, 2005 ; Chahinian

SANSEVIERIA KIRKII

(2005) : 76 ; Newton in Eggli, l.c.: fig. 28 h ; smaller than the typical variety, leaves finer and more distinctly mottled with sometimes almost reddish spots or irregular bands on both sides, margins red-brown with white membranous edge ; described from Zanzibar, a plant sent to K in 1903, and flowered there in 1912. It is possibly a cultivar.

S. kirkii was introduced to cultivation in 1881 by Kirk who commented : yields a most excellent fibre.

Several cultivars are grown, but some have been incorrectly attributed to *S. kirkii* (Sansevieria 19 : 10, 2009) : 'Coppertone', 'Metallic Silver', 'Striated', 'Superclone', etc. [figs. in, e.g., Chahinian (2005) : 76-78 ; Sansevieria 1: 13, 2001; 6 : 20, 2003 ; 10 : 17-18, 2004 ; 18 : 7, 2008 ; 23 : 13, 15, 2010 ; Cactus Succ. J. (U.S.) 84 : 87, 2012].

S. kirkii is reported from N coastal Mozambique, Cabo Delgado Prov. (Sansevieria 25 : 4, 2011), a plant preferring "dark evergreen Coastal Forests…just above sea-level to 500 m a.s.". However, a plant reported from SE Tanzania, near Lindi, on cliffs near the sea (Pfennig 1192) is superficially similar to *S. kirkii* var. *pulchra* but is doubtful ; it resembles *S. braunii* Engl. & K. Krause (Butler in Sansevieria 19 : 11-12, 2009) ; cf. above under *S. braunii*.

Also in Gabon ? (type of syn. *S. aubrytiana*; not in Sosef & al., Check-list pl. vascul. Gabon, 2006) ; Zaire ?

S. liberica Gérôme & Labroy ; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3 : 513-514, 1995 ; Newton in Eggli, l.c.; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 874, 2006 ; Sosef & al., Check-list pl. vascul. Gabon : 253, 2006 ; Chatelain & al., Cartes distr. pl. Côte d'Ivoire : 211, 2011; Onana, Vascul. pl. Cameroon…: 165, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso : 35, 2012. – Icon.: Morton, W. Afric. lilies : pl. 6, fig. 23, 1961; Chahinian (2005) : 83 ; Akoegninou & al., Fl. anal. Bénin : 129, 2006 ; Sansevieria 16 : II, 2007.

syn.: *S. chinensis* Gentil ex N. E. Br.; *S. gentilis* Mattei, nom. superfl.

Stemless herb with rhizome c. 2 cm Ø ; leaves 1-3 to a growth, firmly coriaceous, lanceolate, 45-106 × 5-12 cm, apex somewhat acute, margin pale reddish-brown, blade marked with transverse dark and light green bands ; inflorescence floriferous, simple, 60-80 cm long ; perianth white, 5-7 cm long ; berry red, spherical.

Drier shady places by streams and rock outcrops ; termite mounds in grassland and thicket areas ; often abounds on coastal sandbars.

The commonest of W African sansevierias.

Sometimes grown as an ornamental in Senegal. Introduced into cultivation at Paris in 1886, a living portion received at K in 1903.

Jankalski cites, (erroneously ?) *S. wanguia* Mbugua 1995, nom. inval., as a synonym, a plant from Angola, Huila (Menezes 3680).

S. longiflora Sims var. **longiflora**, non Gérôme & Labroy (= *S. kirkii* var. *pulchra*) ; Fl. south. Afr. 5/3 : 7, 1992 ; Newton in Eggli, l.c.; Sansevieria 3 : 9, 2002 ; Fl. Trop. E. Afr., Dracaen.: 12, 2007 ; Figueiredo & Smith, Pl. Angola : 183, 2008 ; idem in Haseltonia 15 : 74, 2009 ; Fl. Zambes. 13/2 : 30, 2010 ; Sansevieria 23 : 12, 2010. – Icon.: Chahinian (2005) : 84.

syn.: *Acyntha longiflora* (Sims) Kuntze

SANSEVIERIA LONGIFLORA VAR. LONGIFLORA

Stemless herb with creeping rhizome c. 2,5 cm Ø; leaves 4-6 per shoot, rosulate, spreading, 0,4-1,5 m long including a folded, petiole-like base 7-8 × 3-9 cm; blade lanceolate, irregularly marked with dark green and grey-green transverse bands, margin red; flowering stem 30-68 cm long; peduncle 12-47 cm, rachis 8-20 cm long; raceme densely many-flowered, ± capitate to ovoid, to 21 cm wide; flowers 1-3 per cluster, greenish-white; perianth 8-13 cm long, tube 6,5-9 cm long, lobes 2,5-3,5 cm long; fruit unknown.

Brachystegia woodland on rocky hillsides; sandy soil, usually in shade; 500-1100 m alt.

Namibia; Bioko/Fernando Poo (var. **fernandopoensis** N. E. Br.).

Cultivated in E. Africa, Amani, NE Tanzania, and possibly naturalised at forest margins.

S. longistyla la Croix; Sansevieria 17: 24, 2007; ibid. 19 : 11-12, 2009; Fl. Zambes. 13/2: 30-31, 2010. – Icon.: Kew Bull. 59: 618, 2004.

syn.: ? *S. braunii* Engl. & K. Krause (see Note below).

Stemless herb with orange rhizome c. 3 cm Ø; leaves lanceolate, 33 × 7,3 cm, apiculate, flat but folded at base, dark blue-green, mottled pale blue-green, slightly rough, margin prominent, red; inflorescence 48-58 cm tall; peduncle 22-32 cm long; rachis 21-27 cm long; raceme 9-12 cm wide, densely many-flowered; flowers 1-3 per bract, suberect, greenish-white; perianth 8-8,5 cm long, tube 5-6,5 cm long, lobes 1,5-2 cm long; stigma and style c. 10 cm long, exserted for c. 4 cm; fruit unknown.

Sandy lake shore; c. 480 m alt.

Compared with *S. conspicua*; similar to *S. longiflora*.

Note: Butler makes a comparison between *S. braunii* and *S. longistyla* (Sansevieria 19: 12, 2009). *S. braunii* was described from SW Tanzania, in woodland, in deep shade. This is near the type locality for *S. longistyla*. The morphological differences are presented in a table. Plants in cultivation (Pfennig 1192) collected near Lindi (S Tanzania) were first determined as *S. kirkii* var. *pulchra*, but they may represent *S. braunii*.

Collections from N Malawi (Pawek 7964 and 10697) may belong to *S. longistyla*.

S. masoniana Chahin.; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 267, 2001; Sansevieria 17: 25, 2007. – Icon.: Chahinian in Cactus Succ. J. (U.S.) 72: 31, 2000; Chahinian (2005): 87; Sansevieria 13: II, 2005 (striated leaf); ibid. 18: 23, 2008.

syn.: *S.* cultivar 'Mason Congo'.

Stemless herb with rhizome c. 4 cm Ø; leaves 1-2 per shoot, erect, leathery, oblanceolate, to 1 m or more tall, to 18 cm wide, dull blue-greyish green with lighter mottling, margins fibrous, chestnut-brown; flower stalk to 53 cm long, 8 mm Ø at top, 12 mm at bottom, light green, profusely marked by numerous short purple lines (lost after pressing); flowers 1-2 per cluster, 4-4,8 cm long, greenish white; tube 2,6-3 cm long, cylindrical, lobes revolute 2,4-2,8 cm long; fruit unknown.

Ecology unknown.

Collected in Zaire without precise locality. Known for years in cultivation under the cultivar name *Sansevieria* "Mason Congo".

Brought to England and from there distributed to other countries by Maurice Mason, one of the foremost sugar-beet farmers in East Africa. He travelled extensively but it is not known if he collected the plant in the wild himself (Chahinian 2000: l.c.).

Said to be similar to *S. bracteata* Baker.

Not mapped.

SANSEVIERIA

S. metallica Gérôme & Labroy, incl. var. *longituba* N. E. Br. (from tropical Africa without locality) and var. *nyasica* N. E. Br; Cable & Cheek, Pl. Mt Cameroon: 158, 1998; Newton in Eggli, o.c.: 267-268; Sansevieria 15: 26, 2006; Fl. Zambes. 13/2: 31, 2010. – Icon.: Bull. Misc. Inf. Kew 1915: 246, 1915; Sansevieria 12: 28, 2005 (from Brown's monograph 1915, var. *nyasica*); Chahinian (2005): 89.

syn.: *Acyntha metallica* (Gérôme & Labroy) Chiov.; *Sansevieria guineensis* Baker 1875, nom. illegit., non (L.) Willd.; *S. guineensis* var. Schultes 1829, nom. inval.

Stemless herb with reddish rhizome c. 2 cm Ø; leaves 1-3 per shoot, lanceolate, strongly mottled, 0,7-1,1 m × 4,5-6 cm, narrowed from the middle to a 10-60 cm channelled petiole; flowering stem 0,4-1,2 m tall; peduncle 45-60 × 3 cm; rachis 31-45 cm long; raceme lax; flowers 2-7 per cluster, white, sometimes tinged red; tube 1,3-1,8 cm long, lobes 1-2 cm long; fruit unknown.

Sandy soils; 0-900 m alt.

S. Africa. – Disjunct area: Mt Cameroon – East Africa. Naturalised in Réunion (Fl. Mascareignes 183, Liliac.: 30, 1978).

Var. *metallica* is known only from S. Africa.

Somewhat resembling *S. hyacinthoides* but has larger leaves and smaller flowers.

The type is a cultivated plant received at Kew from Paris Bot. Gard. in 1903. Earlier cultivated there and elsewhere under the wrong name of *S. guineensis*.

S. nilotica Baker, incl. var. *obscura* N. E. Br.; Newton in Eggli, o.c.: 268; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 185, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 287, 2010; Fl. Trop. E. Afr., Dracaen.: 15-16, 2007; Sansevieria 21: 20-21, 2009. – Icon.: Fl. Eth. & Eritrea 6: 81, 1997.

syn.: *Acyntha massae* Chiov.; *A. nilotica* (Baker) Kuntze; *Sansevieria massae* (Chiov.) Cufod.

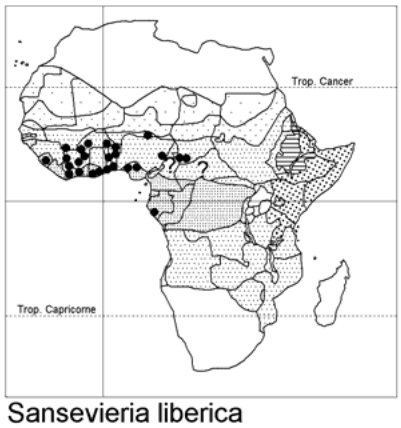
Stemless herb with leaves 2-3 together, 0,6-1,25 m × 2-6 cm, strap-shaped, margins quite parallel, at base narrowing into a deeply concave channel, apex a green subulate point, surface conspicuously marked with numerous, narrow, closely placed, irregular, zigzag transverse pale and dark green bars; margins green; inflorescence a raceme 0,5-2 m tall; flowers white, in clusters of 4-10 in the lower, 2-3 in the upper part; tube c. 1 cm long, lobes 1,2 cm long.

Riverine forest with *Ficus vallis-choudae*, *Celtis* sp., *Argomuellera macrophylla*; open woodland; rain-forest with *Chrysophyllum albidum*, *Cola gigantea*, *Erythrophleum suaveolens*, *Alstonia boonei*, *Parinari excelsa*, *Milicia excelsa*; woods near river bank; at edges, along trails and in clearings; 900-1450 m alt.

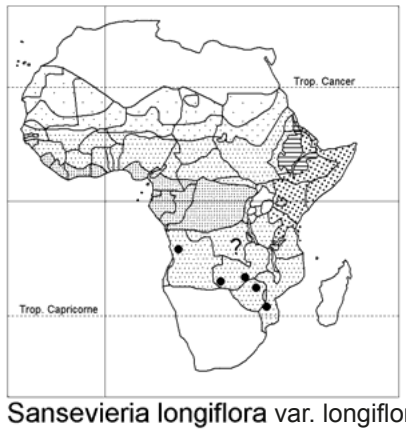
Easily confused with *S. trifasciata*.

S. nitida Chahin.; Fl. Trop. E. Afr., Dracaen.: 16-17, 2007. – Icon.: Cactus Succ. J. (U.S.) 73: 121, 2001; Chahinian (2005): 91.

Acaulescent herb with orange rhizome; leaves 1-5, erect-spreading, sometimes twisting, lanceolate, to 40 × 6 cm, 2 mm thick, apex acute, base narrowed into a pseudopetiole with keel 4 mm thick, dark green cross-banding with dense lighter grey-green blotches, smooth and glossy above, dull and rough beneath, margins fibrous, chestnut brown, apex acute; inflorescence simple, spike-like, stalk 15-24 cm long, 5 mm Ø; with flowers in upper ¾, dense, 1(-2) per node, 3,8-5,2 cm long, greenish white with purple lines; tube 1,8-2,1 cm long; lobes convolute, 2-2,6 cm long; fruit not described.

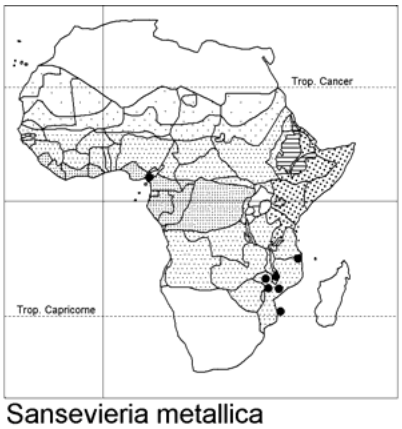


Sansevieria liberica

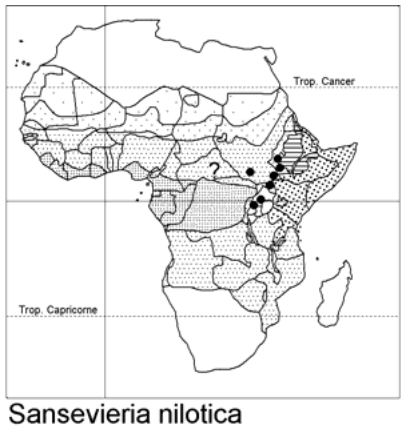


Sansevieria longiflora var. longiflora

Sansevieria longistyla

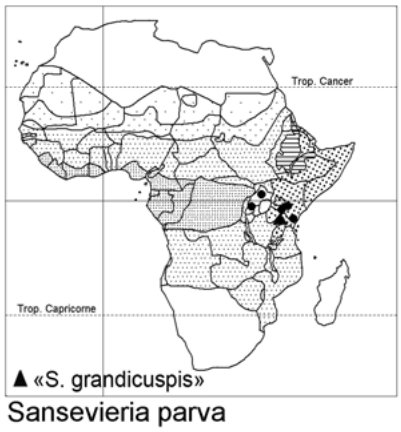


Sansevieria metallica



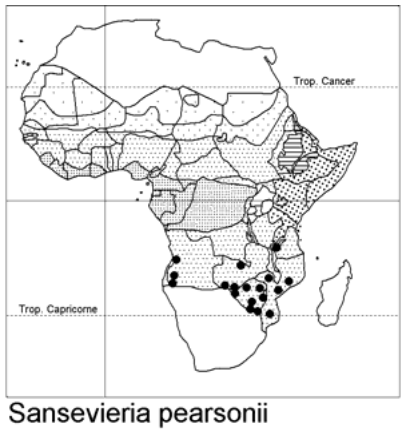
Sansevieria nilotica

Sansevieria nitida

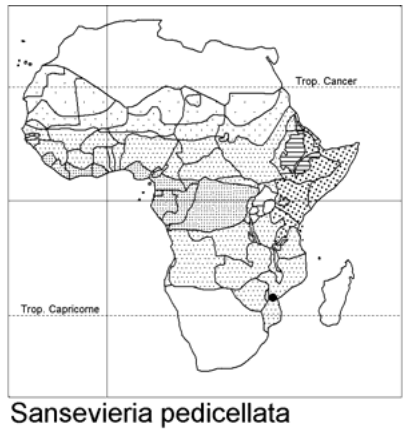


▲ «S. grandicuspis»

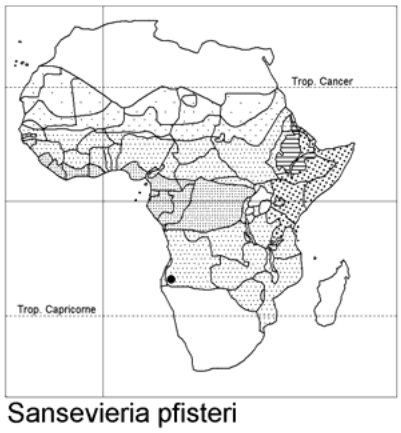
Sansevieria parva



Sansevieria pearsonii

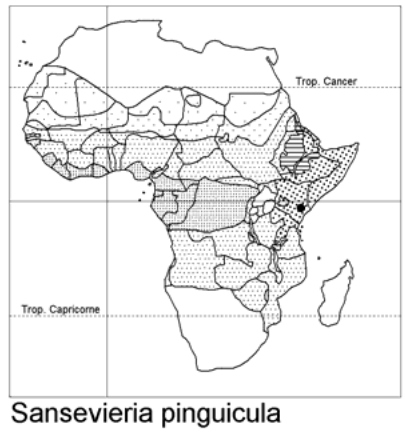


Sansevieria pedicellata



Sansevieria pfisteri

Sansevieria phillipsiae



Sansevieria pinguicula

SANSEVIERIA NITIDA

Ecology unknown.

Near *S. conspicua*.

Known only from the type (originated from seed) and cultivated specimens. It has been sighted by L. E. Newton in the Kivuko Hills, also in SE Kenya (type locality of *S. ballyi*).

S. parva N. E. Br. (in literature also cited as *S. dooneri*); Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 264, 268, 2001; Newton in Sansevieria 7: 10-11, 2003; Jankalski in Sansevieria 15: 25, 2006; Fl. Trop. E. Afr., Dracaen.: 13-14 (as *S. grandicuspis*), 2007; European Gard. Fl., ed. 2, 1: 193, 2011. – Icon.: Bull. Misc. Inform. Kew 15: 232, 1915 (also under *S. dooneri*); Fl; Pl. Afr. 28: pl. 1114, 1951 (as *S. dooneri*); Sansevieria 11: 25, 2005 (reproduction of Brown's monograph); Chahinian (2005): 46, 92; Sansevieria 16: IV, 2007; Kakt. & Sukk. 60: 244, 2009.

syn.: *S. bequaertii* De Wild.; *S. dooneri* N. E. Br.; *S. grandicuspis* sensu Mwachala & Mbugua, Fl. Trop. E. Afr., Dracaen.: 14, 2007, non Haw. (see above under this species, and Newton in Sansevieria 7: 10-11, 2003); *S. dambilonensis* hort. in Heitz & Zeller, Succulentes 13: 21, 1990, nom. inval. (cf. Sansevieria 17: 21, 2007).

Rosulate herb; rhizome with subsurface to aerial branching, orange; stem 1-12 cm long, 0,5-0,8 cm Ø; leaves slightly recurved-spreading at upper part, 6-18 per plant, linear-lanceolate, 20-47 × 0,8-1,4 cm, shallowly concave and folded longitudinally, ± rounded on back, apex a stout subulate tip 2-5 cm long, base narrowed into a petiole to 5-7 cm long; young leaves banded on both surfaces with transverse bands of dark bright green and paler green, margins green; inflorescence a lax raceme 25-60 cm long; flowers 1-2 per cluster on upper third of axis, solitary in lower and upper parts of inflorescence, ascending; perianth 1,8-2,3 cm long, tube pale pinkish-white, 0,9-1,2 cm long, lobes greenish grey at base, grey-white at middle, pinkish-brown at apex, 9,5-1,1 cm long; berry yellow, 5-8 mm Ø.

Dry forest in shade; near bases of termite hills; rocky sites in bushland; woodland; 600-2400 m alt.

Easy to grow, a fast grower, "a small and graceful plant…to be grown in a hanging basket" (Chahinian, 2005: l.c.). Cultivars 'Gold Variegated' and 'White Variegated' are attactive (Sansevieria 2: 2, 2001; Brit. Cact. Succ. J. 16: 101, 1998).

S. patens N. E. Br.; Newton in Eggli, l.c.; Chahinian (2005): 93-95; Fl. Trop. E. Afr., Dracaen.: 30, 2007. For discussion on the identity of the cultivated plants: Cactus Succ. J. (U.S.) 76: 69, 2004; Newton in Sansevieria 13: 3, 2005; Jankalski, ibid.: 15: 8-9, 2006. – Icon.: Sansevieria 8: 25, 2003 (reproduction from Brown's monograph).

Description by Brown (1915): Stemless plant; rootstock creeping, c. 2 cm Ø; leaves 5-10 to a growth, 2-ranked, recurved-spreading from the base, like a fan, slightly rough, the inner ones of adult plants 45-60 cm long, c. 2,5 cm thick from front to back, the outer gradually shorter, compressed-cylindric, with an acute channel much narrower than the leaf extending from base to apex on the face, tapering upwards, at apex somewhat abruptly contracted into a hard acute whitish point c. 4-12 mm long marked with a brown band at base, somewhat indistinctly marked with dark green and paler green transverse bands becoming bluish-green with age, longitudinally marked with numerous blackish-green lines, several of them continuing to apex; flower stem c. 35(-75 ?) cm long, pale green, with 2-3 acuminate sheaths 2-5 cm long on basal 1/3; raceme spike-like of flowers 2-3 in clusters on upper 2/3; perianth white; pedicel 5-6 mm long, jointed at middle; tube c. 1 cm long; lobes revolute, c. 1,2 cm long, 1 mm wide.

SANSEVIERIA PATENS

"Origin unknown, but probably British East Africa".

"Described from a living plant which flowered at Kew on April 4, 1910".

"The origin and identity of Brown's original *Sansevieria patens* remains an unsolved mystery" (Jankalski, 2006). Species not cited by Mansfeld, 2013.

This plant is widely cultivated, i.a. in the USA. It has been supposed that specimens of the type clone that flowered at Kew in 1910, be still in cultivation in the USA [cf. Cactus Succ. J. (U.S.) 76: 69, 2004; Brit. Cactus Succ. J. 22: 81, 2004]. Newton (in Sansevieria 13: 3, 2005) tried to elucidate the origin of the American grown material (Honolulu and Huntington Botanical Gardens near Los Angeles), and concluded "that the plants in cultivation were obtained, by an unspecified route, from Brown's plant at Kew".

Jankalski writes (2006): Plants grown in cultivation under the name *S. patens* do not agree with the original description. The United States Department of Agriculture (USDA), Research Center in Beltsville, Maryland, received in 1958 a shipment of various sansevierias from the Roy. Bot. Gard. Kew (plants without collection numbers). Duplicates of many of them were also sent to Fairchild Bot. Gard., Miami, Florida. In 1966 Foster Bot. Gard., Honolulu, Hawaii, received 29 different sansevieras from Miami. These were planted at Koko Crater, one of them listed as *S. patens.* This collection was later propagated by Ed. Eby, and has since become widespread in cultivation as *S. patens*. Conclusion: this is not the authentic *S. patens* N. E. Br. It becomes necessary to coin a new name for the cultivated clone, which becomes *Sansevieria* cultivar 'Ed Eby'. Other cultivars are 'Variegata' Chahinian, "variegated form" Butler.

Ramos (in Sansevieria 16: 3-8, 2007) shows plants at Koko Crater, Hawaii.

Not rediscovered in the wild. "S. patens" collected by P. Bally (N° 8177, K) in 1952 on the W shore of Lake Naivasha, Kenya, has been identified as *S. suffruticosa* var. *suffruticosa* by Mbugua, but the identification needs to be verified.

Not mapped.

S. pearsonii N. E. Br.; Newton in Eggli, l.c.; Takawira-Nyenya (2006): 68 p.p., excl. syn. *S. livingstoniae* (= *S. cylindrica);* Figueiredo & Smith, Pl. Angola: 183, 2008; idem in Haseltonia 15: 74, 2009; Aloe 47: 6-8, 17, 20, 2010; Sansevieria 23: 12, 2010. – Icon.: Sansevieria 3: 12, 2002; ibid. 8: 28, 2003 (as *S. rhodesiana*); ibid. 9: 25, 2004; Chahinian (2005): 95; Fl. Trop. E. Afr., Dracaen.: 29, 2007 (as *S. deserti*); Sansevieria 18: 29, 2008 (as *S. rhodesiana*); Pickering & Roe, Wild. flow. Victoria Falls area: 59, 2009; Fl. Zambes. 13/2: 32, 2010; Sansevieria 23: 26, 2010.

syn.: *S. deserti* N. E. Br.; *S. rhodesiana* N. E. Br.; ? *S. cylindrica* sensu Baum, Kunene-Sambesi Exp.: 25, 28, 78, 197, 470, 510.

Stemless herb with bright orange-red rhizome 1,5-2,5 cm Ø; leaves in 2 rows, 4-7 per shoot, 0,57-1,5 m long, 1-2,5 cm Ø, ± cylindric, ridged, red-brown in lower part, green further up, apex acute; flowering stem 58-90 cm long; peduncle 10-17 cm long; flowers green, cream, buff-pink, or yellow, 4-7 per cluster; pedicel 4-6 mm long; perianth 1,8-2 cm long, tube 0,7-1,3 cm long, lobes 0,7-1,2 cm long; fruit 7 mm Ø.

Exposed granite domes with *Plectranthus amboinicus*, *Kalanchoe*, *Aloe vallaris; A. zebrina;* also with *Euphorbia conspicua*, *Huernia urceolata, Fockea multiflora;* among large boulders; rocky hillsides; sometimes under trees or on termitaria on poor sandy soils; often forming dense large colonies; 100-1500 m alt.

SANSEVIERIA PEARSONII

Namibia, Botswana, S. Africa.

Cultivated in gardens in Zimbabwe.

Closely resembling *S. volkensii*; near *S. sordida*. Can be confused with *S. burdettii.*

S. pedicellata la Croix; Fl. Zambes. 13/2: 33-34, 2010. – Icon.: Kew Bull. 59: 619, 2004; Sansevieria 14: 13, 2006; ibid. 20: 3, 4, 7, 2009.

Stemless herb with long (to 70 cm) rhizome to 5 cm Ø; leaves 4-6-15 per growth, *linear-lanceolate*, 72 × 6 cm, *plain green*, with a red line around margin and a thin white line outside that, apex a sharp point; peduncle 30 cm long, 4 mm Ø; rachis over 27 cm long; flowers 4-6 per cluster, whitish; *pedicel remnants* 1,5-1,8 cm long, *long persistent;* perianth 9-10 cm long, tube 8-9 cm, lobes 1,7-2 cm long; fruit known ! (Sansevieria 20: 5, 2009).

Among rocks by streams; undergrowth of moist evergreen forests; frequently forming large groups of plants rooting superficially in thick, fertile leaf litter; with *Millettia stuhlmannii*, *Albizia gummifera*, *Craibia brevicaudata;* on soil derived from shist; 700-1500 m alt.

(**S. perrotii** O. Warburg) in F. W. Wohltmann & O. Warburg, eds., Der Tropenpflanzer 5/4: 190, fig. p. 191, 1901. – N. E. Brown, Monograph, See Sansevieria 7: 28, 2003; De Wildeman, Notices pl. utiles Congo 1: 626, 627, 633, 2003; Newton in Eggli, o.c.: 269; Chahinian (2005): 96-98. – Icon.: Warburg, l.c.; and a "very fine life-sized drawing at Kew of a plant sent by Dr. Stuhlmann from Dar-es-Salaam to the Calcutta Botanic Garden, where it flowered in March, 1904" (Brown, l.c.).

syn.: ? *S. zanzibarica* Gérôme & Labroy (Jankalski in Sansevieria 19: 10, 2009; 20: 25, 2009); *S. ehrenbergii* De Wild., non Schweinf. ex Baker

Put in synonymy under *S. robusta* N. E. Br. by Mwachala & Mbugua, Fl. Trop. E. Afr., Dracaen.: 36, 2007.

Type: Perrot s.n., not found by the above-cited authors. However, a figure was published by Warburg (l.c.).

We think that this synonymy is doubtful. Warburg gave a long description in Latin, and also details about the ecology. He believed that *S. perrotii* is very close to *S. ehrenbergii*, but the latter has much smaller leaves and flowers; in addition the shape of the lower part of the perianth is round, set on a short pedicel clearly jointed, whereas the perianth of *S. perrotii* is long-funnel-shaped and with the pedicel jointed *directly under the perianth*, not on the pedicel.

The description given by Warburg reads as follows (abridged): Stem 5 mm Ø, stoloniferous; leaves distichous, 1,75 m long, 8 cm wide at base, narrowing upwards, c. 0,8 cm wide near apex, apex shortly acuminate, deeply concave, margins red; abaxial surface light reddish in fresh state, adaxial surface whitish; inflorescence paniculate, 1,2 m tall, lateral branches branched again; bracts small, caducous; flowers to 1,5 cm long, 2 mm wide, base cylindrical, 6 mm (not 6 cm) long; lobes linear, 9 × 2 mm; filaments 8 mm long; berry white when dried, pulp white.

Occurring in large stands in wooded savanna at Lindi, in shade of coral rocks among prickly bush (brier), "forming natural plantations".

According to Warburg, the fibres of the leaves are much longer than in any other *Sansevieria* species, and the cultivation of this plant could be successful on the whole east coast made up of coral formations.

SANSEVIERIA PERROTII

Butler (Sansevieria 1: 2-3, 2001) discusses the relationships between *S. ehrenbergii* Schweinf. ex Baker, *S. robusta* N. E. Br. and *S. perrotii*. There seem to be 2 distinct forms grown as *S. ehrenbergii* in cultivation. The "true" *S. ehrenbergii* seems to be one of them (Sansevieria 8: 4-6, 2003). The other is believed to be a "rediscovered" *S. perrotii* (figs. 2 & 3, p. 4-5), the inflorescences being asparagus-like. He also notes that his living specimens of *S. ehrenbergii, S. robusta*, and "*S. perrotii*" flowered at the same time; they were later covered in berries. He concludes that these 3 species are related, and also that they are moth-pollinated.

Not mapped: Tanzania, Lindi (10°00'Sx39°43'E). *S. zanzibarica* from Zanzibar or coastal Tanzania.

S. robusta N. E. Br. is treated below as a distinct species. *S. perrotii* is retained by Mansfeld, 2013, as a distinct species.

S. pfisteri D. J. Richards – Icon.: Sansevieria 19: 2-7, 17, 2009; ibid. 23: front cover, p. 7-12, 2010.

Rhizomatous very robust herb with distichous to 4-15 leaves arranged symmetrically on each side, the outer leaves parallel to, or touching, the ground; leaves 58-64 cm long, very thick, rigid, smooth, faint green with faint paler green transverse bands, apex an obtuse sharp dry point; an open channel with acute, brownish edges 2 cm wide and 1,5 cm deep extends from base of each leaf on adaxial side tapering gradually to within around 13,5 cm of the tip; new growth from tip of rhizome as a single leaf; inflorescence spicate, 64 cm long, axis c. 8 mm Ø, emerging from top centre of the leaves; flowers 6-10 per cluster, clusters scattered irregularly up the peduncle; flowers 3,5 cm long, purplish brown at tip, dull yellow at the middle; tube 2-2,5 cm long, lobes c. 1 cm long, curved back; fruit orange (Sansevieria 23: p. 9 fig. 9, and p. 12 fig. 16, 2010).

In the open close to *Adenium boehmianum*, *Commiphora africana*, *C. cuneneana*; granite grit; *Colophospermum mopane* savanna with *Cordia, Ximenia americana, Commiphora tenuipetiolata, C. mollis, Combretum oxystachya.*

Namibia.

Near *S. pearsonii*.

Discovered in 1969.

S. phillipsiae N. E. Br.; Enum. 4: 604, 1997. – Sansevieria J. 3: 53, 55, 1994 (as *S. hargeisana*); – Thulin, Fl. Somal. 4: 28-29, 1995; Newton in Eggli, o.c.: 269; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 183-184, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 285, 2010; (N. E. Brown's Monograph in) Sansevieria 6: 26-27, 2003; ibid. 17: 12, 2007; Chahinian (2005): 97, 67 *(S. hargeisana)*. – Icon.: Fl. Eth. & Eritrea 6: 81, 1997.

syn.: *S. hargeisana* Chahin. (cited by Thulin, l.c., but according to Jankalski, Sansevieria 17: 24, 2007, "inadvertently" so); retained as a distinct species by Mansfeld, 2013.

Herb with stem 10 cm tall branching at or above ground level, and forming clumps to 38 cm tall; with runners to 20 cm long; leaves usually 5-10, rigid, ± irregularly directed, 10-45 × c. 1-1,8 cm, cylindric, with 5-10 longitudinal lines and a deeply concave sheathing portion to 9 cm long at base, with acute white edges, narrowed at apex into a hard brown spine-like tip; inflorescence a spike-like raceme, to 45 cm tall including peduncle; flowers 3-6 per cluster, white or greenish; pedicels 2,5-3 cm long; tube c. 1 cm long, lobes c. 1,2 cm long; fruit round, ellipsoidal, orange, 6 × 7 mm (thick).

SANSEVIERIA PHILLIPSIAE

Bushland; woodland; limestone plateau with a sparse vegetation with *Acacia tortilis*, *Aloe megalacantha;* in shade of trees, *Acacia*, *Commiphora*, *Combretum* on slopes and along road sides; 400-1500 m alt.

Plants grown as *S. phillipsiae* (misidentified) are named *S.* cultivar 'McLoughlin' (Sansevieria 7: 26, 2003; ibid. 15: 22, 2006. Plants in cultivation from Kenya are named *S.* cultivar 'Mutomo' (Sansevieria 17: 24, 2007). The cultivar *S.* 'Doris Pfennig' is an artificial hybrid made by H. Pfennig of *S. pinguicula* × *S. phillipsiae* (Sansevieria 13: 5-6, 2005, with photos.; also so Chahinian, 2005: 144-145).

Described from a living plant (flowered at Kew in 1912) originally received in 1900 from Cambridge Bot. Gard. where it was introduced from Somaliland by Mrs. Lort Phillips.

Seems to intergrade with *S. gracilis*.

S. pinguicula P. R. O. Bally, incl. subsp. *disticha* Pfennig ex Butler; Fl. Trop. E. Afr., Dracaen.: 35, 2007. – Icon.: Aloe 37: 31, 2000; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: fig. 29d, 2001; Chahinian (2005): 100; Sansevieria 28: front cover, p. 17-18, 2012 (subsp. *disticha*).

Stout short-stemmed herb 30 cm tall, stem erect, with runners to 8 cm long; leaves rosulate, 5-7, semi-circular, 12-30 × 2,8-3,5 cm, side facing inwards concave-angular with horny edges, outer side convex, 2-7-dentate, apex a very sharp horny spine; surface above deeply channelled, margins of channel sharp, brown, horny, beneath with 2-7 or more ± well defined longitudinal grooves, rounded; panicle subterminal, erect, 15-32 cm long, branched in the upper half; flowers 4-6 per cluster; branchlets 6-9, the lowest to 5 cm long, the upper increasingly shorter, horizontally spreading; perianth tube 4-5 mm long, lobes 3-4 mm long; berry globose, orange-red.

Open dry bushland in sandy plains; 50-250 m alt. – Found in one of the most arid areas in Kenya.

The newly described subspecies *(disticha)* is a smaller plant, leaves 10-15 cm long (not 12-30 cm), distichous. Growing in dense thickets, very local, near the type locality of the typical form. Butler writes (l.c.) that it is perhaps just an aberrant form and only more field research in this rather dangerous area will prove it. Collected by Bally & Smith in 1972 in Kenya's Northern Province, 31 km E of Garissa, near Kismajo (Bally 14976 = Pfennig 215). The photographs presented do not convince the present authors about its distinctiveness.

A sought-after plant in living collections, called the walking sansevieria as it grows on "stilts" with runners and whole clusters can be suspended at some distance from the ground (Sansevieria 1: 12, 2001; Brit. Cactus Succ. J. 16: 99-100, 1998; photos. in Kakteen Sukk. 60: 245, 2009). A variegated form is also in cultivation (Sansevieria 28: 23, 2012). Cultivar *S.* 'Doris Pfennig' is an artificial hybrid with *S. phillipsiae*.

Near *S. ehrenbergii*.

S. powellii N. E. Br.; Fl. Trop. E. Afr., Dracaen.: 39, 2007. – Icon.: Thulin, Fl. Somal. 4: pl. 1 F, 1995, or *S. powysii* ?, cf. below under that species; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: fig. 29a, 2001; Sansevieria 5: 19, 2002 (reproduction from Brown's monograph 1915); Chahinian (2005); 101-102; Sansevieria 11: 12, 2005; ibid. 12: back cover, 2005; ibid. 26: 12, 2012.

Erect herb, rhizomatous; aerial stem terete 1-2 m tall, 2,5-6 cm Ø, leafy especially the top ¾ of the plant, marked with ring-like scars for ±15-50 cm from the base; leaves many, distichous (in young plants) to spiral-distichous, spreading-recurved, semi-cylindrical, very stiff 35-60 cm × 4-6 cm, 1-2 cm thick, apex a spine; with a deep channel from base to apex as broad as leaf; margin narrow, red-brown-edged with grey-white membrane; panicle with 20-30 branches; peduncle 0,45-1,2 m long, 0,5-1 cm Ø; branches to 60 cm long near base and much shorter above, lower branches bearing 3-10 branchlets; flowers 4-6 per cluster dingy greenish white with dull brownish purple lines outside; perianth 1-1,6 cm long, tube 0,6 × 0,2 cm, lobes 0,6-1 cm long; berry globose, orange, 0,5-0,7 cm Ø.

SANSEVIERIA POWELLII

Dry bushland; scattered tree grassland; 0-1350 m alt.

Not in Ethiopia (= *S. ehrenbergii*). Sudan ?

S. ehrenbergii and *S. powellii* differ mainly in habit, the former being ± stemless.

Pfennig suggested that *S. powellii* might be a natural hybrid *S. arborescens* × *S. robusta* (Newton in Sansevieria 12: 12-13, 2005) and said that he had successfully crossed the two putative parents. As he "followed N. E. Brown's misinterpretation of the identify of *S. arborescens*...we do not know which plants were used in his crossing experiment" (Newton in Sansevieria 26: 6, 2012). Newton concludes (l.c.; Sansevieria 26: 7-11, 2012) that *S. powellii* is probably not a hybrid. "It is also worth noting that *S. powellii* is quite widespread, and is not always found growing together with other species". He also thinks that Pfennig's hybrid was a cross *S. robusta* × *S. dumetescens*.

S. powysii L. E. Newton – Icon.: Bradleya 28: 23-25, 2010; Sansevieria 24: 19-20, 2010; ibid. 27: 7-11, 2012; Chahinian (2005): 81-82 (idem). Cf. also Thulin, Fl. Somal. 4: pl. 1 F, 1995 (as *S. powellii*), see below.

syn.: *S.* sp. Lavranos 23251 (cf. comment below).

Caulescent rhizomatous herb; stem erect, unbranched, to 2 m or more tall; leaves spreading, becoming deflexed, spirally arranged, to 43 × 2 cm wide near base, 1,7-2 cm thick near base, canaliculate above, convex below, margin red-brown, 1 mm wide, apex a firm brownish spine 5 mm long; inflorescence to 85 cm long, 45 cm wide, paniculate, with up to 20 branches, branches spreading-ascending, lower ones to 35 cm long, uppermost to 11 cm, up to 6 lower branches with secondary branching; flowers 4-6 per cluster, pale yellowish with brown midstripe on lobes; tube 5-6 mm long, lobes to 7 mm long, nocturnal; fruit spherical, 8-9 mm Ø.

Coral cliffs in dense vegetation; dunes close to the sea.

Newton suggested (Bradleya, l.c.) that Thulin's plate of *S. powellii* might be *S. powysii*. However, Butler (Sansevieria 24, 2010) thinks that this is not the case.

The collection site of the Somalian plant is indicated by a question mark on our map.

In his description (2010) Newton notes that the illustrations in Sansevieria J. 3: 21, 1994, and ibid. 4: 74, 1995, figuring under the coll. nr. Lavranos 23251, are not *S. powysii* but a hybrid.

Near *S. arborescens*, but the distinctive feature of *S. powesii* is the very thick leaf. Small plants grown from rooted leaves (Bradleya 28: 23, fig; 7, 2010) resemble *S. pinguicula*, but soon begin to grow taller.

S. raffillii N. E. Br., incl. var. *glauca* N. E. Br., but excl. var. *pulchra* N. E. Br. *(= S. kirkii);* Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 312, 1994; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 269, 2001; Fl. Trop. E. Afr., Dracaen.: 21-22, 2007. – Icon.: Sansevieria 6: 18, 2003 (var. *glauca*); ibid. 13: 20, 2005 (reproduction from Brown's monograph 1915); Chahinian (2005): 103; Sansevieria 11: 9, back cover, 2005.

SANSEVIERIA RAFFILLII

Acaulescent herb; rhizome whitish, 2-5 cm Ø; leaves 1-2 per plant, erect to slightly recurved, ± lanceolate, 0,65-1,5 m × 4-14 cm, 0,8-2 cm thick, rigid, narrowed below the middle into a stout concave petiole 9-12 cm long, apex 0,3 cm long, margins reddish brown; surface with yellowish-green closely placed blotches or irregular transverse bands on darker background, slightly glaucous, with age less conspicuous markings; var. *glauca* with very dark bluish-green leaves with distinct irregular spots or wavy transverse bands of lighter green; raceme 0,9-1,3 m long, simple, spike-like, axis 1,5-2,3 cm Ø; flowers 2-5 per cluster; perianth 3,9-5,5 cm long; tube greenish white, 1,9-2,7 cm long, lobes white to grey green 2-2,5 cm long; berry globose, orange.

Dry bushland, woodland or dry forest; usually on rocky slopes or near termite hills; locally common; 0-2050 m alt.

Sudan ? Zambia ? (confusion with *S. kirkii* ?).

According to Butler (Sansevieria 6: 18, 2003) this plant "does not like the restrictions of a pot and often produces new growths through the bottom drainage hole. In fact most of our spikes have come up this way !".

S. 'Leopard Bat' is a "naturally occurring hybrid between *S. fischeri* and *S. raffillii* found together with the parent species in Maktau, Kenya" (Jankalski in Sansevieria 17: 24, 2007). *S.* × *iturea* is probably a natural hybrid *S. raffillii* × *S. gracilis*.

Resembling *S. conspicua* but flowers smaller, leaves broader.

Named after Charles Percival Raffill (1876-1951), responsible for Brown's living collection at K (Newton, Sansevieria 16: 9, 2007).

S. robusta N. E. Br.; Newton in Eggli, o.c.: 269-270; Fl. Trop. E. Afr., Dracaen.: 35-36, 2007; Newton in Sansevieria 19: 20, 2009; Jankalski, ibid. 20: 22-26, 2009. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 141, 1994; Chahinian (2005): 107-108; Sansevieria 11: 3-6, 9, 11, 2005; ibid. 15: 15, 2006 (detail of inflorescence); Kakteen & Sukk. 60: 246, 2009; Sansevieria 26: 7, 11, 20, 2012.

syn.: *Acyntha robusta* (N. E. Br.) Chiov.

Shrubby rhizomatous herb to 2,5 m tall; stem erect, light green-yellow, c. 30-60 cm tall, 3-7 cm Ø, with distinct nodes 2-3 cm apart; leaves distichous, erect, 6-16 per plant, V-shaped above, 1-1,5-2,5 m × 3,5-5 cm, apex with a sharp hard spine, margin dark brownish red, to 2 mm wide, hardened dark green; surface dark green, unvariegated; panicle with numerous branches, 0,8-1,4 m long, 0,5-0,7 m Ø; flowers 4-7 per cluster; perianth 0,4-0,6 cm long, tube 0,3 cm long, lobes greenish grey to greenish-brown outside, greenish yellow inside, 0,3 cm long; berry orange yellow.

Rocky *Acacia*, *Commiphora* bushland; bushed grassland; crevice in lava rock; 550-1950 m alt.

The variation of the species is discussed by Chahinian in Sansevieria 11: 3-6, 2005. According to him the plants known in cultivation as *S.* aff. *zanzibarica* and *S.* sp. 'Loboi' (from near Lake Baringo) are *S. robusta*.

Planted for erosion control on roadside soil banks (Newton in L. Russo, The succulent plants of Eastern Africa: 87, 2004).

Hybrids *S. robusta* × *S. pinguicula* are known in cultivation (Sansevieria 13: 13, 14, 2005, figures).

Sometimes considered as a synonym of *S. perrotii*. Not cited as a distinct species by Mansfeld, 2013.

Allied to and confused with *S. ehrenbergii* (cf. Butler in Sansevieria 1: 2-3, 2001; ibid. 8: 4-6, 2003). Relationships with *S. powellii* are discussed by Newton in Sansevieria 26: 6, 2012.

Moth pollinated, not by sunbirds (Nature E. Africa 34/2: 8, 2004).

SANSEVIERIA

S. scimitariformis D. J. Richards; Fl. Zambes. 13/2: 34, 2010. – Icon.: Sansevieria 5: 8-9, 2002 (correction to fig. on p. 9, leaf sections ibid. 6: 23, 2003); Chahinian (2005): 114; Sansevieria 19: 16, 2009.

syn.: *S.* coll. Richards R 785, 998 (Sansevieria 2: 5-6, figs. 3-5, 2001); *S.* sp. 'Shamva' Chahinian (Excelsa 16: 36, fig. 2, 1993; Sansevieria J. 3: 67, fig. 3, 1994).

Stemless herb forming dense clumps; rhizome 3-4 cm Ø; leaves 4-6 per shoot, 50-70 × 6-10 cm, to 3 cm thick near base, rigid, recurved, dark green, sometimes with transverse bands of whitish patches on both surfaces, margins with a narrow brown line and thin fibrous strips on extreme edge, apex blunt; peduncle c. 15 cm long, 2 cm Ø; inflorescence a dense ± capitate head, rachis c. 10 cm long; flowers pale green, 4-6 per cluster; tube 10-12 cm long, purplish, lobes whitish; fruit globose, orange-red when mature, wrinkled.

Rocky outcrops; c. 1000 m alt.

Resembling *S. hallii*.

S. senegambica Baker; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 514-515, 1995; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 270, 2001; Sosef & al., Check-list pl. vascul. Gabon: 253, 2006; Lisowski, Fl. Rép. Guinée 1: 377, 2009; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 36, 2012. – Icon.: M. Jones, Flowering plants of the Gambia: pl. 29, 1944; Sansevieria 11: 28, 2005 (reproduction from Brown's monograph 1915); Chahinian (2005): 115; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): photo. 684, 2010.

syn.: *Acyntha senegambica* (Baker) Kuntze; *S. guineensis* sensu A. Chev., Explor. bot. Afr. Occ. franç. 1: 633, 1920, non (L.) Willd. 1799 *(= S. hyacinthoides); S. cornui* ! Gérôme & Labroy

Acaulescent herb to 40 cm tall; rhizome bright red, 1,3-1,9 cm Ø; leaves 2-4, rosulate, linear-lanceolate, (30-)40 × (-69)x5-7 cm, erect, recurved to spreading nearer tip, dark green or slightly marked with indistinct paler green transverse bands, narrowed at base to a 2,5-8 cm long channelled petiole, smooth, margin green; inflorescence racemose, 30-50 cm tall, spike-like, lax; pedicels 5-8 mm long, jointed ± at middle; flowers 2-3(-6) per cluster, greenish white, tinged purple in sun, 2-2,5 cm long; tube 0,6-1,3 cm long, lobes 1-2 cm long; berry globose, orange.

Shady places; forest; c. 150 m alt. (Ivory Coast).

Vary variable in, e.g. length of leaves (varying with soil humidity), leaf surface pattern, length of inflorescence.

The leaves yield fibre.

S. sinus-simiorum Chahin.; Jankalski in Sansevieria 17: 26, 2007; Fl. Zambes. 13/2: 34, 2010. – Icon.: Sansevieria 3: 25-26, 2002; Chahinian (2005): 116, 85 ('Malawi Bat'); Sansevieria 19: 14, 2009 (Richards R 1734); ibid. 17: 26, 2007.

syn.: *S.* 'Super Bat'; *S.* 'Monkey Bat' p.p.; *S. malawianum* anon. (hort.).

Stemless herb; rhizome short, c. 5 cm Ø; leaves 8-10 per shoot, crowded, to 1 m long, 6 cm wide at base, apex obtuse and straight or recurved, surface waxy dark green with some obscure cross-banding when mature, with a round channel about 1/3 of leaf width at base, widening to ± full leaf width at top, edge of channel acute, margins chestnut, edged with withered fibres; peduncle c. 30 cm tall; raceme capitate, many-flowered, > 15 cm long, c. 19 cm wide; pedicel 6 mm long; flowers white tinged with green; tube 8,2-8,4 cm long, lobes 1,9-2,1 cm long; fruit unknown.

In clumps on rock faces; steep overgrown rocky face, S-and W-exposed; 480-1500 m alt.

Near *S. stuckyi*.

SANSEVIERIA

S. sordida N. E. Br.; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 270, 2001; Chahinian (2005): 117; Fl. Trop. E. Afr., Dracaen.: 28, 30, 2007. – Icon.: Bull. Misc. Inf. Kew 1915: 215, 1915 (reproduced in Sansevieria 8: 29, 2003).

Rhizomatous herb, stemless or stem to 5 cm long, 2,6 cm Ø, concealed in imbricating leaf-bases; leaves distichous, 4-12, slightly spreading fanwise, straight to slightly recurved, slightly compressed-cylindric, 0,65-1,05 m × 0,8-1,3 cm, 1,3-2,2 cm thick from front to back, very *rough*, apex a sharp whitish or grey spine 0,8-1,3 cm long; leaf dull bluish-green, channelled down inner surface with acute dark brown edges but becomes shallow towards base, with 11-15 or more grooves; raceme spike-like, 30-60 cm long, peduncle pale dull light green, 0,6 cm Ø, minutely dotted with white; flowers *7-14 per cluster*, pale dingy greenish in bud to purplish-blue on maturity; tube white to greenish, 0,7-1 cm long; lobes white on inner face, green with minute dull purplish dots on the outside, 1,2-1,6 cm long; berry greenish brown on ripening.

Ecology unknown. Origin of type unknown. Also collected in Kenya in 1905.

Not in Zambia and S. Africa.

Identity of plant not clear. Confused with *S. volkensii*. Differs from *S. pearsonii* by its *leaves rough* to touch, but perhaps a variant of the latter.

S. stuckyi God.-Leb. (Les Sansevierias gigantesques de l'Afrique Orientale et leurs fibres, early 1903; cf. Newton in Sansevieria 14: 15-16, 2006). – Fl. Trop. E. Afr., Dracaen.: 33-34, 2007; Fl. Zambes. 13/2: 34-35, 2010. – Icon.: Sansevieria 9: 28, 2004 (reproduction from Brown's monograph 1915); Newton in Eggli, o.c.: fig. 29e; Sansevieria 2: 7, 2001; Chahinian (2005): 118-119; Sansevieria 14: 16, 2006; ibid. 15: back cover, 2006.

syn.: *S. andradae* God.-Leb. 1903, and God.-Leb. ex Gérôme 1903; *Acyntha stuckyi* (God.-Leb.) Chiov.

Stemless herb forming large clumps; rhizome to 5 cm Ø; leaves 1(-3) per shoot, erect, to 2,8 m long, 5 cm wide at base, dark green with whitish transverse lines when alive, smooth, cylindric with a shallow channel extending from base to apex (acute); flowering stem 20-43 cm long, peduncle purplish marked green; inflorescence corymbose-capitate, densely many-flowered, rachis 7 cm long, flowers 1-3 per cluster, white, sometimes tinged purple; perianth 7,5-12,5 cm long, tube 8-10 cm long, lobes 3-4 cm long, grey-white; berry globose.

Probably dry bush (Zimbabwe, Mozambique); in the undergrowth on red and sandy soils; 50-1000 m alt.

S. stuckyi has 2 life forms: Adult plants with large rhizomes, described above. Juvenile plants have flat to involute leaves, 4-6 in a rosette, spreading, recurved, thick, rigid, 10-15 cm long, 2-3 cm wide, thin, ± strap-shaped, broadly channelled down the face, edges acute, ± wavy and reddish brown, surface dark green marked with narrow closely placed transverse bands of pale green (fig. in Brown's monograph, see above). The juvenile phase lasts c. 4-6 years (Sansevieria 16: 15-16, 2007).

? NE Mozambique: Cabo Delgado Province (Sansevieria 25: 3-4, 2011).

Close to *S. fischeri*, *S. sinus-simiorum*.

SANSEVIERIA

S. subspicata Baker; Newton in Eggli, Ill. handbook succ. pl.: Monocot.: 271, 263 *(S. concinna),* 2001; Chahinian (2005): 120-121, 37; Fl. Trop. E. Afr., Dracaen.: 14-15, 2007; Fl. Zambes. 13/2: 35, 2010. – Icon.: Gard. Chron., Ser. 3, 6: pl. 115, 1889; Sansevieria 11: 26, 27, 2005 *(S. concinna, S. subspicata),* reproduction from Brown's monograph 1915; Sansevieria 16: IV, 2007 *(S. concinna);* ibid. 23: 20-21, 2010 (idem); Kakteen Sukk. 62: 110, 2011 (idem).

Stemless herb; rhizome 0,5-2,5 cm Ø; leaves 4-10 per shoot, rosulate, lanceolate, 18-38 × 2,8-7 cm, with a channelled petiole 5-33 cm long; flowering stem 30-60 cm long; peduncle 15-30 cm long as the rachis, rather laxly many-flowered; flowers greenish-white, 1-4 per cluster; perianth 3,2-4,8 cm long, tube 2-3 cm long, lobes 1,2-2,5 cm long; fruit 1-3-lobed, lobes globose, c. 8 mm wide.

Shrub and thickets on coastal sandy soils; dense shade of *Xylocarpus*, *Tamarindus*, *Manilkara* !, *Sideroxylon* fringing bush on a cliff top; sea-level to 50 m alt.

Comprises 2 vars.: – var. **subspicata**, only in coastal Mozambique; – var. **concinna** (N. E. Br.) Mbugua, much smaller in size. *S. concinna* N. E. br. is cited as a distinct species by Mansfeld, 2013.

S. 'Dumpling' is a "delightful little plant developed from a clump of *S. subspicata* which was partly variegated" (Butler in Sansevieria 18: 7, 2008).

S. subtilis N. E. Br.; Newton in Eggli, o.c.: 271; Fl. Trop. E. Afr., Dracaen.: 41, 2007. – Icon.: Sansevieria 11: 29, 2005 (reproduction from Brown's monograph 1915); Chahinian (2005): 121-122.

Acaulescent herb; rootstock creeping, c. 1 cm Ø; leaves 2-4, erect or ± recurved, linear-lanceolate, 55-70 × 2,5-4,5 cm, 0,25 cm thick in mid-leaf, smooth; petiole 5-30 cm long, channelled, apex a soft subulate tip 1,2-2,5 mm long; surface green but below sometimes with faint transverse bands, shiny, margin green; inflorescence simple, spike-like, lax, 38-53 cm long; flowers 2-3 per cluster, white; tube 6-8,5 mm long, lobes recurved, 1-1,3 cm long; fruit unknown.

Ecology unknown.

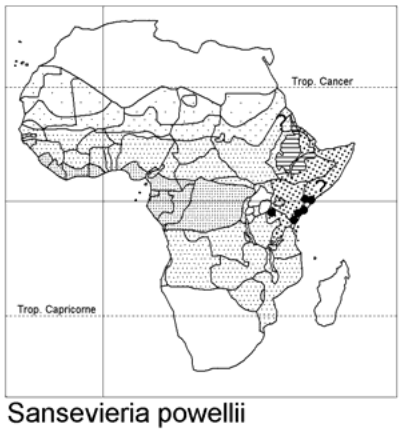
Collected three times: – before June 1913 (when it flowered at K, plant sent by Dawe to K, without locality); – 1933; – 1964. Before flowering at K, Brown found great similarities with *S. nilotica* in the foliage.

According to Jankalski (Sansevieria 15: 25, 2006) *S. subtilis* is closely related to *S. senagambica*.

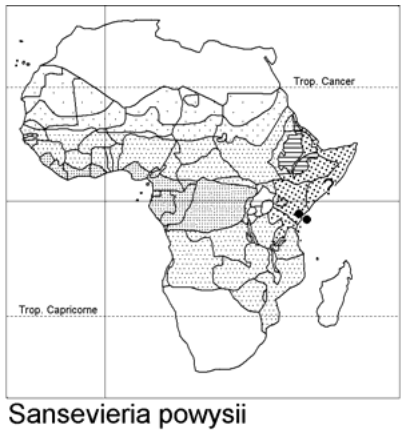
Taxonomic status uncertain.

S. suffruticosa N. E. Br.; Newton in Eggli, l.c ; Chahinian (2005): 124-126; Fl. Trop. E. Afr., Dracaen.: 26-27, 2007; Jankalski in Sansevieria 17: 11-12, 2007. – Icon.: Bull. Misc. Inf. Kew 1915: 202, fig. 3, 1915 (reproduction in Sansevieria 6: 25, 2003); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 141, 1994; Sansevieria 16: I, 2007; Kakteen & Sukk. 64: 35, 2013.

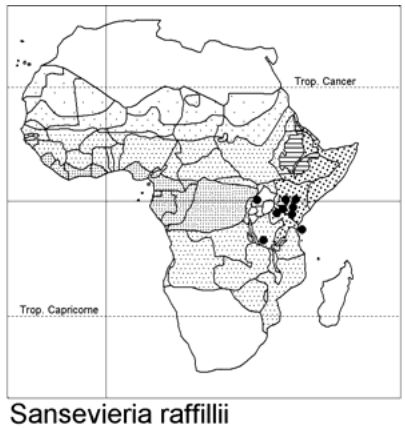
Semi-erect to procumbent herb; rhizome with aerial rooting and branching (runners); stem to 35 cm long, branching 2-7,5 cm above ground, forming with the leaves clumps 60-80 cm high; aerial branches 7,5-25 cm long, 2-3,5 cm Ø, rooting, covered on lower part with very acute spine-tipped white-edged green scaly leaves 1,9-3,8 × 4,5 cm; leaves irregularly directed, 5-23 per plant, cylindric, 15-60 × 1,3-1,9 cm, rough, apical spine 0,3-0,6 cm long; leaves dark green, faintly banded with pale green and marked with darker green in full sun, less marked in deep shade; raceme spike-like, green, 30-38 cm long; axis 0,4-0,6 cm Ø, thickly covered with



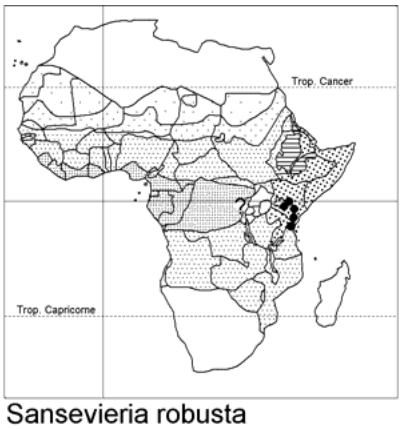
Sansevieria powellii



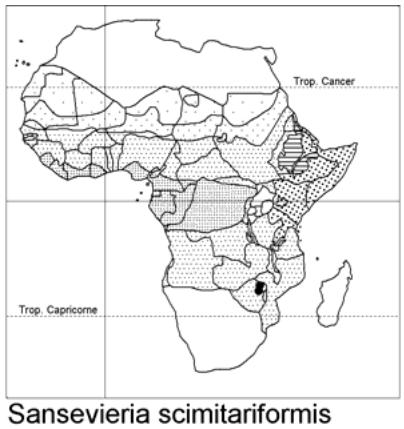
Sansevieria powysii



Sansevieria raffillii

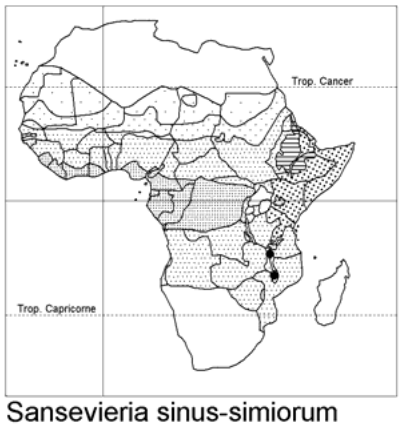


Sansevieria robusta

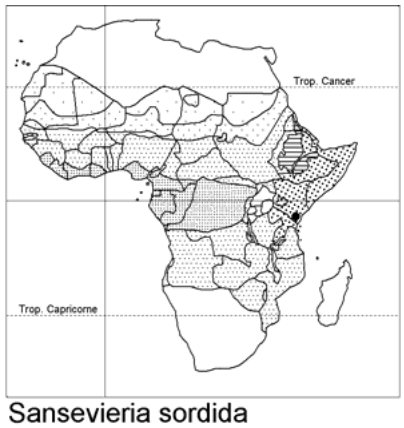


Sansevieria scimitariformis

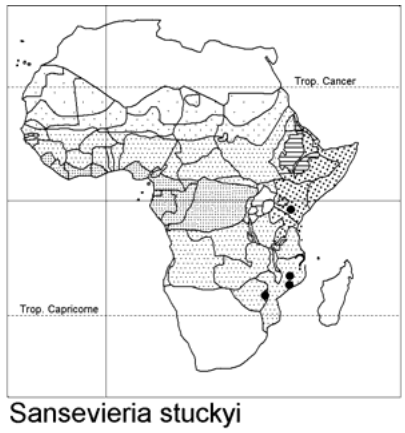
Sansevieria senegambica



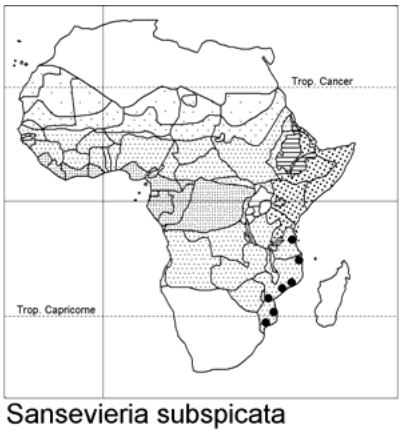
Sansevieria sinus-simiorum



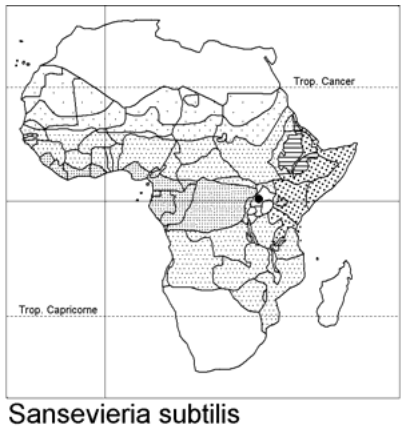
Sansevieria sordida



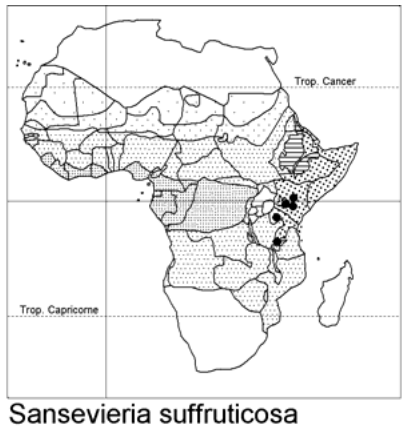
Sansevieria stuckyi



Sansevieria subspicata



Sansevieria subtilis



Sansevieria suffruticosa

SANSEVIERIA SUFFRUTICOSA

minute whitish linear dots; flowers 2-5 per cluster, whitish-grey to greenish white at apices, with reddish brown to dark brown outside; tube 1-2 cm long, lobes 0,9-1,4 cm long, recurved.

Dry or evergreen bushland, often on rock; scrub on rocky ground near river bed; 750-2200 m alt.

Record from Mozambique incorrect (cf. Sansevieria 23: 25-26, 2010; ibid. 25: 4, 2011). Probably not in Ethiopia, Malawi (see below).

Comprises 2 vars.: – var. **suffruticosa**; – var. **longituba** Pfennig, differing by smooth leaf surface and long flowers (tube 2 cm long, not 1 cm). Many clones in cultivation are referable to this variety (Sansevieria 15: 22, 2006; ibid. 17: 12, 26, 2007). One such cultivar is *S. suffruticosa* 'Frosty Spears' Grigsby (syn. *S. suffruticosa* 'Blue Clone' Chahinian (Sansevieria 17: 7, 12, 2007; ibid. 18: 28, 2008; Chahinian, 2005: 126-127).

The *S. suffruticosa-S. gracilis* group is notorious for its wide range of variation.

Confused with *S. bella* in Kenya [Cactus Succ. J. (U.S.) 72: 224-225, 2000].

Confused with *S. downsii* in Malawi [Cactus Succ. J. (U.S.) 81: 226, 2009; Brit. Cactus Succ. J. 18: 133-135, 2000]. – Close in appearance to *S. phillipsiae*.

S. trifasciata Prain, incl. var. *laurentii* (De Wild.) N. E. Br. (see below). – Mother-in-law's tongue (leaves sharp pointed). – Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 515, 1995; Newton in Eggli, l.c.; Cheek & al., Pl. Kupe…: 441, 2004; Sosef & al., Check-list pl. vascul. Gabon: 253, 2006; Fl. Trop. E. Afr., Dracaen.: 12-13, 2007; Lisowsski, Fl. Rép. Guinée 1: 377, 2009; Sansevieria 12: 23, 2005. – Icon.: Rev. Hort. Belge & Etrangère 30: plate following p. 168, 1904; De Wildeman, Mission E. Laurent 1: 46, 47, 1905; Bruggman, Tropical plants and their cultivation: pls. 150-151, 1957; Graf, Tropica, Color cyclopedia exot. pl.: 607, 609, 611, 1978 (and later editions); Chahinian (2005): 132.

syn.: *S. laurentii* De Wild.; *S. zeylanica* (L.) Willd. var. *laurentii* (De Wild.) L. H. Bailey; *S. jacquinii* N. E. Br.; *S. craigii* auct., Gard. Chron. 3, 51 (Suppl.): XV, 1912; *Aloe guineensis* Jacq. p.p., non L. (description, see Brenan, Kew Bull. 17: 174-177, 1963).

Stemless herb with creeping rootstock 1,3-2,5 cm Ø; leaves 1-6 per shoot, smooth, 0,3-1,2 m long, 1-6,8 cm wide, very erect, straight, stiff, apex subulate to 3,7 cm long, narrowing at base into a concave-channelled petiole; blade transversely banded on both sides with very distinct light dull green or clear whitish-green or yellow and deep grass-green to almost blackish-green, margins green; inflorescence 30-75 cm long, peduncle green, dotted with paler green; flower-clusters solitary or in groups of 2-3, flowers 3-8 per cluster; perianth at most 3 cm long, pale greenish or greenish-white; tube 0,65-1,3 cm long, lobes 1,5-2 cm long; berry globose, c. 0,8 cm Ø, bright orange.

? Ecology unknown; 500-1200 m alt.

Described from India. Native in W-C Africa. Occasionally cultivated since centuries in Africa, India; a common house-plant in temperate countries. Reported as cultivated or ± naturalized from the Canary Isl., Morocco (Dobignard & Chatelain, Index synon.fl. Afr. N 1: 94, 2010), Cameroon, Zaire (Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 120, 2010); in S.

SANSEVIERIA TRIFASCIATA

Africa growing (invasive) in natural vegetation (Walters & al., Naturalised & invasive succulents of southern Africa: 261-263, 2011, with map and photos.); Mauritius (naturalised), Réunion, in places with garden waste (Fl. Mascareignes 183, Liliac.: 29, 1978).

Var. *laurentii* was collected by E. Laurent near Stanleyville (Zaire) in the early 20th century; a cultivated plant with golden yellow margin to 1 cm wide. The "variegation is not reproduced in plants raised from leaf-cuttings" (Brown's monograph, Sansevieria 12: 23, 2005). It is a periclinal chimaera. Cf. also Ann. Rep. Natl. Bot. Gard. Belgium 2011, 2012; De Wildeman, Notices pl. utiles ou intéress. fl. Congo 1: 628, 1903.

CHAHINIAN, J. (2001). Juvenile/Dwarf sports of Sansevieria in cultivation. *Sansevieria* 1: 4-6.

CHAHINIAN, J. (2012). The Sansevieria trifasciata varieties, a new look. *Sansevieria* 27: 2-6. – Idem, part II, *ibid.* 28: 2-12, 2012.

CHAHINIAN, J. (2013). The Sansevieria trifasciata varieties, a new look – part III. *Sansevieria* 29: 2-13.

Many clones are in cultivation. Lists can be found in the above-mentioned articles and in, e.g., Sansevieria 13: II, 2005; ibid. 16: II, 2007; ibid. 22: II, 2010. Some cultivars are artificial hybrids, e.g., 'Druid Hill' (a cross *S. trifasciata* 'Manda's Dwarf' × *S. ballyi* 'Bally 12681'; Sansevieria 15: 13, 2006).

S. volkensii Gürke; Enum. 4: 604, 1997; Newton in Eggli, o.c.: 272; Fl. Trop. E. Afr., Dracaen.: 22-23, 2007. – Icon.: Cact. Succ. J. Gr. Britain 41: 59, 1979; Chahinian (2005): 134-135; Sansevieria 11: front cover, 10, 2005; ibid. 24: 8, 10, 2010.

syn.: Enum. 3: 67, 1995, excl. syn. *S. humbertiana* Guillaumin (= *S. gracilis* var. *humbertiana*); *S. quarrei* De Wild.; *S. polyrhytis* (Chiov.) Cufod.; *Acyntha polyrhytis* Chiov.

Acaulescent, rhizomatous herb, rhizome branching, orange-red; leaves 2-12 per plant, very rough, outer ascending to recurving, with acute edges to the concave channel, inner cylindric, 0,5-1,5 m × 1,3-1,9 cm, apex a sharp whitish-brown spine 0,6 cm long, margins greenish whitish on basal part, passing into obtusely rounded green edges; raceme spike-like with flower clusters in upper part, 25-75 cm long; flowers 3-6 per cluster, very dense; tube pale greenish 1,7-3,2 cm long, lobes white or greenish white, minutely dusted with purplish on the back at apex; berry globose, 0,6-1,4 cm Ø.

Acacia, *Commiphora* and *Acacia*, *Euphorbia* dry bushland; edge of thicket on sandy soil; termite mound in savanna; often in rocky sites; very common locally; c. 30-1750 m alt.

Newton (Sansevieria 20: 8-10, 2009) reports *S. volkensii*, as well as *S. frequens* and *S. robusta* from N Kenya (Laikipia), growing in large patches. In recent years large herds of elephants have moved into the area. The three species are damaged by the animals chewing thoroughly the leaves. Large balls of chewed fibre are left in space, the leaves probably being chewed for water, and not swallowed.

Thulin (Fl. Somal. 4: 29-30, 1995) cites *S. volkensii* as possibly present in S Somalia, known from the sterile type collection of *S. polyrhytis* only. Its identity is uncertain.

Newton has pointed out that *S. volkensii* is the first species in the genus described from a plant collected in E Africa (Sansevieria 19: 21, 2009).

SYNONYMS:

Sansevieria abyssinica N. E. Br., incl. var. *angustior* (Engl.) Cufod. and var.
sublaevigata (Chiov.) Cufod. = **Sansevieria forskaoliana**
aethiopica Thunb. subsp. *itumea* Mbugua = **S.** ×**itumea**
aff. *gracilis* N. E. Br. sensu auctt. = **S. downsii**
andradae God.-Leb. and ex Gérôme = **S. stuckyi**
angolensis Welw. (ex Hook. 1858, nom. nud.) ex Carrière 1861 = **S. cylindrica**
angustiflora Lindb. = **S. hyacinthoides**
angustifolia Baker = **S. hyacinthoides**
arborescens sensu F.T.E.A., Dracaen. p.p., non Gérôme & Labroy = **S. dumetescens**
aubrytiana Gérôme & Labroy, non Carrière = **S. kirkii** var. **kirkii**
bacularis Pfennig, nom. inval. = **S. bacularis**
ballyi Pfennig in litt. = **S.** ×**itumea**
bequaertii De Wild. = **S. parva**
braunii Engl. & K. Krause = ? **S. longistyla**
braunii sensu Mbugua 1998 = **S. frequens**
caespitosa Dinter = **S. aethiopica**
caulescens N. E. Br. = **S. gracilis** var. **gracilis**
ceylonica Oken = **S. hyacinthoides**
chinensis Gentil ex N. E. Br. = **S. liberica**
concinna N. E. Br. = **S. subspicata** var. **concinna**
cornui Gérôme & Labroy = **S. senegambica**
craigii auct. = **S. trifasciata**
cylindrica auct., non Bojer = **S. erythraeae**
cylindrica sensu Baum, Kunene-Sambesi Exp. = **S. pearsonii**
cylindrica sensu De Wild., Pl. bequaert. = **S. bacularis**
dambilonensis hort. = **S. parva**
deserti N. E. Br. = **S. pearsonii**
dooneri N. E. Br. = **S. parva**
ehrenbergii De Wild. = **S. perrotii**
elliptica (Chiov.) Cufod. = **S. forskaoliana**
ensifolia Haw. = **S. grandicuspis**
fischeri sensu Thulin 1994, non Marais = ? **S. bacularis**
forskaoliana sensu auctt., non (Schult. f.) Hepper & J. R. I. Wood = **S. frequens**
fragrans (L.) Jacq. = **Dracaena fragrans**
fruticosa hort., non Blume = **Sansevieria downsii**
fulvocincta Haw. = **S. hyacinthoides**
gentilis Mattei = **S. liberica**
glauca Gérôme & Labroy = **S. aethiopica**
gracilis N. E. Br. var. *somalensis* Chahin. = **S. gracillima**
grandicuspis sensu F.T.E.A., Dracaen., non Haw. = **S. parva**
grandis Hook. f., incl. var. *zuluensis* N. E. Br. = **S. hyacinthoides**
guineensis (L.) Willd., incl. var. *latifolia* Bojer = **S. hyacinthoides**
guineensis (Willd.) Ten. et sensu Schwartz = **S. forskaoliana**

guineensis Baker 1875 = **S. metallica**
guineensis var. Schult. 1829 = **S. metallica**
guineensis Weiner 1887 = **S. cylindrica**
guineensis var. *angustior* Engl. = **S. forskaoliana**
guineeensis sensu A. Chev. 1920 = **S. senegambica**
hargeisana Chahin. = **S. phillipsiae**
humbertiana Guillaumin = **S. gracilis** var. **humbertiana**
intermedia N. E. Br. = **S. volkensii**
jacquinii N. E. Br. = **S. trifasciata**
laetevirens Haw. = **S. hyacinthoides**
lancifolia anon. = **S. hyacinthoides**
lasciata Gentil 1907 = **S. fasciata**
latifolia Bojer = **S. hyacinthoides**
laurentii De Wild. = **S. trifasciata**
liberiensis Cornu ex A. Chev., nom. nud. = **S. senegambica**
livingstoniae Rendle = **S. cylindrica** (or ? **S. canaliculata**)
longiflora Gérôme & Labroy, non Sims = **S. kirkii** var. **pulchra**
longiflora sensu Kirk = **S. kirkii** var. **kirkii**
macrophylla Sastrapradja = **S. hyacinthoides**
"*malawianum*" Anon. (hort.) = **S. sinus-simiorum**
massae (Chiov.) Cufod. = **S. nilotica**
nobilis God.-Leb. = **S. hyacinthoides**
paniculata Schinz = **Dracaena aletriformis**
pfennigii Mbugua = **Sansevieria canaliculata**
polyphylla Haw. = **S. hyacinthoides**
polyrhytis (Chiov.) Cufod. = **S. volkensii**
powellii auct., non N. E. Br. = **S. ehrenbergii**
pumila Haw. 1812 = **S. grandicuspis**
pumila Spin 1812 = ? (cf. Note under **S. grandicuspis**)
quarrei De Wild. = **S. volkensii**
raffillii N. E. Br. var. *pulchra* N. E. Br. = **S. kirkii**
raffillii sensu Chahin. 1994 = **S. frequens**
rhodesiana N. E. Br. = **S. pearsonii**
robusta sensu Chiov. 1932, non N. E. Br. = ? **S. bacularis**
rorida (Lanza) N. E. Br. = **S. ehrenbergii**
rufocincta Baker = **S. hyacinthoides**
scabrifolia Dinter = **S. aethiopica**
schimperi Baker = **S. canaliculata**
schweinfurthii Täckholm & Drar = **S. erythraeae**
singularis N. E. Br. = **S. fischeri**
sp. 'Eyl' Lavranos = **S. eilensis**
sp. 'FKH 432' = **S. francisii**
sp. Lavranos 23251 = **S. powysii**
sp. Richards R785, 998 = **S. scimitariformis**
sp. 'Shamva' Chahin. = **S. scimitariformis**
spicata (Cav.) Haw. = **S. hyacinthoides**
stenophylla Link = **S. hyacinthoides**
stuckyi sensu Chiov. 1932 et sensu Cufod. 1971, p.p., non God.-Leb. = ? **S. bacularis**, **S. fischeri**
sulcata Bojer ex Baker = **S. canaliculata**
sulcata hort. in Morgenstern = **S. bacularis**

SANSEVIERIA

thunbergii Mattei = **S. aethiopica**

thrysiflora Petagna, nom. illegit. and (Petagna) Thunb. = **S. hyacinthoides**

zanzibarica Gérôme & Labroy = **S. perrotii**

zeylanica (L.) Willd. var. *laurentii* (De Wild.) L. H. Bailey = **S. trifasciata**

cv. 'Bally 12681' = **S. ballyi**

cv. 'Mason Congo' = **S. masoniana**

cv. 'Monkey Bat' p.p. = **S. sinus-simiorum**

cv. 'Super Bat' = **S. sinus-simiorum**

(SMILACINA)

Smilacina forskaoliana Schult. f. = **Sansevieria forskaoliana**

(VELTHEIMIA)

Veltheimia guineensis (L.) Neck. = **Sansevieria hyacinthoides**

(YUCCA, Agavaceae)

Yucca aletriformis Haw. = **Dracaena aletriformis**

PONTEDERIACEAE / *4* g. / *5* spp.

Family of aquatic herbs , free floating or rooted, comprising 5 (or 9) genera and some 33 species distributed mostly in the tropics but extending into temperate zones. Centre of diversity in the tropical and subtropical New World. They have become cosmopolitan through introduction.

Flowers bisexual, ovary superior; leaves sheathing at base.

CATARINO, L. & E. S. MARTINS (1996). The Pontederiaceae of the Flora Zambesiaca area. *Kirkia* 16: 21-26.

COOK, C. D. K. (1998). Pontederiaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 4. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae):* 395-403. Springer-Verlag, Berlin & Heidelberg.

GRAHAM, S. W. & al. (1998). Phylogenetic congruence and discordance among one morphological and three molecular data sets from Pontederiaceae. *Syst. Biol.* 47: 545-567.

SIMPSON, M. G. & D. H. BURTON (2006). Systematic floral anatomy of Pontederiaceae. *Aliso* 22: 499-519.

STRANGE, A. & al. (2004). Comparative floral anatomy of Pontederiaceae. *Bot. J. Linn. Soc.* 144: 395-409.

EICHHORNIA / *1*

Genus of 7-8 species in tropical America. One species, *E. natans* of uncertain origin, African or American, in the latter case *E. diversifolia* (Vahl) Urb. has priority, and figures as such in the World Checklist of Selected Plant Families, Pontederiaceae, Roy. Bot. Gard., Kew. However, Sosef (in Fl. Gabon 40, Pontederiaceae: 58, 2010) considers *E. natans* as a good species based on several distinctive characters. We have followed him in our account.

Herbs with 6-lobed perianth, 6 stamens; fruit a 3-valved capsule; seeds numerous, longitudinally winged.

EICHHORNIA

[**Eichhornia crassipes** (Mart.) Solms] – Water hyacinth – Kirkia 2: 9-11, 1961; Fl. Trop. E. Afr., Ponteder.: 4, 1968; Kirkia 16: 2-3, 1996; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 465-466, 1997; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 244, 2002; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 243, 2010; Fl. Gabon 40, Ponteder.: 57, 2010; Fl. Zambes. 13/2: 72, 74, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 260, 2011; Onana, Vascul. pl. Cameroon…: 186, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 120, 2012. – Icon.: Martius, Nov. gen. & sp. pl. 1: pl. 4, 1824 (as *Pontederia crassipes*); Bot. Mag. 56: pl. 2932, 1829 (as *P. azurea* Hook., non Sw. 1788); Kirkia 2: frontispiece, 1961; Fl. Mascareignes 184, Ponteder.: 2, 1978; Fl. Afr. Centr., Ponteder.: 6, 1981; Aquat. Bot. 10: 3, 1981; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 151, 1994; Fl. Eth. & Eritrea 6: 309, 1997; Cook in Kubitzki, o.c.: 396; Bot. Mag. 19: pl. 434 and p. 33, 2002; Cook, Aquat. & wetland pl. south. Africa: 232, 2004; Boulos, Fl. Egypt 4: 89, 2005; Akoegninou & al., Fl. analyt. Bénin: 252, 2006; Pickering & Roe, Wild flow. Victoria Falls area: 99, 2009.

bas.: *Pontederia crassipes* Mart.

syn.: *Eichhornia speciosa* Kunth, nom. superfl.; *Piaropus crassipes* (Mart.) Raf. 1839, Britton 1893; *P. mesomelas* Raf.; *Heteranthera formosa* Miq.; *Pontederia elongata* Balf.; *P. crassicaulis* Schltdl.; *Eichhornia crassicaulis* Schltdl.; *E. cordifolia* Gand.; *Pontederia azurea* Hook., nom. illegit.

Free floating aquatic herb c. 20-80 cm tall; stems rooting at nodes, rhizomatous, with lateral stolons from which new plants originate; roots numerous, sometimes very long, feathery; leaves rosulate, erect, emerging from water; blade rhomboid or ovate, apex obtuse, cuneate to shallowly cordate, very densely nerved, 5-25 cm long and broad; petiole spongy, very much swollen at or below the middle, 5-30(-60) cm long; inflorescence with a long peduncle, spicate, puberulous, 3-35-flowered, 4-15 cm long; perianth lilac or white, upper lobe with a deep violet blotch containing a yellow spot; stamens 6, 3 short, 3 long, filaments glandular-hairy; capsule c. 1,5 cm long.

Plants usually apomictic, seeds rarely produced, and rarely germinating. – Juvenile plants are submerged, adults free floating. – Several morphological growth forms exist (see Williams & al., 2005).

Slowly flowing rivers, lakes formed by dams and small ponds; seasonally flooded forest; often dominant over large areas; 0-1700(-1980) m alt.

An escaped ornamental; indigenous to the Amazon River Basin in S. America, now widespread in all tropical and subtropical regions. In Africa not recorded (2001) from Namibia. General map in Gopal (1987): 42 (Water hyacinth).

One of the most aggressive aquatic weeds, rarely rooting on bottom; reproducing vegetatively by means of stolons which give rise to new plants that readily separate; can double its population as quickly as every 11-18 days. Forming a thick blanket that removes oxygen and deprives water of light so killing other aquatic life, disrupting hydro-electric installations; has become a menace to navigation, fishing. Also capable of reproducing by seeds (one capsule containing up to 450 seeds).

Different control measures exist, either physical or use of herbicides. A cosmopolitan fungus, *Alternaria alternata* (Fr.) Keissler, is under trial in Egypt (Fungal Diversity 23: 139-158, 2006). In its native country flowers and fruits are destroyed or damaged by insects, snails, etc., but not in its introduced range.

EICHHORNIA CRASSIPES

A particular case of vanishing populations is Lake Victoria in E Africa, where the plant was first reported in 1989, then spread rapidly to reach a peak of infestation in the late 1990s. The decline was due to biological control by insects *(Neochetina),* see bibliography below.

The plant has a great capacity to take up minerals from water, and trials are made growing it in sewage waste to take up polluting chemicals, making it a biofitter (Burkill, o.c.: 466). It is also used as green manure.

The flowers are edible.

AKPAVI, S. & al. (2005). Contribution à la connaissance de l'écologie d'Eichhornia crassipes (Mart.) Solms-Laub. (Pontederiaceae) et de Pistia stratiotes L. (Araceae) dans la région maritime orientale du Togo. *Acta Bot. Gall.* 152: 269-280.

ALBANO PÉREZ, E. & al. (2011). A first report of water hyacinth (Eichhornia crassipes) soil seed banks in South Africa. *S. Afric. J. Bot.* 77: 795-800.

ANONYMOUS (2004). Pêcheurs kenyans ruinés par les jacinthes d'eau. *Gartenbau* 125/29: 7.

CHOUDHARY, M. P. & S. SHARMA (2007). Conversion of World's worst aquatic weed 'Eichhornia crassipes' into a plant of economic and environmental importance through treatment of stainless steel rolling mill wastewater. *J. Econ. Taxon. Bot.* 31: 286-295.

DE KIMPE, P. (1957). Le contrôle de la Jacinthe d'eau. *Bull. Agric. Congo Belge* 48/1: 105-151.

HARLEY, K. L. S. & al. (1996). Water hyacinth: a tropical worldwide problem and methods for its control. *In:* BROWN, H. & al., ed., *Proceedings Second International Weed Control Congress Copenhagen, Denmark 25-28 June 1996,* 2: 639-644. Department of Weed Control and Pesticide Ecology, Slagelse.

JUDLIEN, M. H. & al. (1999). *Biological control of water hyacinth: The weevils Neochetina bruchi and N. eichhorniae: Biologies, host ranges, and rearing, releasing and monitoring techniques for biological control of Eichhornia crassipes.* ACIAR [Australian Centre for International Agricultural Research], Canberra (series: *ACIAR monograph*, no. 60). 87 pp.

SPRANG, F. (1997). La peste verte du Lac Victoria. *Journal de Genève* n° 258: 3 (du 5 novembre 1997).

SWART, E. (2007). The water hyacinth is spreading ! *Veld & Flora* 93: 28.

WHITE, I. & D. C. DURKIN (2000). Environmental, ethnobotanical and commercial aspects of Water Hyacinth. *Newsl. Hawaiian Bot. Soc.* 39/3, 4: 21, 23-39.

WILLIAMS, A. E. & al. (2005). Water hyacinth in Lake Victoria: Why did it vanish so quickly and will it return ? *Aquat. Bot.* 81: 300-314.

WILLIAMS, A. E. & al. (2007a). The decline of water hyacinth on Lake Victoria was due to biological control by Neochetina spp. *Aquat. Bot.* 87: 90-93.

WILLIAMS, A. E. & al. (2007b). Water hyacinth decline across Lake Victoria – was it caused by climatic perturbation or biological control ? A reply. *Aquat. Bot.* 87: 94-96.

Not mapped (maps in Gopal, Water Hyacinth: 42, 51 , 53, 1987).

[**E. diversifolia** (Vahl) Urb.] – See above under the genus, and below under **E. natans**.

E. natans (P. Beauv.) Solms; Kirkia 16: 22, 1996; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 466, 1997; Akoegninou & al., Fl. analyt. Bénin: 252, 2006; Sosef & al., Check-list pl. vascul. Gabon: 329, 2006; Figueiredo & Smith, Pl. Angola: 206, 2008 (as *E. diversifolia*); Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 243, 2010; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 260, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 232, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 120, 2012. – Icon.: Palisot de Beauvois, Fl. Oware 2: pl. 68/2, 1810 (under *Pontederia*); Fl. Trop. E. Afr., Ponteder.: 5, 1968; Fl. Afr. Centr., Ponteder.: 4, 1981; Fl. Eth. & Eritrea 6: 310, 1997; Cook, Aquat. & wetland pl. south. Africa: 233, 2004; Lisowski, Fl. Rép. Guinée 2: fig. 565, 2009; Fl.

EICHHORNIA NATANS

Gabon 40: 59, 2010; Fl. Zambes. 13/2: 73, 2010.

bas.: *Pontederia natans* P. Beauv.

syn.: *Leptosomus natans* (P. Beauv.) Schltdl.; *Eichhornia diversifolia* auctt. afric., non (Vahl) Urb.; *Monochoria natans* (P. Beauv.) Thomson

Aquatic herb rooted, sometimes forming dense submerged mats in freshwater 1-2 m deep; submerged stems branched, to 2 m long, 1,5-3 mm Ø, rooting at lower nodes; roots long, with numerous rootlets; juvenile leaves submerged, borne along stems, linear, 3-8 × 0,1-0,4 cm; adult leaves alternate, dimorphic; submerged ones linear, 30-70 × 0,2-0,4 cm, sessile; floating ones on upper part of stem with petiole 2,5-8,5 cm long; blade ovate to orbicular, 0,8-2,5 × 0,6-2,2 cm, cordate at base, apex obtuse to subacute, margins undulate; inflorescence reduced to a *solitary flower* which appears to rise from the petiole; perianth tubular below, 6-lobed, tube to 2 cm long, lobes ± equal, narrowly ovate, 5-6 mm long, *blue*, *lacking a yellow spot;* open flower c. 7 mm Ø; capsule spindle-shaped, 1-2 cm long, 1,5-3 mm Ø, style persistent.

In shallow still or slow-flowing water, river, lakes formed by dams and small ponds, lagoons; swamps; swampy savanna; ricefields; usually in full sun; member of the *Eichhornieto-Ranalismetum* J. Léonard association in the Yangambi area (Zaire), with *Ranalisma humile;* member of the *Eichhornia natantis-Nymphaeetum micranthae* association dominated by guinéo-congolesian species, described from Niger (Etudes flore, végétation Burkina Faso 9: 34, 2005); 0-1700 m alt.

Very similar to the tropical American *E. diversifolia* (Vahl) Urb. which has, however, 2-3-flowered inflorescences, flowers violet-blue with a yellow blotch, perianth 3 cm long and 2 cm Ø. In several recent African floras and flora lists *E. natans* is considered a distinct species. But in case they are found to be conspecific *E. diversifolia* takes precedence. – For differences, see also Kasselmann in Aqua Planta 12: 104-109, 1987).

According to Solms (in De Candolle, Monogr. 4: 526, 1883) this plant was very abundant in low lying and marshy places with still waters along the River Senegal during and after flooding. It seemed to float on the surface of the water. – Var. *pauciflora* (Seub.) Solms (ibid.) is cited from tropical S. America.

Namibia, Caprivi Strip, Botswana, NE S. Africa; Madagascar. – In Angola Rendle (Cat. Afr. Pl. Welw. 2: 67, 1899) cited a specimen from Loanda, Lagõa de Quifandongo, Dec. 1853, "subsequently looked for in vain". N. E. Brown (in Fl. Trop. Afr. 8: 5, 1902) noted: "The plant collected in Loanda…by Welwitsch (3014), … is certainly not that species, but appears to be a seedling, without flowers or fruit, of some Dicotyledon. The specimen is but a worthless scrap".

A potential nuisance in waterways (in particular in Gambia) and rice fields.

HETERANTHERA / *1*

Genus of 10 species; one native in Africa, the others in temperate, subtropical and tropical America; introduced as weeds elsewhere; 3 species occasionally grown in aquaria, propagated by cuttings; they are spreading in irrigated land in the Old World, but not yet reported in Africa.

Heteranthera callifolia Rchb. ex Kunth ("callaefolia"); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 325, 1994; Kirkia 16: 24-25, 1996; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 466-467, 1997; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 244, 2002; Sosef & al., Check-list pl. vascul. Gabon: 329, 2006;

HETERANTHERA CALLIFOLIA

Figueiredo & Smith, Pl. Angola: 206, 2008; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 260, 2011; Onana, Vascul. pl. Cameroon…: 186, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 120, 2012. – Icon.: Troupin, Fl. spermat. Parc Natl. Garamba 1: figs. 27, 28, 1956 (Mission Saegher); Fl. Trop. E. Afr., Ponteder.: 7, 1968; C. N. Horn, Syst. rev. genus Heteranthera…: 141, 1985; Cook, Aquat. & wetland pl. south. Africa: 233, 2004; Burrows & Willis, Pl. Nyika Plateau, Malawi: 367, 2005; Akoegninou & al., Fl. anlayt. Bénin: 253, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 566, 2009; Fl. Gabon 40, Ponteder.: 61, 2010; Fl. Zambes. 13/2: 75, 2010.

syn.: *Schollera kotschyana* (Fenzl ex Solms) Kuntze; *S. potamogeton* (Solms) Kuntze; *Heteranthera pubescens* A. Chev., nom.; *Monochoria vaginalis* sensu Kirk 1865, non (Burm. f.) Kunth

Glabrous aquatic annual herb c. 13-50 cm tall; stems creeping or ascending, rooting in the mud at lower nodes, sometimes almost free-floating; stoloniferous; leaves erect, blade sometimes floating, ovate, cordate, 2,5-7,5 × 1,3-5 cm, petiole 5-20 cm long; flowering stems c. 3,8-10 cm long; inflorescence a spike 5-10 cm long, with c. 7-20 sessile flowers, reduced to 1 flower on submerged stems, and then often cleistogamous; perianth glandular-hairy, white, blue or purple; tube cylindrical, 0,5-1 cm long; lobes 6,5-7 mm long; stamens 3; capsule oblong, trigonous, 0,8-1,8 cm long (from cleistogamous flowers 1,2-1,8 cm).

Swamps; pools; littoral zones of flat, seasonal freshwater lakes in sandy loam or clay (*Sagittario guayanensis-Nymphaeion maculatae* community; see Syst. Geogr. Pl. 75: 242-2005); as a weed in humid rice padis; soft mud at edge of streams; stagnant or slowly flowing waters; by spots in hollows on black clay; has been recorded as growing in saline water; 450-2575 m alt.

Botswana, NE Namibia, S. Africa.

Sometimes grown in tropical aquaria by fish-fanciers.

Related to *H. spicata* K. Presl (C. America from Honduras to N S. America, Cuba, Dominican Rep.) and *H. peduncularis* Benth. (S USA, Mexico, Guatemala).

SYNONYMS:

Heteranthera formosa Miq. = **Eichhornia crassipes**

kotschyana Fenzl ex Solms = **Heteranthera callifolia**

potamogeton Solms = **H. callifolia**

pubescens A. Chev. = **H. callifolia**

(KERNERA)

Kernera ovalis (R. Br.) Schult. & Schult. f. = **Halophila ovalis** (*Hydrocharitaceae*)

(LEPTOSOMUS)

Leptosomus natans (P. Beauv.) Schltdl. = **Eichhornia natans**

MONOCHORIA / *2*

Only Old World genus of *Pontederiaceae;* 8 species distributed in Africa (2), Asia to Manchuria (4) and S Australia (2). Naturalised in Europe and the New World. Perianth segments free from base, flowers distinctly pedicellate.

Monochoria africana (Solms) N. E. Br.; Kirkia 16: 26, 1996; Figueiredo & Smith, Pl. Angola: 206, 2008. – Icon.: Fl. Trop. E. Africa, Ponteder.: 2, 1968; Fl. Pl. Afr. 57: pl. 2162, 2001; Cook, Aquat. & wetland pl. south. Africa: 234, 2004; Fl. Zambes. 13/2: 71, 2010.

syn.: *M. vaginalis* (Burm. f.) Kunth var. *africana* Solms

Aquatic herb 50-90 cm tall, annual or perhaps sometimes perennial; stem corm-like or shortly elongate and somewhat rhizomatous; leaves radical, spirodistichous; juvenile leaves submerged, extremely variable; adult leaves emergent; petiole erect, to c. 75 cm long; blade ovate, acuminate, cordate, 7,5-14 × 5-7,5 cm; flowering stems erect, c. 40-70 cm long; inflorescence a raceme 5-14 cm long; flowers 15-30, with pedicels 6-10 mm long; perianth clear blue or violet, 6-lobed, c. 1,2 cm long; stamens 6; capsule ellipsoid to ovoid, c. 9 mm long.

Margins of rice-fields at the foot of earth dams in cleared *Bruguiera*, *Hunteria*, *Rhizophora*, *Avicennia* mangrove swamp forest; shallow pools; lagoons; temporary pools; 0-? 1000 m alt.

The plant is able to withstand great changes in water level (fide Cook, l.c.; Fl. Zambes. 13/2: 70, 2010).

S. Africa (Kruger Natl. Park, found only in 1997).

Collections very few and scattered.

M. brevipetiolata Verdc.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 467, 1997; Lisowski, Fl. Rép. Guinée 1: 481, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 260, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 120, 2012. – Icon.: Berhaut, Fl. Sénégal, ed. 2: pl. opp. p. 448, 1967(as *M. africana*); Natur & Mus. 125: 150, 1995.

syn.: *M. africana* sensu Berhaut, o.c.; *M. vaginalis* (Burm. f.) Kunth var. *plantaginea* sensu Fl. W. Trop. Afr., ed. 1, 2/2: 354, 1936, non Solms

Similar to *M. africana* but leaves narrow lanceolate, 6 × 1 cm, petiole very short (1,2-3 cm long), leaf blade cuneate or rounded at base (not cordate), perianth lobes usually broader and lack the marked black dots which are scattered in their median part in *M. africana*.

Pools on laterite, 1 m deep, with aquatic vegetation including *Cyperus cuspidatus*, *C. schweinfurthianus*, *C. podocarpus*, *Monochoria brevipetiolata.*

When *M. brevipetiolata* was first described in 1961 there was a large gap between the distribution areas of the two species, but today this gap has been partly filled and the areas are more contiguous. However, the specimens from Central African Republic (Yalinga, Le Testu 3383, 4207) and the gathering cited under *M. brevipetiolata* in Fl. Afr. Centr., Ponteder.: 3, 1981 (Zaire/Ubangi-Uele: Dakwa, Bredo 279) are in need of revision.

MONOCHORIA

SYNONYMS:

Monochoria africana sensu Berhaut 1967 = **Monochoria brevipetiolata**

natans (P. Beauv.) Thomson = **Eichhornia natans**

oblonga Boivin in sched. = **Scholleropsis lutea**

vaginalis (Burm. f.) Kunth var. *africana* Solms = **Monochoria africana**

var. *plantaginea* sensu Fl. W. Trop. Afr., ed. 1 = **M. brevipetiolata**

vaginalis sensu Kirk 1865, non (Burm. f.) Kunth = **Heteranthera callifolia**

(PIAROPUS)

Piaropus crassipes (Mart.) Raf. = **Eichhornia crassipes**

mesomelas Raf. = **E. crassipes**

[PONTEDERIA]

An American genus with 4 species distributed from Canada (50°N) to Argentina (35° S), map in Gopal, Water Hyacinth: 32-33, 1987. Naturalised in the Old World. *P. cordata* L. var. *ovalis* (Mart.) Solms (fig. in Cook, Aquat. & wetland plants south. Africa: 234, 2004), an upright perennial 0,3-1 m tall with long petiolate ± arrow-shaped leaves and hairy 2-lipped blue to purplish or white flowers with a yellow fleck in a dense complex spike, is cultivated for ornament in shallow water in souther Africa.

P. lanceolata Nutt. with blue flowers and mustard-coloured blotch is reported from Cameroon and Kenya as an ornamental on margins of ponds. It also occurs as a weed in irrigation channels (Burkill, Useful. pl. W. Trop. Afr., ed. 2, 4: 467, 1997).

SYNONYMS:

Pontederia azurea Hook. = **Eichhornia crassipes**

crassicaulis Schltdl. = **E. crassipes**

crassipes Mart. = **E. crassipes**

elongata Balf. = **E. crassipes**

natans P. Beauv. = **E. natans**

(SCHOLLERA)

Schollera callifolia (Rchb. ex Kunth) Kuntze = **Heteranthera callifolia**

kotschyana (Fenzl ex Solms) Kuntze = **H. callifolia**

potamogeton (Solms) Kuntze = **H. callifolia**

SCHOLLEROPSIS / *1*

Monotypic genus.

Scholleropsis lutea H. Perrier, 1936; Enum. 3: 75, 1995; Onana, Vascul. pl. Cameroon…: 187, 2011.

syn.: *Monochoria oblonga* Boivin in sched.; *Scholleropsis lutea* H. Perrier, Cat. pl. Madag., Xyridaceae,…: 10, 1934, nom. subnud.

Aquatic herb with very slender and ramose stem; submerged leaves linear, subsessile, 7 cm long; floating leaves oblong with long petioles and elliptic to ovate blades; flowers erect above water, solitary, c. 1,5 cm long, tube yellow, with 4 lobes; flowers cleistogamous and sessile when submerged; capsule apiculate, irregularly dehiscent.

SCHOLLEROPSIS LUTEA

Seasonally inundated meadows; pools.

First discovered in Madagascar in the middle of the 19th century. Collected in N Cameroon (Lake Chad) in 1964; discovered in Chad in 1969. The gap of some 4100 km between the sites in continental Africa and those in Madagascar may be explained by dispersal by migrating birds. Another example of a similar type of disjunction is *Balanophora abbreviata* Blume (syn.: *B. hildebrandtii* Rchb. f.): Comoros 1875 – Congo Brazzaville 1965) (map in Adansonia, Sér. 2, 9: 110, 1969, C. Farron); a parasite on *Ficus*. This species is also known from the Indian and Indo-Chinese subcontinents, Malesia, Pacific Isl. (Tahiti, etc.). See also Compt. Rend. Séances Acad. Sci. Paris 267: 1277-1278, 1968.

ARACEAE / *19* g. / *130 + 6* ? spp.

excl. *Lemnaceae* (but included under the APG system, subfam. *Lemnoideae*).

Cosmopolitan family with c. 110 genera and some 3100 species. Species diversity varies considerably, but is greatest in the wet areas closest to the Equator. There are two main centres of species diversity, viz. SE Asia and tropical America. Africa is the next richest region.

One of the most taxonomically difficult families of flowering plants with immense morphological plasticity (fide Croat, 1998b). Aroids are believed to be one of the oldest cultivated crops known to man (fide S. A. Richerson & J. Boos, Aroids: A world of food, in Int. Aroid Soc./IAS Newsl. 24: 12-13, 2002). Not recently revised for Zaire.

Aroids are perennial plants and generally characterized by a distinctive inflorescence. Reduced sessile densely-packed ebracteate flowers are placed on an erect fleshy cylindrical axis, the spadix. Its lower part is often concealed by a single large petaloid bract, the spathe. The fruits are usually juicy berries forming a cylindrical infrutescence.

Aroids have great economic importance. Edible starch-rich tubers, and leaves, are a major staple or subsistence food throughout the tropics. They are often poisonous when fresh, and must be cooked before they can be consumed. Indigenous people often use these plants as arrow poisons.

The fruit of several species can be eaten, e.g. the infrutescences of *Monstera deliciosa* and *Philodendron* species, tasting of pineapple when fresh.

Many tropical species are handsome ornamentals, providing perennials for gardens or used in modern garden design in the tropics. Some are ubiquitous house plants. Araceae is the most important foliage ornamental plant group in horticulture worldwide. A few are an important source of cut flowers and are the basis of an important industry, such as *Anthurium andraeanum* Linden and *A. scherzerianum* Schott, cultivars and hybrids, with glossy red, pink or white ± bullate spathes (cf. Fl. Trop. E. Afr., Araceae: 5, 1985; Akoegninou & al., Fl. analyt. Bénin: 45, 2006; Fl. Mascareignes 192, Araceae: 4-6, 1984; Mayo & al., Genera Araceae: 107, 1997; etc.).

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ARACEAE

Summary of our insufficient knowledge :

Tuber unknown in 3 species (= > 2 %) ; leaf unknown in 5 (+ 1) species (= < 4 %) ; inflorescence-flowers unknown in 2 + 1 ? species (= < 2 %) ; mature flowers lacking in 1 species ; infrutescence-fruit unknown in 30 + 4 ? species (= > 23 %) ; ecology not recorded for 1 species ; 8 species (= > 6 %) known only from the type gathering (or locality).

(AFRORHAPHIDOPHORA)

Afrorhaphidophora africana (N. E. Br.) Engl. = **Rhaphidophora africana**

pusilla (N. E. Br.) Engl. = **R. pusilla**

(AGLAONEMA)

Aglaonema mannii Hook. f. = **Culcasia mannii**

[**ALOCASIA**]

Genus of about 70 species in S & SE Asia to N Australia, Melanesia, Pacific Isl. ***A. macrorrhizos*** (L.) G. Don is a robust herb to more than 1,5 m tall with a rhizome and a thick fleshy aerial stem ; leaves ± in an apical rosette with long petioles and sagittate blades, to 1,2 m long, nerves prominent on both surfaces, basal lobes rounded ; spathe c. 20 cm long with green tube then constricted, limb white, boat-shaped. Native perhaps in Sri Lanka, dispersed in SE Asia and into the Pacific. Grown as an ornamental or for its stem as a source of taro in Africa [Burkill, Useful pl. W. Trop. Afr., ed. 2, 1 : 193-194, 1985 ; Lisowski, Fl. Rép. Guinée : 380, 2009 ; Onana, Vascul. pl. Cameroon… : 154, 2011 ; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30 : 45, 2010 ; Fl. Trop. E. Afr., Araceae : 4-5, 1985 ; Fl. Zambes. 12/1 : 2, 2012, possibly, cited under *A. odora* (Lindl.) K. Koch]. For synonyms, see World Checklist of Selected Plant Families, Araceae, Roy. Bot. Gard. Kew.

SYNONYM :

Alocasia pedata (Link & Otto) Raf. = **Sauromatum venosum**

(ALOCASIOPHYLLUM)

Alocasiophyllum kamerunianum Engl. = **Cercestis kamerunianus**

(AMAURIELLA)

Amauriella auriculata (Engl.) Hepper = **Anubias hastifolia**

hastifolia (Engl.) Hepper = **A. hastifolia**

obanensis Rendle = **A. hastifolia**

"*talbotii* Rendle", in error for *A. obanensis* Rendle = **A. hastifolia**

AMORPHOPHALLUS / *31*

Genus of c. 200 species, paleotropical (Africa, Madagascar, S & SE Asia to Melanesia, the Pacific, N Australia), the majority in Asia and Malesia, where they are widely used as food (tubers, leaves, seeds).

Acaulescent herbs with an underground tuber, seasonally dormant; leaf usually solitary in adult plants, with a *smooth* erect cylindrical petiole usually spotted; blade 3-sect and further divided; inflorescence solitary, preceeded by cataphylls, usually appearing before leaf; spathe marcescent, finally deciduous, divided into tube and limb.

Identification difficult as leaf and inflorescence appear separately. Identification from leaf alone problematic, especially in herbarium material as it loses certain distinctive markings. Good collections of the inflorescence are rare, and the best way of preservation is in alcohol.

Some species in our area appear to be very close, e.g. *A. staudtii-A. zenkeri*, *A. mullendersii-A. teuszii*.

Four species have *echinate pollen : A. aphyllus, A. consimilis, A. dracontioides, A. elliottii* (Van der Ham & al., 2000).

Many species in our area are incompletely known: tuber unknown in 2 species; leaf unknown in 4 (+ 1) species; infrutescence unknown in 16 species (= c. 50 % !); 3 species are known only from the type gathering, others are known from only 2 or 3 collections.

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Amorphophallus abyssinicus (A. Rich.) N. E. Br. 1901, non Gombócz 1936, nom. illegit. *(= A. gomboczianus);* Fl. Trop. E. Afr., Araceae : 29-30, 1985, excl. syn. *A. mossambicensis* (Schott) N. E. Br., *Hydrosme mossambicensis* Schott); Burkill, Useful pl. W. Trop. Afr., ed. 2, 1 : 194, 1985; Lecron & Malaisse (1999) : 293-296 (with a map and figs. 13 a-c); Friis & Vollesen, Fl. Sudan-Uganda border…2 : 495, 2005; Akoegninou & al., Fl. analyt. Bénin : 43, 2006; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 162, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso : 30, 2012; Fl. Zambes. 12/1 : 40, 2012. – Icon.: Engler, Pflanzenreich 4/23c, Araceae-Lasioideae : 70, 1911 (as *A. schweinfurthii*); Fl. Cameroun 31 : 36, 1988; Agnew & Agnew, Upl. Kenya wild flow., ed. 2 : pl. 133, 1994; Fl. Eth. & Eritrea 6 : 43, 1997; Willdenowia 27 : 158, 1997 (subsp. **akeassii**); Englera 25 : 30 (map), 71, 73, 75, 77, 79, 80, 82, 84, 2003; Cactus Succ. J. (U.S.) 84 : 8-9, 2012.

bas.: *Arum abyssinicum* A. Rich.

syn.: *Hansalia grata* Schott; *Hydrosme grata* (Schott) Engl.; *H. schweinfurthii* Engl.; *H. warneckei* Engl.; *H. foetida* Engl.; *H. seretii* De Wild.; *Corynophallus gratus* (Schott) Kuntze; *Amorphophallus gratus* (Schott) N. E. Br.; *A. chevalieri* (Engl.) Engl. & Gehrm.; *A. barteri* N. E. Br.; *A. foetidus* (Engl.) Engl. & Gehrm.; *A. schweinfurthii* (Engl.) N. E. Br., incl. fa. *laciniatus* Engl.; *A. coffeatus* Stapf; *A. anisolobus* Peter; *Hydrosme chevalieri* Engl. – All of subsp. **abyssinicus**.

Stemless, seasonally dormant erect herb from a tuber to 7 cm high, 15 cm Ø; leaf with petiole 20-80 cm long, reddish to greenish with purplish spots; blade 20-60 cm wide, with linear to obovate, acuminate leaflets 6-12 × 1-4 cm; inflorescence solitary, with peduncle 6-30 cm long, purplish dotted; spathe 8-30 cm long, 15-18 cm at the widest; tube cylindrical to obconical, 3-7 cm long, greenish-purple, inner surface with longitudinal ridges, blackish-purple; limb open, erect to tilted, 6-12 cm long, broadly elliptic; spadix to 16 cm long, shorter than spathe; berries 0,5-1 cm long, ovoid, red.

Deciduous woodland; grassland; *Brachystegia* and mopane woodland and grassland; rocky areas; termite mounds; open forest; often in seasonally flooded or swampy places in, e.g., savanna; under *Acacia*, *Brachystegia;* characteristic of the *Amorphophallus abyssinicus* formation in wooded savanna and open forest, with *Dioscorea bulbifera*, in Burkina Faso (Flora & Veget. Sudano-Sambesica 11 : 42, 2008); 50-2300 m alt.

Morphology very variable (leading to many synonyms).

Namibia, Caprivi Strip, Botswana, S. Africa.

Comprises 3 subspp.: – subsp. **abyssinicus** (synonyms above), widespread; – subsp. **akeassii** Ittenb. at the W limit of the species (map in Willdenowia 27 : 148, 1997); – subsp. **unyikae** (Engl. & Gehrm.) Ittenb. (bas.: *A. unyikae* Engl. & Gehrm.) in S part of range. – The subspecies are difficult to differentiate in dried material, especially if sterile or in fruit (see Fl. Zambes., l.c.).

The best known and most widely distributed African species.

A. angolensis (Welw. ex Schott) N. E. Br.; Sosef & al., Checklist pl. vascul. Gabon : 75, 2006; Figueiredo & Smith, Pl. Angola : 172, 2008. – Icon.: Gard. Chron., Ser. 3, 1 : 644, 645, 1887 (as *Hydrosme leopoldiana*); Englera 25 : frontispiece, and 86, 88 (map), 89, 91, 92, 2003.

bas.: *Hydrosme angolensis* Welw. ex Schott

syn.: *Corynophallus angolensis* (Welw. ex Schott) Kuntze; *Hydrosme leopoldiana* Mast.; *Amorphophallus leopoldianus* (Mast.) N. E. Br. – All of subsp. **angolensis**.

Tuber 5-30 × 2-10 cm; leaf 0,5-3 m high, petiole 0,4-1,2 m long, with elliptic purple-greyish to blackish spots; blade 0,3-1 m Ø, divided, ultimate leaflets long-ovate to light-ovate, 9-20 × 3-7 cm, apex 1-1,5 cm long; inflorescence 0,5-2,5 m high with peduncle 0,4-2 m long, 1-7 cm Ø; spathe cucullate, 17-60 cm long; spadix cylindric, 10-14 × 2-4 cm; berries red-orange, 0,6-1,2 × 0,5-1 cm.

Sporadic in huge shady rocky valleys; plentiful by streams near cataract; rain-forest; 70-850 m alt.

Comprises 2 subspp.: – subsp. **angolensis** (synonyms above); subsp. **maculatus** (N. E. Br.) Ittenb. ex Govaerts & Frodin (bas.: *A. maculatus* N. E. Br.), in S part of range.

AMORPHOPHALLUS

A. aphyllus (Hook.) Hutch.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 194-195, 1985; Van der Ham & al. (2000): 242-243; Lisowski, Fl. Rép. Guinée 1: 380, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 213, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 30, 2012. – Icon.: Engler, Pflanzenr. 4/23C, Araceae-Lasioideae: 104, 1911 (as *A. leonensis*); Busson, Pl. aliment. Ouest. afric.: fig. 211, 1965; Aroideana 8: 22, fig. 10, 1985; Fl. Cameroun 31: 35, 1988; Berhaut, Fl. ill. Sénégal 9: 59, 1988; Mayo & al., Genera Araceae: pl. 124D, 1997; Englera 25: 101, 104 (map), 105, 2003; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 694, photo. 694, 2010.

bas.: *Arum aphyllum* Hook.

syn.: *A. trifidum* Desf.; *Amorphophallus leonensis* Lem., incl. var. *latifolius* (Mast.) N. E. Br., var. *elegans* (Mast.) N. E. Br., var. *spectabilis* (Mast.) N. E. Br.; *A. fontanesii* Kunth, nom. illegit.; *Corynophallus afzelii* Schott, incl. var. *latifolius* Mast., var. *elegans* Mast., var. *spectabilis* Mast.; *C. fontanesii* Kuntze, nom. illegit.; *Hydrosme leonensis* (Lem.) Engl., incl. var. *latifolius* (Mast.) T. Durand & Schinz and *var. elegans* (Mast.) T. Durand & Schinz; *H. fontanesii* Schott, nom. illegit.; *Corynophallus leonensis* (Lem.) Engl., incl. var. *latifolius* (Mast.) Engl. and var. *elegans* (Mast.) Engl.

Fleshy stemless erect herb; tuber globose, ± flattened, discoid, 2-6 cm Ø; leaf 0,5-1,1 m high, produced after inflorescence, with petiole 30-90 cm long, 1-2,5 cm Ø, brown-purple at base, light green upwards; blade 30-80 cm Ø, ultimate leaflets linear-lanceolate, 10-30 × 0,8-2 cm; inflorescence with peduncle 5-85 cm high, light green with whitish spots; spathe dark red-purple, 6-35 × 6-20 cm, open at top, slightly asymmetric; spadix 7-13 × 1,5-3,5 cm, ovoid to ellipsoid; appendix of spadix broadly ovoid, 3-5 cm Ø at base; berries oblong, 1-1,5 cm long, orange.

Savanna; humid places; flooded, clayey places; gravelly soils; degraded dense forests; dry forests; sometimes under isolated trees; wooded savanna; crevice in granitic slab in wooded savanna; sandy soils; 4-450 m alt.

A spectacular plant worthy of cultivation (Burkill, l.c.). Tuber eaten, famine food.

A. barthlotti Ittenb. & Lobin; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 213, 2011. – Icon.: Willdenowia 27: 149, 1997; Englera 25: 108-110, 2003; Aroideana 4: 112, 113, 1981 (as *A. staudtii*).

syn.: *A. staudtii* sensu Barthlott & Bogner, Aroideana 4: 109-113, 1981, non (Engl.) N. E. Br.

Tuber ± globose, 2-4 × 1,5-3 cm; leaf unknown; cataphylls 3, 4-13 cm long, the inner one longer than the peduncle; inflorescence with peduncle 5-9 cm long, smooth, half of it subterranean; spathe erect, like a conical bag, 7-9 cm long, 3,5-4 cm Ø, with a shallow constriction between tube and limb; tube oblong-triangular, 3,5-5,5 cm long, 2,5-3,5 cm Ø, outside whitish to dirty pinkish or greenish, inside purple to purplish-brown, with very short hair-like emergences; limb erect, 3-4 cm long, triangular-acute, both surfaces whitish to dirty pinkish, margin smooth to undulate; spadix 8-13 cm long, slightly longer than spathe; infrutescence unknown.

Very humid *Neosloetiopsis*, *Plagiosiphon* forest on alluvial sedimentation of river; c. 100 m alt.

Certainly *the smallest* of the African *Amorphophallus*.

Near *A. staudtii, A. zenkeri*.

First collected in 1962; type collected in 1977.

AMORPHOPHALLUS

A. baumannii (Engl.) N. E. Br.; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 892, 2006; Akoegninou & al., Fl. analyt. Bénin: 43, 2006; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 213, 2011 (uncertain presence); Thiombiano & al., Cat. pl. vascul. Burkina Faso: 30, 2012. – Icon.: J. K. Morton, West Afric. lilies: pl. 13 opp. p. 50, 1961 (as *A. flavovirens*); Berhaut, Fl. ill. Sénégal 9: 60, 1988 (idem); Englera 25: 112, 155 (map), 2003.

bas.: *Hydrosme baumannii* Engl.

syn.: *Amorphophallus flavovirens* N. E. Br.

Tuber 3-15 cm Ø; leaf produced some days after emergence of the inflorescence, 0,3-1,2 m tall; petiole 0,2-1 m long, light green with purple dots; blade 18-70 cm Ø, segments oblong-lanceolate, cuspidate-acuminate, *decurrent on the rachis*, 10-12 × 3-4 cm, with numerous looping parallel nerves; inflorescence to over 1 m tall; spathe pale yellowish-green, sometimes tinged with dark red, 3,5-20 cm long, broadly elliptic; spadix 13-40 cm long, yellow or flushed with dark red; berries rounded, 1 × 1 cm, (red-)orange.

Deep rich soil in savanna; plantations; shady places; wooded places; stony ground; forest gallery; river valleys; humid hollows; 300-500 m alt.

In Senegal ? – confusion possible with *A. consimilis;* uncertain in Ivory Coast; Centr. Afric. Rep. ?

A. bequaertii De Wild. – Icon.: Englera 25: 117-119, 2003.

Tuber rounded to ovoid, 3-6 × 2-3,5 cm; leaf produced after flowers, 30-90 cm high; petiole 18-60 cm long, 0,5-1,5 cm Ø; blade twice divided, terminal leaflets long-ovate, ovate and asymmetric to ovate, 6-15 × 2-3 cm, apex 1-1,5 cm long, margins entire to lightly undulate; inflorescence 0,58- 1,13 m high, peduncle 43-88 cm long, 0,7-1 cm Ø; spathe 12-15 cm long, basal portion 7-8 × 2,2-3,5 cm, ± zygomorphic; spadix 14-21 cm long; fruit unknown.

Rain-forest gallery; wooded slopes, above swamp; c. 800-1080 m alt.

Only 3 collections known.

A. calabaricus N. E. Br.; Fl. Trop. E. Afr., Araceae: 31, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 299, 1994; Cheek & al., Pl. Kupe…: 426, 2004; Akoegninou & al., Fl. analyt. Bénin: 43, 2006; Onana & Cheek, Red Data Book flow. pl. Cameroon: 353, 548 (map) 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 162, 2011. – Icon.: Englera 25: 121, 123 (map), 125, 2003.

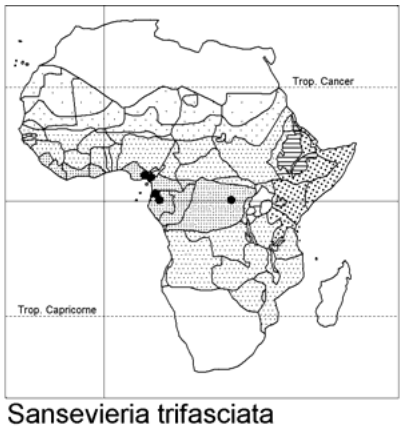
Perennial seasonally dormant herb to c. 1,2 m tall; tuber depressed-globose, 1,5-4 cm high, 3-8 cm Ø; leaf petiole 0,6-1,2 m long, mottled; blade 0,8-1 m Ø, ultimate leaf-lobes elliptic to obovate, 8-10 × 3-3,5 cm; inflorescence appearing before leaf; peduncle 0,6-1,5 m long; spathe erect, 10-25 cm long, a conic tube c. 5-7 cm Ø; limb broadly ovate-triangular, margins somewhat undulate, 7-11 × 9-13 cm, purple-brown, without constriction; spadix 15-50 cm long, sterile appendix elongate-conic, 10-24 cm long, to 1,7 cm Ø near base, tapering to 3 mm near apex, much longer than spathe; berries 0,6-0,7 cm Ø.

Evergreen forest with *Terminalia superba*, *Celtis zenkeri*, *Lingelshemia* sp.; scrub on granite hill; humid evergreen forest with *Celtis durandii*, *Fagara macrophylla*, *Trema orientalis*, *Bequaertiodendron oblanceolatum*, *Dracaena fragrans*, etc…; granitic inselberg; semi-deciduous forest; old secondary forest; 50-1650 (? 1900) m alt.

Comprises 2 subspp.: – subsp. **calabaricus** in W. Africa; – subsp. **mayoi** Ittenb. in Zaire, E. Africa.

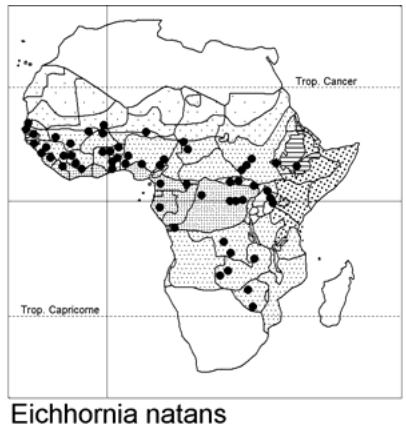
Not in Burkino Faso *(= A. johnsonii).*

Most similar to *A. hetterscheidii, A. bequaertii*.

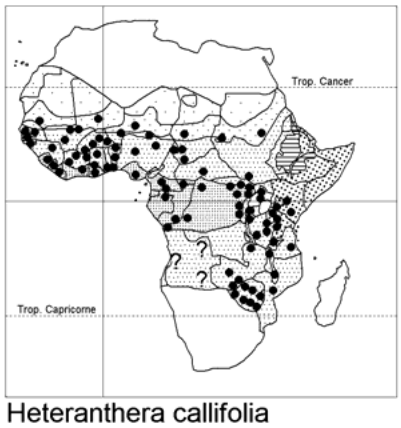


Sansevieria trifasciata

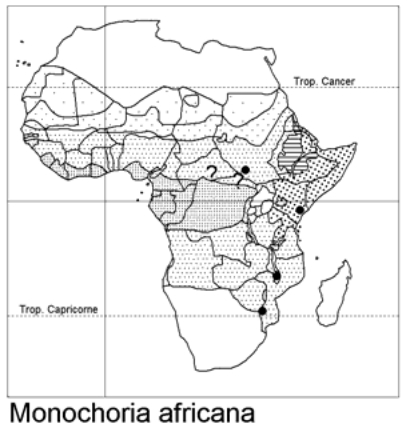
Sansevieria volkensii



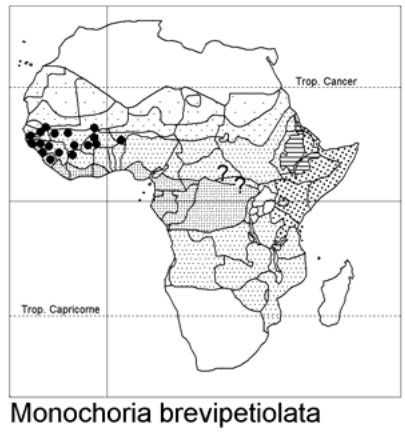
Eichhornia natans



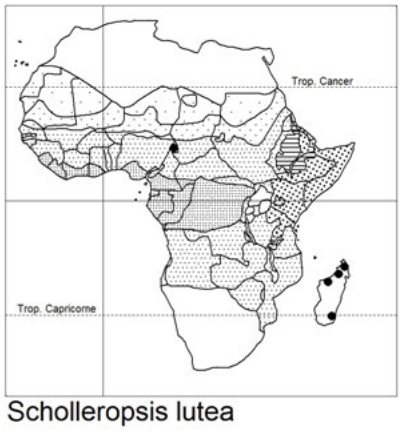
Heteranthera callifolia



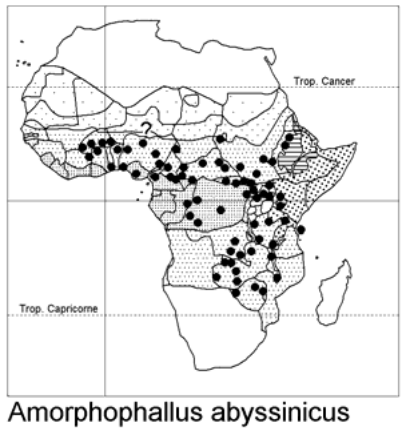
Monochoria africana



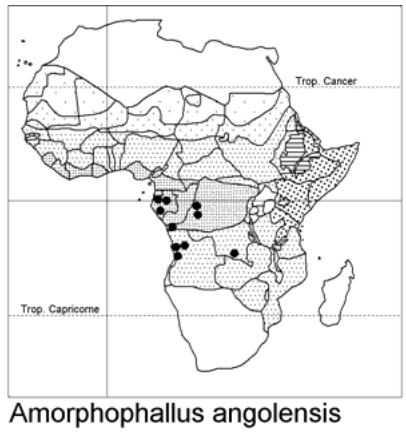
Monochoria brevipetiolata



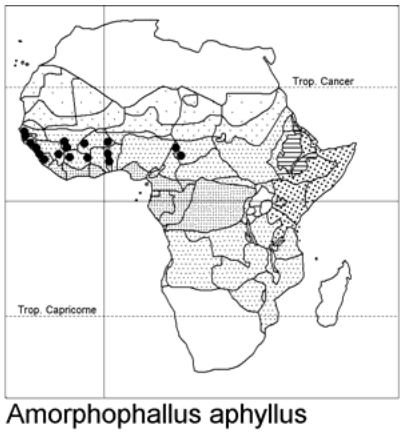
Schlleropsis lutea



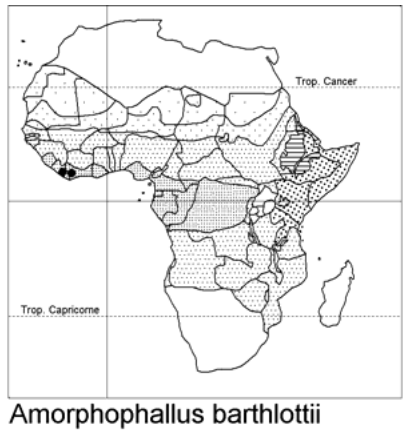
Amorphophallus abyssinicus



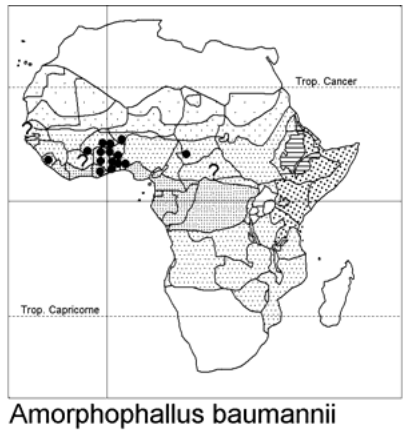
Amorphophallus angolensis



Amorphophallus aphyllus



Amorphophallus barthlottii



Amorphophallus baumannii

AMORPHOPHALLUS

A. canaliculatus Ittenb., Hett. & Lobin; Sosef & al., Check-list pl. vascul. Gabon: 75, 2006. – Icon.: Willdenowia 27: 151, 1997; Englera 25: 127 (map), 128, 2003.

Tuber subglobose, brown, 12 × 8 cm; leaf 0,6-1 m long; petiole 40-70 cm long, 1,5-2,5 cm Ø, dark purplish-brown with blackish-purplish spots; blade to 50-60 cm Ø, terminal leaflets elongate-ovate, 9-12 × 3 cm, tips 1,5 cm long; inflorescence developing before leaf, c. 70-75 cm long; peduncle 4-30 cm long, brownish to purple with few small dark green to blackish spots; spathe urceolate, 20-30 cm long, constricted between a wide, asymmetrical ovoid tube and a spreading triangular limb; tube 8,5-12 × 9-12 cm, greyish-green with a purple flush, with dark brown to dark green scattered spots and purple veins, with hair-like emergences at base of spathe tube; limb spreading at an angle of c. 120°, 10-18 cm long; spadix sessile, grooved at base, 60-70 cm long; fruit unknown.

Slope of inselberg; 700-800 m alt.

Most similar to *A. zenkeri*.

A. consimilis Blume; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 195-196, 1985 (as *A. flavovirens*). – Icon.: Englera 25: 130, 132 (map), 2003; M. Jones, Flow. pl. Gambia: pl. 2, 1994 (as *A. flavovirens*).

syn.: *Brachyspatha consimilis* (Blume) Schott; *Hydrosme consimilis* (Blume) Engl.; *Corynophallus consimilis* (Blume) Kuntze; *Hydrosme prieuriana* Schott; *Amorphophallus doryphorus* Ridley; *A. flavovirens* sensu auctt. florae senegamb., non N. E. Br.

Tuber rounded, flat, 4-7 × 2-4 cm; leaf produced after inflorescence, 60-80 cm long; petiole 25-50 cm long, 0,5-1 cm Ø, with purple dots; blade 30-45 cm Ø, with 1-2 pinnae, ultimate leaf-lobes, 7-12 × 3-5 cm, apex 0,5-1 cm long, margins entire or slightly dentate; inflorescence 30-52 cm long; peduncle 22-45 cm long, 0,5-1 cm Ø, base light-purple, brown-red, marbled green above; spathe 5-11 cm long, basal portion urceolate, 2-5,5 × 1,5-4 cm, upper portion triangular; spadix 8-20 cm long; berries ovoid to cylindrical, 1 × 0,5 cm.

Humid to swampy soils; 0-300 m alt.

Confused with *A. baumannii* (syn. *A. flavovirens*), not present in Senegal, Gambia.

Attractive plant but extremely toxic.

A. dracontioides (Engl.) N. E. Br.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 195, 1985; Van der Ham & al. (2000): 243; Akoegninou & al., Fl. analyt. Bénin: 43-44, 2006; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 30, 2012; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 213, 2011. – Icon.: Engler, Pflanzenreich 4/23C, Araceae-Lasioidea: 68, 1911; Morton, West Afric. lilies: pl. 13 opp. p. 50, 1961; Mayo & al., Genera Araceae: 236-238, 1997; Englera 25: 136 (map), 138, 2003.

bas.: *Hydrosome dracontioides* Engl.

Tuber flattened above, *10-25 × 5-15 cm;* leaf to 1,2 m long, produced after inflorescence; petiole 0,4-1 m long; 1-2 cm Ø, base with purple dots; blade 0,5-1,1 m Ø, rachis winged, leaf-lobes, 9-30 × 0,5-3 cm; inflorescence with peduncle 5-30 × 1-2 cm Ø, purple to green or with green dots; spathe 10-45 cm, broad ovate, hooded, pale outside, reddish-purple with yellowish streaks inside; spadix 5-17 cm long; berries oblong to ovoid, 1-1,5 × 0,8 cm, orange to red.

Seasonally wet grassland; savanna with *Mitragyna inermis*, *Acacia sieberiana* or with *Isoberlinia doka;* rarely on inselbergs; dry savanna; 150-1350 m alt.

The sap causes skin irritation; tubers eaten as famine food.

AMORPHOPHALLUS

A. eichleri (Engl.) Hook. f.; Figueiredo & Smith, Pl. Angola: 172, 2008. – Icon.: Jahrb. Königl. Bot. Gart. Berlin 2: pl. 10, 1883 (as *Hydrosme eichleri*); Bot. Mag. 115: pl. 7091, 1889; Aroideana 8: 20, fig. 8, 1985; Englera 25: 140-141, 2003.

bas.: *Hydrosme eichleri* Engl.

Tuber flattened above, 2-15 × 2-8 cm; leaf 20-80 cm long, produced before or with the inflorescence; petiole 14-60 cm long, green or brownish, or base brownish and green above; blade 20-40 cm Ø, ultimate lobes 6-13 × 4-6 cm, apex 0,5-1 cm long; inflorescence with peduncle 2,5 cm long, 0,3-1 cm Ø; spathe light-green, 5-20 × 4-35 cm, base cup-shaped, 3-15 cm long, 3-30 cm Ø, outer surface light brown to greenish with purple veins, inner dark purple; spadix 10-25 cm long; berries long-ellipsoid, 1,1-1,6 × 0,5-1,2 cm, orange-red.

Probably river sides in rain-forest.

A. elliotii Hook. f.; Van der Ham & al. (2000): 243. – Icon.: Engler, Pflanzenreich 4/23C, Araceae-Lasioideae: 68, 1911; Englera 25: 143-144, 2003.

syn.: *Hydrosme elliotii* (Hook. f.) Engl.

Tuber 10-11 cm Ø, flattened and rounded, producing many daughter tubers; leaf c. 40 cm long, produced after inflorescence; petiole 30 cm long, greyish to blueish with longish to ovate, reddish to brown spots; blade 40-50 cm Ø, ultimate leaf-lobes lanceolate, 6-12 cm long, apex acute; inflorescence c. 35-40 cm long, erect; peduncle 20-30 cm long, 0,5-0,8 cm Ø, greyish to blueish shiny, with longish to ovate, reddish to brown spots; spathe 9-16 × 4-10 cm, not constricted, base cylindrical; limb broadly triangular, 4 × 3 cm, hooded, greenish with brown longish dots; spadix 1-2 cm long, peduncle 6-7 cm long; infrutescence unknown.

Forest, in short grass, in shade.

Only 2 specimens known (type gathering), collected in 1892.

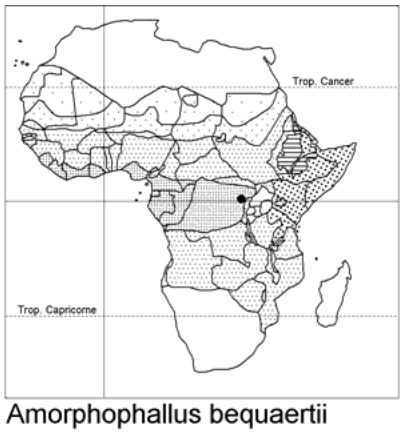
A. gallaensis (Engl.) N. E. Br., incl. var. *major* Chiov.; Fl. Trop. E. Afr., Araceae: 35, 1985 (as *A. latiflorus*); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 299, 1994 (idem); Thulin, Fl. Somalia 4: 20-21, 1995 (idem). – Icon.: Engler, Pflanzenreich 4/23C, Araceae-Lasioideae: 89, 1911 (as *A. sparsiflorus*); Englera 25: 147 (map), 149, 2003.

bas.: *Hydrosme gallaensis* Engl.

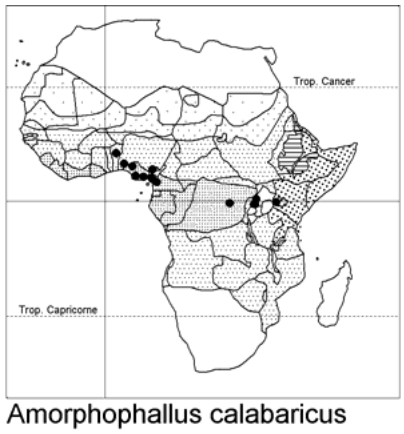
syn.: *H. sparsiflora* Engl.; *H. gregoryana* Engl.; *Amorphophallus laxiflorus* N. E. Br.; *A. sparsiflorus* (Engl.) Engl. & Gehrm. 1911, nom. illegit., non Hook. f. 1893 (Perak, Malesia); *A. gregoryanus* (Engl.) Engl. & Gehrm.; *A. kaessneri* Engl. & Gehrm.

Tuber 6-15 × 3-8 cm; leaf with petiole 30-50 cm long, red to green, speckled green and white; blade with 3 main segments; ultimate leaflets lanceolate, 2,5-12 × 0,5-2,5 cm, apex long-acuminate; leaf produced after inflorescence, to 1 m Ø; inflorescence with peduncle 20-45 cm long, white striate and punctate; spathe 16-40 cm long, purple to blueish silky in appearance, tube 6-10 cm long, expanded part as long, narrow, margin wavy; spadix 30-90 cm long, much longer than spathe; infrutescence unknown.

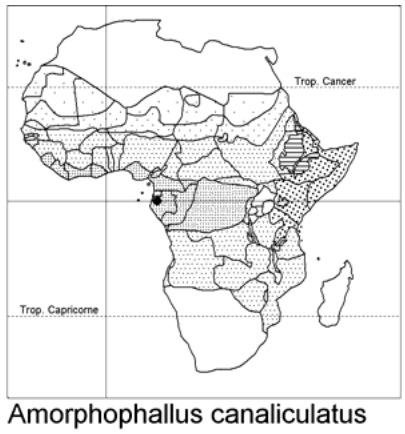
Moist meadows; rocky woodland and bushland; along stream margins in wet forest; *Acacia, Commiphora* bushland; 5-2000 m alt.



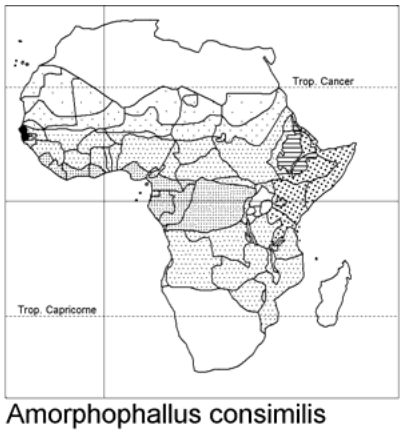
Amorphophallus bequaertii



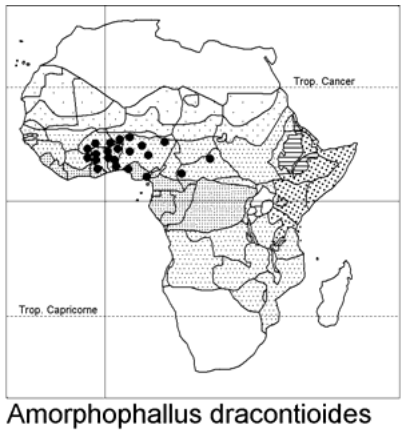
Amorphophallus calabaricus



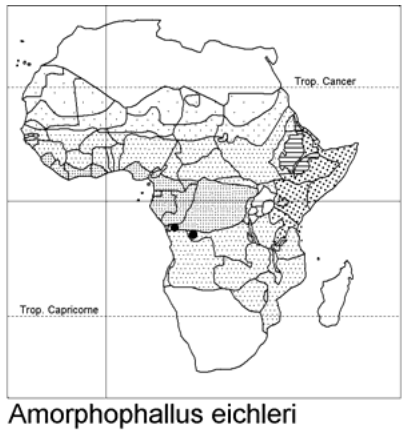
Amorphophallus canaliculatus



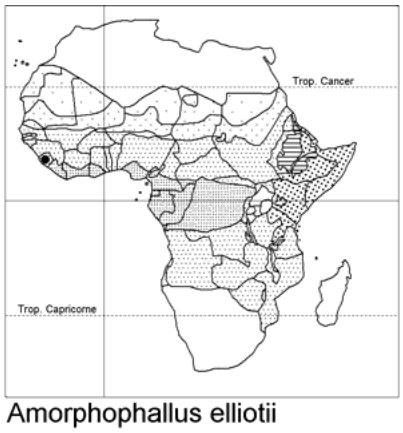
Amorphophallus consimilis



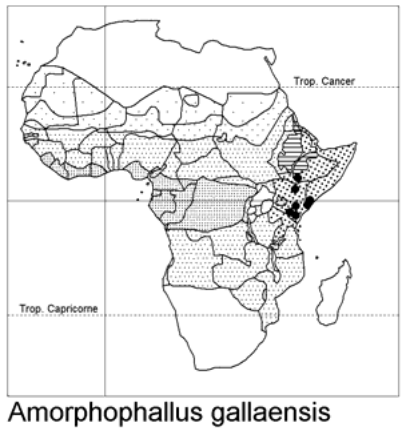
Amorphophallus dracontioides



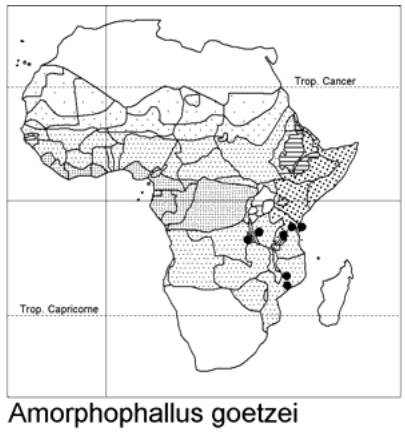
Amorphophallus eichleri



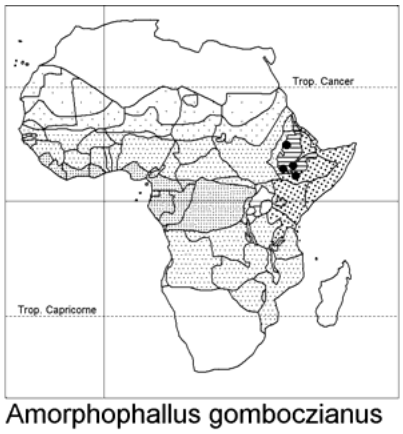
Amorphophallus elliotii



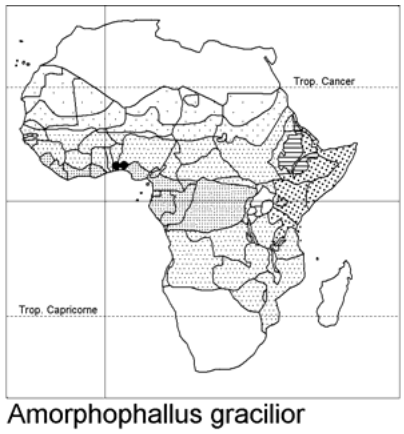
Amorphophallus gallaensis



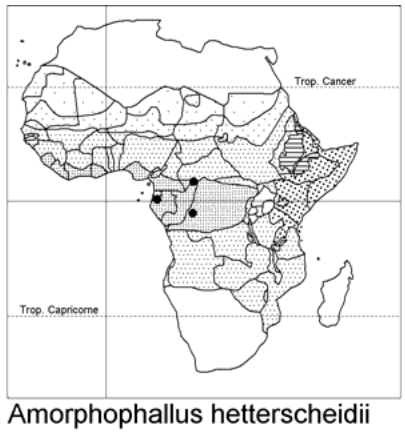
Amorphophallus goetzei



Amorphophallus gomboczianus



Amorphophallus gracilior



Amorphophallus hetterscheidii

AMORPHOPHALLUS

A. goetzei (Engl.) N. E. Br.; Fl. Trop. E. Afr., Araceae: 31-32, 1985, p.p., excl. specim. Milne-Redhead & Taylor 9998 (= *A. impressus*); Bull. Jard. Bot. Natl. Belg. 67: 297-298, 295 (map), 1999 (as *A. petitianus*); Fl. Zambes. 12/1: 43, 2012. – Icon.: Peter in Nachr. Ges. Wiss. Göttingen, Math.-Phys. Kl. 3: 194, 195, 1930 (as *A. anguineus*); Englera 25: 151-154, 2003.

bas.: *Hydrosme goetzei* Engl.

syn.: *Amorphophallus anguineus* Peter; *A. petitianus* Malaisse & Bamps

Tuber discoid-flattened globose, 2,5-7 cm high, 4-13 cm Ø, without offsets; leaf with petiole 1-1,5 m long, c. 2,5 cm Ø at base, pale green or with very faint purplish blotching or grey with brown spots; blade ± 1 m Ø, ultimate lobes lanceolate to ovate, acuminate, 7-20 × 2-5 cm, dull green above, glossier beneath; inflorescence appearing before leaf, 25-100 cm long; peduncle *5-20* cm long, 0,5-1,5 cm Ø, glossy green with small brown spots; spathe *10-38 cm* long, tube broadly obconic, strongly constricted at apex, 4-12 × 3-8 cm, outer surface flesh-coloured with dull greenish circular spots overlain by numerous fine greenish or purplish-brown veins, inner surface reddish-purple and densely and ± transversely *rugulose-verruculose*; limb open, erect to oblique, 6-12 cm long, triangular, margins undulate, inside purplish, outside dark green to light purple; spadix ± sessile, 15-80 cm long; berries ovoid, 0,8-1 cm Ø.

Evergreen forest; woodland; on ? old termite mound in river valley; 125-1200 m alt.

Confused with *A. impressus* and also *A. mossambicensis*.

Tuber said to be very toxic.

A. gomboczianus Pic. Serm.; Fl. Eth. & Eritrea 6: 42, 44, 1997. – Icon.: Mayo & al., Genera Araceae: 237, 1997; Englera 25: 158 (map), 159, 2003.

syn.: *A. abyssinicus* Gombócz 1936, non (A. Rich.) N. E. Br., 1901.

Tuber discoid, to 12-14 cm Ø, dark red to reddish-brown, without offset; leaf with petiole to 0,7-1 m long, purple, white striate and punctate; blade to 1 m Ø, pinnatisect, leaflets of first order dichotomously divided, segments of second order pinnatisect, decurrent, ultimate segments decurrent, 3-4 × 2 cm long, acuminate; spathe with peduncle 0,32-1 m long, white striate and punctate; spathe erect, 18-35 cm long, purple to blueish, tube 6-8 cm long, smooth, *not* markedly *constricted at mouth*; limb beige to light green; spadix 15-40 cm long, longer than spathe; berries ovoid, 1-1,5 × 0,6-1 cm, yellow. – With a strong smell of decayed meat in full sun, attracting flies.

Moist meadows; wet forests; on basalt and clayey soils in savanna, open forest, forest edges; 1700-2200 m alt.

Related to *A. gallaensis*; both species related to species in Madagascar.

Without inflorescence the large dissected leaves can be confused with a *Tacca*.

A. gracilior Hutch.; Fl. W. Trop. Afr., ed. 2, 3/1: 118, 1968 (under *A. flavovirens*, specim. Chevalier 22957, an imperfect specimen, eaten by insects; Onochie FHI 20689). – Icon.: Englera 25: 162, 163 (map), 2003. The type Chevalier 22957 too damaged; neotype: Jones & Onochie FHI 16958.

syn.: *A. gracilis* A. Chev., nom., 1920, non Engl. 1881 (Sumatra).

Tuber 1-4 × 2,5-10 cm Ø, flattened from above to rounded; leaf c. 40-70 cm long, with petiole c. 12-60 cm long; blade c. 28-50 cm Ø, ultimate leaf-lobes long-ovate to ovoid, 9-15 × 3-4 cm, apex

AMORPHOPHALLUS GRACILIOR

to 1 cm long; inflorescence 20-40 cm long, produced before leaf; peduncle smooth, 15-32 cm long, 1,5-3 mm Ø; spathe slender, 3-7 × 1,5-2,5 cm, very thin, not constricted, apex triangular, base 2-3 × 1,5-2 cm, cylindrical, outside grey to green or cream with greenish to purple veins; inside smooth to ± warty; spadix sessile, 6-8 cm long; berries 1 × 1 cm, rounded, red.

Flooded rain-forest; swamps; with *Raphia*, *Cynometra vogelii*, *Ficus vogeliana*, etc.; clayey soil; mud.

The species with the smallest inflorescence in the genus in Africa. Probably very rare.

Not in Akoegninou & al., Fl. analyt. Bénin (2006).

A. hetterscheidii Ittenb. & Lobin; Sosef & al., Check-list pl. vascul. Gabon: 75, 2006. – Icon.: Willdenowia 27: 153, 1997; Englera 25: 166 (map), 167, 2003.

Tuber depressed-globose, 5-10 × 1,5-6 cm, with short rhizomatous offsets in upper half; leaf to c. 1 m long; petiole to 60 cm long, 1,5 cm Ø, pale green with numerous confluent blackish-brown spots, often with a dark metallic green shimmer; blade 0,6-1 m Ø, very strongly pinnate, rachis narrowly winged, ultimate leaflets elliptic, 5-20 × 1-6 cm, acuminate, margins undulate; inflorescence to 60-90 cm long, with peduncle 30-50 cm long, 1-1,5 cm Ø, coloured as petiole; spathe erect, 12-30 cm long with a slight constriction; tube 6-15 × 5-7 cm, outside bright green or cream, base with large confluent dark green spots; limb short, triangular, 6,5-15 × 4-10 cm, light green below, margins purplish and smooth; spadix sessile, 25-40 cm long; infrutescence unknown.

Rain-forest; forest edges; not rare in the Sibang area, Gabon.

Closely related to *A. angolensis*, also *A. bequaertii*.

A. impressus Ittenb.; Fl. Trop. E. Afr., Araceae: 32, 1985 (under *A. goetzei*, p.p., excl. Milne-Redh. & Taylor 9998). – Icon.: Willdenowia 27: 155, 1997; Englera 25: 175, 176 (map), 177, 2003; Fl. Zambes. 12/1: 44, 2012.

syn.: *A. goetzei* sensu Fl. Trop. E. Afr., l.c., non (Engl.) N. E. Br.

Tuber flattened, > 13 × 7 cm; leaf c. 1,2 m long; petiole c. 1 m long, green with purple spots; blade green, c. 1 m Ø, rachis winged; leaflets elongate-ovate, acuminate, margins ± undulate or dentate; inflorescence near ground level, produced before leaf; peduncle 5-10 cm long, brown-green, with or without spots, purplish above; spathe 12-25 cm long, with a strong constriction above the urceolate tube 3,5-10 × 4-9 cm, cream to flesh-coloured outside with dark green veins and small spots, inside pinkish to purple-reddish brown, with small emergences in lower part, above rough; limb spreading, strongly undulate, elongate-triangular, to 15 cm long, dark green to purplish outside *with thick purple veins*, pink to purple inside; spadix ± sessile, 18-40 cm long; infrutescence unknown.

Cultivated land; woodland, grassland, on rocks; mountain slopes; riverine forest; on rich sandy soils; 450-900 m alt.

Near *A. lewallei*.

A. johnsonii N. E. Br.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 196, 1985; Hawthorne & Jongkind, Woody pl. West. Afric. for.: 892, 2006; Akoegninou & al., Fl. analyt. Bénin: 44, 2006; Lisowski, Fl. Rép. Guinée 1: 380, 2009; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 213, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 30, 2012. – Icon.: Knecht, Aracées Côte d'Ivoire: 158, 1983; Englera 25: 180, 181 (map), 183, 2003.

AMORPHOPHALLUS JOHNSONII

syn.: *A. accrensis* N. E. Br.; *A. purpureus* (Engl.) Engl. & Gehrm.; *Hydrosme purpurea* Engl.

Tuber rounded when young, becoming flattened, 1-4 × 3-10 cm; leaf to 1,2 m long with full development after flowering; petiole 20-40 cm long, 1-3 cm Ø, light green with dark green spots; blade 0,35-1 m Ø, ultimate leaf-lobes broadly ovate, 9-12 × 4-4,5 cm, apex to 1 cm long; inflorescence 0,4-1,4 m long; peduncle 5-94 cm long, 1-2 cm Ø, light green with whitish and dark green irregular spots; spathe 12-21 cm long, constricted; base 5-10 × 1-7 cm, ovoid to conical, very hairy inside, greenish outside; limb 11-14 cm long, narrowly triangular, acute, purplish- brown in upper third, otherwise green or reddish-brown, margin wavy and purple; spadix sessile, 33-47 cm long; berries rounded, 0,7 × 0,7 cm, orange.

Wooded savanna; savanna; inselbergs; forest gallery; forest remnants; sandy soils; common; 0-600 m alt.

A. lewallei Malaisse & Bamps – Icon.: Englera 25: 184 (map), 185, 2003; Aroideana 8: 22, fig. 9, 1985 (as *A. eichleri*).

syn.: *A. eichleri* sensu Bogner & al., Aroideana 8: 16, 22, fig. 9, 1985, non (Engl.) Hook. f.

Tuber flat, rounded to discoid, 2,5-9 × 3,5-20 cm; leaf 0,2-1,6 m long, at same time as inflorescence; petiole 0,16-1,4 m long; 1,5-6 cm Ø, greenish with whitish to greenish spots; blade to 1,6 m Ø, ultimate leaflets elliptic, 14-29 × 6-8 cm Ø, apex 1-2,5 cm long; inflorescence with peduncle 3-9 cm long, 0,8-2,5 cm Ø, up to 1 m long after pollination; spathe 5-15 cm long, strongly asymmetrically constricted; tube 3,5-10 × 6-16 cm rounded to asymmetric to ovate, outside green and shiny, with some white round spots, inside with warts and hairs forming ribs; limb 4-20 × 6-29 cm, broadly triangular, shiny green outside, inside whitish green at base, darker upwards, margins red to brown with greenish veins and wavy; spadix ± sessile, 13-33 cm long; berries ± ovoid, 1-1,8 × 0,9-1,5 cm, reddish-orange.

Savanna, open grassland; c. 900 m alt.

A. margretae Ittenb.; Willdenowia 27: 156-157, 1997. – Icon.: Englera 25: 190, 191 (map), 2003.

Tuber ± globose to ovoid, 2,5-5,5 × 6-7 cm with lateral offsets; leaf unknown; inflorescence erect, produced before leaf, c. 80 cm long; peduncle smooth, 50-52 cm long, 0,6-1 cm Ø, with small round spots; spathe 24 cm long, with a shallow constriction or without; tube cylindrical, 8,5-9 × 3,5-4 cm, purple outside, smooth inside; limb 14,5-15 cm, erect, purple, elongate-triangular, margins wavy; spadix sessile, 28-30 cm long, slightly longer than spathe (in the closely related *A. gallaensis* spadix ± twice as long as spathe); style 0,6-1 mm long (not 2-3 mm); anther filaments 0,1-0,3 mm long, free or sometimes basally connate but not forming a column; (pollen and) infrutescence unknown.

Rain-forest, river, in the water ("dans l'eau de la rivière Fulonko"); 900 m alt.

Known only from the type collected in 1956.

A. maximus (Engl.) N. E. Br.; Fl. Trop. E. Afr., Araceae: 32, 34, 1985; Fl. Zambes. 12/1: 45-46, 2012. – Icon.: Thulin, Fl. Somalia 4: pl. 1B, 1995; Englera 25, 194, 196 (map), 199, 200, 2003.

bas.: *Hydrosme maxima* Engl.

syn.: *Corynophallus maximus* (Engl.) Kuntze

Tuber obliquely depressed, discoid, 5-10 × 10-25 cm; leaf produced after inflorescence, 0,4-2 m long; petiole 0,25-1 m long, 1-4 cm Ø, green or greyish-green with reddish or brown dots;

AMORPHOPHALLUS MAXIMUS

blade 0,4-1,2 m Ø, terminal leaflets elongate, 10-19 × 1,5-2,5 cm; inflorescence to 2 m long; peduncle *0,2-1,3 m long*, *2-5 cm Ø*, greyish-green with numerous small elongate markings, glaucous; spathe 10-40 × 10-22 cm, with a strong constriction; tube long-ovate, 6-17 × 6-11 cm (subsp. **maximus**) or globose, 5-8 × 4-6 cm (subsp. **fischeri**) dull to greyish-purple outside, glaucous, with darker veins, inside chestnut brown to purple, *and densely to sparsely verrucose towards base*; limb open, ovate, acuminate, 12-23 × 8-22 cm, erect, chestnut brown to purple with raised veins, margins wavy; spadix 20-70 cm long; berries ovoid, 0,8-1 × 0,5-0,9 cm.

Deciduous woodland, bushland; hill forest; rocky outcrops; often near rivers and lake margins; granit inselberg; cultivations (under Mango trees): 10-1500 m alt.

Comprises 2 subspp.: – subsp. **maximus**, in northern part of range; – subsp. **fischeri** (Engl.) Ittenb. ex Govaerts & Frodin [bas.: *Hydrosme fischeri* Engl.; syn.: *Amorphophallus fischeri* (Engl.) N. E. Br.; *A. schliebenii* Mildbr.], from S Tanzania S-wards.

A. mildbraedii K. Krause; Onana & Cheek, Red Data Book flow. pl. Cameroon: 353, 548 (map) 2011. – Icon.: Englera 25: 202-203, 2003.

Tuber depressed to rounded, 2,5 × 5,5 cm; leaf with petiole 7-8 cm long, c. 1 cm Ø; blade aerial during anthesis but not expanded, 40 cm Ø, ultimate leaflets lanceolate, 10-15 × 1-2 cm; inflorescence 12-13 cm long; peduncle 5-7 cm long, 0,5-1 cm Ø; spathe c. 5 cm long, tube compressed globose, 3 × 4,6 cm; limb 3-4 cm wide, round, irregularly incised by up to 1 cm; spadix sessile, erect, 5,5 cm long; infrutescence unknown.

Savanna; 1000 m alt.

Only known from the type collected in 1914.

Collecting site uncertain. "Efforts should be made to retrace the itinerary of Mildbraed in 1914 and so to refind this long-lost species" (Onana & Cheek, l.c.).

A. mossambicensis (Schott) N. E. Br.; Fl. Trop. E. Afr., Araceae: 30, 1985, p.p. (in syn. of *A. abyssinicus*); Fl. Zambes. 12/1: 41-42, 2012. – Icon.: Schott, Gen Aroid.: pl. 33, 1858 (lectotype); Peters, Reise Mossamb., Bot. 2: pl. 56, 1864; Englera 25: 206-208, 2003.

bas.: *Hydrosme mossambicensis* Schott

syn.: *Corynophallus mossambicensis* (Schott) Kuntze; *Amorphophallus swynnertonii* Rendle; ? *A. linearilobus* Peter

Tuber flattened-globose; leaf 40-70 cm long; petiole 25-40 cm long; blade 30-60 cm Ø, rachis broadly winged, terminal leaflets broadly elliptic to elongate, 7-10 × 2-3 cm; inflorescence produced before leaf, to 60 cm long; peduncle 12-28 cm long; spathe 15-28 cm long; tube cylindrical, 4-8 × 2-4 cm, probably green-purple to purple outside with small darker spots, ribbed inside; limb erect, elongate-triangular, 10-20 cm long, greenish-purple to purple on both surfaces, dark purple toward margin which is undulate to frilly lobed; spadix sessile, 19-28 cm long, as long as spathe; infrutescence unknown.

Wooded savanna with *Brachystegia, Julbernardia, Terminalia mollis,T. sericea*, *Oldfieldia pericopsis*, *Combretum* spp., miombo woodland in sandy soils; sand with mud; bushland; 100-1350 m alt.

Similar to *A. abyssinicus* (and sometimes synonymyzed with it), but with interrupted irregular ribs at base of spathe tube inside, and different pollen morphology (exine smooth, not verrucose). Near *A. richardsiae* but ovary not divided.

AMORPHOPHALLUS

A. mullendersii Malaisse & Bamps; Lecron & Malaisse (1999): 295-297, 1999; Figueiredo & Smith, Pl. Angola: 172, 2008. – Icon.: Englera 25: 210-211, 2003.

syn.: *A. kaniamae* Mullenders, nom. in sched.

Tuber round to flattened, 2,5-4 × 6-10 cm, without offsets; leaf unknown; inflorescence erect, 33-43 cm long; peduncle 7-8 cm long, 0,5-1 cm Ø, ± smooth; spathe 10-17 cm long, constricted; tube asymmetric, ± ovate, 3,5-6,5 × 2-4 cm, light purple with few dark round spots, dark purple and ribbed inside; limb erect, dark purple outside, inside purple, 6,5-10,5 × 6-13 cm, incised, with ovate 5-6 lobes 3,5-7 × 2,5-5,5 cm, margin smooth; spadix sessile, erect, 23-36 cm long, at least twice as long as spathe; infrutescence unknown.

Scattered near water; wooded savanna; savanna on rocks near river; gallery forest; 700-920 m alt.

Related to *A. abyssinicus*. Close to *A. teuszii* but spadix longer than spathe (23-36 cm, not 10-17 cm).

A. preussii (Engl.) N. E. Br.; Cable & Cheek, Pl. Mt. Cameroon: LXIV, 146, 1998; Cheek & al., Pl. Kupe…: 426, 2004; Onana & Cheek, Red Data Book flow. pl. Cameroon: 353-354, 548, 2011. – Icon.: Engler, Pflanzenreich 4/23C, Araceae-Lasioideae: 96, 1911; Englera 25: 214-216, 2003. – Type: Preuss 588, K !; neotype: Preuss s.n., B !

bas.: *Hydrosme preussii* Engl.

Tuber discoid, 4-6 × 3,5-10 cm; leaf 60-80 cm long; petiole 35-70 cm long, 0,5-2 cm Ø, pale green with dark brown to blackish-green ovate dots; blade 40-80 cm Ø, ultimate leaf segments lanceolate, 6-28 × 2-7 cm, apex 1,5-2,5 cm long; inflorescence before the leaf, 20-75 cm long; peduncle 12-60 cm long, pale green at base with pale purple, elliptic spots; spathe 8-15 cm long, *not constricted*, base cylindric to conical 1,5-2 cm high, outside green, purple to whitish with purple veins and pale purple dots, inside yellowish to whitish, purple at base with very short papillae; limb broadly elliptic to triangular, green, purple to white with purple veins and light purple dots; spadix sessile, 6-8 cm long, shorter than spathe; berries rounded, 0,5-0,7 × 0,5-1 cm.

Evergreen forest; black volcanic or heavy soils; often on shaded rock-faces; gregarious; 800-1600 m alt.

Five locations known. Not seen at the type locality (Buea) since 1892.

Resembling *A. calabaricus*.

A. richardsiae Ittenb.; Willdenowia 27: 157, 159, 1997; Fl. Zambes. 12/1: 42-43, 2012. – Icon.: Englera 25: 219, 220 (map), 2003.

Tuber and leaf unknown; inflorescence produced before leaf, to 40 cm long; peduncle 12-15 cm long, greenish with numerous confluent elongate to ovate, small, dark green to brown spots; spathe 16-24 cm long, constricted, base asymmetric, ovoid to triangular, 5-8 × 4-6 cm, brownish-green outside at base higher up becoming green, veins brownish to bright purple, densely covered with round dark greenish and brownish spots; limb open, erect-oblique, 10-17 cm long, outside dirty green with lilac veins, inside brown-purple, margins wavy; spadix sessile, 21-27 cm long, equal or up to 6 cm longer than spathe; *ovary 2-3-locular*; infrutescence unknown.

Grassland, bushland, on red soils; 1200-1500 m alt.

Known from only 3 specimens.

Closely related to *A. mossambicensis*, but pollen exine different, and spadix appendix 14-20 cm long – longer than spathe; also ovary distinct.

AMORPHOPHALLUS

A. staudtii (Engl.) N. E. Br.; Cheek & al., Pl. Mt Oku…: 170, 2000; Harvey & al., Pl. Bali Ngemba…: 133, 2004; Cheek & al., Pl. Kupe…: 426, 2004; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 148, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Englera 25: 222, 223 (map), 2003.

bas.: *Hydrosme staudtii* Engl.

Tuber discoid to rounded, 1,5-5 × 2-6 cm; leaf produced after flowers, to 1,5 m tall; petiole 0,2-1 m long or more, purple and green spotted or green with fine stripes, ultimate leaflets longish to elliptic, 10-20 × 5-8 cm; inflorescence with peduncle 4-10 cm long, 0,5-1,5 cm Ø; spathe *6-17 cm long*, constricted, base 3-6 × 3-8 cm, rounded to broad ovate, light purple to greenish outside, inside dark purple with hairs; limb obliquely erect, 4-11 cm long, shortly triangular, brown to purple, margins slightly wavy; spadix sessile, 7-22 cm long, appendix erect, *6-19-24 cm long*, *0,6-2 cm Ø*; infrutescence unknown.

Rain-forest, growing in humus, in shade; 100-1700 m alt.

Not in Ivory Coast as reported earlier by Barthlott & Bogner (Aroideana 4: 109-113, 1981) and Knecht (Contrib. étude systém…Aracées Côte d'Ivoire); cf. also Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 213, 2011. These plants represent *A. barthlottii* (see above under that species).

Near *A. zenkeri* (with spadix appendix 8-23-55 cm long, 1,7-5 cm Ø).

A. stuhlmannii (Engl.) Engl. & Gehrm.; Fl. Trop. E. Afr., Araceae: 34-35, 1985. – Icon.: Englera 25: 227-229, 2003.

bas.: *Hydrosme stuhlmannii* Engl.

Tuber depressed-globose, 20-30 cm Ø; leaf 0,6-*3,5 m long* partially produced during flowering time; petiole 0,5-2,5 (-3) m long, c. 2-4 Ø at base, purple to pinkish with greenish spots or light green with long, dark green or purple dots; blade 0,5-3 m Ø, ultimate leaf-lobes obovate, 9-22 × 3-8 cm, apex 1,5-2,5 cm long; inflorescence to 2,5 m tall; peduncle 0,2-1,5 m long, 1-3 cm Ø; spathe 25-60 cm long, little constricted, base ± cylindric to obovoid, 5,5-11 × 5,5-7,5 cm, olive- green with whitish mottling outside, inside with filamentous projections to 4 mm long, dull dark purple; limb ovate-triangular, acuminate, 19-34 × 12-25 cm, with reflexed apex, dark purple inside; spadix ± sessile, 30-92 cm long, longer than spathe; infrutescence unknown.

Evergreen forest, often on limestone; inselbergs; wooded savanna; rare in open savanna; 0-1400 m alt.

Comprises 2 subspp.: – subsp. **stuhlmannii** in E. Trop. Africa; – subsp. **congoensis** (A. D. Hawkes) Ittenb. (bas.: *A. congoensis* A. D. Hawkes) in W Zaire: tuber unknown.

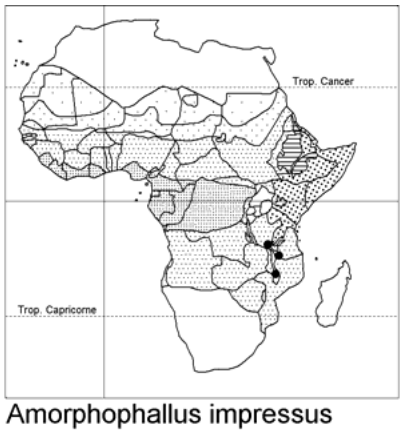
One of the tallest species in Africa.

A. teuszii (Engl.) N. E. Br.; Figueiredo & Smith, Pl. Angola: 172, 2008. – Icon.: Englera 25: 235, 236 (map), 2003.

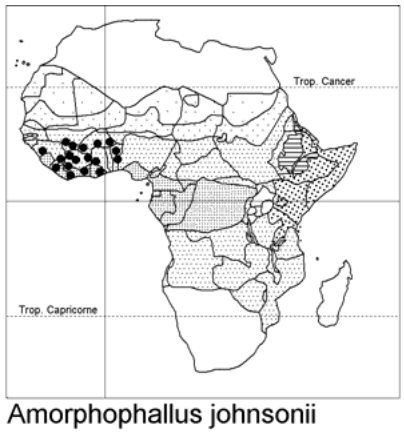
bas.: *Hydrosme teuszii* Engl.

Tuber unknown; leaf at least 40-60 cm long, produced a short time after flowering; petiole 30-50 cm long, smooth, green; blade c. 40-80 cm Ø; ultimate leaf-lobes 3-8 × 1-2 cm, lanceolate to ovate, apex 1 cm long; inflorescence 14-43 cm long; peduncle 4-10 cm long, 0,5-1,5 cm Ø, smooth; spathe *9-28 cm long*, slightly constricted, base somewhat asymmetric, ovate to cylindric, 3-10 × 2-4 cm, inside ribbed or not; limb 6-20 × 4-12 cm, incised, mostly with 3 lobes, outside green, inside blackish to purple; spadix sessile, *10-32 cm long*, ± equal to the spathe; infrutescence unknown.

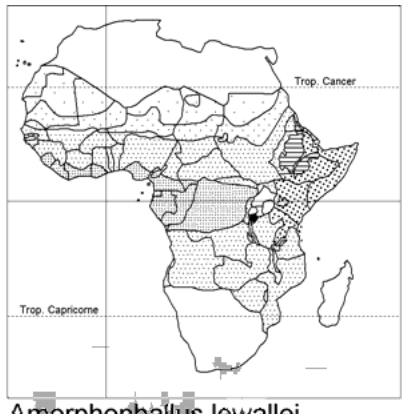
Island in river.



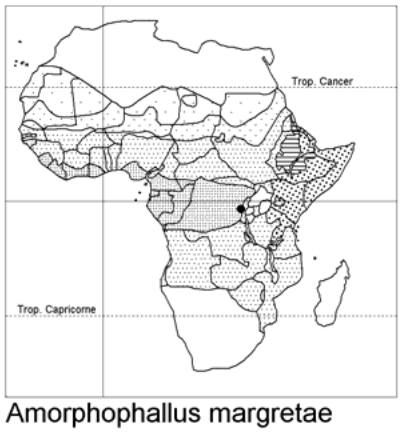
Amorphophallus impressus



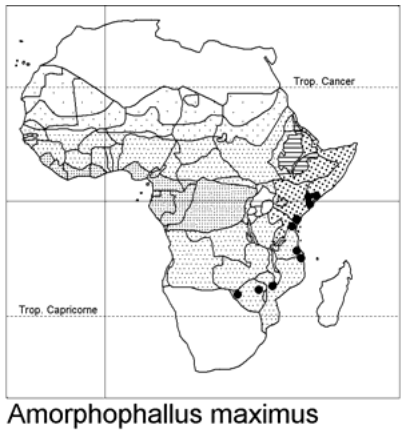
Amorphophallus johnsonii



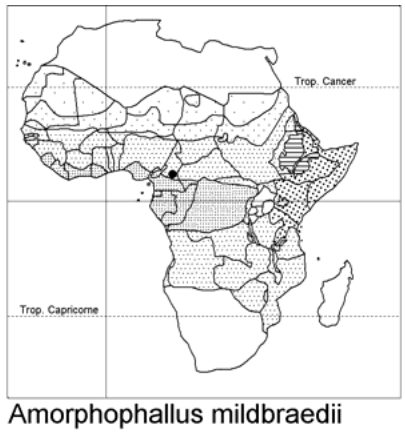
Amorphophallus lewallei



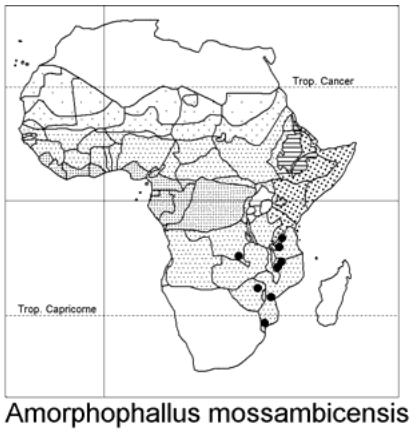
Amorphophallus margretae



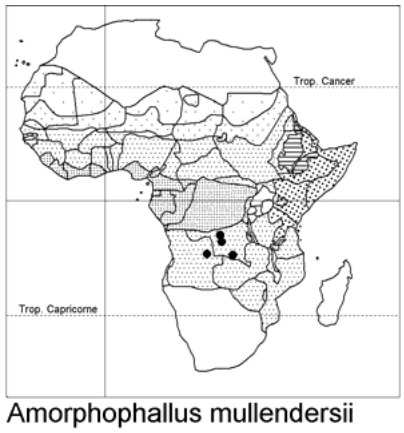
Amorphophallus maximus



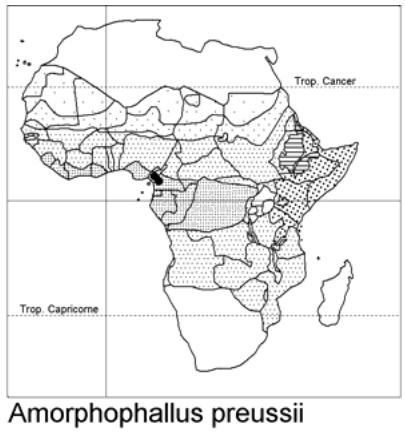
Amorphophallus mildbraedii



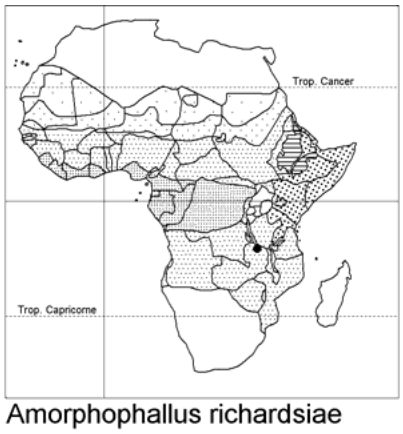
Amorphophallus mossambicensis



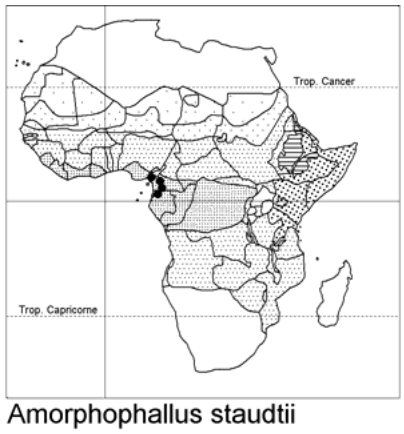
Amorphophallus mullendersii



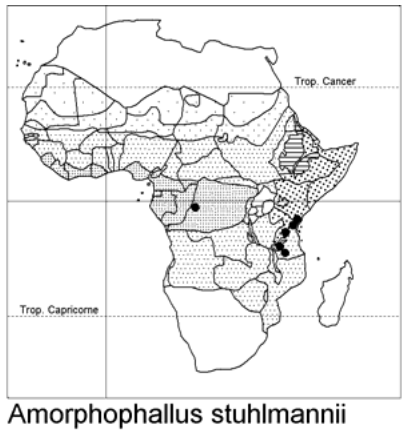
Amorphophallus preussii



Amorphophallus richardsiae



Amorphophallus staudtii



Amorphophallus stuhlmannii

AMORPHOPHALLUS TEUSZII

Very close to *A. abyssinicus*, and *A. mullendersii* (but with spadix twice as long as spathe).

Flowered every year at the Botanical Garden Berlin at the end of the 19th century, and the spathe was regularly 3-lobed. But one year (1892) 2 plants had spathes with 7 lobes, showing the variability of the taxon. Known from only 2 gatherings.

A. zenkeri (Engl.) N. E. Br. subsp. **zenkeri**; Cable & Cheek, Pl. Mt Cameroon: 146, 1998; Onana, Vascul. pl. Cameroon…: 154, 2011; Onana & Cheek, Red Data Book flow. pl. Cameroon: 354, 548 (map), 2012. – Icon.: Englera 25: 239-240, 241 (subsp. **mannii**), 243 (map), 2003.

bas.: *Hydrosme zenkeri* Engl.

Tuber flat-globose, 1,5-4 × 2-6 cm, deep in the soil; leaf 0,35-1,4 m long, produced before inflorescence; petiole 0,3-1,3 m long, 2-3 cm Ø, greenish, speckled, with many white-green to dark-green, long to elliptic or irregular dots; blade 0,37-1 m Ø; ultimate leaf-lobes lanceolate to ovate, 3,5-20 × 2,5-7 cm to 17-31 × 7-11 cm (subsp. **mannii**), apex 2-3 cm long; inflorescence withering with the leaf, 30-65 cm long; peduncle 3-8 cm long, × 0,7-2 cm Ø, greenish with dark-green small dots and bigger brownish dots; spathe *6-24* × 11-26 cm, with a weak constriction; tube rounded to ovate asymmetric, greenish, pink to purple with round light-green spots, veins green; limb open, triangular, tilted erect, horizontal or hanging down, purple, margins wavy; spadix sessile, 12-60 cm long, at least twice as long as spathe; appendix *8-55 cm long*, 1,7-5 cm Ø; infrutescence unknown.

Rain-forest; forest remnant on edge of cocoa plantation at foot of granite inselberg, with *Klainedoxa* sp., *Cynometra* sp., *Gilbertiodendron* sp., *Dialium* sp., *Ceiba pentandra, Costus lateriflorus, Selaginella vogelii*, etc.; 0-1000 m alt.

Comprises 2 subspp.: – subsp. **zenkeri**; – subsp. **mannii** (N. E. Br.) Ittenb. (bas.: *A. mannii* N. E. Br.; syn.: *A. macrospadix* Font Quer), endemic in Bioko/Fernando Poo. According to Onana & Cheek, 2012, subsp. **mannii** merits specific recognition; it is poorly known and may be extinct as lowland forests there are threatened by conversion of land to cocoa plantations.

Related to *A. staudtii* (with spadix appendage 6-19-24 cm long).

SYNONYMS:

Amorphophallus abyssinicus Gombócz non (A. Rich.) N. E. Br. = **Amorphophallus gomboczianus**

accrensis N. E. Br. = **A. johnsonii**

anguineus Peter = **A. goetzei**

anisolobus Peter = **A. abyssinicus** subsp. **abyssinicus**

barteri N. E. Br. = **A. abyssinicus** subsp. **abyssinicus**

chevalieri (Engl.) Engl. & Gehrm. = **A. abyssinicus** subsp. **abyssinicus**

coffeatus Stapf = **A. abyssinicus** subsp. **abyssinicus**

congoensis A. D. Hawkes = **A. stuhlmannii** subsp. **congoensis**

difformis Blume = **Anchomanes difformis**

doryphorus Ridley = **Amorphophallus consimilis**

eichleri sensu Bogner & al., non (Engl.) Hook. f. = **A. lewallei**

fischeri (Engl.) N. E. Br. = **A. maximus** subsp. **fischeri**

flavovirens N. E. Br. = **A. baumannii**

flavovirens sensu auctt. fl. senegamb. = **A. consimilis**

foetidus (Engl.) Engl. & Gehrm. = **A. abyssinicus** subsp. **abyssinicus**

AMORPHOPHALLUS

fontanesii Kunth = **A. aphyllus**

goetzei sensu Fl. Trop. E. Afr., non (Engl.) N. E. Br. = **A. impressus**

gracilis A. Chev., nom., non Engl. = **A. gracilior**

gratus (Schott) N. E. Br. = **A. abyssinicus** subsp. **abyssinicus**

gregoryanus (Engl.) Engl. & Gehrm. = **A. gallaensis**

kaessneri Engl. & Gehrm. = **A. gallaensis**

kaniamae Mullenders = **A. mullendersii**

laxiflorus N. E. Br. = **A. gallaensis**

leonensis Lehm., incl. var. *elegans* (Mast.) N. E. Br., var. *latifolius* (Mast.) N. E. Br., var. *spectabilis* (Mast.) N. E. Br. = **A. aphyllus**

leopoldianus (Mast.) N. E. Br. = **A. angolensis** subsp. **angolensis**

linearilobus Peter = **A.** ? **mossambicensis**

macrospadix Font Quer = **A. zenkeri** subsp. **mannii**

maculatus N. E. Br. = **A. angolensis** subsp. **maculatus**

mannii N. E. Br. = **A. zenkeri** subsp. **mannii**

petitianus Malaisse & Bamps = **A. goetzei**

purpureus (Engl.) Engl. & Gehrm. = **A. johnsonii**

rivularis A. Chev. = **Sauromatum venosum**

schliebenii A. Chev. = **Amorphophallus maximus** subsp. **fischeri**

schweinfurthii (Engl.) N. E. Br., incl. fa. *laciniatus* Engl. = **A. abysssinicus** subsp. **abyssinicus**

sparsiflorus (Engl.) Engl. & Gehrm., non Hook. f. = A**. gallaensis**

staudtii sensu Barthlott & Bogner = **A. barthlottii**

swynnertonii Rendle = **A. mossambicensis**

unyikae Engl. & Gehrm. = **A. abyssinicus**

ANCHOMANES / *5* (*6* ?)

Tropical African genus of seasonally dormant, robust to gigantic herbs with a single leaf with prickly petiole; leaf blade sagittate when juvenile, becoming trisect when mature, and primary divisions subdivided; inflorescence solitary with prickly peduncle; spathe boat-shaped, not constricted; berries large, fleshy.

Field studies are necessary in order to improve identification of available sterile herbarium material; useful diagnostic characters are lacking (cf. Fl. Zambes. 12/1: 29, 2012).

Poorly known genus; leaf lacking (1 species), infrutescence unknown (2 species), ecology not recorded (1 species).

Anchomanes abbreviatus Engl. – Icon.: Mayo & al., Genera Araceae: 221, pl. 122 B, 1997; Fl. Zambes. 12/1: 31, 2012.

Tuber ± globose to subcylindric, vertical, 1-5 cm Ø, roots thick, fleshy; leaf petiole 0,25-1,2 m long, 1 cm or more Ø, green to reddish-green, greenish spotted, with greenish-cream *prickles* 1-5 mm long; blade 1,2-1,8 m Ø, dark glossy green; ultimate leaf-lobes 9-16 × 2-10 cm; peduncle c. 30-90 cm long, with *prickles*; spathe *broadly-ovate* to *subcircular*, 5-13 × 2-8 cm, light green, tip cuspidate; spadix cylindric, 3-8 cm long, 0,8-2 cm Ø; berries ellipsoid, 2,2-2,7 × 1,6 cm.

Evergreen forest; dense deciduous woodland to open *Brachystegia* woodland; 0-800 m alt.

A. boehmii Engl.; Fl. Trop. E. Afr., Araceae : 27-28, 1985. – Icon.: Mayo & al., o.c.: 221.

syn.: ? *Stylochaeton fissus* Peter

Tuber horizontal, 6-10 cm long, 3-3,5 cm Ø, with numerous fleshy roots; leaf unknown; *peduncle unarmed*, erect, 14-60 cm long, 2-4 mm Ø; spathe *2-4 cm long*, 0,6-1 cm Ø, glaucous red; spadix 1,5-3 cm long, cylindric, 0,3-1 cm Ø; infrutescence unknown.

Swamps; 900-1000 m alt.

A. dalzielii N. E. Br.; Akoegninou & al., Fl. analyt. Bénin: 44, 2006; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Fl. Cameroun 31: 27 pl. 10 *excl*. fig. 3' (ovary), 1988.

syn.: *A. welwitschii* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 121, 1968 quoad specim. Dalziel 563, non Rendle; *A. difformis* sensu Fl. Cameroun 31: 23, 1988, p.p. (cf. above under "Icon.", i.e. the form with sessile stigma occurring in the savanna zone).

Similar to and often confused with *A. difformis* but differs from the latter by the sessile stigma centrally placed on the ovary, and by the spathe always bright yellow. – In the original description the spathe is said to be "alba".

Grassy savanna on impoverished soils.

Known with certainty from Benin, Nigeria; but also parts of Cameroon.

A. difformis (Blume) Engl., incl. var. *welwitschii* (Rendle) Engl., var. *obtusus* "A. Chev. ex Knecht" (Aracées Côte d'Ivoire: 147-148, 1983). – Fl. Trop. E. Afr., Araceae: 25, 27, 1985; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 196-198, 1985; Cable & Cheek, Pl. Mt Cameroon: 146, 1998; Lecron & Malaisse (1999): 298-302; Cheek & al., Pl. Mt Oku…: 170, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 220, 2002; Cheek & al., Pl. Kupe…: 426, 2004; Harvey & al., Pl. Bali Ngemba…: 134, 2004; Friis & Vollesen, Fl. Sudan-Uganda border area… 2: 495, 2005; Sosef & al., Check-list pl. vascul. Gabon: 75, 2006; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 892, 2006; Lisowski, Fl. Rép. Guinée 1: 380, 2009; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 148, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 45, 2010; Chatelain, Cartes distr. pl. Côte d'Ivoire: 213, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011 (with note under *A. hookeri*, see below under synonyms); Onana, Vascul. pl. Cameroon…: 154, 2011; Fl. Zambes. 12/1: 30, 2012; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 30, 2012; M. Renier, Fl. Kwango 1: 78, 1948. – Icon.: Bot. Mag. 66: pl. 3728, 1840; ibid. 89: pl. 5394, 1863; Engler, Pflanzenreich 4/23C, Araceae-Lasioideae: 54, 1911; Adam, Fl. Mts Nimba 5: 1841, 1981; Fl. Cameroun 31: 25 pl. 9, 27 pl. 10 *excl*. fig. 3 (= *A. dalzielii*), 1988; Mayo & al., Genera Araceae: 220, 1997; Govaerts & Frodin (2002): 104; Akoegninou & al., Fl. analyt. Bénin: 45, 2006; Malaisse, Guide florist. Parc. Natl. Cantanhez (Guinée-Bissau): pl. 695, photo. 695 a-b, 2010; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 33, 2007.

bas.: *Amorphophallus difformis* Blume

syn.: *Anchomanes petiolatus* (Hook.) Hutch.; *A. hookeri* (Kunth) Schott, incl. var. *pallidus* Hook.; *A. dubius* Schott; *A. welwitschii* Rendle; *A. obtusus* A. Chev.; *Sauromatum ferox* Linden ex Engl.; *Pythonium hookeri* Kunth; *Caladium petiolatum* Hook.; *Anchomanes giganteus* Engl. and sensu Aké Assi, Etude florist. Côte d'Ivoire

2: 229, 1963; *A. hookeri* Henriques 1899, nom. illegit. – It is questionable whether *Anchomanes hookeri* (Kunth) Schott is a synonym of *A. difformis*. Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011, treat it as a distinct species, separable on differences in the styles [= curved downards, warty, deep purple]. But "the distributions of these taxa have not been fully defined as yet". Already in their checklists of Lebialem Highl. (Harvey & al., 2010: 150) and of Dom, Bamenda Highl. (Cheek & al., 2010: 148) a note referring to this question is figuring. Friis & Vollesen, l.c. give *A. hookeri* in synonymy of *A. difformis* for their area (= Sudan).

Tuber horizontal, massively thickened, to *50-80 cm* long, 6-20 cm Ø, with distinctive annular leaf-base scars; leaf petiole 0,8-3 m long, 1-4 cm Ø, dark to purplish-green with whitish speckling with *prickles* whitish-green 2-3 mm long; blade to 1,5 m wide, dark green, leaflets fishtail-shaped, ultimate leaf-lobes to 20 × 10-13 cm, dark green; peduncle 0,5-1,8 m long, 0,6-1 cm Ø, markings similar to petiole, smooth to prickly; spathe oblong-ovate, 14-30-90 × 3-5 cm, acuminate, green, greenish to purplish-brown or brick red; spadix subcylindric, 10-30 cm long, shorter than spathe; berries oblong-ellipsoid, red to purplish or white, 0,9-2 × 0,8-1 cm.

Rain-forest with *Chrysophyllum albidum*, *Cola gigantea*, *Erythrophleum suaveolens*, *Alstonia boonei*, *Parinari excelsa*, *Milicia excelsa;* rain-forest with *Mapania rhynchocarpa;* riverine forest, gallery; rocky wooded places; wooded places near the banks of rivulets; dembo; open forest; termite mounds; wooded savanna with *Isoberlinia tomentosa*, *Sterculia tragacantha*; muhulu on sand near open forest edge; semi-deciduous forest; secondary forest, regrowth; swampy, dense dry-forest; cacao plantations; way sides; savanna often under shade; screes; 1-1600 m alt.

Bioko/Fernando Poo.

Anchomanes welwitschii is sometimes treated as distinct from *A. difformis* (see, e.g., Bull. Jard. Bot. Natl. Belg. 67: 298, 1999). It has a sessile discoid stigma and paler coloration. But intermediates exist. More research on living material needed (Fl. Zambes. 12/1: 32, 2012).

Flowers are needed to separate *A. difformis* (predominantly western) from *A. abbreviatus* (E Africa); herbarium specimens often lack flowers.

(**A. hookeri** (Kunth) Schott and var. *pallidus* Hook.) – See above under **A. difformis**, synonyms.

bas.: *Pythonium hookeri* Kunth

A. nigritianus Rendle – Icon.: Aroideana 4: 37, 1981; Mayo & al., Genera Araceae: 220, 1997.

Leaf petiole 1 m or more long, *prickly* almost the whole length; blade much divided; peduncle prickly; spathe *pinkish*, c. *40 cm long;* spadix 8-10 cm long, *male portion about the same length as the female*, almost white-mauve at top deepening to mauve lower down.

Known from the type, Talbot 1247 (S Nigeria), and Bogner 640, 662, K (Gabon, Sibang, 1973; Aroideana 4: 36-37, 1981).

Insufficiently known.

Rain-forest, in deep shade in the humus layer of a sandy loam (Gabon).

ANUBIAS / *8*

Tropical African genus. Herbs with creeping rhizomes.

BODYAGIN, S. & D. LOGINOW (2011). Anubias durch Samen vermehren. *Aqua Planta* 36: 96-103 [translation from Russian by A. Grigorow].

LOGINOW, D. (2009). Diese rätselvollen Blätter…*Aqua Planta* 34: 142-145 [translation from Russian by A. Grigorow].

SEREBRYANYI, M. M. (1990). K sistematike roda Anubias Schott [Zur Systematik der Gattung Anubias Schott; German translation from Russian in Aqua Planta 34: 145, 2009]. *Adaptacionnaja Iemen ivost Rastenij pri ich introdukcii*/Die Adaptationsfähigkeit der Pflanzen bei ihrer Einführung: 169-173.

SEREBRYANYI, M. M. & M. W. FILIMONOWA (1990). Die Pigmentation junger Blätter bei einigen Anubias-Arten (Araceae). Taxonomische und physiologische Aspekte [German translation of Russian title, l.c.]. *Bull. Main Bot. Gard., Moscow: Nauka* 155: 50-54.

ZALUD, H. (1987). Gedanken zur Verbreitung der Gattung Anubias Schott. *Aqua Planta* 12: 109-110.

Anubias afzelii Schott – Icon.: Mayo & al., Genera Araceae: 181, 1997; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 894, 2006; Aqua Planta 36: 96, 2011.

syn.: *A. erubescens* Serebryanyi, nom. 1990 (see References above).

Herb to c. 1 m tall; rhizome prostrate, rooting, 1-4 cm Ø, with leaves at tip; leaf petiole to 20 cm long; blade narrowly elliptic, 13-35 × 3-13 cm, apex acute, acuminate or mucrenulate; peduncle 9-32 cm long; spathe convolute, not opening at maturity, lanceolate, 3-9 cm long, green; spadix 5-12 cm long, sessile or nearly so; berries depressed-globose.

Wet, shady places; sometimes completely submerged; on bank of slow-flowing rivulet in red lateritic mud at edge of gallery forest; c. 370 m alt. (Sierra Leone).

Cited as *A. heterophylla* ("syn.: *A. afzelii*") by Lisowski, Fl. Rép. Guinée 1: 381, 2009.

A. barteri Schott; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Cheek & al., Pl. Kupe…: 426-427, 2004; Sosef & al., Check-list pl. vascul. Gabon: 76, 2006; Lisowski, Fl. Rép. Guinée 1: 380, 2009; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire 213, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Adam, Fl. Mts Nimba 5: 1843, 1981 (as *A. minima*); Fl. Cameroun 31: 17, 1988; Hawthorne & Jongkind, o.c.: 894, 2006; Aqua Planta 36: 97, 98, 102, 2011.

Terrestrial herb; rhizome prostrate, rooting, 0,2-1 cm Ø; leaf petiole > 0,5 m long, 0,5-2,5 times as long as blade; blade ovate-lanceolate, very variable (many vars.), 3-23 × 1,5-15 cm, ± coriaceous, base truncate to cordate or sagittate; peduncle 6-43 cm long; spathe 1,5-6 cm long, opening to base when flowering, acute or acuminate, white, green, yellowish-green or purple; spadix cylindric, 1,5-7 cm long, from half as long as spathe to twice as long as spathe; berries depressed-globose, green, enclosed within a persistent spathe.

Forest in shady places and along water-courses in sand; humid rocks or old wood. Emerged or temporarily submerged; 1-1600 m alt.

Bioko/Fernando Poo.

Comprises 6 vars. (see Enum. 3: 77, 1995, with synonyms, and to add:) var. **elliptica** Serebryanyi, nom. 1990 (see Bibliography above).

The varieties are mainly based on the shape and the size of the leaves. Fully developed, mature leaves are required for correct determination (key and drawings in Aqua Planta, Sonderheft 1: 11, 14, 1987, W. Crusio). Intermediate forms are not rare (cf. Fl. Cameroun 31: 18, 1988).

Various forms are cultivated.

A. gigantea A. Chev. ex Hutch., incl. var. *tripartita* A. Chev., nom. nud.; Lisowski, Fl. Rép. Guinée 1: 380, 2009; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 213, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Adam, Fl. Mts Nimba 5: 1842, 1981; Hawthorne & Jongkind, o.c.: 893, 2006.

Rhizome prostrate, rooting, 1-4 cm Ø, tip with dense leaves; leaf petiole 46-60-83 cm long; blade hastately lobed, sometimes nearly tripartite, middle lobe 13-30 × 5-14 cm, lateral lobes 9-28 × 3-10 cm; peduncle 14-60 cm long; spathe 3,5-8 cm long, mucronate, green to yellowish, opening in the upper part before flowering; spadix to 9 cm, cylindric, 0,5-1 cm Ø; berries depressed-globose.

Semi-submerged, at banks of rivers or in riverbeds; swamp; swampy forest; mostly in rocky places; in tall herb *Marantochloo purpureae-Anubiadetum giganteae* formation with *Marantochloa purpurea*, *Anubias gigantea*, *Crinum jagus*, *Setaria megaphylla*, etc. (vide Acta Bot. Gall. 158: 409-423, 2011).

Discovered in Cameroon in 1989 (Aqua Planta 22: 123-130, 1997).

Similar to *A. hastifolia* but slightly larger and stamen details different.

A. gilletii De Wild. & T. Durand; Sosef & al., Check-list pl. vascul. Gabon: 76, 2006; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: De Wildeman, Etudes fl. Bas- & Moyen-Congo Sér. 5, 1: pl. 6, 12, 1903 (as *A. haullevilleana*); ibid., Sér. 5, 3: pl. 35, 1910 (as *A. laurentii*); Fl. Cameroun 31: 11, 1988.

syn.: *A. haullevilleana* De Wild.; *A. laurentii* De Wild.

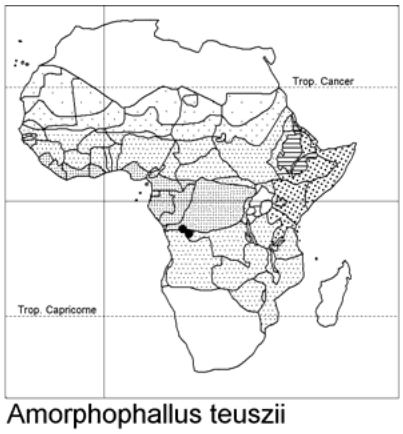
Rhizome creeping, rooting, 0,5-1,5 cm Ø, leafy; leaf petiole 6-40 cm long; full-grown blade hastate, basal lobes oblong to oblong-lanceolate or elliptic-lanceolate, 7-32 × 5-16 cm, apex obtuse or acute, or with acumen to 2,5 cm long, separated from the middle lobes only by a *slight constriction;* middle lobes deltoid or triangular, 2-13 × 1-16 cm, apex obtuse; peduncle 5-22 cm long; spathe long-ovoid, 1-3 cm long, 0,5-1 cm wide, light green to yellowish or whitish-pink, often spreading; spadix subsessile, 1-2,5 cm long; berries depressed-globose.

Swamp forest; riverine bush; sandy sides of water courses; 50-475 m alt.

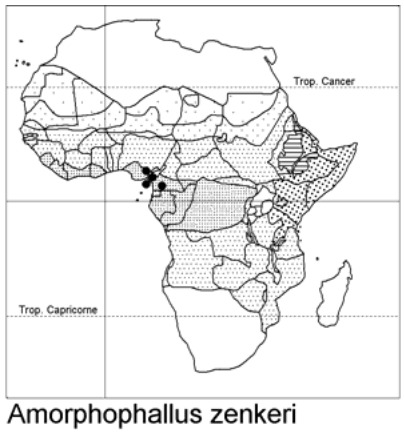
A. gracilis A. Chev. ex Hutch.; Lisowski, Fl. Rép. Guinée 1: 381, 2009. – Icon.: Hawthorne & Jongkind, o.c.: 893, 2006.

Herb to 75 cm tall with prostrate rhizome; leaf petiole 25-33 cm long; blade shallowly hastately trilobed, triangular in outline, c. 12 × 10 cm, lobes ovate-oblong, apex rounded; peduncle slender, 8-15 cm long; spathe 1,5-3 cm long, broadly elliptic, mucronate, green; spadix as long as spathe; infrutescence unknown ?

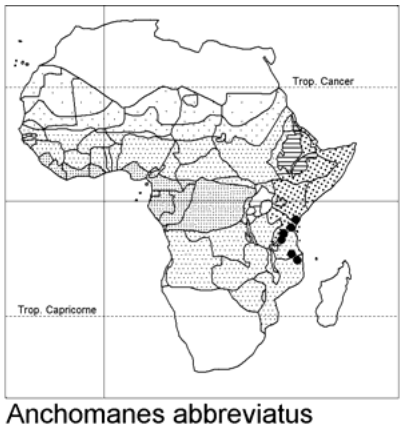
Savanna; river banks and river beds; rocky river bed in rain-forest with *Mapania* sp.; c. 300- c. 1100 m alt.



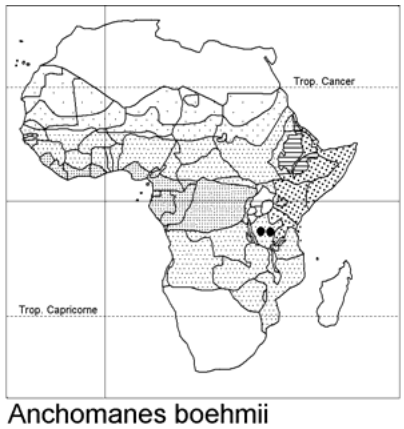
Amorphophallus teuszii



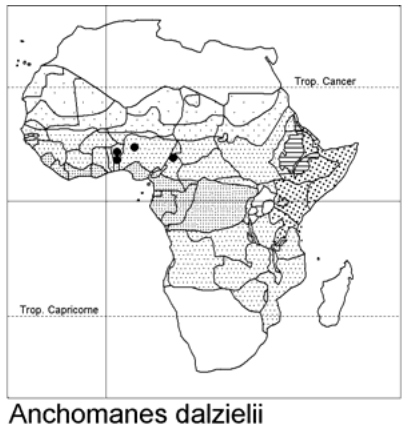
Amorphophallus zenkeri



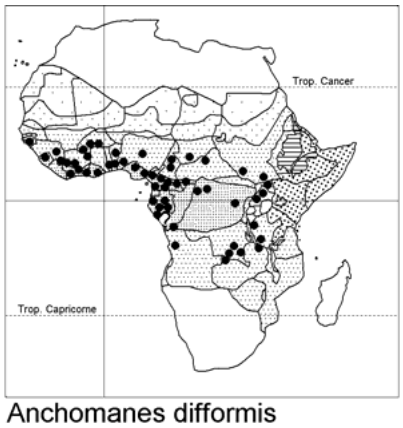
Anchomanes abbreviatus



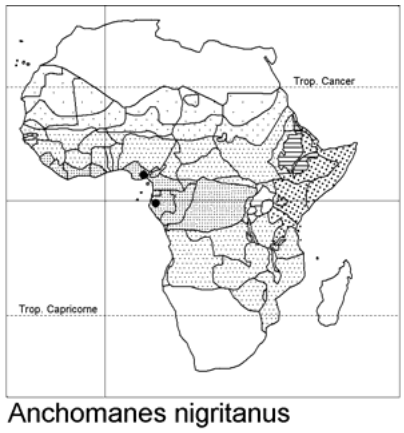
Anchomanes boehmii



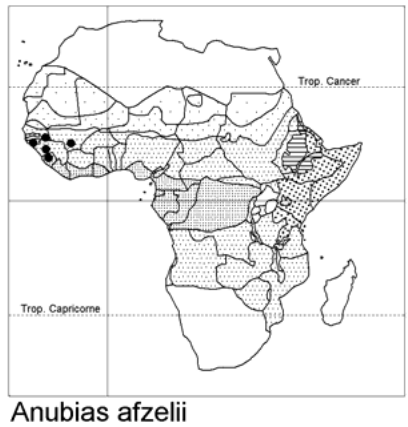
Anchomanes dalzielii



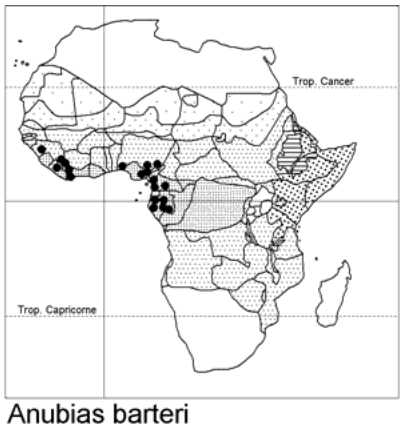
Anchomanes difformis



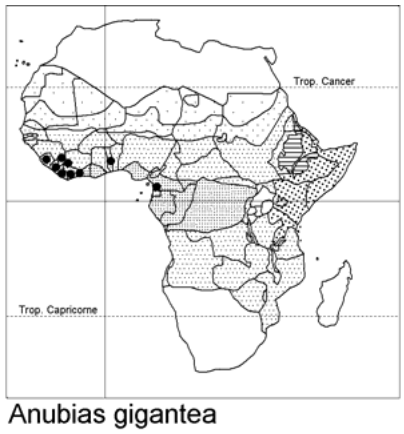
Anchomanes nigritanus



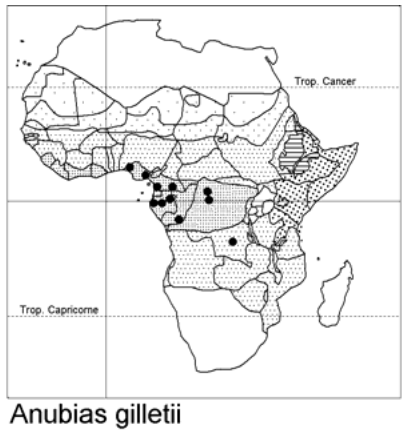
Anubias afzelii



Anubias barteri



Anubias gigantea



Anubias gilletii

ANUBIAS

A. hastifolia Engl., incl. var. *sublobata* Engl.; excl. var. *robusta* Engl. (= *A. gigantea*); Sosef & al., Check-list pl. vascul. Gabon: 76: 2006; Figueiredo & Smith, Pl. Angola: 172, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30.: 45, 2010; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Fl. Cameroun 31: 15, 1988; Mayo & al., Genera Araceae: 151, 1997; Hawthorne & Jongkind, o.c.: 893, 2006.

syn.: Enum. 3: 77, 1995, p.p.; "*Amauriella talbotti* Rendle", in error for *A. obanensis* Rendle

Rhizome creeping and rooting, 0,5-1,5 cm Ø, tip with dense leaves; leaf petiole 9-67 cm long; blade varying from subhastate or 3-partite nearly to the base, to broadly ovate-oblong-lanceolate, glabrous or minutely puberulous on midrib and nerves below; median lobe 10-33 × 3-14 cm, apex acute; lateral lobes to 24 × 8 cm; peduncle 8-24 cm long, sometimes minutely puberulous; spathe oblong-lanceolate, 2-4,5 × 0,5-1 cm, brown, greenish, pinkish or white; spadix 1,5-4 cm long, 0,2-0,5 cm Ø.

Stream banks in forest; swampy forests; rocks; in mud; 250-650 m alt.

A. heterophylla Engl.; Sosef & al., Check-list pl. vascul. Gabon: 76: 2006; Figueiredo & Smith, Pl. Angola: 172, 2008; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: De Wildeman, Etudes fl. Bas- & Moyen-Congo (Ann. Mus. Congo), Sér. 5, 2: pl. 21 (as *A. affinis*), pl. 19 (as *A. engleri*), 1907; Fl. Cameroun 31: 21, 1988.

syn.: Enum. 3: 77, 1995.

Rhizome prostrate and rooting, 0,5-1,7 cm Ø; leaf petiole 3-66 cm long, 0,7-1,7 cm Ø glabrous or minutely puberulous; blade oblong-elliptic-lanceolate, 10-38 × 3-13 cm, apex acute, base cuneate, basal lobes short or absent; peduncle to 27 cm long, glabrous or minutely puberulous; spathe long-elliptic, 1,5-4,5 × 0,4-1,5 cm, apex minutely apiculate, green or dark purple; spadix 1,5-4,5 cm long; berries depressed-globose.

Rocky ground on banks or in beds of water-courses; shady places in forest; sometimes submerged; 20-1100 m alt.

A. heterophylla cited by Lisowski, Fl. Rép. Guinée 1: 381, 2009, seems to refer to *A. afzelii* (given as a synonym). *A. heterophylla* listed by Malaisse, Guide florist. Parc. Natl. Cantanhez (Guinée-Bissau): 147, 2010 (and pl. 696), may belong to *A. afzelii* or *A. barteri* (spathe 3 cm long, green or deep purple), but peduncle very short (1-2 cm long).

A. pynaertii De Wild.; Sosef & al., l.c.; Onana, Vascul. pl. Cameroon…: 154, 2011. . – Icon.: De Wildeman, o.c., Sér. 5, 3: pl. 33, 1910; Fl. Cameroun 31: 14, 1988 (under *A. hastifolia*); Mayo & al., Genera Araceae: 151, 1997.

Rhizome creeping and rooting, 0,5-1,5 cm Ø, often branched; leaf petiole 10-45 cm long; blade hastate, long auriculate with a very wide sinus, or obtuse at base, glabrous above, midrib and veins minutely puberulous below, apex acute, middle lobe ovate or elliptic, 9-29 × 4-14 cm, lateral lobes obtuse to 18 × 7 cm, sometimes almost or totally absent; peduncle slender, 7-27 cm long, glabrous or puberulous; spathe lanceolate-elliptic, 2-3,5 cm long, acute, white, green or olive-brown; spadix 2,5-3,5 cm long, ± sessile; berries depressed-globose.

Wet places, in mud or in water; river banks; mostly in shady places in forest; 20-1450 m alt.

Male flowers distinctive; however, to Ntépé-Nyamè (Fl. Cameroun, l.c.) this character seems doubtful, and the separation from *A. hastifolia* not clear.

ANUBIAS

SYNONYMS:

Anubias affinis De Wild. = **Anubias heterophylla**

auriculata Engl. = **A. hastifolia**

bequaertii De Wild. = **A. heterophylla**

congensis N. E. Br., incl. var. *crassispadix* Engl. = **A. heterophylla**

engleri De Wild. = **A. heterophylla**

erubescens Serebryanyi, nom. 1990 = **A. afzelii**

hastifolia sensu auct., non Engl. = **A. pynaertii**

hastifolia Engl. var. *robusta* Engl. = **A. gigantea**

haullevilleana De Wild. = **A. gilletii**

lanceolata N. E. Br. = **A. barteri** var. **glabra**

fa. *angustifolia* Engl. = **A. barteri** var. **angustifolia**

laurentii De Wild. = **A. gilletii**

minima A. Chev. = **A. barteri** var. **glabra**

nana Engl. = **A. barteri** var. **nana**

undulata Anon. (hort.) = **A. heterophylla**

ARISAEMA / *7 + 1* ?

Genus – Cobra-lilies – of c. 170 species in N America, Mexico, Tropical Africa, Arabian Peninsula, Afghanistan, Pakistan, SW Russia, India, Sri Lanka to China, Japan, Indonesia, Malesia, Philippines (map: Amer. J. Bot. 91: 882, 2004).

Tuber edible (some species often regarded as toxic); in S Ethiopia *Arisaema* is often found growing in farm fields and usually considered as weeds and destroyed. But in times of famine becoming good plants (Gusman & Gusman, 2006: 32).

GUSMAN, G. (2008). Validation of new infrageneric taxa in Arisaema (Araceae). *Syst. Geogr. Pl.* 78: 231.

GUSMAN, G. & L. GUSMAN (2006). *The genus Arisaema: A monograph for botanists and nature lovers. Second revised and updated edition*. A. R. G. Gantner Verlag K. G., FL-Ruggell. 474 pp. [1st edition in 2002].

MURATA, J. & al. (2013). A nomenclatural review on the infrageneric classifications of Arisaema (Araceae). *J. Japan. Bot.* 88: 36-45.

RENNER, S. & al. (2004). A chloroplast phylogeny of Arisaema (Araceae) illustrates Tertiary floristic links between Asia, North America, and East Africa. *Amer. J. Bot.* 91: 881-888.

Arisaema enneaphyllum Hochst. ex A. Rich.; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 495, 2005. – Icon.: Engler, Pflanzenreich 4/23 F: 180, 1920; Bot. Mag. 175: pl. 474, 1965 (as *A. schimperianum*); Linzer Biol. Beitr. 22: 305, 306, 1990 (as *A. polydactylum*); Fl. Trop. E. Afr., Araceae: 62, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 133, 1994; Fl. Eth. & Eritrea 6: 47, 1997; Puff & Sileshi, Pl. Simen: 217, 2005; Gusman & Gusman (2006): 356, 379.

syn.: *A. polydactylum* Riedl; *A. schimperianum* sensu auctt.

Herb deciduous, to 1,2 m tall, 50 cm wide; tuber subglobose, 8 cm Ø; pseudostem c. 0,75 m long; leaves 1-2; petiole 7-25 cm long; blade radiate; leaflets 5-12, all arising from the same point, elliptic to obovate, 6-19 × 1,5-6,5 cm, margins irregularly serrate or entire, apex acute, base cuneate; peduncle 11-24 cm long; spathe-tube *3,5-7,5 × 2,3-3,5 cm*, green, *constricted* near mouth; limb, 6-17 × 3-6 cm, downcurved, *white outside*, white-green striped inside, tip acuminate; spadix 4,3-8,6 cm long, 0,4-1,5 cm Ø; berries subglobose, 1 × 0,7 cm.

Grassy road banks in *Erica arborea* scrub; rocky slopes; thicket margins; under shade; forest margins; near clearings; bracken area; bamboo zone; open *Rapanea*, *Hagenia*, *Dombeya torrida* forest; closed forest; 2250-3100 m alt.

Confused with *A. schimperiana*, often growing in the same localities. *A. enneaphyllum* has a slight constriction at mouth of spathe-tube, not found in *A. schimperianum*.

A. flavum (Forssk.) Schott subsp. **flavum**; Thulin, Fl. Somalia 4: 22-23, 1995. – Icon.: Fl. Eth. & Eritrea 6: 46, 1997; Mayo & al. (1997): 274; Gusman & Gusman (2006): 193, 195-197; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 36, 2001.

bas.: *Arum flavum* Forssk.

syn.: *Dochafa flava* (Forssk.) Schott; *Arisaema abbreviatum* Schott; *A. flavum* subsp. *abbreviatum* (Schott) J. Murata; *A. pertusum* Riedl

Deciduous herb 50-75 cm tall and wide; tuber subglobose, 2-3 cm Ø; pseudostem 20-40 cm long; leaf petiole 8-25 cm long; blade *pedate* with 7-11 leaflets: central one 5-16 × 1-5,5 cm; peduncle 8-25 cm or more long; spathe *3,5-7,2 cm long;* tube 2-4 × 1-1,5 cm, outside green with paler stripes, inside stained with maroon-purple; limb erect or horizontal, lanceolate, 2-6 × 1,2-5 cm, outside yellow, orange-yellow to red-brown, with paler stripes, apex acuminate; spadix 1,3-2,7 cm long; berries densely packed, subcylindric, upper part flattened with centre depressed, red, 1-1,2 × 0,7-1 cm.

Open forest; in shade of *Ficus*, on limestone; limestone rocks; 800-1850 m alt.

Arabian Peninsula, Pakistan, Afghanistan, India, Nepal to W China.

Subsp. **tibeticum** J. Murata [syn.: *A. flavum* var. *tibeticum* (J. Murata) G. & L. Gusman, in Bhutan, China.]

A. mildbraedii Engl. – Icon.: Engler, Pflanzenreich 4/23 F: 173, 1920; Fl. Trop. E. Afr., Araceae: 62, 1985; Troupin, Fl. Rwanda 4: 405, 1988; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 133, 1994; Gusman & Gusman (2006): 169, 180; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 643, 2008.

syn.: *A. bequaertii* De Wild.; *A. masisiense* De Wild.

Deciduous herb to 1,2-2 m tall, 80 cm wide; tuber subglobose, 5 cm Ø; pseudostem 30-45 cm long; leaves 1-2, petiole 15-60 cm long; blade *laxly pedate* with 7-9 leaflets: central one and 2 laterals to 35 × 11 cm, margins *entire* or ± undulate, apex with *filiform tip to 8 cm long;* peduncle 10-30 cm long; spathe 7-23 cm long; tube 3-9 cm long, 0,8-3 cm Ø, green with cream stripes outside; limb down-curved, lanceolate, 5-16 × 2-5 cm, green with broad white stripes, apex sometimes flushed purple, tip with a thread 27 cm long; spadix *4-11 cm long;* berries subglobose 0,6-1 cm Ø.

Humid places; forest in damp shaded sites; bamboo zone; tree plantations; forest edges; open forest with *Myrica* on old lava; locally common; 1400-2620 m alt.

Some overlap with *A. ruwenzoricum* in leaf shape, and *A. mildbraedii* is perhaps only a subspecies of that species.

A. mooneyanum M. G. Gilbert & Mayo; Mayo & al. (2006): 57. – Icon.: Fl. Eth. & Eritrea 6: 48, 1997; Gusman & Gusman (2006): 356.

Deciduous herb to 50 cm tall, 60 cm wide; tuber subglobose, 5 cm Ø; pseudostem c. 10 cm long; leaves 1-2, petiole 17-30 cm long; blade radiate; (all) leaflets obovate-elliptic, 8-12, 7-26 × 1,5-6,5 cm, margin entire or serrulate, apex long acuminate, base cuneate; peduncle 10-20 cm long; spathe 16-39 cm long; tube 6,5-13 cm long, outside glaucous or greenish-yellow suffused

with purple; limb broadly auriculate at base, curved forward, both surfaces glossy, brown or very dark blackish-purple at base, upper part olive-green with dark brown veins, long acuminate; spadix 8-17 cm long; berries unknown.

Grassland associated with forest; 2000-3450 m alt.

"…appears to have spread vigorously in open highland fields in Ethiopia, although it was probably originally a forest edge species" (Mayo & al., 2006, l.c.).

A. ruwenzoricum N. E. Br. – Icon.: Gusman & Gusman (2006): 169, 181.

Deciduous herb, to 1,3 m tall, 70 cm wide; tuber subglobose, 2-6 cm Ø; pseudostem to 1 m long, green, purple or red mottled; leaves 1-2, petiole 8-23 cm long; blade *pedate;* leaflets 5-9, elliptic-obovate, 8-26 × 2,5-10,5 cm, margins entire or serrulate, ± undulate, apex *acuminate*, base cuneate; peduncle 14-26 cm long; spathe 16-28 cm long; tube cylindrical, *6-15* × 1,7-3,5 cm, green with cream or purple stripes outside; limb down-curved, ovate, 10-13 × 3-5,5 cm, coloured as the tube; tip a green thread 4 cm long; spadix *9-17* cm long; berries subglobose, 0,5-1 cm wide.

Bamboo or ericaceous zones in damp shaded sites; sometimes epiphytic amongst moss in tree forks; cultivations; sometimes very common; 1800-3200 m alt.

Similar to *A. mildbraedii* (see above.)

A. schimperianum Schott; Fl. Trop. E. Afr., Araceae: 63, 1985; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 495-496, 2005. – Icon.: Bot. Not. 117: 6, 1984 (as *A. addis-ababense*); Fl. Eth. & Eritrea 6: 49, 1997 (idem); Puff & Sileshi, Pl. Simen: 217, 2005; Gusman & Gusman (2006): 356, 399.

syn.: *A. addis-ababense* Chiov.

Deciduous herb to 2 m tall, 70 cm wide; tuber subglobose, 2-5 cm Ø or more; pseudostem 75 cm long or more; leaves 1-3; petiole 5-40 cm long; blade *radiate*; leaflets 5-15, elliptic, to 27 × 9 cm, margins irregularly serrate to nearly entire, apex acute, base cuneate; peduncle 9-35 cm long; spathe 8-31 cm long; tube cylindrical, hardly restricted at mouth, *3-12 × 0,8-3* cm, green with longitudinal, white or yellow stripes outside; limb down-curved, 5-21,5 × 1-5 cm *green with longitudinal*, *white stripes*, *rarely purple;* spathe tip acuminate, sometimes ending in a very long tail; spadix 3,8-12,8 cm long; berries subglobose, green with yellowish when immature, scarlet when ripe, 5-8 mm Ø.

Open forests; thicket margins; on steep slopes in evergreen bushland; roadsides; stream banks; hill tops; *Podocarpus latifolius* forest; rocky outcrops; rarely epiphytic; sometimes persistent in open grassland after tree clearance; 1800-2820 m alt.

Has been confused with *A. enneaphyllum*.

(**A. somalense** M. G. Gilbert & Mayo); Gusman & Gusman (2006): 442-443. – Icon.: Thulin, Fl. Somalia 4: 22, 1995.

Deciduous herb to c. 60 cm tall; pseudostem short; leaf 1; petiole 12-22 cm long; blade radiate or pedate; leaflets 3-7, broadly elliptic, 10-17,5 × 4-10,5 cm, central one largest, acuminate; peduncle 15-24 cm long; spathe 10,5-14,5 cm long; tube cylindrical, 3,5-5 × 1,6-2,5 cm, green; limb ovate, 7-9,5 × 3,2-7,2 cm, white; spadix 5-8 cm long, sterile appendix 1,4-2,7 cm long; berries unknown.

ARISAEMA SOMALENSE

Juniperus forest on N-facing slope, in shady damp places among large boulders; 1450-1575 m alt.

A very astonishing species. The inflorescence has a strong resemblance with that of *A. enneaphyllum*… Perhaps one faces a hybrid between the pedate and bisexual *A. flavum*… and *A. enneaphyllum* ? (Gusman & Gusman, l.c.).

N Somalia (N2). Only 3 collections known. – Not mapped.

A. ulugurense M. G. Gilbert & Mayo; Fl. Trop. E. Afr., Araceae: 64, 1985. – Icon.: Gusman & Gusman (2006): 356, 412.

Deciduous herb to 1 m tall, 80 cm wide; tuber subglobose, 3-4 cm Ø; pseudostem c. 65 cm long, green to brown-red; leaves 1-2, petiole 30-35 cm long; blade radiate; leaflets *6-8*, broadly elliptic-obovate, 11-38 × 4-13 cm, margin *entire*, apex *acuminate*, base cuneate; peduncle c. 30-35 cm long; spathe 16-28 cm long; tube cylindrical, 5,5-8 cm long, 2,5-3 cm Ø, outside pale green to white, sometimes with red markings; limb *auriculate basally*, 11-20 × 5-8 cm, dull green, tip acuminate with short tail; spadix 8-10,5 cm long; berries subglobose, c. 1 cm Ø.

Bushland; forest; savanna; 2000-2400 m alt.

SYNONYMS:

Arisaema abbreviatum Schott = **Arisaema flavum** subsp. **flavum**

addis-ababense Chiov. = **A. schimperianum**

bequaertii De Wild. = **A. mildbraedii**

flavum (Forssk.) Schott subsp. *abbreviatum* (Schott) J. Murata = **A. flavum** subsp. **flavum**

masisiense De Wild. = **A. mildbraedii**

pertusum Riedl = **A. flavum** subsp. **flavum**

polydactylum Riedl = **A. enneaphyllum**

schimperianum sensu auctt., non Schott = **A. enneaphyllum**

venosum (Dryand. ex Aiton) Blume = **Sauromatum venosum**

(ARODENDRON)

Arodendron engleri Werth = **Typhonodorum lindleyanum**

(ARODES)

Arodes aethiopicum (L.) Kuntze = **Zantedeschia aethiopica**

albomaculatum (Hook.) Kuntze = **Z. albomaculata**

angustilobum (Schott) Kuntze = **Z. albomaculata** subsp. **albomaculata**

hastatum (Hook.) Kuntze = **Z. albomaculata** subsp. **albomaculata**

melanoleucum (Hook. f.) Kuntze = **Z. albomaculata** subsp. **albomaculata**

(ARUM)

Arum abyssinicum A. Rich. = **Amorphophallus abyssinicus**

aphyllum Hook. = **A. aphyllus**

bicolor Dryand. = **Caladium bicolor**

clavatum Desf. = **Sauromatum venosum**

colocasia L. = **Colocasia esculenta**

ARUM

esculentum L. = **C. esculenta**

flavum Forssk. = **Arisaema flavum**

fugax Salisb. = **Sauromatum venosum**

guttatum Wall. = **S. venosum**

macrorrhizum L. = **Alocasia macrorrhiza**

pedatum Link & Otto = **Sauromatum venosum**

pedatum Fisch. ex Spreng. = **S. venosum**

sagittifolium L. = **Xanthosoma sagittifolium**

seguine Jacq. = **Dieffenbachia seguine**

sessiliflorum Roxb. = **Sauromatum venosum**

simlense Engl. = **S. venosum**

trifidum Desf. = **Amorphophallus aphyllus**

venosum Dryand. ex Aiton = **Sauromatum venosum**

"viviparium" auct. = **Remusatia vivipara**

viviparum Roxb. = **R. vivipara**

(BRACHYSPATHA)

Brachyspatha consimilis (Blume) Schott = **Amorphophallus consimilis**

[CALADIUM]

Tropical S. American, West Indian genus of c. 12 species, with subglobose tuberous rootstock. **Caladium bicolor** (Aiton) Vent. (bas.: *Arum bicolor* Aiton) and its many cultivated varieties are grown as ornamentals for the decorative leaves (icon.: Mayo & al., 1997: 208; Akoegninou & al., Fl. analyt. Bénin: 45, 2006). Plant c. 50 cm tall with a crown of cordate-sagittate leaves variegated with white and red patches or with pink centre; peduncle 17-27 cm long, erect; spathe 7-13 cm long, tube green, inflated; spadix shorter than spathe, with flowers to the top.

Naturalised, subspontaneous, in W to NE Africa, Cameroon, Gabon, Zanzibar, Pemba, in secondary forest, road sides, fallow fields, *(Coffea)* plantations, gardens.

For forms, varieties and synonyms, see World Checklist of Selected Plant Families, Araceae, Roy. Bot. Gard., Kew.

SYNONYMS:

Caladium esculentum (L.) Vent. = **Colocasia esculenta**

petiolatum Hook. = **Anchomanes difformis**

scandens (P. Beauv.) Willd. = **Culcasia scandens**

viviparum (Roxb.) Nees = **Remusatia vivipara**

zamiifolium Lodd. = **Zamioculcas zamiifolia**

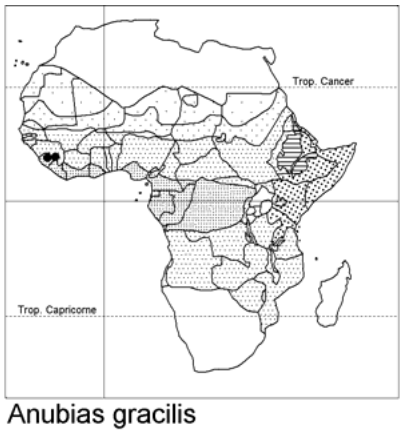
(CALLA)

Calla aethiopica L. = **Zantedeschia aethiopica**

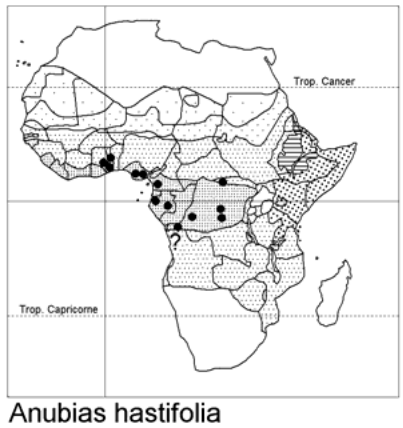
ambigua Salisb. = **Z. aethiopica**

moschata Moench. = **Z. aethiopica**

oculata Lindl. = **Z. albomaculata** subsp. **albomaculata**



Anubias gracilis



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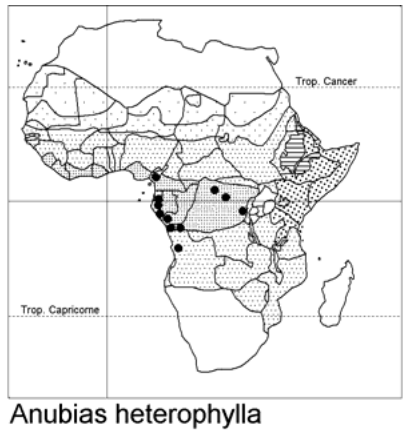
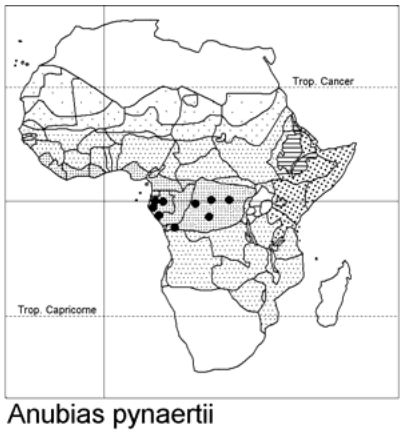
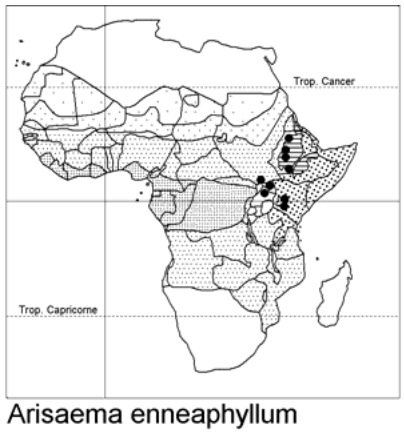


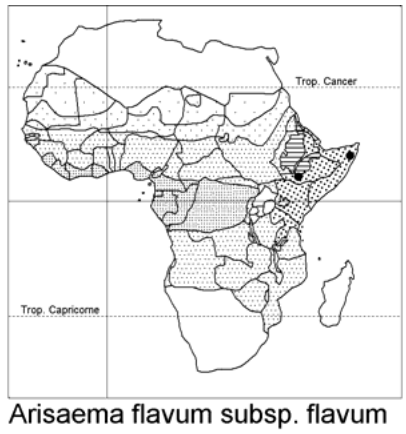
Anubias heterophylla



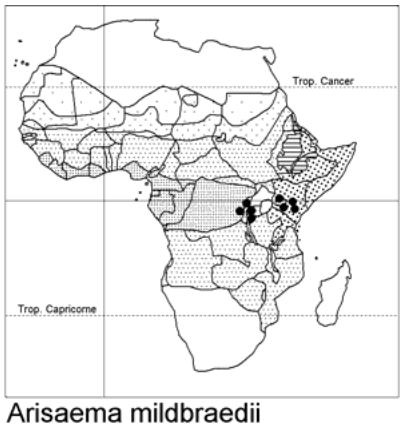
Anubias pynaertii



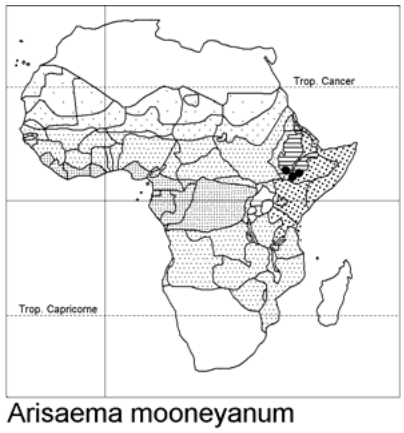
Arisaema enneaphyllum



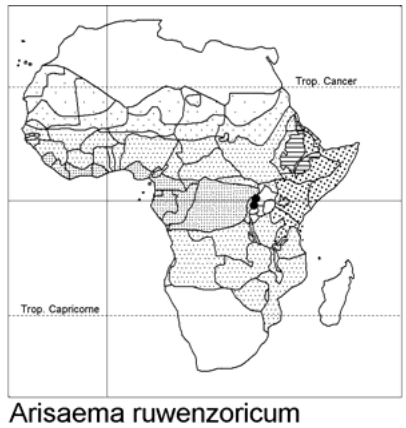
Arisaema flavum subsp. flavum



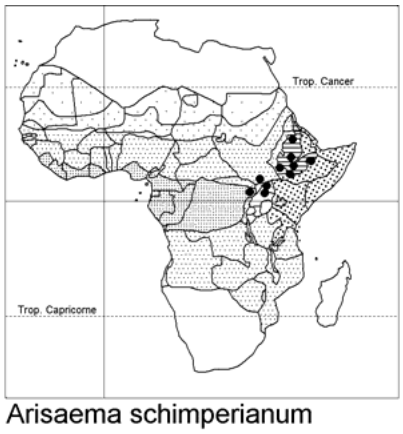
Arisaema mildbraedii



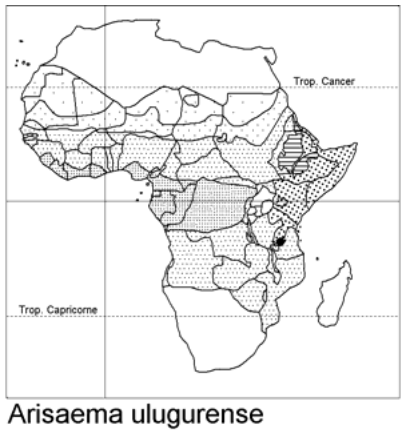
Arisaema mooneyanum



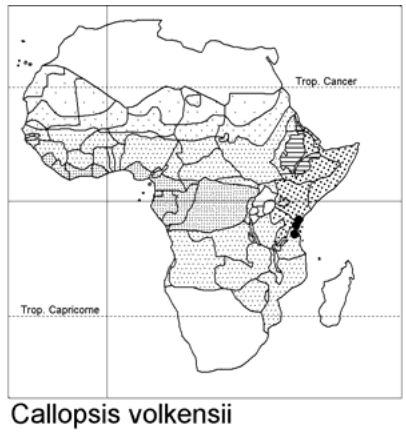
Arisaema ruwenzoricum



Arisaema schimperianum



Arisaema ulugurense



Callopsis volkensii

CALLOPSIS / *1*

Monotypic genus.

Callopsis volkensii Engl.; Fl. Trop. E. Afr., Araceae: 56, 1985. – Icon.: Engler, Pflanzenreich 4/23 F: 59, 1920; Mayo & al. (1997): 234, pl. 124 fig. B.

Evergreen herb; rhizome creeping, 2-4 mm Ø; leaf petiole 3-20 cm long, often minutely hispid; blade cordate-ovate, 7-22 × 5-12 cm, minutely hispid-scabrid below, somewhat bullate, apex often slightly oblique; inflorescences several, appearing with the leaves; peduncle slender, 4-20 cm long; spathe ovate-subcircular, *white*, becoming reddish in fruit, 2-5 × 1,2-3 cm; spadix shorter than spathe; berries elliptic, 0,6-0,7 × 0,3-0,4 cm, green.

Evergreen forest in leaf litter; sometimes very abundant; 45-800 m alt.

Cultivated in Tanzania as "Dwarf lily". – Grown in greenhouses of the Bot. Gard. Nancy, France (Hommes & Plantes 69: 31, 2009).

SYNONYM:

Callopsis hallaei Bogner = **Nephthytis hallaei**

CERCESTIS / *11*

Tropical African genus; climbing herbs with laticifers; producing flagelliform shoots with long internodes with only cataphylls followed by thicker flowering stems with several foliage leaves; berries red.

One species without mature flowers; in another species the infrutescence is unknown.

BARABÉ, D. & C. BERTRAND (1996). Organogénie florale des genres Culcasia et Cercestis (Araceae). *Canad. J. Bot.* 74: 898-908.

JONGKIND, C. C. H. (2010). Notes on the genus Cercestis (Araceae) and a new species from Liberia: *Cercestis hepperi* Jongkind sp. nov. *Nord. J. Bot.* 28: 445-447 [with a key to all species].

Cercestis afzelii Schott, incl. var. *latiloba* Engl.; Lisowski, Fl. Rép. Guinée 1: 381, 2009; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire : 214, 2011. – Icon. : Adam, Fl. Mts Nimba 5: 1846-1847, 1981; Mayo & al. (1997): 229; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 893, 2006; Malaisse, Guide florist. Parc. Natl. Cantanhez (Guinée-Bissau): photos. 697 a-c, 2010.

syn.: *C. scaber* A. Chev., nom.

Creeping, climbing or epiphytic (root climber) herb 10-15 m high; leaf petiole to 20 cm long; blade *3-lobed* or *3-partite*, 20-30 cm long, lobes to 20 cm long, held ± vertical, very variable; peduncle 3-4 cm long; spathe 5-7 cm long, dark *green* with red dots; spadix 5-6 cm long, *white;* infrutescence very dense; berries pentagonal, red, to 2 cm Ø.

Secondary forests; heliophilous; half deciduous dense forest; forest gallery; very humus-bearing soil; epiphytic on bole to 5 m height; palm-grove; 300-800 m alt.

C. camerunensis (Ntépé-Nyamè) Bogner, non *C. kamerunianus* (Engl.) N. E. Br.; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Cheek & al., Pl. Kupe…: 427, 2004; Sosef & al., Check-list pl. vascul. Gabon: 76, 2006; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Adansonia, Sér. 2, 20: 452-456, 1981; Fl. Cameroun 31: frontispiece, 61-63, 1988 (under *Rhektophyllum*).

Herb at first erect on stilt-roots to 50 cm tall with very short pseudostem, becoming creeping by a stolon produced at its apex and eventually bearing leafy shoots, finally climbing to 30 m height,

rooting along the whole length; stems with pendulous roots; leaf petiole 0,6-1 m long; blade 0,35-1,5 m long, *ovate*, *base truncate, becoming cordate, never variegated* when young, becoming *pinnately divided;* inflorescences terminal, *6-15* in each floral sympodium, only on climbing stems usually higher than 3 m from ground level; bracts light green or violaceous; spathe 10-18 cm long, fleshy, yellowish-green; peduncle 18-25 cm long, when broken exuding a red sap; *ovary pink;* infrutescence 9-14 cm long, 6 cm Ø, with a persistent appendix c. 9 cm long.

Rain-forest, evergreen forest on humid or swampy soils, and in open plots (Selbyana 23: 122, 2002); forest gallery; 10-1000 m alt.

C. congoensis Engl.; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Bull. Jard. Bot. Natl. Belg. 67: 302-304, 1999; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 220-221, 2002; Sosef & al., l.c.; Figueiredo & Smith, Pl. Angola: 172, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 45, 2010; Onana, Vascul pl. Cameroon…: 154, 2011.

Semi-epiphytic herb, first creeping, becoming climbing up to 5 m height above ground level; stoloniferous stems 2-6 mm Ø, branched; leaf petiole 8,5-32 cm long; blade hastate; anterior lobe 10-20 × 4,5-11,5 cm, deltoid or broadly triangular, apex acute or with acumen 0,5-1 cm long; posterior lobes 4,5-12 × 2,5 cm, nearly horizontal, apex rounded with *many translucent glandular lines;* inflorescences axillary, 1-2; peduncle 6-15 cm long; spathe green to yellowish-green with circular purple, maroon or blackish dots, 3-9,5 cm long; spadix slightly exserted; berries red when ripe, subglobose, to 1 cm Ø.

Riverine forest; seasonally flooded grounds; forest gallery; forming dense mats or invading tree trunks; 120-650 m alt.

C. dinklagei Engl. – Types: Dinklage 790, 1302, Cameroon: Batanga; Büttner 518, Gabon: Sibange. – Icon.: Engler, Pflanzenreich 4/23 C: 117, 1911; Mayo & al. (1997): 229; Nord. J. Bot. 28: 446 fig. 1D, 2010.

syn.: *C. ledermannii* Engl. – Type: Ledermann 431, Cameroon: Campo.

Small climber; leaf petiole 6-20 cm long; blade oblong, apex gradually shortly acuminate, *15-17 cm* long, basal lobes often *strongly spreading out, 1,5-2 cm* long and broad; spathe 6 × 1 cm; berries subglobose, c. 8 mm thick, *soft* and *falling apart*.

Alluvial forest with many shrubby trees.

Certainly known only in Cameroon and Gabon. Elsewhere confused with *C. sagittatus*, *C. stigmaticus*, syn.: *C. elliotii;* specimens in need of further study.

Our map is based only on the syntypes of *C. dinklagei* and *C. ledermannii*.

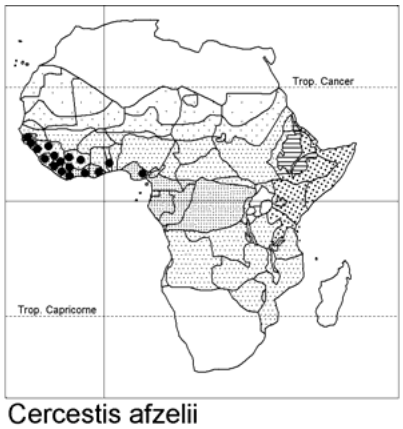
C. hepperi Jongkind – Icon.: Nord. J. Bot. 28: 446-447, 2010.

Creeping herb forming an open carpet, rarely climbing; leaves rosulate; petiole 7-20 cm long; lamina with *yellowish margin*, 15-22 × 5-10 cm, base cordate, basal lobes round, apex acute; peduncle *7-14 cm* long, greenish; spadix shorter than spathe; mature flowers unknown; berries globose, orange-red, easily detached from the soft central axis.

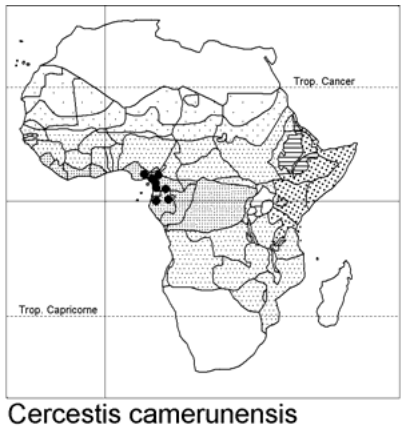
Rain-forest; growing as an open carpet on floor.

Near *C. ivorensis*.

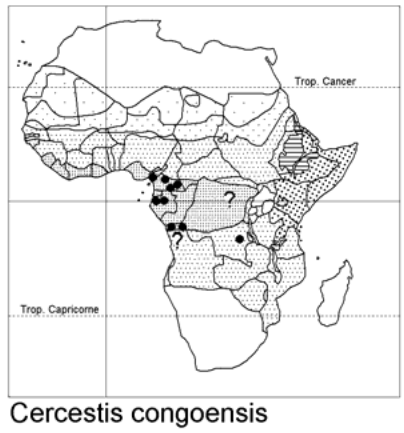
Cited in Fl. W. Trop. Afr., ed. 2, 3/1: 127, 1968 as close to *C. kamerunensis* with specimens Linder 1061, 1334; Baldwin 11445, 11484.



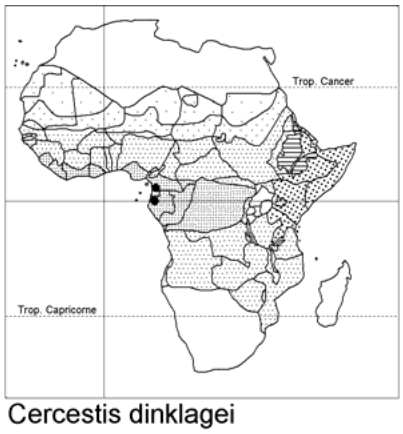
Cercestis afzelii



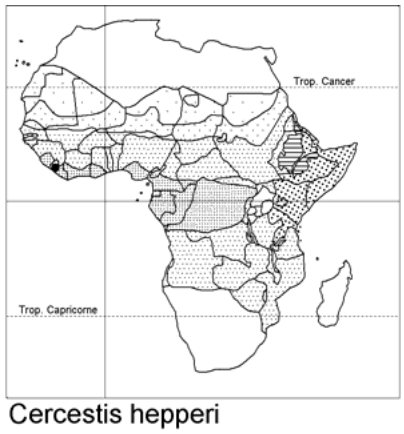
Cercestis camerunensis



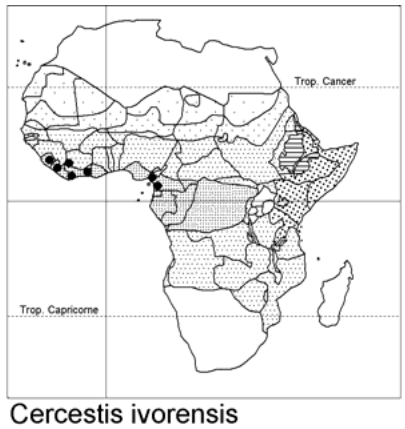
Cercestis congoensis



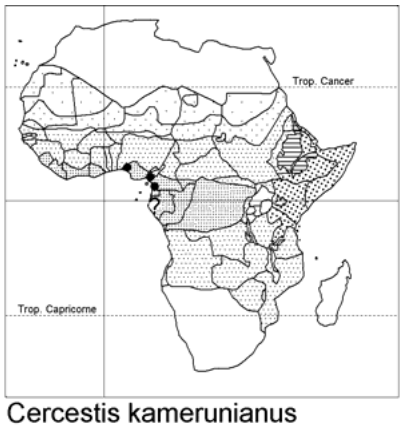
Cercestis dinklagei



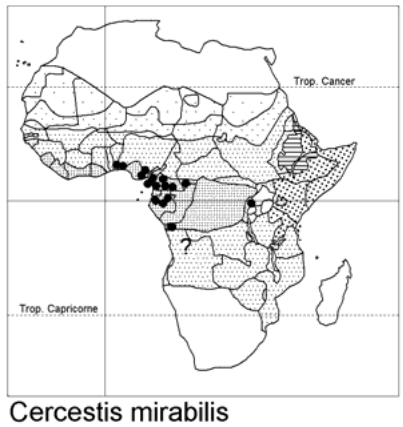
Cercestis hepperi



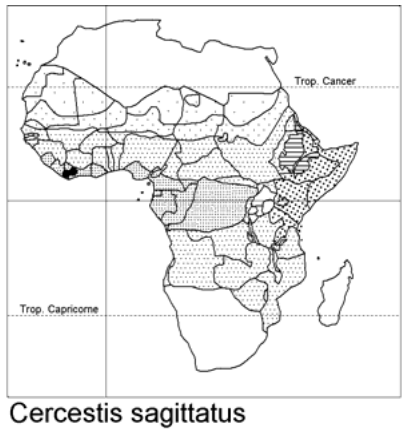
Cercestis ivorensis



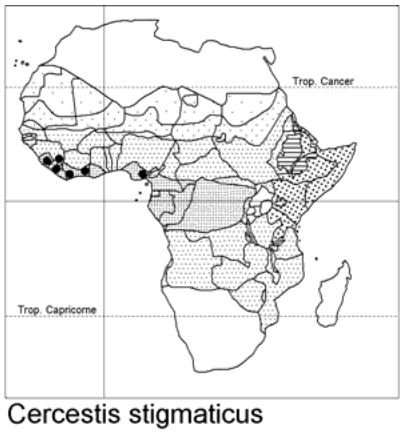
Cercestis kamerunianus



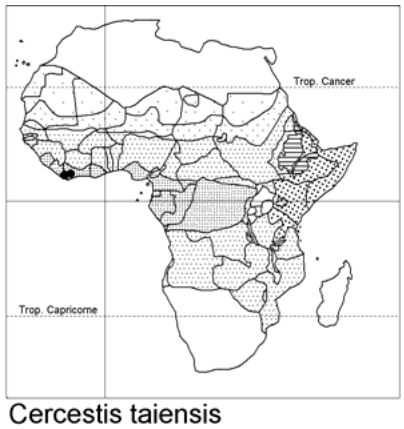
Cercestis mirabilis



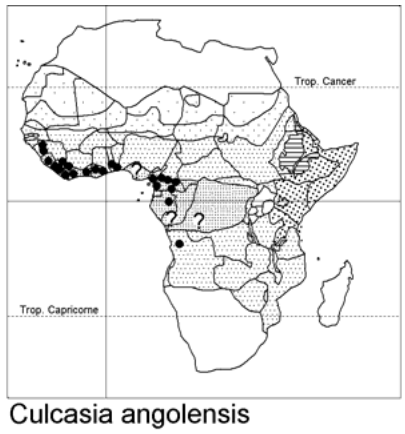
Cercestis sagittatus



Cercestis stigmaticus



Cercestis taiensis



Culcasia angolensis

CERCESTIS

C. ivorensis A. Chev.; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 892, 2006; Nord. J. Bot. 28: 445-447, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon. : Fl. Cameroun 31: 73, 1988; Mayo & al (1997): pl. 123.

Resembling *C. hepperi*, but: leaves sometimes with truncate base (not always cordate), blade margin *not* yellowish; peduncle 3-5 cm long (not 7-14 cm).

Rain-forest, in shade; often found on the first several meters of tree trunks; 200-400 m alt.

Not in Gabon.

C. kamerunianus (Engl.) N. E. Br., non *C. camerunensis* (Ntépé-Nyamè) Bogner – Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Sosef & al., Check-list pl. vascul. Gabon: 76, 2006; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Engler, Pflanzenreich 4/23 C: 115, 1911; Fl. Cameroun 31: 74, 1988; Mayo & al. (1997): 229.

syn.: Enum. 3: 78, 1995.

Climbing herb to 1,5-5 m high; pseudostem 2-5 mm Ø; leaf petiole 2,5-10,5 cm long; blade oblong-elliptic, 6,5-23,5 × 4-9,5 cm, base *very shortly cordate* to subtruncate, apex acute, *glandular*, *translucent lines* present; inflorescences 1-2; peduncle 3-6,5 cm; spathe dull greenish- purple, 3,5-4,5 cm long, apex obtuse; spadix often exserted; berries globose.

Bushland. Sometimes epiphytic; swampy forest; 1-400 m alt.

C. mirabilis (N. E. Br.) Bogner; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 207-208, 1985 (under *Rhektophyllum*); Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 221, 2001; Sosef & al., Check-list pl. vascul. Gabon: 76, 2006; Figueiredo & Smith, Pl. Angola: 172, 2008; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: J. Bot. 20: pl. 230, 1882; Engler, Pflanzenreich 4/23C: 120, 1911 (under *Rhektophyllum*); Adansonia, Sér. 2, 20: 453, 455, 1981; Fl. Trop. E. Afr., Araceae: 23, 1985 (idem); Fl. Cameroun 31: 61, 1988 (idem); Mayo & al. (1997): 229; Bown, Aroids: 193, 2000; Akoegninou & al., Fl. analyt. Bénin: 46, 2006.

syn.: Enum. 3: 78, 1995; *Nephthytis picturata* N. E. Br., incl. var. *angustata* N. E. Br.

Herb resembling *C. camerunensis*, initially terrestrial, with hastate *marbled white* leaves, 14-23 × 15-25 cm, base V-shaped; becoming a climbing epiphyte to c. 10 m long with long pendulous warty roots, then losing the marbling, leaf-blades becoming pinnately lobed; petiole to 45 cm long, blade 40-65 × 30-40 cm; *inflorescences 1-6* in each floral sympodium; peduncle 2-4,5 cm long, 1,2 cm Ø; spathe 6-9 cm long, outside dull green, slightly reddish tinged near base, inside whitish green, ± glossy; spadix slightly longer than spathe, 6,5-9 cm long; ovary *light green to creamy yellow*.

Rain-forest and open places in forest (Selbyana 23: 122-123, 2002); 50-900 m alt.

Bioko/Fernando Poo.

CERCESTIS

C. sagittatus Engl.; Jongkind, Nord. J. Bot. 28: 446, 2010. – Icon.: Knecht, Aracées Côte d'Ivoire: 187, 1983 (leaf).

Resembling *C. dinklagei*, but a *stout* climber 4-10 m long; leaf blade narrowly triangular, c. 20 × 9-13 cm, with basal lobes *never* strongly spreading out; mature *infrutescence* remaining *entire* at maturity.

Also resembling *C. stigmaticus* but basal auricles of leaf blade narrowly triangular, very obtuse-rounded, 4-5 cm long; blade not pandurate, narrowly triangular (see above) with 4-5 pairs of veins; peduncle in fruit 2 cm long; infrutescence 5 cm long; berries c. 1 cm Ø.

Rain-forest.

C. stigmaticus N. E. Br.; Fl. W. Trop. Afr., ed. 2, 3/1: 126, 1968. – Icon.: Adam, Fl. Mts Nimba 5: 1848-1850, 1981; Mayo & al. (1997): 229.

syn.: *C. elliotii* Engl.; *C. alepensis* A. Chev., nom. (? excl. specim. Chevalier 20961); *C. hastifolius* A. Chev., nom. (? excl. specim. Chevalier 16357, 19843).

A slender climber resembling *C. sagittatus* but: basal auricles of leaf blade 4-5 cm long, obtuse; lamina pandurate, acutely acuminate, 15-22 cm long, with c. 5 pairs of lateral veins; peduncle 5-8 cm long; bracts lanceolate, 5 cm long, papery; spathe 5-6,5 cm long, purple at base; spadix creamy.

Rain-forest.

Bioko/Fernando Poo.

C. taiensis Bogner & Knecht; Jongkind, Nord. J. Bot., l.c.; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011. – Icon.: Bull. Mus. Natl. Hist. Nat., Paris, Sér. 4, Sect. B, Adansonia 16: 332, 333, 1995; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 894, 2006.

Herb *creeping*, rarely climbing to 3-4 m long; leaves 4-5, rosulate; petiole 4-10 cm long, c. 2 mm Ø; blade ovate, never lobed, base *cuneate to cordate*, 10-16 × 4,5-6,5 cm, with 5-7 primary lateral veins on each side, *parallel*, running towards the apex, with *numerous linear secretory canals* between them, mostly from 1-4 cm long, shortest c. *0,3 cm*, longest to *6 cm;* peduncle 3-3,5 cm long, c. 0,5 cm Ø, dark green; spathe c. 5 cm long, outside dark green, inside purplish basally, yellowish-green above; spadix c. 5,5 cm long; ovule *campylotropus*, c. 1 mm long; fruit unknown.

Rain-forest; in dense populations (> 100.000 individuals on c. 0,5 ha), in shady places; sandy loam.

SYNONYMS:

Cercestis alepensis A. Chev., nom. = **Cercestis stigmaticus**

elliotii Engl. = **C. stigmaticus**

gabunensis Engl. = **C. kamerunianus**

hastifolius A. Chev., nom. = **C. stigmaticus**

lanceolatus Engl. = **C. ivorensis**

ledermannii Engl. = **C. dinklagei**

scaber A. Chev., nom. = **C. afzelii**

[COLOCASIA]

Genus of 8 species in tropical Asia, **Colocasia esculenta** (L.) Schott [bas.: *Arum esculentum* L.; syn.: Enum. 3: 78, 1995; *Caladium esculentum* (L.) Vent.; *Arum colocasia* L.; full synonymy in World Checklist of Selected Plant Families, Araceae, Roy. Bot. Gard., Kew], the world's most economically important aroid, is cultivated and naturalized throughout the humid tropics and subtropics. Probably native to tropical Asia extending into the Malay Archipelago and perhaps to Papuasia, Australia (Mayo & al., 1997: 283).

Cultivated extensively in tropical Africa at 400-2400 m alt. in wet places for its starch-rich tubers ground to give a kind of flour, taro. Frequently naturalized near streams, on river banks or waterfalls. In Togo a member of the *Marantochloo purpureae-Anubiadetum giganteae* association (Acta Bot. Gall. 158: 413, 2011). The leaves are also used as a vegetable. See Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 199-202, 1985. Also: Fujimoto in Econ. Bot. 63: 152-166, 2009, on cultivars in SW Ethiopia; Orchard in Austral. Syst. Bot. Soc. Newsl. 129: 2-5, 2006, referring to the infra-specific variation.

Icon.: Fl Mascareignes 192, Aracées: 19, 1984; Fl. Cameroun 31: 123, 1988; Fl. Eth. & Eritrea 6: 40, 1997; Mayo & al. (1998): 61; Akoegninou, Fl. analyt. Bénin: 46, 2006.

Robust herb; stem a swollen starchy tuber, to 30 cm long, 10-15 cm Ø, sometimes with stolons; leaves in a whorl, erect, 1-2 m tall; blade broadly ovate in outline, peltate, cordate-sagittate, 20-40 × 15-35 cm, basal lobes ± rounded, 3-7 cm long; flowering rare in some cultivars; peduncle c. 15 cm long; spathe 20-30 cm long, basal tube green, short, limb yellow to orange; spadix shorter than spathe with conic sterile appendix 4 cm long (or absent).

SYNONYMS:

Colocasia aethiopica (L.) Link = **Zantedeschia aethiopica**

vivipara (Roxb.) Thwaites = **Remusatia vivipara**

(CORYNOPHALLUS)

Corynophallus afzelii Schott, incl. var. *elegans* Mast., var. *latifolius* Mast., var. *spectabilis* Mast. = **Amorphophallus aphyllus**

angolensis (Welw. ex Schott) Kuntze = **A. angolensis**

fontanesii Kuntze = **A. aphyllus**

gratus (Schott) Kuntze = **A. abyssinicus** subsp. **abyssinicus**

leonensis (Lem.) Engl., incl. var. *elegans* (Mast.) Engl., var. *latifolius* (Mast.) Engl. = **A. aphyllus**

maximus (Engl.) Kuntze = **A. maximus**

mossambicensis (Schott) Kuntze = **A. mossambicensis**

CULCASIA / *27 + 1* ?

Tropical African genus, mainly in the Guineo-Congolian region. Very difficult genus in need of a complete revision (Akoegninou & al., Fl. analyt. Bénin: 48, 2006).

Among the species listed below the inflorescence is unknown in 1 species, the berries are unknown in 2 species, and one species is known only from the type.

BARABÉ, D. & C. BERTRAND (1996). See above under *Cercestis*.

Culcasia angolensis Welw. ex Schott; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 202, 1985; Cable & Cheek, Pl. Mt Cameroon: 147, 1998 (as *C. barombensis*); Cheek & al., Pl. Kupe…: 427, 2004; Akoegninou & al., Fl. analyt. Bénin: 47, 2006; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Figueiredo & Smith, Pl. Angola: 172, 2008; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011; Onana, Vascul. pl. Cameroon…: 154, 2011. – Icon.: Adam, Fl. Mts Nimba 5: 1851-1852, 1981; Boissiera 33: 170, 1981; Fl. Cameroun 31: 105, 1988 (as *C. barombensis*); Mayo & al. (1997): 227 fig. C; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 893, 895, 2006.

syn.: *C. angolensis* fa. *angustifolia* Engl., 1892, and var. *angustifolia* (Engl.) Engl., 1905; *C. barombensis* N. E. Br. 1901 (all with the same specimen cited: Preuss 388).

Robust herbaceous climber (always) adhering to host tree by clasping roots, 0,5-30 m long; stem 0,5-1 cm Ø; leaf petiole 11-25 cm long; blade elliptic-oblong to ovate, 16-45 × 6,5-20 cm, ± asymmetrical, base cuneate or broadly rounded to truncate, *lateral veins numerous,* fine, but c. 10 pairs conspicuous, *parallel bending to the leaf apex* in upper part of blade; inflorescences terminal, paired or numerous in each sympodium; scape racemiform, 7-17 cm long; peduncle 3-11 cm long; spathe pale green or snow-white, 4,5-7 cm long, long apiculate; spadix yellow, clavate, apex rounded; bracts to 14 cm long, sometimes longer than peduncle and spathe together; berries globose, red, as big as a small pea.

Secondary or half-deciduous forests; primitive damp shady woods occurring generally with *Platycerium angolense*, *Asparagus* and smaller epiphytic ferns (Angola); on *Sterculia* and *Elaeis* trunks; riparian forest, on *Myrianthus libericus*; rain-forest, on *Ceiba pentandra;* humid depression; 1-1400 m alt.

Bioko/Fernando Poo, S. Tomé (Figueiredo & Smith in Bothalia 41: 46, 2011).

C. annetii Ntépé-Nyamè; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Onana, Vascul pl. Cameroon…: 155, 2011; Chatelain & al. (2011): l.c. – Icon.: Fl. Cameroun 31: 110, 1988.

Climbing herb to 2 m long; stem 2-3 mm Ø, with numerous very short clasping roots; leaf petiole 3-6,5 cm long; blade 9-22 × 4-7,5 cm, lanceolate, oblique, slightly *fiddle-shaped*, base *truncate*, *subpeltate* to *peltate*, apex acute; inflorescences terminal, 2-3 in each sympodium; peduncle 2,5-3,5 cm long; spathe greenish-brown, 3-5,5 cm long, apiculate; spadix often exserted, shortly stipitate; berries unknown.

Forest; 400-600 m alt.

Near *C. simiarum* ?, *C.* ? *afzelii* Schott.

C. bequaertii De Wild., Pl. Bequaert. 1: 167 !, 1922. – Cable & Cheek, Pl. Mt Cameroon: 148, 1998 (as *C. sapinii*); Cheek & al., Pl. Kupe…: 428, 2004 (idem); Hawthorne & Jongkind, Woody pl. west. Afric. for.: 894, 2006 (as *C. seretii*); Lisowski, Fl. Rép. Guinée 1: 381-382, 2009 (idem); Chatelain & al. (2011): l.c. (idem); Onana, Vascul. pl. Cameroon…: 155, 2011 (as *C. sapinii*, *C. seretii*); Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011 (idem). – Icon.: Kew Bull. 21: 323, 1967 as *C. sapinii*) and p. 318 (as *C. seretii*); Adam, Fl. Mts Nimba 5: 1860-1862, 1981 (as *C. seretii*); Knecht, Aracées Côte d'Ivoire: 211, 1983 (as *C. seretii*); Fl. Cameroun 31: 113, 1988; Boyce in Bot. Mag. 12/3: pl. 274 and p. 139, 1995.

syn.: *C. sapinii* De Wild., Pl. Bequaert. 1: 170, 1922; *C. seretii* De Wild., ibid.: 172.

CULCASIA BEQUAERTII

Climbing slender herb 1-2 m long; stem 2-4 mm Ø, with tough clasping roots adhering to substrate; new shoots copper-orange; leaf petiole 5,5-13 cm long; blade oblong-elliptic, slightly lanceolate to oblanceolate, sometimes cuneate, 10-20 × 3-6 cm, decurrent on petiole, apex acuminate 0,7-2,5 cm long, with rather *numerous glandular streaks;* inflorescences axillary, 1-2 in each sympodium; peduncle 7-13 cm long; spathe bronze-green, 2,5-4 cm long, 0,8-1,4 cm wide, mucronate; spadix white or cream, exceeding spathe at anthesis; berries obovoid, 1-2,2 × 0,6-1,5 cm, orange to red.

Primary rain-forest, in swamp; riverine forest; secondary forests; along water-course; on trees or stones; 1-1000 m alt.

C. bosii Ntépé-Nyamè; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Onana, Vascul. pl. Cameroon…: 155, 2011; Onana & Cheek, Red Data Book flow. pl. Cameroon: 354, 548 (map), 2012. – Icon.: Fl. Cameroun 31: 112, 1988.

Climbing herb, hemi-epiphyte, to 2 m long; stem small, racemose at apex, 2,5 mm Ø, with small short clasping roots; petiole 2,5-5 cm long; blade 4,5-10 × 1-4 cm, lanceolate, asymmetric, *densely riddled* with *big translucent, blackish dashes and dots;* inflorescence terminal, solitary; peduncle filiform, 5,5-8,5 cm, curved at apex; spathe green, c. 2 cm long; berries unknown.

Evergreen forest with *Caesalpiniaceae*, *Saccoglottis gabonensis*; 0-1020 m alt.

Near *C. bequaertii*, *C. glandulosum*.

C. brevipetiolata Bogner – Icon.: Willdenowia 41: 58-59, 2011.

Climbing herb, c. 1 m long or more; stem 2-3 mm Ø; leaf petiole 1,8-2,6 cm long including sheath (*petiole above* the *sheath* only *3-4 mm long*); blade *ovate*, oblique, 7-8 × 4,5 cm, base rounded to subcordate, apex acute, venation reticulate; peduncle 1,3-1,5 cm long, 1,5-1,8 mm Ø; spathe not constricted, pale yellow-green, 1,2-1,5 cm long, apex acute; spadix c. 1 cm long, c. 3 mm Ø; berries depressed-globose, 0,8-1 cm Ø, orange-red.

Climbing on dead tree trunk; c. 500 m alt.

Near *C. lanceolata*, *C. loukandensis*, *C. parviflora*, *C. rotundifolia*.

Only known from the type collected in 1990.

(**C. caudata** Engl.)

Stems slender, creeping and rooting, internodes *4-5 cm long*, 2 mm Ø, longitudinally furrowed; leaf petiole 5-6 cm long; blade elongate-lanceolate, 12-15 × 2,5-3 cm, slightly asymmetric, caudate-acuminate, tip with acumen 2 cm long; peduncle c. 5 cm long; spathe ovate, shell-shaped, 2 cm long, 1,5 cm wide, white; spadix longer than spathe, 2,5 cm long, 5 mm Ø.

High forest, at base of tree trunk.

NE Zaire: Ituri, between Mawambi and Awakubi (c. 1°01'Nx28°34'E = near the Uganda border).

Resembling *C. lancifolia* (= *C. scandens*) but internodes longer, petioles longer, blade long-acuminate, spathe broadly ovoid.

Known only from the type (Mildbraed 3138) collected in 1908.

Taxonomic status uncertain.

CULCASIA

C. dinklagei Engl.; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 221, 2002; Cheek & al. Pl. Kupe…: 427, 2004; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 44, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 216, 2011. – Icon.: Engler, Pflanzenreich 4/23 B: 298, 1905; Fl. Cameroun 31: 100, 1988.

syn.: *C. pynaertii* De Wild.; *C. engleriana* A. Chev., p.p., quoad specim. Chevalier 19585, 21368; ? *C. striolata* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 124, 1968, p.p., quoad specim. Scott Elliot 5293, Baldwin 9811, et sensu Lisowski, Fl. Rép. Guinée 1: 382, 2009, idem, – these and other specimes cited are in need of revision.

Climber or erect herb on stilt roots ± pubescent; stems often rhizomatous, 15-60 cm long; leaf petiole 2-9,5 cm long; blade 12-36 × 4-18 cm, *oblanceolate* to *obovate,* asymmetrical, *broadest in the upper half,* base narrowed to obtuse-rounded, with transparent lines; inflorescences 1-2 in each sympodium; peduncle 2-7 cm long, pendulous in fruit; spathe light green or yellowish, 2-4,5 cm long; berries orange or red, globose or ± lobed, 1,5-2,5 cm.

Riverine-, humid- or swampy forests; terra firma mixed species forest; *Gilbertiodendron dewevrei* forest; 1-950 m alt.

Near *C. mannii*.

Our map is incomplete and provisional.

C. ekongoloi Ntépé-Nyamè; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Cheek & al., Pl. Kupe…: 427, 2004; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 148, 2010; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Fl. Cameroun 31: 106, 1988.

Creeping herb becoming climbing to 6 m height; stem densely and *finely verrucose*, 2-5 mm Ø; leaf petiole 7-11 cm long; blade 10-22 × 4-8 cm, lanceolate to oblong-lanceolate, asymmetric, base cuneiform to obtuse, *shortly decurrent* on the petiole, apex *falciform*, with transparent lines; inflorescences terminal, 1-6 in each sympodium; peduncle 3-9 cm long; spathe 2-3 cm long, green, *not constricted* towards base; spadix cream, *enclosed*, *with thick stipe 3-7 mm long*; berries green becoming orange, finally red.

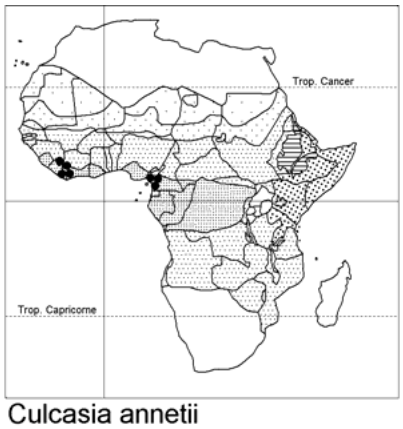
Forest gallery; stream banks in forest, sometimes abundant; (200-)700-1600 m alt.

Near *C. insulana*, *C. sanagensis*.

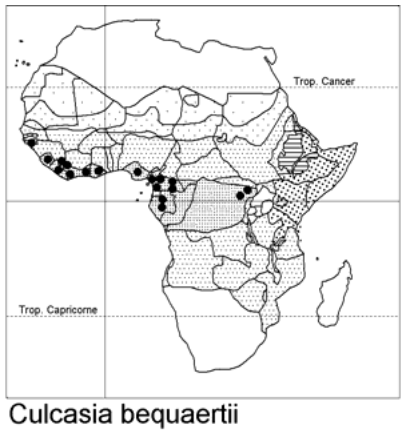
C. falcifolia Engl.; Lecron & Malaisse (1999): 304-306; Friis & Vollesen, Fl. Sudan-Uganda border area… in Biol. Skr. 51/2: 496-2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 45, 2005; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 162, 2011. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 133, 1994; EANHS Bull. 26: 13, 1996; Fl. Eth. & Eritrea 6: 35, 1997; White & al., Evergreen for. fl. Malawi: 92, and photo. 6, 2001; Burrows & Willis, Pl. Nyika Plateau, Malawi: 288, 2005; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 643, 2008; Fl. Zambes. 12/1: 33, 2012.

syn.: *C. scandens* auctt., non P. Beauv.

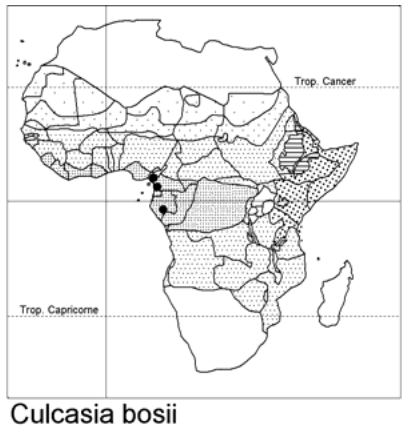
Ground-creeping or climbing herb 1-9-(20) m long, with short clasping roots at and below nodes; stems ± tuberculate; leaf petiole 6-17,5 cm long; blade 5,5-31 × 3,5-10,5 cm, obliquely ovate to lanceolate, sometimes falcate, apex acuminate, base rounded to cuneate, rarely emarginate, *primary lateral veins long-arcuate* usually *running into margin*, with linear pellucid glands;



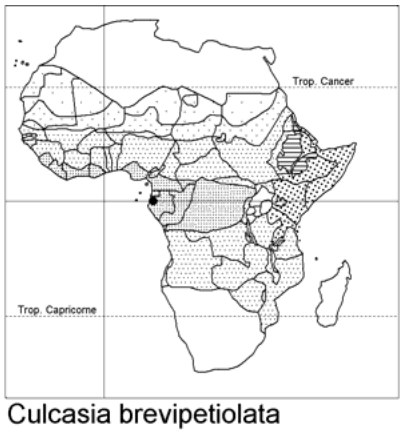
Culcasia annetii



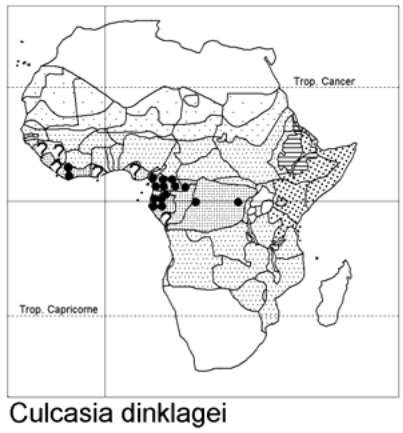
Culcasia bequaertii



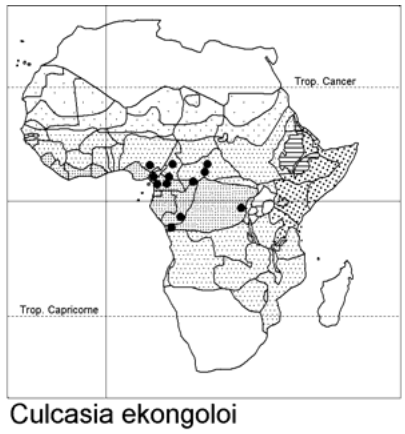
Culcasia bosii



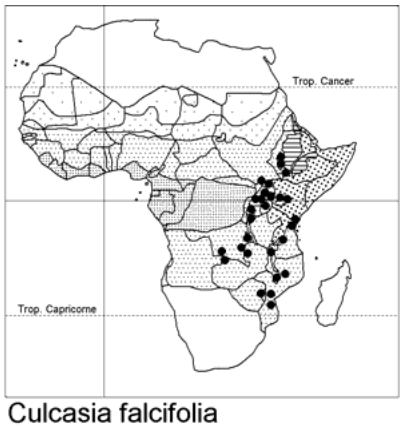
Culcasia brevipetiolata



Culcasia dinklagei

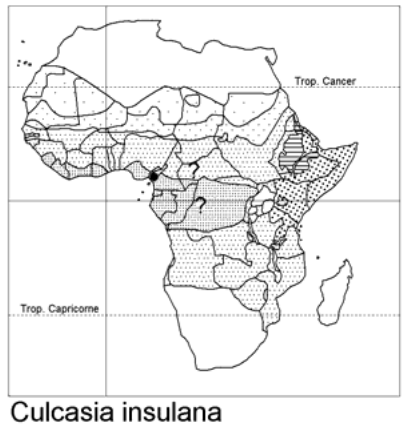


Culcasia ekongoloi

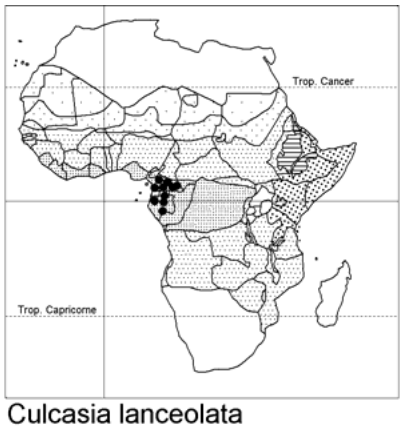


Culcasia falcifolia

Culcasia glandulosa

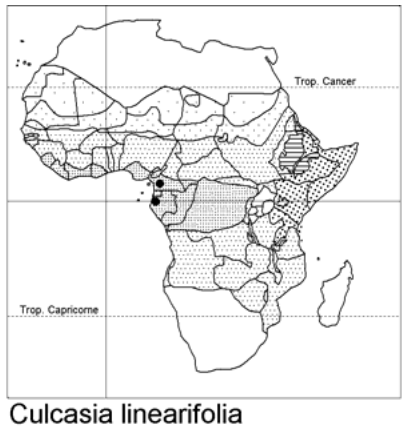


Culcasia insulana



Culcasia lanceolata

Culcasia liberica



Culcasia linearifolia

inflorescences 1-4 in each sympodium, usually *2-3* together, on peduncles 4,5-16 cm long; spathe 2,5-5 cm long, greenish-white with *white*, green or yellow or orange tinges; spadix about same length as spathe, *pistillate* part *usually sessile* or *subsessile;* berries obovoid to nearly globose, to 1,7-1,1 cm Ø, (orange-)red.

Damp evergreen forest in shade; riverine and swamp forests; marshy forest edges; rain-forest with *Chrysophyllum albidum*, *Cola gigantea*, *Erythrophleum sauveolens*, *Alstonia boonei*, *Parinari excelsa*, *Milicia excelsa*; rain-forest with *Albizia*, *Macaranga*, *Croton*, *Ocotea*; 20-2135 m alt. – Locally common but not always flowering.

Near *C. orientalis*.

C. glandulosa Hepper; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011. – Icon.: Kew Bull. 21: 316, 1967; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 895, 2006.

syn.: Enum. 3: 78, 1995.

Climbing shrub, with branches 2-3 mm Ø; leaf petiole 4,5-5 cm long; blade elliptic to obovate-elliptic 11-14 × 4-6 cm, *unequal-sided*, base cuneate, apex acuminate, covered with *numerous linear pellucid immersed glands;* peduncles axillary 1-5, to 5 cm long; spathe 3,2-4 cm long, pink; spadix same length as spathe, inserted; berries red, *globose*, 8 mm Ø.

Riverine forest; 80 m alt.

Near *C. tenuifolia*.

C. insulana N. E. Br.; Cable & Cheek, Pl. Mt Cameroon: 147, 1998; Harvey & al., Pl. Bali Ngemba…: 134, 2004; Cheek & al., Pl. Kupe…: 427, 2004; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Fl. Cameroun 31: 115, 1988.

syn.: *C. tubulifera* Engl.

Climbing herb, to 1-5 m long; *stems smooth*, 3-5 mm Ø; leaf petiole 5,5-10 cm long; blade 10-18 × 3-6 cm, lanceolate, ± arcuate-*asymmetric*, rarely oblong-*asymmetric*, without transparent line, base broadly narrowed, more rarely wedge-shaped-obtuse, apex with acumen 1-1,5 cm long; inflorescences terminal, 1-2 in each sympodium, peduncle 3-5 cm long; spathe 2-3 cm long, acuminate; spadix enclosed, clavate; berries ovoid.

Forests; 1150-1750 m alt.

Bioko/Fernando Poo. Poorly recorded in Zaire. Perhaps also present in Centr. Afric. Rep.

Resembling *C. ekongoloi* (with verrucose stems).

Near *C. obliquifolia*.

Engler in Pflanzenreich 4/23 B: 304, 1905, discussed the possibility to treat *C. insulana* together with *C. lancifolia*, *C. tenuifolia*, *C. tubulifera* as subspecies of *C. scandens* (cf. Taxon 30: 799, 1981).

C. lanceolata Engl.; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Engler, Pflanzenreich 4/23 B: 298, 1905.

Climbing herb to 1-2 m long; stem slender with short internodes giving the appearance of a tufted foliage, leaf petiole 2-4,5 cm long, furrowed; blade *lanceolate*, 3,5-12,5 × 0,5-2,5 cm, *base narrowed*, apex slightly curved and long-acuminate; inflorescences terminal, 1-3 in each sympodium; peduncle *c. 1 cm* long; spathe c. 1,5 cm long, green, becoming brown; spadix white; berries depressed-subglobose, 6-9 mm long, scarlet, base tapering.

Evergreen and semi-deciduous forests; riverine forest; 60-500 m alt.

Near *C. parviflora*. – The identity of the species recorded by Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011, is uncertain.

C. liberica N. E. Br.; Chatelain & al. (2011): l.c. – Icon.: Adam, Fl. Mts Nimba 5: 1853, 1981; Mayo & al. (1997): 227 fig. T; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 895, 2006.

Climbing herb, stems *stout*, 0,5-1 cm Ø or more; leaf blade elliptic, 16-26 × *7-10* cm, apex acuminate, base *overlapping the apex of the petiole* (thereby making it slightly peltate); with *numerous lateral nerves* arising at nearly right angles to the midrib; peduncles to 8 together, 4-6 cm long; spathe 3-3,5 cm long, greenish-white, spadix slightly longer; bracts several, to 5 cm long; berries green.

Forest, on *Tarrietia utilis* bole; sometimes common; 450 m alt.

Near *C. scandens*.

C. linearifolia Bogner – Icon.: Willdenowia 41: 60-61, 2011; Fl. Cameroun 31: pl. 34.3, 1988 (as *C. panduriformis*).

syn.: *C. panduriformis* sensu Ntépé-Nyamè, Fl. Camer. 31: 80 p. min. p., quoad specim. Letouzey 9480, and pl. 34.3, 1988, non Engl. & K. Krause

Terrestrial plant with erect stem 12-18 cm tall, 0,3-0,4 cm Ø; roots strong, wire-like, 10-15 cm long, orientated downwards, and further dividing downwards; leaves 7-8; petiole 2-3 cm long, 1,2-1,5 mm Ø; blade narrowly oblong-linear, 14-24 × 1,2-3 cm, base cuneate, apex acute often slightly curved, venation reticulate; inflorescence unknown; infrutescence flat with very few berries, without spathe remnants; peduncle c. 3 cm long, 1-1,5 mm Ø; berries (depressed-) globose, 0,8-1,2 cm Ø, orange.

Forest floor in old secondary forest; primary forest; c. 550-600 m alt.

C. longivaginata Engl. – Icon.: Knecht, Aracées Côte d'Ivoire: 201, 1983; Mayo & al. (1997): 227 pl. 74 fig. E.

syn.: *C. striolata* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 124, 1968, quoad specim. Baldwin 9226; *C. engleriana* A. Chev., nom. subnud., p.p., quoad specim. Chevalier 16378, 17042, 17098, 17435.

Plant with short erect stems, internodes short; leaf petiole c. 6 cm long; blade oblique-lanceolate, asymmetric, 14-20 × 4-7 cm, with indistinct pellucid *dots*, base subacute, apex acuminate; peduncle 5 cm long; spathe oblong, obtuse, c. 6 × 3-4 cm; spadix shortly stipitate. Distinguished from *C. striolata* by: blade with 5-7 lateral veins joining a marginal vein in upper part, and with a sheath to the base of the blade, glands in dots (c. 1 mm long, not 3-4 mm long); berries 1-2, red-orange.

Rain-forest; shady places; humus-bearing soils.

Described from a plant cultivated at the Jardin des Plantes, Paris, "still alive in 1903".

C. loukandensis Pellegr.; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 221, 2002; Onana, Vascul. pl. Cameroon…: 155, 2011.

Climbing herb, on rocks or boles, to 0,5-1 m height; leaf petiole 2-3 cm long, *pubescent;* blade ovate to sublanceolate, 9-18 × 5-9,5 cm, base slightly cordate, apex obtuse or broadly acuminate, *pubescent;* inflorescences terminal, 1-3 in a sympodium, solitary; peduncle 1,5-4,5 cm long, *pubescent;* spathe white or green-orange, c. 3 cm long, fusiform, long-acuminate, white-glandular.

Under shade in forest; terra firma mixed forest; *Gilbertiodendron dewevrei* forest.

CULCASIA

C. mannii (Hook. f.) Engl.; Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Cheek & al., Pl. Kupe…: 427, 2004; Sosef & al., l.c.; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Bot. Mag. 95: pl. 5760, 1869 (under *Aglaonema*); Govaerts & Frodin, World Checklist…Araceae: 288, 2002.

syn.: Enum. 3: 78, 1995; *C. yangambensis* Louis & Mullend., nom. in sched.; *C. reticulata* Siebert & Voss ex L. Gentil, nom.

Erect herb 30-40 cm tall with stilt roots 30 cm long; stem c. 1 cm Ø; leaf petiole 4-7 cm long; blade 13-21 × 6,5-12,5 cm, *subelliptic*, broadest *towards lower half*, asymmetric, lacking translucent lines, base subobtuse, apex acute and slightly oblique; inflorescence solitary, terminal; peduncle 1,5-2,5 cm long; spathe light green, apex obtuse; spadix stipitate, becoming exserted; berries red, depressed-globose, 1,5-2 cm Ø.

Forest under shade; sometimes in swampy places; 1-1600 m alt.

Near *C. dinklagei*.

Uncertain in Ivory Coast (Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011).

C. obliquifolia Engl.; Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Cheek & al., Pl. Kupe…: 427, 2004; Sosef & al. (2006): l.c.; Onana & Cheek, Red Data Book flow. pl. Cameroon: 354-355, 548 (map), 2012.

Climbing herb to 1,5-2 m, often on stilt roots from dropper roots to 1,1 m high; stem thick, 3-5 mm, verrucose; leaf petiole 11-17 cm long, canaliculate; blade *ovate-triangular*, 16,5-28,5 × 8,5-13 cm, oblique, mottled yellow-green to dark-green when fresh, apex acuminate, base acute to decurrent; inflorescences terminal, 1-3 in a sympodium, included in large persistent bracts, 5-6 cm long; peduncle 4-6 cm long, recurved in fruit; spathe green, 2,5-5 cm long; berries dark green, ovoid, to 2 cm long.

Evergreen forest; 1-600(-1800) m alt.

Near *C. insulana*.

C. orientalis Mayo; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 299, 1994. – Icon.: Fl. Trop. E. Afr., Araceae: 19, 21, 1985; Mayo & al., Genera Araceae: 227 pl. 74 fig. G-J, 1997; Fl. Zambes. 12/1: 33, 35, 2012.

Climbing or ground-creeping herb; stems tuberculate, with short clasping roots at and below nodes; leaf petiole 6,5-10,5 cm long, with sheath > half of its length; blade obliquely ovate to elliptic, 8-18 × 4-9 cm, shortly acuminate to cuspidate, base rounded or subacute, with pellucid glands as dots or lines; primary lateral veins usually anastomosing to form *looping inframarginal veins; inflorescences 4-8* (2-3 in Zanzibar, Pemba) in each sympodium; spathe slightly constricted centrally, *green*; spadix ± equal to spathe, naked basal stipe 0,2-0,7 cm long, 0,25 cm Ø; mature infrutescence usually with less than 4 berries, these obovoid-ellipsoid, 0,8-1,1 × 0,6-0,7 cm, glossy red.

Riverine-, swampy-, secondary-, semi-deciduous forests; 0-750 m alt.

Resembling *C. falcifolia*. Has been confused with *C. scandens*.

CULCASIA

C. panduriformis Engl. & K. Krause; Ntépé-Nyamè in Fl. Cameroun 31: 80, 1988, p.p., excl. specim. Letouzey 9480 (= *C. linearifolia*), but quoad pl. 34/1-2 p. 99; Cable & Cheek, Pl. Cameroon: 148, 1998; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Mayo & al., Genera Araceae: 227 pl. 74 fig. D, 1997.

Erect herb c. 50 cm tall on stilt roots; leaf petiole 3-5 cm long; blade *panduriform*, 15-30 × 4,5-7 cm, base slightly cordate, apex pointed; inflorescence terminal, solitary; peduncle 3,5 cm long, erect at fruiting time; spathe 2-2,5 cm long; berries globose, orange or red, 2-2,5 cm Ø.

Forests with watercourses; forest/grassland transition; 1-530 m alt.

Near *C. dinklagei*. Confused with *C. linearifolia*.

C. parviflora N. E. Br., incl. var. *obtusifolia* Engl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 203, 1985; Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Cheek & al., Pl. Kupe…: 428, 2004; Sosef & al. (2006): l.c.; Cheek & al., Pl. Mefou prop. natl. park. Yaoundé, Cameroon: 216, 2011; Onana, Vascul. pl. Cameroon: 155, 2011; Chatelain & al., Cartes distr. pl. Côte d'Ivoire: 214, 2011. – Icon.: Engler, Pflanzenreich 4/23 B: 302, 1905; Adam, Fl. Mts Nimba 5: 1855, 1981; Mayo & al., Genera Araceae: 227 pl. 74 figs. A-B, 1997; Bown, Aroids 291, 2000.

Climbing herb; stems thin, 1-2 mm Ø, often ramose, to 1-10 m long; leaves directed downwards and lying flat back of the support; leaf petiole 2-5 cm long, canaliculate, sheath nearly as long and wing-like; *blade nearly 5 times as long as petiole*, *lanceolate* or *cordiform*, to 21 cm long, 1,2-8 cm wide, *base cordate* to *subtruncate*, *apex falciform;* inflorescences terminal, rarely axillary, 1-4 in each sympodium; peduncle curved, 0,5-3 cm long (6 cm in fruit); spathe yellowish-green, 1,2-2,5 cm long; spadix short-stipitate; berries ovoid, 5-6 mm long, red.

Evergreen forest; under shade in humid undergrowth in plains or on hilly ground; sometimes common; 1-1200 m alt.

Bioko/Fernando Poo.

C. rotundifolia Bogner; Sosef & al. (2006): l.c. – Icon.: Mayo & al., Genera Araceae: 227 pl. 74 figs. Q-S, 1997.

Different from all other species of the genus by: leaves with roundish and reddish blades, 2-6 cm long and broad, or slightly broader than long; base cordate, apex with a 1-1,5 mm long tip; female flowers in 1 circle, rarely 2, few or sometimes reduced to 1-few flowers.

Rain-forest; 60-300 m alt.

C. sanagensis Ntépé-Nyamè; Cable & Cheek, Pl. Mt. Cameroon: 148, 1998; Onana & Cheek, Red Data Book flow. pl. Cameroon: 355, 549 (map), 2012. – Icon.: Fl. Cameroun 31: 107, 1988.

Semi-epiphytic climbing herb; stems densely warty; leaf petiole 7-13 cm long; blade oblong-ovate, 16-20 × 7-14 cm, base acute and abruptly *decurrent* for 1,5 cm, *tip straight;* lateral veins 5-8 pairs, surface reticulate, with black dashes; inflorescences clustered; peduncle 3-6 cm long; spathe constricted towards base, 2-3,5 cm long, green, mucronate; spadix sessile, orange-yellow, exserted.

Gallery forest in grassland; semi-deciduous forest; 600-800 m alt.

Resembling *C. ekongoloi* but leaf blade decurrent and tip straight, spathe constricted, spadix sessile, exserted. Similar to *C. angolensis* but leaf blade decurrent, stem verrucose, peduncle 3-6 cm long, spadix exserted.

C. saxatilis A. Chev.; Burkill, Useful. pl. W. Trop. Afr., ed. 2, 1: 203, 1985; Akoegninou & al., Fl. analyt. Bénin: 47, 2006; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 894, 2006; Sosef & al., Check-list pl. vascul. Gabon: 77, 2006; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 31, 2012. – Icon.: Adam, Fl. Mts Nimba 5: 1856-1858, 1981; Mayo & al., Genera Araceae: 227 pl. 74 figs. N-P, 1997; Kouame & al. in Ann. Bot. Afrique Ouest 3: 3, 2004.

Herb often *semi-erect* to 1,2 m tall, profusely branched; aerial *roots few or absent* from the upper internodes; leaf petiole 3-7 cm long, 3/4 sheathed; blade broadly ovate to elliptic, 10-20 × 3-10 cm, base shortly cuneate, apex acuminate, *venation rather prominent*, *reticulate* (on dry specimens); peduncles 2-3; spathe 3-4 cm long, very variable in colour; spadix well exserted, also very variable in colour; berries 1,2 × 0,8 cm, medium green when immature, becoming red, orange.

Riverine forest; river banks above flood-level, occasional; swamp; marsh; secondary forest, sandy soil; banks of seasonal stream in savanna; thicket by dam; fringing woodland; moist places; on rocks; transitional forest with *Uapaca*, *Antidesma*, *Garcinia*, *Pterocarpus*, *Erythrophleum;* sometimes gregarious or locally abundant; farms; 0-650 m alt.

"The most widespread species that has been confused with *C. scandens*", represented in herbaria by a large number of specimens (Hepper in Kew Bull. 21: 319, 1967). – Considered a synonym of *C. scandens* by Ntépé-Nyamè in Fl. Cameroun 31: 89, 1988, and by Haigh in Harvey al., Pl. Lebialem Highl., Cameroon: 152, 2010.

C. scandens P. Beauv. – Icon.: Palisot de Beauvois, Fl. Oware, ed. in-4°: pl. 3, 1803; idem, ed. in-f: pl. 3, 1805 (both also in Taxon 30: 796, 797, 1981); Adam, Fl. Mts Nimba 5: 1859, 1981; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 895, 2006; Akoegninou & al., Fl. analyt. Bénin: 47, 2006.

syn.: *Caladium scandens* (P. Beauv.) Willd.; *Denhamia scandens* (P. Beauv.) Schott; *Culcasia gracilis* N. E. Br.; *C. lancifolia* N. E. Br.; *C. piperoides* A. Chev.; *C. tepoensis* A. Chev., nom. 1920, ex Knecht 1983 (who notes that it is very similar to *C. scandens* but differs in having scabrous stems, leaf-sheath auriculate and ± reaching the base of the blade, inflorescence peduncle shorter, spadix longer) with specimens Chevalier 19657, Knecht 706 & 1085 from Ivory Coast, Grabo.

Epiphytic slender climbing herb to 1,25 m long; stems wiry, *2-3 mm Ø*, producing *numerous* short *clasping roots*; leaves variable in size and shape, some rounded or slightly cordate at base; petiole 2,5-6,5 cm long; sheath spreading, terminating c. 5 mm below the blade; blade broadly elliptic, asymmetrical, 10-17 × 5-8 cm, translucent lines very short; base cuneate or slightly rounded not decurrent into petiole, but with a tiny interruption between upper surface midrib and upper surface petiole; tip of blade acute and hardly acuminate; peduncles 1-2, 3-6 cm long; spathe 2,5-3,5 cm long, greenish; spadix included in spathe, with an appendix; berries scarlet red.

Closed forest; sometimes common on oil palms; on cocoa trees; ? -180-600 m alt.

Near *C. parviflora* (with smaller leaves with broadly ovate to cordate leaves). *C. piperoides* is a distinct species according to Knecht 1983: 206.

The type specimen of *C. scandens* P. Beauv. has been studied on several occasions, and the use of the name is problematic (e.g. Hepper in Kew Bull. 21: 315-326, 1967; Letouzey in Taxon 30: 794-799, 1981; Ntépé-Nyamè in Fl. Cameroun 31: 88-90, 1988). Some recent checklists include *S. saxatilis* A. Chev. in the synonymy, e.g. Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Cheek & al., Pl. Kupe…: 428, 2004; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010. Other regional floras or checklists cite *C. scandens* without synonymy, some probably referring to *C. saxatilis*, or even *C. striolata*, e.g. Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Lisowski, Fl. Rép. Guinée 1: 382, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 45-46, 2010; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 147, 2010. Sosef & al., Check-list pl. vascul. Gabon: 77, 2006, consider *C. simiarum* Ntépé-Nyamè as a probable synonym of *C. scandens*. These works have not been taken into account by us here. However, as also pointed out by Fischer & al., Annot. checklist vascul. pl. Kakamega For., Kenya: 162, 2011, *C. scandens* cited from Trop. E. Africa is *C. falcifolia*.

C. simiarum Ntépé-Nyamè; Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 217, 2011; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011. – Icon.: Fl. Cameroun 31: 111, 1988; (according to Ntépé-Nyamè, 1988: l.c.) Kew Bull. 21: 316, fig. 1/1-4, 1967; Fl. W. Trop. Afr., ed. 2, 3/1: 125 fig. 360/1-4, 1968.

Herb climbing to 3-5 m height; stems branched, c. 1-3 mm Ø, with short clasping roots; leaf petiole 3-7 cm long, canaliculate; sheath thin, reaching < 1/2 of petiole length; blade oblong-elliptic, asymmetric, 9-21,5 × 3-8,5 cm, narrowed towards base which is cuneate or rounded, not decurrent into petiole, tip acute to 1 cm long; with 5-13 pairs of lateral veins joining near the margin; translucent lines absent or very sparse; inflorescences terminal, 1-2 in a sympodium; peduncle 3-7 cm long; spathe 2-3 cm long, yellowish-green, slightly constricted towards base; spadix stipitate (c. 2 mm), often exserted.

Wet forest; 1-200-700 m alt.

Resembling *C. tenuifolia*, *C. bequaertii*. Also near *C. annetii* (with leaf base truncate).

The description given above (from Fl. Cameroun 31: 92, 1988), differs slightly from the one figuring in Cheek & al., 2011: l.c. The latter describes the plant as a terrestrial herb to 25 cm tall and leaf blade elliptic, 17,5 × 6,3 cm.

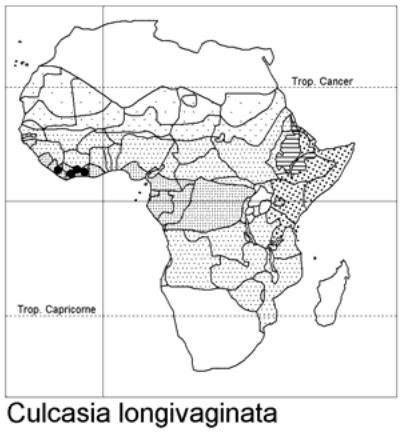
The species is certainly present in Cameroon, but the distribution given by Ntépé-Nyamè in Fl. Cameroun, l.c. (= in Bull. Mus. Natl. Hist. Nat., Sect. B, Adansonia, Sér; 4, 6: 322, 1984) is in need of revision, as the type sheet of *C. scandens* Palisot de Beauvois is a mixture (cf. above under *C. scandens*).

Sosef & al. in their Check-list pl. vascul. Gabon: 77, 2006, consider *C. simiarum* as a probable synonym of *C. scandens*.

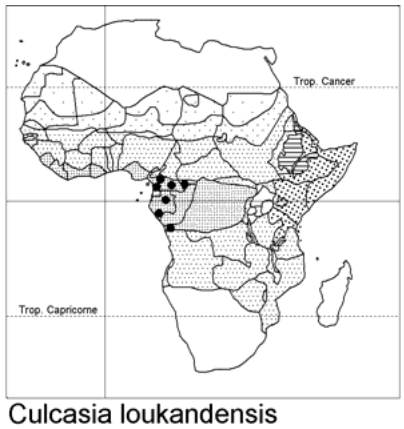
C. striolata Engl.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 204, 1985; Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Cheek & al., Pl. Kupe…: 428, 2004; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 217, 2011. – Icon.: Engler, Pflanzenreich 4/23 B: 298, 1905; Adam, Fl. Mts Nimba 5: 1864, 1981; Mayo & al., Genera Araceae: 227 pl. 74 fig. F, 1997; Bown, Aroids: 291, 2000; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 893, 2006.

syn.: *C. engleriana* A. Chev., nom. nud., p.p. (cf. *C. dinklagei*).

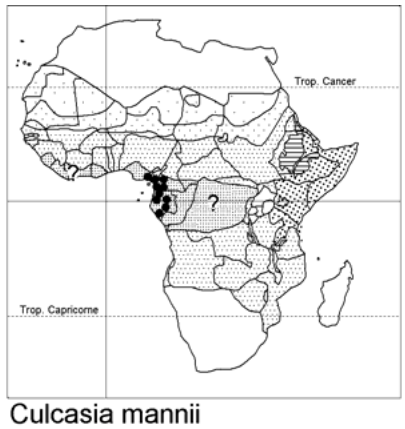
Erect terrestrial herb with stout hairy stilt roots; stem 35-40 cm tall, very rarely to 1 m, 5 mm Ø; leaves crowded in a bunch at top of stems; petiole 2,9-5,5 cm long, channelled; blade *oblanceolate*,



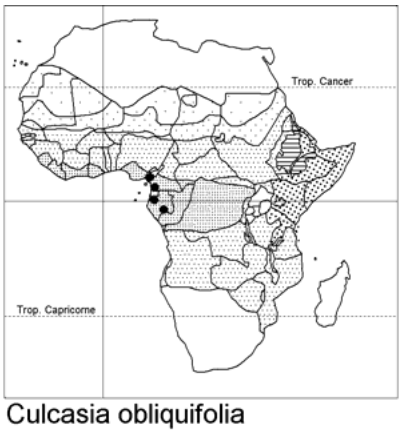
Culcasia longivaginata



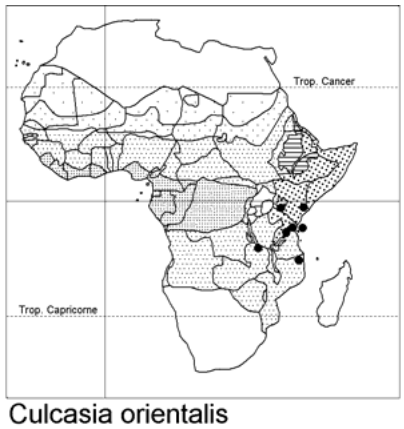
Culcasia loukandensis



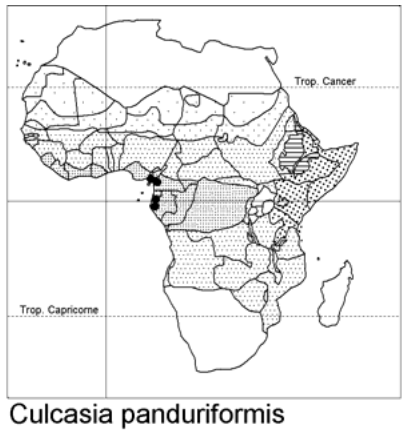
Culcasia mannii



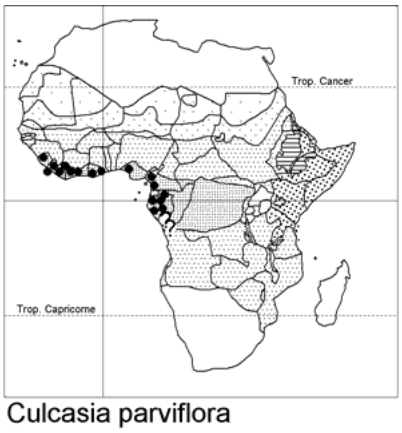
Culcasia obliquifolia



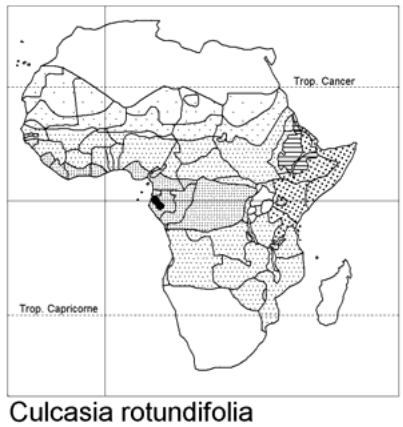
Culcasia orientalis



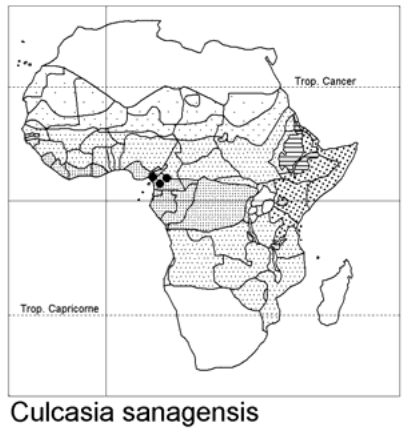
Culcasia panduriformis



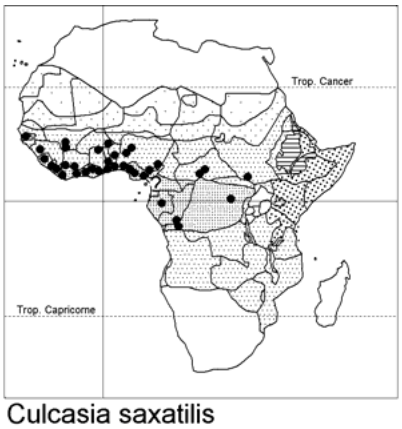
Culcasia parviflora



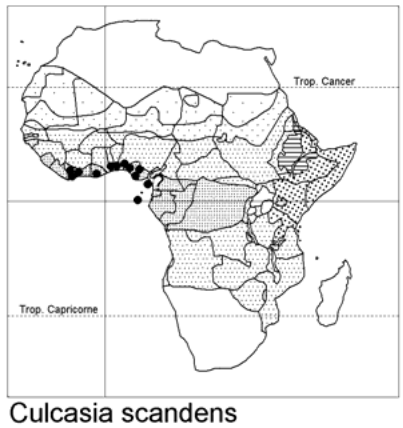
Culcasia rotundifolia



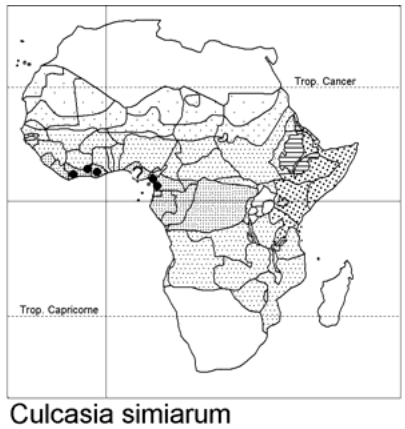
Culcasia sanagensis



Culcasia saxatilis



Culcasia scandens



Culcasia simiarum

CULCASIA STRIOLATA

8,5-25 × 4-8 cm, with *numerous prominent translucent* lines 1-3 mm long, base attenuate, apex oblique and *acuminate*; 2 lines of parallel submarginal nerves near mid leaf and finer reticulate veins between the main laterals; inflorescence solitary, terminal; peduncle 1,5-2 cm long; spathe subovoid-elliptic, 2,5-3,5 cm long, green or pale yellow-green; spadix shorter than spathe, stipe 5-6 mm long; berries 1-8, orange or red, 2-3 cm Ø.

Evergreen forest, sometimes swampy, common, on forest floor; dense humid forest on humus-bearing soil; forest gallery; secondary forest with *Terminalia superba*; forest with *Triplochiton scleroxylon*; forest with *Uapaca guineensis*; 1-1250 m alt.

The plant has a scent of coumarin (fide Burkill, l.c.).

Many specimes cited by Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 124, 1968, do not belong to *C. striolata* according to Ntépé-Nyamè, e.g., Scott Elliot 5293 and Baldwin 9811 (Guinea, also in Lisowski, Fl. Rép. Guinée 1: 382, 2009) and Rosevear 104/37 (W Cameroon) are rather *C. dinklagei*, and Baldwin 9226 (Liberia) *C. longivaginata*.

C. tenuifolia Engl.; Cable & Cheek, Pl. Mt Cameroon: 148, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 221, 2002; Cheek & al., Pl. Kupe…: 428, 2004; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 214, 2011; Onana, Vascul. pl. Cameroon…: 155, 2011.

syn.: *C. kasaiensis* De Wild. (previously determined as *C. scandens* P. Beauv.).

Climbing or epiphytic herb to 3 m; stems *smooth*; leaf petiole 5-12 cm long, broadly sheathed to ± base of lamina; blade oblong to oblong-elliptic, 9-22,5 × 3,5-12 cm, somewhat asymmetric, pellucid lines inconspicuous few or rather numerous, intramarginal nerve conspicuously looped, base shortly cuneate and *decurrent into petiole*, apex somewhat asymmetric and abruptly acuminate; inflorescences terminal, 1-4 in each sympodium; peduncle 1,5-6 cm long; spathe 2-8 cm long, pale green or yellowish; spadix white, slightly exserted; berries obovoid, 1-2 × 0,5-1 cm, orange or red, base acute or ellipsoid.

Riverine forest; hilly forest; primary rain-forest; on fallen *Strombosia*; 1-500 m alt.

Resembling *C. scandens*. Engler (Pflanzenreich 4/23 B: 304, 1905) considered this plant as possibly a subspecies of *C. scandens*.

IN NEED OF FURTHER STUDY:

Culcasia afzelii Schott in Prodr. syst. Aroid: 218, 1860; Fl. Cameroun 31: 92, 1988. – Type: Afzelius s.n. (UPS).

Leaf petiole sheathed hardly to the geniculum; blade ovate-oblong or oblong, progressively acuminate, base peltate.

Guinea ?

Not in Fl. Trop. Afr. 8, 1901. But a specimen Afzelius s.n. from Sierra Leone figures under *C. scandens*.

SYNONYMS (see also Enum. 3: 78-79, 1995):

Culcasia angolensis Welw. ex Schott fa. *angustifolia* Engl. and var. *angustifolia* (Engl.) Engl. = **Culcasia angolensis**

barombensis N. E. Br. = **C. angolensis**

engleriana A. Chev., p.p. = **C. dinklagei**, **C. longivaginata**, **C. striolata**

gracilis N. E. Br. = **C. scandens**

kasaiensis De Wild. = **C. tenuifolia**

lancifolia N. E. Br. = **C. scandens**

panduriformis sensu auctt., non Engl. & K. Krause = **C. linearifolia**

CULCASIA

piperoides A. Chev. = **C. scandens**

pynaertii De Wild. = **C. dinklagei**

reticulata Siebert & Voss ex L. Gentil = **C. mannii**

sapinii De Wild. = **C. bequaertii**

scandens auctt. (E. Afric.), non P. Beauv. = **C. falcifolia**

seretii De Wild. = **C. bequaertii**

striolata sensu, e.g., Fl. W. Trop. Afr., ed. 2, p.p., non Engl. = **C. dinklagei**, **C. longivaginata**

tepoensis A. Chev. ex Knecht = **C. scandens**

tubulifera Engl. = **C. insulana**

yangambensis Louis & Mullend. = **C. mannii**

(CYRTOSPERMA)

Cyrtosperma afzelii (Schott) Engl. = **Lasimorpha senegalensis**

senegalense (Schott) Engl. = **L. senegalensis**

(DENHAMIA)

Denhamia scandens (P. Beauv.) Schott = **Culcasia scandens**

(DESMESIA)

Desmesia venosum (Dryand. ex Aiton) Raf. = **Sauromatum venosum**

[DIEFFENBACHIA]

Evergreen robust herbs, c. 30 species in tropical and subtropical America, West Indies. **Dieffenbachia seguine** (Jacq.) Schott with several varieties and cultivars is widely cultivated [bas.: *Arum seguine* Jacq. syn.: *D. picta* Schott; *D. maculata* (Lodd.) G. S. Bunting] in W and WC Africa (e.g. Lisowski, Fl. Rép. Guinée 1: 382, 2009; Fl. Cameroun 31: 124, pl. 54 p. 125, 1988) and E Africa (Fl. Trop. E. Afr., Araceae: 6, 1985). Erect to decumbent herb with fleshy green stem to c. 1 cm tall with annular leaf scars; leaves ± tufted at stem apex; blade ± ovate, c. 40-15 cm, green, often with white or yellow spots, petiole shorter than blade; spathe to 20 cm long, green with spadix adnate to one side, partially exserted; sap irritant and vesicant. Icon.: Mayo & al., Genera Araceae: 154, 1997. For varieties and synonyms, see Govaerts & Frodin, World checklist…Araceae: 295-297, 2002.

(DITINNA, Melastomataceae)

Ditinna rupicola A. Chev., nom. = **Remusatia vivipara**

(DOCHAFA)

Dochafa flava (Forssk.) Schott = **Arisaema flavum**

[EPIPREMNUM]

Genus of c. 20 species, evergreen climbing herbs with flagelliform shoots, in Asia-Australia-the Pacific. **Epipremnum pinnatum** (L.) Engl. (syn.: Enum. 3: 79, 1995) is cultivated in tropical Africa, becoming an invasive plant near villages in, e.g., Cameroon (icon.: Fl. Cameroun 31: 125, 1988); also cited from Guinea (Lisowski, Fl. Rép. Guinée 1: 382, 2009), and E Africa (Fl. Trop. E. Africa, Araceae: 6, 1985). A vigorous climber; *juvenile* leaves ovate-cordate 10 × 10 cm, *entire*, green with yellowish blotches; *adult* leaves oblong-ovate, to 75 × 40 cm, irregularly *pinnatifid*, petiole to 40 cm long with sheath with marcescent margins, reaching the blade; spathe broadly boat-shaped, soon deciduous; spadix cylindrical, shorter than spathe. Icon.: Mayo & al., Genera Araceae: 120, 1997.

GONATOPUS / *5*

An East African genus, with single leaves, geniculate petiole, pinnately compound blades; plants seasonally dormant.

Species incompletely known, field studies are required. In 3 species the fruit is unknown.

Gonatopus angustus N. E. Br.; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 45, 2006; Fl. Zambes. 12/1: 28, 2012. – Icon.: Mayo & al., Genera Araceae: 150 pl. 33 figs. A-F, 1997.

Herb; tuber horizontal and *cylindric*, rarely subglobose, 5-20 × 2-4 cm; leaf 20-65 cm tall, glabrous; petiole 10-40 cm long; blade 2-4-pinnate, 15-30 cm wide; ultimate leaflets 1-9 × 0,1-4,5 cm, *linear* to broadly elliptic, acuminate, base narrowed; inflorescences 1-2, appearing just before leaf; peduncle 3-13 cm long, 0,5-0,6 cm Ø; spathe 4-6,5 cm long; tube broadly ovoid, constricted apically, 1,1-1,4 × 1,2-1,3 cm Ø, outside yellowish-green with darker green speckling, paler within; limb broadly elliptic, *2,5-5* × 2,3-3 cm, cuspidate, pale brown with darker veins outside; spadix sessile, 3,9-5,3 cm long, white; berries ovoid, 1-1,8 × 1,4-1,5 cm Ø, orange to yellow.

Forest; shallow concavities on top of rocks in woodland; locally common in small colonies; often on sandy soil on river banks; 0-1000 m alt.

Variable in leaf morphology.

S. Africa, Swaziland.

G. boivinii (Decne.) Engl., incl. var. *lanceolatus* Peter, nom. nud.; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 306-309, 1999; Strugnell (2006): l.c.; Fl. Zambes. 12/1: 25-26, 2012. – Icon.: Engler, Pflanzenreich 4/23 B: 307, 1905; Mayo & al. (1997): 150 pl. 33 figs. BB, CC-CG.

bas.: *Zamioculcas boivinii* Decne.

Herb; tuber globose, 5-10 cm Ø; shoot subtended by several cream, purple-flecked cataphylls; leaf to 1,6 m tall; petiole terete, 25-75 cm long, 0,5-1,5 cm Ø, often transversely blotched purplish-green; blade 3-pinnate, spreading, to c. 70 cm wide, ultimate lobes ovate to elliptic, 2-14 × 0,8-7 cm, acuminate, base subacute to obtuse; inflorescences *1-5*, appearing just before emergence of leaf; peduncle 30-75 cm long, to 1 cm Ø, greenish to cream with grey or purplish mottling; spathe 10-21 cm long; tube cylindric, constricted slightly at apex, 1,5-3 × 1,4-2,3 cm Ø, outer surface greenish-yellow, lined and speckled maroon or purple; limb oblong, 9,5-19 × 2,5-4,5 cm, long-cuspidate; spadix 8-15 cm long; berries somewhat compressed laterally, obovoid, c. 1,3 × 1,4 cm.

Open forest with *Kirkia acuminata* on rocky slope; open forest on macigno and schist on slope; rain-forest; *Brachystegia* woodland; *Chlorophora*, *Albizia* woodland; *Combretum*, *Acacia* wooded grassland; in light shade; 0-1300 m alt.

S. Africa.

C. clavatus Mayo – Icon.: Mayo & al. (1997): 150 pl. 33 figs. L-M, N-V; Fl. Zambes. 12/1: 27, 2012.

Herb; tuber *subglobose* to *turnip-shaped*, c. 5 × 6 cm Ø, or cylindric to 18 × 7,5 cm Ø; leaf to 1,2 m tall, glabrous; petiole 20-52 cm long, green with purplish shading and greenish-white flecks; blade 2-3-pinnate, to c. 60 cm wide; ultimate leaflets of pinnae 3-13 × 1-4,5 cm, *elliptic* to *oblong-elliptic*, apex acuminate, base cuneate; inflorescence solitary, appearing before leaf; peduncle 3-25 cm long, 0,8-1,2 cm Ø, glabrous to pubescent; spathe 7,5-12 cm long; tube subglobose to cylindric, constricted

apically, 1,5-2 × 1,5-2,2 cm Ø, reddish to deep wine red inside; limb broadly elliptic, *5,5-9* × 2,5-7,5 cm, long-cuspidate, green with purplish tinge or reddish-brown; spadix 7-12 cm long, creamy-yellow; fruit unknown.

Terminalia, *Sclerocarya* woodland; old termite mounds; open *Brachystegia* woodland; wooded grassland; stream margins; 50-810 m alt.

G. marattioides (Peter) Bogner – Icon.: Mayo & al. (1997): 150 pl. 33 figs. V-AA, col. pl. 113 fig. D.

syn.: Enum. 3: 79, 1995.

Herb with horizontal rhizome *0,8-1 cm Ø*; leaf petiole 6,5-10 cm long, 1-1,5 mm Ø; blade 2-pinnate, cordate-sagittate in outline, 10-11 × 9-10 cm; ultimate lobes linear-lanceolate, 1-7,5 × 0,2-2 cm, apex acute; inflorescence solitary, sessile; peduncle to 1 cm long, subterranean; spathe 3-4,5 cm long; tube ovoid, constricted at apex, 0,6-1 × 0,7-1 cm Ø, pale pinkish-brown outside; limb ovate to lanceolate, 2-3,5 × *1,7 cm*, apex cuspidate, pale pinkish-brown with whitish margins; spadix 2-3,7 cm long; fruit unknown.

Evergreen forest; tall wooded grassland; 280-360 m alt.

Very close to *G. angustus*.

G. petiolulatus (Peter) Bogner; Fl. Zambes. 12/1: 28-29, 2012. – Icon.: Mayo & al. (1997): 150 pl. 33 figs. G, H-K. – Neotype: Wingfield 4439 (DSM), Tanzania, Uzaramo Distr., 1977.

Herb; tuber subglobose, to c. 8 cm Ø; leaf 30-95 cm tall, shortly pilose to glabrous, *without* petiole; blade *oblanceolate* in outline, 12-40 broad at widest point, pinnately to 2-pinnately lobed, apical pairs of pinnae *largest*, basal pairs *reduced to oblanceolate* or *linear long-stipitate projections;* ultimate leaflets of larger pinnae 6-10 × 2,5-6 cm; inflorescence solitary; peduncle 9-42 cm long, 0,5-0,8 cm Ø, minutely pilose; spathe 5-17,5 cm long; tube broadly suburceolate, *slightly* constricted at mouth; limb elliptic-lanceolate, 3,5-14,5 × 2,2-5 cm, bright green; spadix 3,7-15 cm long; fruit unknown.

Evergreen forest; *Brachystegia, Julbernardia* woodland; 0-400 m alt.

SYNONYMS:

Gonatopus latilobus K. Krause = **Gonatopus petiolulatus**

rhizomatosus Bogner & Oberm. = **G. angustus**

(GUEINZIA)

Gueinzia natalensis Sond. ex Schott = **Stylochaeton natalensis**

(HANSALIA)

Hansalia grata Schott = **Amorphophallus abyssinicus** subsp. **abyssinicus**

(HETEROLOBIUM)

Heterolobium dilaceratum Peter = **Gonatopus petiolulatus**

petiolulatum Peter = **G. petiolulatus**

(HYDROSME)

Hydrosme angolensis Welw. ex Schott = **Amorphophallus angolensis**
baumannii Engl. = **A. baumannii**
chevalieri Engl. = **A. abyssinicus** subsp. **abyssinicus**
consimilis (Blume) Engl. = **A. consimilis**
dracontioides Engl. = **A. dracontioides**
eichleri Engl. = **A. eichleri**
elliotii (Hook. f.) Engl. = **A. elliotii**
fischeri Engl. = **A. maximus** subsp. **fischeri**
foetida Engl. = **A. abyssinicus** subsp. **abyssinicus**
fontanesii Schott = **A. aphyllus**
gallaensis Engl. = **A. gallaensis**
goetzei Engl. = **A. goetzei**
grata (Schott) Engl. = **A. abyssinicus** subsp. **abyssinicus**
gregoryana Engl. = **A. gallaensis**
leonensis (Lem.) Engl., incl. var. *latifolius* (Mast.) T. Durand & Schinz = **A. aphyllus**
leopoldiana Mast. = **A. angolensis** subsp. **angolensis**
maxima Engl. = **A. maximus**
mossambicensis Schott = **A. mossambicensis**
preussii Engl. = **A. preussii**
prieuriana Schott = **A. consimilis**
purpurea Engl. = **A. johnsonii**
schweinfurthii Engl. = **A. abyssinicus** subsp. **abyssinicus**
seretii De Wild. = **A. abyssinicus** subsp. **abyssinicus**
sparsiflora Engl. = **A. gallaensis**
staudtii Engl. = **A. staudtii**
stuhlmannii Engl. = **A. stuhlmannii**
teuszei Engl. = **A. teuszii**
warneckei Engl. = **A. abyssinicus** subsp. **abyssinicus**
zenkeri Engl. = **A. zenkeri**

(JAIMENOSTIA)

Jaimenostia fernandopoana Guinea & Gómez Mor. = **Sauromatum venosum**

LASIMORPHA / *1*

Monotypic African genus. Orth. variant : *Lasiomorpha*.

SEUBERT, E. (1997). A comparative study on the seeds of Lasieae (Araceae). *Bot. Jahrb. Syst*. 199 : 407-426.

Lasimorpha senegalensis Schott (often cited under *Cyrtosperma*) ; Burkill, Useful. pl. W. Trop. Afr., ed. 2, 1 : 204-205, 1985 ; Cable & Cheek, Pl. Mt Cameroon : 149, 1998 ; Akoegninou & al., Fl. analyt. Bénin : 48, 2006 ; Sosef & al., Check-list pl. vascul. Gabon : 78, 2006 ; Figueiredo & Smith, Pl. Angola : 172, 2008 ; Lisowski, Fl. Rép. Guinée 1 : 382, 2009 ; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30 : 46, 2010 ; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire : 214, 2011 ; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon : 217, 2011 ; Onana, Vascul. pl. Cameroon… : 155, 2011 ; M. Renier, Flore du Kwango 1 : 76, 1946. – Icon.: Engler, Pflanzenreich 4/23 C : 16, 1911 ; Adam, Fl. Mts Nimba 5 : 1865, 1981 ; Berhaut, Fl. ill. Sénégal 9 : 69, 1988 ; M. Jones, Flow. pl. Gambia : pl. 1, 1994 ; Mayo & al., Genera Araceae : 140, coul. pl. 112 B, 1997 ; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 893, 2006 ; M. Steentoft, Flow. pl. in W. Africa : 288, 2008 (under *Cyrtosperma*) ; Latham & Konda, Pl. utiles Bas-Congo, ed. 2 : 181, 2007.

syn.: *L. afzelii* Schott ; *Cyrtosperma afzelii* (Schott) Engl. ; *C. senegalense* (Schott) Engl. ; *Philodendron* sp. in Hooker, Niger Fl.: 527, 1849.

Terrestrial gigantic herb ; rhizome thick, short ; leaves large, several ; petiole to > 2 m long, *prickly*, 6-angular, to 2 cm Ø ; blade deeply cordate, *sagittate*, 32-45 × 12-30 cm, basal lobes lanceolate, acuminate forming a narrow sinus ; inflorescence 1, peduncle to almost 4 m high, *prickly ;* spathe thick, leathery, ovate, 20-45 × 8 cm, convolute basally, green outside, cream with long dull red-purple linear marking inside, persistent ; spadix sessile, 8 cm long, 1,5 cm Ø ; berries brownish-purple, red, ± globose, 1,5 cm long.

Growing in clumps, forming large colonies ; forest margins and adjacent savanna ; swamp forest ; swamps with *Mitragyna stipulosa* and *Raphia;* ravines ; fresh or slightly brackish waters, stagnant or slightly running ; along rivers ; forest gallery ; lagoon ; 5-600 m alt.

Bioko/Fernando Poo.

Ornamental. Leaves eaten as a vegetable.

(MICROCULCAS)

Microculcas marattioides Peter = **Gonatopus marattioides**
pteroides Peter = **G. marattioides**

[MONSTERA]

A tropical American genus of some 40 species. Evergreen climbers, hemiepiphytes on tree trunks and rocks or ground.

Monstera deliciosa Liebm. is "one of the world's most ubiquitous ornamental foliage plants" …"the surrounding the seeds…is delicious and made into ice cream and soft drinks" (Mayo & al., 1998 : 48). Reported especially in E African floras as grown in gardens and parks, e.g., Fl. Eth. & Eritrea 6 : 34, 1997 (with fig. 181.1) ; Fl. Trop. E. Afr., Araceae : 6, 1985 ; Fl. Zambes. 12/1: 2, 2012. It is recognized by its stout green internodes and broadly ovate leaf-blades to 90 × 75 cm, regularly pinnatifid, adult leaves perforated in parallel series, with petiole to 1 m long ; spathe broadly boat-shaped, white to yellowish-cream, soon deciduous ; spadix cylindric, to 18 cm long, 3,5 cm Ø, white or green. Native of Mexico, Central America.

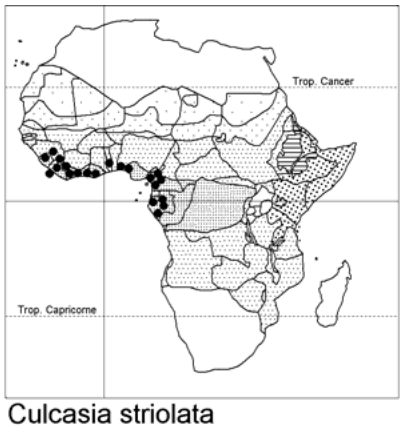
MUIR, C. D. (2013). How did the Swiss cheese plant get its holes ? *Amer. Naturalist* 181 : 273-281 [figs. p. 276, 281].

NEPHTHYTIS / *5*

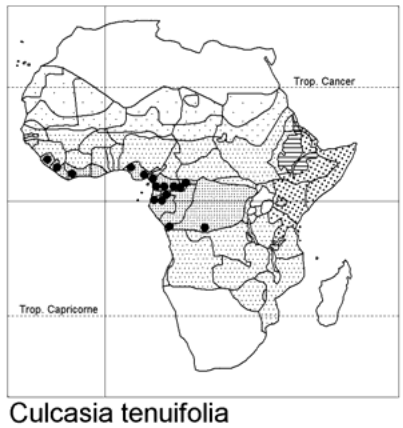
African (W, WC) genus, in need of critical revision. Spathe fully expanded, spadix stipitate.

One species known only from the type.

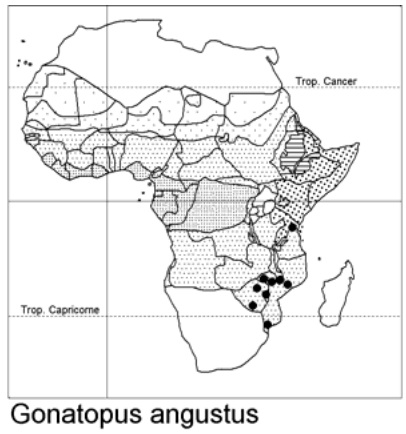
Nephthytis afzelii Schott ; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1 : 205-206, 1985 ; Akoegninou & al., Fl. analyt. Bénin : 48, 2006 ; Sosef & al., Check-list pl. vascul. Gabon : 78, 2006 ; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire : 215, 2011. – Icon.: Engler, Pflanzenreich 4/23 C : 111 1911 ; Adam, Fl. Mts Nimba 5 : 1866-1867, 1981 ; Mayo & al., Genera Araceae : 219 pl. 69 figs. P, V-W, and coul. pl. 122 fig. A (var. **graboensis**), 1997 ; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 893, 2006 ; Bown (2000) : pl. 52.



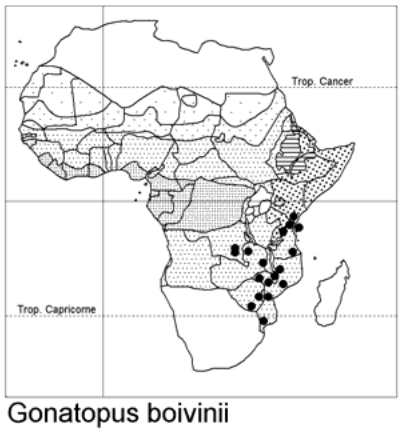
Culcasia striolata



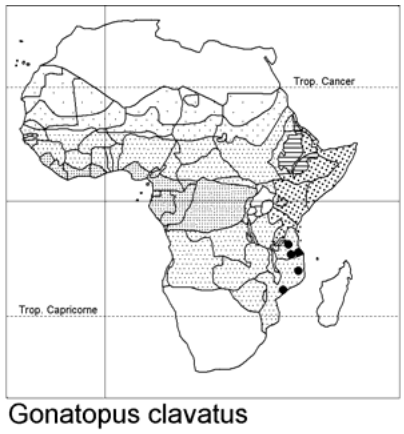
Culcasia tenuifolia



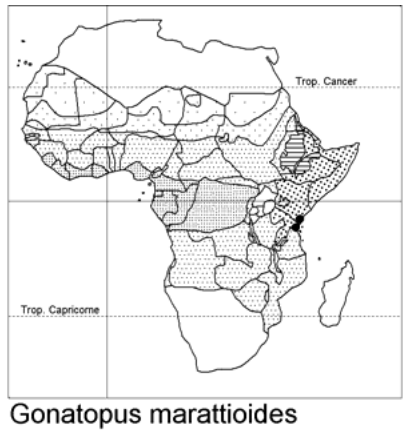
Gonatopus angustus



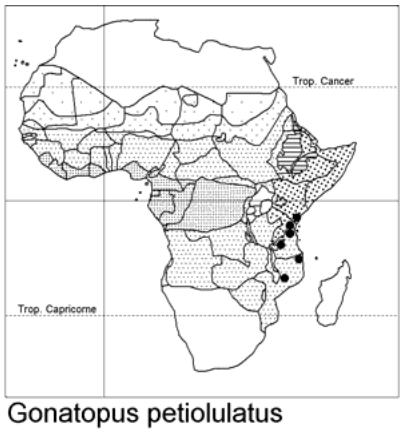
Gonatopus boivinii



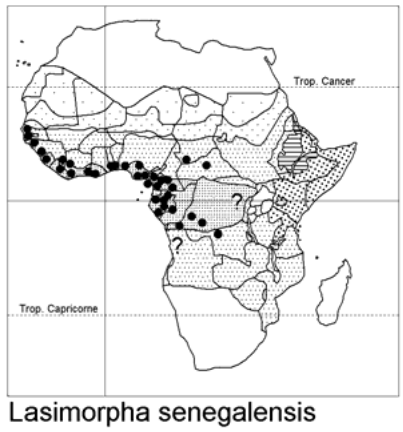
Gonatopus clavatus



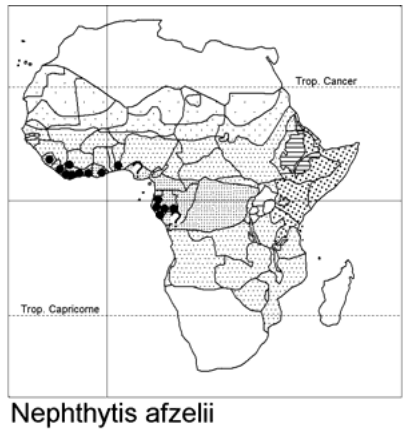
Gonatopus marattioides



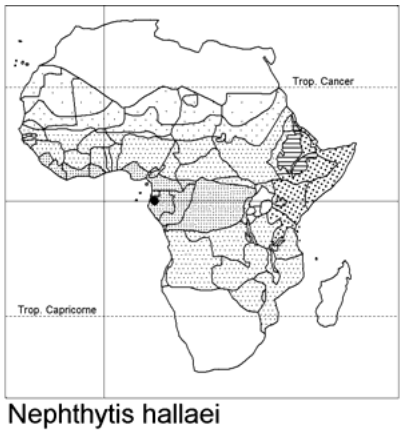
Gonatopus petiolulatus



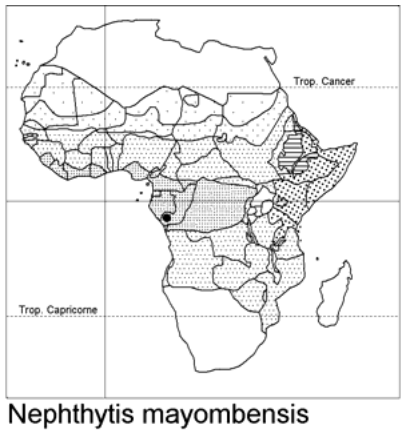
Lasimorpha senegalensis



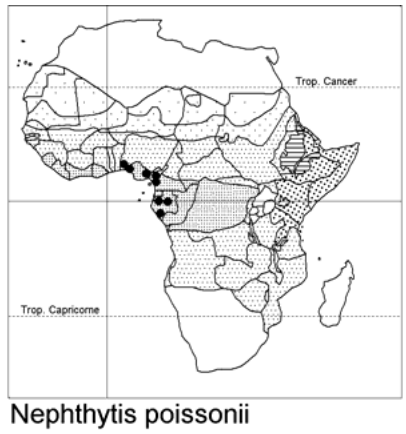
Nephthytis afzelii



Nephthytis hallaei



Nephthytis mayombensis



Nephthytis poissonii

NEPHTHYTIS AFZELII

syn.: *Oligogynium libericum* (N. E. Br.) Engl.

Herb with creeping rhizome to 1,5 cm Ø; leaves 2-3; petiole 20-60 cm long, spiny or not; blade hastate, 15-40 cm long, with only a very shallow sinus between the upper and basal lobes 10-25 cm long; peduncle 15-30 cm long, spiny or not; spathe oblong-elliptic, not acuminate, 4-8 × 2 cm, green, sometimes with dark spots at base; spadix 3,5-5 cm long; berries obovoid, 0,8-2 × 0,6-1,8 cm, orange.

Rain-forest; in colonies of 2-5 individuals; 5-900 m alt.

Comprises 2 vars.: – var. **afzelii**; var. **graboensis** Bogner & Knecht in Ivory Coast.

Report from SW Burkina Faso (Houet) doubtful (Thiombiano & al., Cat. pl. vascul. Burkina Faso: 31, 2012).

N. hallaei (Bogner) Bogner; Sosef & al. (2006): l.c. – Icon.: Mayo & al. (1997): 219 pl. 69 figs. A, B-E.

Herb with rhizome 5-32 cm long, 3-6 mm Ø; leaves 2-4; petiole 4-11 cm long, 1,5-3 mm Ø; blade triangular-cordate or broadly sagittate, 5-10 × 4,5-11 cm, base subcordate or subhastate, dark green with whitish spots; peduncle 4-5 cm long, 1-1,2 mm Ø; spathe elliptic, c. 2,2 × 1,4 cm, green, apex slightly hooked; spadix c. 1,5 cm long, 0,4 cm Ø; berries globose, c. 6 mm Ø, green.

Rain-forest in the humus layer on sandy soil; c. 60 m alt.

Only known from the type discovered in 1968.

Near *Callopsis volkensii* that has echinulate pollen grains and seeds with abundant endosperm and elongate embryo, with an E. African distribution.

Reported as cultivated at the Botanical Garden of Nancy, France (Hommes & Plantes 69: 33, 2009, with photograph p. 32) but origin given as Ghana. Doubtful.

N. mayombensis de Namur & Bogner; Enum. 3: 295, 1995; Lachenaud in Syst. Geogr. Pl. 79: 212, 2009 [endemics of Congo-Brazzaville].

Near *N. hallaei* but: leaf petiole 20-33 cm long; blade narrowly triangular, 15-25 × 12-17 cm; peduncle 10-18 cm long; spathe elliptic, 4,5-5,5 × 2,5-3 cm; spadix 2,5 cm long.

Rain-forest, along new track in dense population on c. 20 m^2.

Only known from 3 collections.

N. poissonii (Engl.) N. E. Br.; Cable & Cheek, Pl. Mt Cameroon: 149, 1998; Cheek & al., Pl. Kupe…: 428, 2004; Harvey & al., Pl. Bali Ngemba…: 134, 2004; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 217, 2011; Onana, Vascul. pl. Cameroon: 155, 2011. – Icon.: Mayo & al., Genera Araceae: 219 pl. 69, figs. G. H-M, N, 1997.

bas.: *Oligogynium poissonii* Engl.

Erect herb from a rhizome 0,4-1 cm Ø; leaf petiole 0,3-1 m long, 5 mm Ø; blade triangular in outline, sagittate to sometimes hastate; anterior lobe 8-24 × 8,5-27 cm, *broadly triangular*, apex obtuse to acuminate to 1,5 cm long; posterior lobes 9-24 × 7-12 cm, oblong to obovate, apex acuminate 1-2,5 cm long; inflorescences 1 to several, peduncles 0,25-1 m long; spathe lanceolate-acuminate, 3-8 × 5 cm, green, *persistent*; spadix 1,5-6 cm long, pale green to white, stipe 0,5-2 cm long; ovule *anatropous*; berries orange-red.

NEPHTHYTIS POISSONII

Forest in wet places; riverine forest; flooded forest; litter-rich soil; 1-1700 m alt.

Bioko/Fernando Poo.

Comprises 2 vars.: – var. **poissonii** [syn.: *N. gravenreuthii* (Engl.) Engl.; *Oligogynium gravenreuthii* Engl.], with little constricted leaf-blade; – var. **constricta** (N. E. Br.) Ntépé-Nyamè [bas.: *Nephthytis constricta* N. E. Br.; syn.: *Oligogynium constrictum* (N. E. Br.) Engl.; *Nephthytis talbotii* Rendle], with deeply constricted leaf-blade.

N. gravenreuthii (Engl.) Engl. is sometimes considered as a distinct species: leaf blade forming an isosceles triangle, peduncle < 12 cm long, ovule campylotropous (see Fl. Cameroun 31: 50-51, 1988).

N. swainei Bogner; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Onana, Vascul. pl. Cameroon…: 155, 2011; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 215, 2011. – Icon.: Knecht, Aracées Côte d'Ivoire: 59, 168, photo. fig. 77 f, 1983; Mayo & al; (1997): 219 pl. 69 fig. F; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 893, 2006.

Erect herb < *25 cm* tall; rhizome with long internodes (2 cm); leaf petiole 4-30 cm long; blade *broadly triangular*, 10-20 × 10-20 cm, bluish green; anterior lobe 5-7 × 4-8,5 cm, apex acute; posterior lobes 6,6-8,5 × 3-4,5 cm, very remote; peduncle 3,5-9-15 cm long, smooth; spathe ovate, 1,5-3,5-5,5 cm long, acuminate; spadix 2,5-3 cm long, white, stipitate; berries yellowish-orange.

Evergreen forest, rain-forest, on sandy or rocky soil on slopes; very acid, nutrient-poor soil (for cultivation); 600-700 m alt.

Near *N. poissonii* var. *poissonii* but very small.

SYNONYMS:

Nephthytis constricta N. E. Br. = **Nephthytis poissonii** var. **constricta**

gravenreuthii (Engl.) Engl. = **N. poissonii** var. **poissonii**

liberica N. E. Br. = **N. afzelii**

picturata N. E. Br., incl. var. *angustata* N. E. Br. = **Cercestis mirabilis**

talbotii Rendle = **Nephthytis poissonii** var. **constricta**

(OLIGOGYNIUM)

Oligogynium constrictum (N. E. Br.) Engl. = **Nephthytis poissonii** var. **constricta**

gravenreuthii Engl. = **N. poissonii** var. **poissonii**

libericum (N. E. Br.) Engl. = **N. afzelii**

poissonii Engl. = **N. poissonii**

[PHILODENDRON]

A genus of over 500 species in tropical and southern subtropical America, West Indies. Some are important in horticulture as foliage ornamental plants; many are poisonous. They are able to withstand dry shady conditions inside buildings and offices (Fl. Eth. & Eritrea 6: 38, 1997). The leaf blade is very variously shaped. Plants grown in Africa are often not identified, but some may be: *P. scandens* C. Koch & H. Sellow (ill. in Mayo & al., Genera Araceae: 172, pl. 45 fig. D, 1997), now considered a synonym of *P. hederaceum* (Jacq.) Schott var. *hederaceum*; or *P. bipinnatifidum* Schott ex Endl. (ill. in Mayo & al., o.c.: 173 pl. 45 fig. D). An account of cultivated species is given in Fl. Mascareignes 192. Araceae: 10-12, 1984. – See World Checklist of Monocotyledons, Araceae, Roy. Bot. Gard., Kew.

CROAT, T. B. (1997). A revision of Philodendron subgenus Philodendron (Araceae) for Mexico and Central America. *Ann. Missouri Bot. Gard.* 84: 311-704.

SYNONYM:

Philodendron sp. in Hooker, Niger Flora: 527, 1849 = **Lasimorpha senegalensis**

PISTIA / *1*

A single, very variable, pantropical species (44 synonyms listed in Govaerts & Frodin, World Checklist Araceae: 419-420, 2002; 25 in the list of *Araceae* for Africa). Maps in: Mayo & al., Genera Araceae: 288, 1997; Syst. Biol. 53: 424, 2004.

KVAČEK, Z. & J. BOGNER (2008). Twenty-million-year-old fruits and seeds of Pistia (Araceae) from Central Europe. *Aroideana* 31: 90-97.

RENNER, S. & LI-BING ZHANG (2004). Biogeography of the Pistia clade (Araceae): based on chloroplast and mitochondrial DNA sequences and Bayesian divergence time inference. *Syst. Biol.* 53: 422-432.

Pistia stratiotes L., incl. var. *obcordata* (Schleid.) Engl., var. *spathulata* (Michx.) Engl., and var. *linguiformis* Engl. – Nile Cabbage or the *sudd* plant of the upper Nile in Sudan, and the Niger delta; Water Lettuce – Citations in flora lists: Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 206-207, 1985; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 309-311, 1999; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Figueiredo & Smith, Pl. Angola: 172, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 46, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 215-2011; Onana, Vascul. pl. Cameroon…: 155, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 31, 2012; M. Renier, Fl. Kwango 1: 176, 1948. – Floras often with illustrations (in italics here): Fl. W. Trop. Afr., ed. 2, 3/1: 113, 1968; Fl. Cameroun 31: *5*, 1988; Fl. Trop. E. Afr., Araceae: *67*, 1985; M. Jones, Flow. pl. Gambia: *pl. 12*, 1994; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: *pl. 134*, 1994; Thulin, Fl. Somalia 4: *22*, 1995; Fl. Eth. & Eritrea 6: *50*, 1997; Cook, Aquat. & wetland pl. south. Africa: *61*, 2004; Akoegninou & al., Fl. analyt. Bénin: *49*, 2006; Fl. Zambes. 12/1: *47*, 2012. – Icon.: Engler, Pflanzenreich 4/23 F: 251, 1920; Kirkia 2: pl. II (p. 56-57), 1961; Mayo & al., Genera Araceae: 287, coul. pl. 130 C, 1997; Govaerts & Frodin, o.c.: 420.

syn.: World Checklist of Monocotyledons, Araceae, Roy. Bot. Gard., Kew.

Free-floating aquatic evergreen herb reproducing vegetatively by stolons, with a rosette of fan-shaped emergent leaves; blade to 14 × 8 cm, spathulate, obconic or oblong, dull green, covered with a dense felt of short stiff hairs which prevent them from getting wet, lower surface paler and more densely pubescent; 5-7 main nerves, prominently winged below; apex rounded to truncate; flowers obscure among the leaves; spathe inconspicuous,

tubular, to 1,3 cm long, whitish-green, margins and outside fimbriate-pilose, flowers unisexual, minute; berries to 0,5-0,3 cm.

Open, still freshwater, pools, slow-flowing streams; open swamps and lakes; backwater of rivers; sometimes in slightly brackish or polluted water; can form floating, sometimes moving, closed meadows to several hundred square meters; on inselbergs and coastal dunes; very invasive, troublesome in dams, rivers, irrigation furrows, etc., declared a pest in certain countries (S. Africa); forming the *Lemno paucicostatae-Pistietum stratioitis* community; river sides with *Azolla, Nymphaea*; lakes with *Marsilea, Jussiaea repens;* 0-1800 m alt.

Pantropical. Described from Ceylon/Sri Lanka. Canary Isl.; Egypt (known since the time of Pliny, c. 77 A. D.); S. Africa, Botswana, Swaziland, Lesotho; Mauritius, Comores, Madagascar.

The plant is eaten in time of famine. In lagoons the plant multiplies exceedingly and harbours the larvae of malaria (*Anopheles gambica*), fide Burkill, l.c. Also used to remove contaminents, e.g. heavy metals, from wastewater (Pakistan J. Pl. Sci. 3/1: 7-15, 1997).

AKPAVI, S. & al. (2005). Contribution à la connaissance de l'écologie d'Eichhornia crassipes (Mart.) Solms-Laub. (Pontederiaceae) et de Pistia stratiotes L. (Araceae) dans la région maritime orientale du Togo. *Acta Bot. Gall.* 152 : 269-280.

PRISO, R. J. & al. (2010). Pistia stratiotes (Araceae) morphological variation in non-polluted and polluted ecosystems in Douala (Cameroon). *In:* VAN DER BURGT, X. & al., eds., *Systematics and conservation of African plants*: 273-280. Royal Botanic Gardens, Kew.

YATES, E. D. & K. E. KORDECKI (2005). Pistia stratiotes L. (Araceae) – Ubiquitous aroid invader. *Int. Aroid Soc. Newsl.* 27/3: 12-15.

PSEUDOHYDROSME / *2*

Central-W African genus.

Pseudohydrosme buettneri Engl.; Plant Press, N. S. 6/2: 7, 2003; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006. – Icon.: Bot. Jahrb. Syst. 15: pl. 17, 1893; Engler, Pflanzenreich 4/23 C: 48, 1911.

syn.: *Zyganthera buettneri* (Engl.) N. E. Br.

Seasonally dormant herb with tuber; cataphylls 2-13 cm long; leaf unknown; peduncle 3 cm long; spathe *incomplete* 13 cm long (complete ? 80 cm); spadix thick, 7 cm long, 1,3 cm Ø, female zone 1,3 cm long, male zone 2 cm, *appendix* with sterile flowers 5 cm long, 1,5 cm Ø; pistil 4 mm high, ovary 3 × 3 mm; berries unknown.

Forest.

Type (Buettner 519) lost, collected in 1884. Now known only from a drawing.

P. gabunensis Engl.; Plant Press, 2003: l.c.; Sosef & al., 2006: l.c. – Icon.: Bot. Jahrb. Syst. 15: pl. 15-16, 1893; Bogner in Aroideana 4: 30-36, 1981; Mayo & al., Genera Araceae: 222, coul. pl. 122 C, 1997; Hetterscheid & Bogner in Aroideana 36: 106-115, 2013.

Herb with an elongate rhizome or a subglobose tuber growing continuously and not renewed 9-12 cm Ø; cataphylls 1,5-29 cm long; leaf 1; petiole 1-1,3 m long, 1-1,4 cm Ø, spiny, spotted, dark green olive and with small yellowish-white points; blade divided into 3 main parts, each segment 30-35 cm long; leaflets 4, 8-23 × 2-11 cm, dark green with blue-grey touch and ± shiny, apex ending in two 0,5-3 cm long, acuminate to caudate side tips; the lowest leaflets ovate, cuspidate, 4,5-8 × 2-5,5 cm; peduncle yellowish, 3-9 cm long, 1-1,5 cm Ø, spiny, green or light purplish

PSEUDOHYDROSME GABUNENSIS

with greenish-white roundish to elongate spots; spathe 30-55 cm long, tube fleshy, 20-25 cm; limb thin, arched over with undulate margin; outside greenish-yellow, above getting a slight purplish touch; spadix cylindric, 6-12,5 cm long, 1,5-2,5 cm Ø, appendix absent; berries ± globose, ripening from white to violet to dark reddish purple.

Rain-forest, in humus layer of a sandy loam in deep shade, with *Anchomanes nigritianus* at less than 100 m from the locality; also nearby: *Anchomanes difformis*, *A. maculatus;* 30 m alt.

Only known from 2 collections made in 1881 and 1973, respectively; and probably another one made in March 2001.

(PYTHONIUM)

Pythonium hookeri Kunth = **Anchomanes difformis** (or **A. hookeri**)

REMUSATIA / *1*

Genus of 4 species in tropical Africa, tropical Asia, Malay Archipelago, N Australia. All native to the Himalayas, fide Haigh & Boyce in Fl. Zambes. 12/1: 50, 2012.

LI HENG & A. HAY (1992). [Notes on the classification of genera Remusatia and Gonatanthus in Araceae]. *Acta Bot. Yunnanica*, Suppl. 5: 27-33 [in Chinese].

Remusatia vivipara (Roxb.) Schott; Fl. W. Trop. Afr., ed. 2, 3/1: 122, 1968; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 311-313, 1999; Cheek & al., Pl. Kupe…: 428, 2004; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 892, 2006; Lisowski, Fl. Rép. Guinée 1: 382, 2009; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 215, 2011; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Engler, Pflanzenreich 4/23 E: 17, 1920; Adam, Fl. Mts Nimba 5: 1868, 1981; Fl. Cameroun 31: 41, 1988; Fl. Eth. & Eritrea 6: 41, 1997; Mayo & al., Genera Araceae: 281 pl. 102 figs. A-M, 369 coul. pl. 129 D, 1997; Malaisse, Guide florist. Parc. Natl. Cantanhez (Guinée-Bissau): pl. 699, photo. 699, 2010; Fl. Zambes. 12/1: 49, 2012.

bas.: *Arum viviparum* Roxb.

syn.: *Caladium viviparum* (Roxb.) Nees; *Colocasia vivipara* (Roxb.) Thwaites; *Remusatia formosana* Hayata; *R. bulbifera* Vilmorin; *Ditinnia rupicola* A. Chev., nom. (in *Melastomataceae* !).

Seasonally dormant, rupicolous or epiphytic herb; tuber subglobose 2-4 cm Ø; *bulbils* ovoid, 0,4-0,5 cm long, green, covered in numerous tightly-overlapping glume-like scales with aristate recurved tips, *borne in clusters at nodes of several erect aerial* stolons, i.e., *copper-coloured sympodial axes*, each c. 20 cm long, 0,5 cm Ø; leaves 1-2, fleshy; petiole green, 30-40 cm long; blade peltate, ovate-cordate, 20-30 × 14-19 cm or larger, apex acuminate, base with parabolic sinus c. 3 cm long; inflorescence with peduncle 9-12 cm long, rarely seen; spathe 7-11 cm long; tube ovoid, 2-4,5 cm long, 1 cm Ø, green, strongly constricted at apex; limb subcircular to broadly spathulate, 6-9 × 5-6,5 cm, creamy-yellow, reflexed at maturity; spadix 3-4,5 cm long, male zone clavate; berries ovoid, enclosed by spathe [described on Indian flowering material]. Flowers appearing during leafless stage.

Epiphytic on trees by streams and associated with fern roots; in moist cracks in rocks. Rocky river banks; rock faces in riverine forest; swampy hollow, epiphytic on *Pseudospondias microcarpa* (trunk base); epiphytic on crown branches of *Triplochiton scleroxylon* and saxicolous at base of the tree; open forest with *Marquesia macroura;* forest gallery; c. 300-1550 m alt.

REMUSATIA VIVIPARA

Rare in Africa and no flowering material known, perhaps due to undercollection; doubtfully spontaneous in Africa. Only 4 localities known in Zaire outside Haut-Katanga. Dispersal by bulbils (epizoochore).

Madagascar; Oman (Dhofar), Yemen (Thulin & al., Biol. Skr. 54: 141, 2001), Socotra; S Asia, China (Yunnan), Java, N Australia; Pacific Isl. ? (map in Syst. Biol. 53: 424, 2004).

RHAPHIDOPHORA / *2* (*3* ?)

Genus of 100-120 species in tropical Africa, India, Indonesia to N Australia, Fiji Isl.

Rhaphidophora africana N. E. Br.; Cable & Cheek, Pl. Mt Cameroon: 149, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 221, 2002; Cheek & al., Pl. Kupe…: 428, 2004; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 46, 2010; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 215, 2011; Onana, Vascul. pl. Cameroon...: 155, 2011. – Icon.: Adam, Fl. Mts Nimba 5: 1869, 1981; Fl. Cameroun 31: 77, 1988; Mayo & al., Genera Araceae: 199 pl. 14 figs. K-L, 1997; Govaerts & Frodin, World checklist Araceae: 447, 2002; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 895, 2006.

syn.: Enum. 3: 80, 1995.

Climbing, lianescent herb, to 12 m height, becoming an epiphyte; stem closely adpressed to support, with large persistent "petioles" (= ripped sheathing petiole bases); leaf petiole 8-27 cm long; blade oblong-elliptic to oblanceolate, 16-36 × 5-12,5 cm, apex acuminate, base cuneate to subacute; *inflorescences 1-4* near shoot tip, in *pendent* clusters; peduncle 12 cm long; spathe thick, fleshy, cylindric, with conic beaked tip, 8-10 cm long, 1,7-2,3 cm Ø, green, becoming creamy-white; spadix subcylindric, 6-8,5 cm long, 1,5-2 cm Ø, white; fruit unknown ?

Humid and riverine forest; on trunk of *Cyathea manniana* or of *Uapaca heudelotii*; swamp forest; *Gilbertiodendron dewevrei* forest; 1-1300 m alt.

Bioko/Fernando Poo.

Resembling *Cercestis camerunensis*.

R. bogneri P. C. Boyce, ined., Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 217, 2011 (description below).

Epiphyte; stems pendulous; leaf petiole c. 18 cm long; blade elliptic, c. 31 × 8,7 cm, glabrous, apex acuminate, base acute, margin entire; spathe elliptic to falcate in outline, 9 cm long, 2 cm Ø, black.

Riverine forest, on *Ficus* c. 4 m above ground; 640 m alt.

R. pusilla N. E. Br.; Sosef & al. (2006): l.c. (under *R. africana*); Cheek & al., Pl. Kupe…: 428, 2004; Onana, Vascul. pl. Cameroon…: 155, 2011; Onana & Cheek, Red Data Book flow. pl. Cameroon: 355, 549 (map), 2012.

syn.: *Afrorhaphidophora pusilla* (N. E. Br.) Engl.

Very slender creeping or climbing herb; stem with long internodes; leaf petiole 9-11 cm long, sheathed almost to base of blade; blade angled at 60°-120° from petiole, narrowly elliptic, 13-17 × 3-4 cm, tip acuminate 2 cm long, base acute, slightly decurrent; inflorescences *solitary*, *erect*; peduncle 3-35 cm long; spathe cylindric, 1,5-2,5 cm long, white, rostrate-subulate; fruit unknown ?

Forest; 1520 m alt.

RHAPHIDOPHORA PUSILLA

Until recently considered as a synonym of *R. africana*. Only 2 collections known: The type (Mann 1700) collected in 1862 in the Cristal Mts, Gabon; not recollected there since. Collected in SW Cameroon, Bakossi Mts, in 1998 (Mackinder 141).

SYNONYMS:

Rhaphidophora ovoidea A. Chev. = **Rhaphidophora africana**

pusilla sensu auctt., e.g. A. Chev. = **R. africana**

(RHEKTOPHYLLUM)

Rhektophyllum camerunense Ntépé-Nyamè = **Cercestis camerunensis**

congense De Wild. & T. Durand = **C. mirabilis**

mirabile N. E. Br. = **C. mirabilis**

(RICHARDIA)

Richardia aethiopica (L.) Spreng. = **Zantedeschia aethiopica**

africana Kunth = **Z. aethiopica**

albomaculata Hook. = **Z. albomaculata**

angustiloba Schott = **Z. albomaculata** subsp. **albomaculata**

hastata Hook. = **Z. albomaculata** subsp. **albomaculata**

lytwychei N. E. Br. = **Z. albomaculata** subsp. **albomaculata**

melanoleuca Hook. f., incl. var. *tropicalis* N. E. Br. = **Z. albomaculata** subsp. **albomaculata**

rehmannii (Engl.) Krelage = **Z. rehmannii**

SAUROMATUM / *1*

Genus of 9 species from Tropical Africa, SW Arabia to Pakistan, India-China, Indonesia. Several species of *Typhonium* were transferred recently to *Sauromatum* (Taxon 59: 439-447, 2010); greatest diversity in China.

CUSIMANO, N. & al. (2010). A phylogeny of the Areae (Araceae) implies that Typhonium, Sauromatum, and the Australian species of Typhonium are distinct clades. *Taxon* 59: 439-447.

HETTERSCHEID, W. L. A. & P. C. BOYCE (2000). A reclassification of Sauromatum Schott and new species of Typhonium Schott (Araceae). *Aroideana* 23: 48-55.

LATZEL, G. (2008). Zur Biologie der Eidechsenwurz (Sauromatum venosum). *Palmengarten* 72: 54-58.

Sauromatum venosum (Dryand. ex Aiton) Kunth; Fl. W. Trop. Afr., ed. 2, 3/1: 116, 1968; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 314-316, 1999; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 46, 2006; Sosef & al., Check-list pl. vascul. Gabon: 78, 2006; Figueiredo & Smith, Pl. Angola: 172, 2008 (under *Typhonium*); Onana, Vascul. pl. Cameroon…: 155, 2011 (idem). – Icon.: Guinea in Anal. Jard. Bot. Madrid 6/2: 475, 1946 (as *Jaimenostia fernandopoana*); Fl. Cameroun 31: 39, 1988; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 134, 1994; Fl. Eth. & Eritrea 6: 45, 1997; Mayo & al., Genera Araceae: 264, pl. 94 figs. A-K, 368 coul. pl. 128 B, 1997; Aroideana 23: 50, 2000 (under *Typhonium*, detail of spadix); Palmengarten 72: 55-58, 2008 (whole developmental cycle of a cultivated specimen); Taxon 59: 444 fig. 3 G, 2010; Fl. Zambes. 12/1: 51, 2012.

bas.: *Arum venosum* Dryand. ex Aiton

syn.: Enum. 3: 80, 1995; *Amorphophallus rivularis* A. Chev., nom. in sched.; *Arisaema venosum* (Dryand. ex Aiton) Blume; *Desmesia venosum* (Dryand. ex Aiton) Raf.; *Sauromatum guttatum* (Dryand. ex Aiton) Schott, incl. var. *venosum* (Dryand. ex Aiton) Engl., var. *pedatum* (Link & Otto) Engl., var. *sessiliflorum* (Roxb.) Engl., var. *punctatum* (K. Koch) Engl., var *simlense* (Schott) Engl., var. *pulchrum* (Miq.) Engl.; *Typhonium venosum* (Dryand. ex Aiton) Hett. & P. C. Boyce; *Jaimenostia fernandopoana* Guinea & Gómez Mor.; full synonymy in World Checklist of Selected Plant Families, Araceae, Roy. Bot. Gard. Kew.

SAUROMATUM VENOSUM

Herb with depressed-globose tuber 4-10 cm Ø; leaf 1, petiole to 90 cm long, often black-purple spotted or tinged brownish-purple; blade kidney-shaped to subcircular in outline, 25-60 cm broad, pedately lobed; lobes 7-11, ovate-elliptic, acuminate, cuneate, deeply divided almost to base; central lobe usually obovate-elliptic, 12-30 × 5-16 cm; inflorescence appearing before leaves; peduncle 2-8 cm long, subterranean; spathe 25-50 cm long; tube with joined margins, 5-10 cm long, 2,5 cm Ø, outside dull purplish-green, inside reddish-purple; limb narrowly lanceolate, 20-40 × 3-9 cm, inner surface pale yellow to pale green with numerous dark maroon-purple spots; spadix 20-42 cm long; berries obovate, 0,9-1 × c. 0,8 cm Ø, mulberry-purple to red, borne at or partly below ground-level in a tight subglobose head to 4 cm Ø.

In shade in damp woodlands; riverine forest; plantations, copses in grasslands; savannas; rocky hills; shade under bushes in river valleys at base of boulders; rocky bushland; moist fallow fields; rock-fissures in a large cavern; on humus-rich soil; 50-2220 m alt.

Bioko/Fernando Poo.

Yemen, NW & NE India, Nepal, Bhutan, Myanmar, China.

Sometimes offered on garden fairs as a “miracle plant”, since the tubers can grow without soil and water and produce flowers.

SYNONYMS (see also above under *S. venosum*):

Sauromatum ferox Linden ex Engl. = **Anchomanes difformis**

STYLOCHAETON / *19 + 1* ?

Stylochaeton Leprieur, 1834; syn.: *Stylochiton* Schott 1855

Tropical and southern subtropical African genus with centre of diversity in Tanzania.

The inflorescence, very inconspicuous, often appears before the leaves, its lower part underground. So herbarium specimens are often incomplete.

Some species poorly known: inflorescence unknown in 1 + 1 ? species, fruit unknown in 3 + 1 ? species; one species known only from the type, and another only from the type locality (2 gatherings).

(**Stylochaeton angolensis** Engl.); Figueiredo & Smith, Pl. Angola: 172, 2008.

Herb; base unknown; cataphylls 1,5-2,5 cm long; leaves not known, appearing after flowers; peduncle 2,5 cm long; spathe with cylindric tube, 3 cm long, 0,8 cm Ø, base greenish and dark red-brown higher up; limb oblong, expanded, 2 × 1,2 cm, short acuminate, dark purplish-red inside; spadix a little shorter than tube; berries unknown.

Ecology unknown.

Known only from the type collected in 1879 (Teuscz 302, B, lost). Angola: Malange. – Not mapped.

Taxonomic status uncertain. Placed between sect. *Cyclogyne* and *S. natalensis* by Engler (1892). Brown (Fl. Trop. Afr. 8: 191-192, 1901) had not seen the type but suggested that the plant might be the same as *S. natalensis* sensu Rendle in Cat. Afr. pl. Welwitsch 2/1: 86, 1899.

STYLOCHAETON

S. bogneri Mayo – Icon.: Mayo & al., Genera Araceae: 152 pl. 34 figs. G, H-L, 1997.

Herb with *stoloniferous horizontal* rhizome, 0,4-0,6 cm Ø; leaf solitary; petiole 10-25 cm long, pale green with irregular purple barring and spotting; blade broadly triangular in outline, cordate-sagittate, 8-21 × 6-20 cm, sometimes variegated above with grey-green patches between main nerves; basal lobes typically separated by ± oblong sinus; inflorescence appearing with leaf; peduncle 1-2 cm long; spathe 5,5-12 cm long; tube 3-5 cm long, 0,8-1,5 cm Ø, with *2 superposed inflated parts*, buff with rose-purple tinge; limb elliptic, 2-4 × 1-2 cm, cream to buff; spadix 3-6 cm long; berries without size indicated.

Evergreen forest; *Brachystegia* woodland; 200-1200 m alt.

Apparingly close to *S. tortispathus*.

S. borumensis N. E. Br.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 299, 1994; Fl. Zambes. 12/1: 20-21, 2012. – Icon.: Thulin, Fl. Somalia 4: pl. 1C, 1995; Mayo & al. (1997): 152 pl. 34 fig. E.

syn.: *S. lobatus* N. E. Br.; *S. rogersii* N. E. Br.; *S. heterophyllus* Peter, incl. fa. *lobatus* Peter, fa. *sagittatus* Peter, fa. *subcordatus* Peter; *S. tubulosus* Peter; *S. angustifolius* Peter, incl. var. *lanceolatus* Peter

Herb with vertical or horizontal rhizome 0,5-1 cm Ø; leaves several; petiole 10-40 cm long, basal half mottled-purple or greenish-purple in irregular transverse bars; blade vary variable, linear to ovate, elliptic or cordate, 10-30 × 0,5-*18 cm*, acute; posterior lobes variable, very short to as long as anterior lobe, 0,3-6 cm broad; inflorescence appearing before leaves, near soil surface; peduncle 1,5-6 cm long; spathe glaucous green to pale yellow-green, often purplish-brown towards apex, 4,5-15 cm long, 0,5-1,5 cm Ø, *cylindric*, apex erect and acuminate with *oblique ± circular opening usually less than a quarter of total spathe length;* limb reduced, forming *1/4 or less of total spathe length*; spadix 3,5-11,5 cm long; berries 8-10, grey-green.

Deciduous bushland and deciduous woodland; dry sandy bushland; grassland; usually in seasonally wet places; 0-1250 m alt.

Very variable in Somalia (? more than one species involved).

S. crassispathus Bogner

Herb; rhizome ± vertical, 1-2 cm long, 0,7-0,8 cm Ø; leaves 2-3; petiole 5-28 cm long, *pubescent*, sometimes glabrous; blade cordate-sagittate, usually sparsely pubescent beneath especially on veins, 6-16 × 5-15 cm, shortly acuminate; basal lobes with obtuse tips, separated by parabolic to narrowly oblong sinus; inflorescence *2,2-4 cm* long, appearing before or with leaves, borne at or partly below ground level; peduncle 0,3-2 cm long; spathe 2-5 cm long, with pronounced central constriction, outer surface reddish in apical part, whitish-green in basal part or mottled-white and violet, glabrous or sparsely pubescent at extreme base, erect; basal part of the tube greatly inflated, globose to depressed-globose, 0,9-1,1 cm long, 0,8-1 cm Ø; narrower upper part of tube to 3 cm long; apical limb 1-2 cm long, 0,8-1,1 cm Ø, opening by *narrowly-elliptic lateral slit*, *massively thickened*, *rigid*, ellipsoid, margins rounded, *thick*, *not revolute*, apex with short forward-curving conic apiculum; spadix 1,3-2,5 cm long; pistillate flowers *3-5 in a single basal whorl;* berries in ± globose infrutescence, c. 1 cm Ø.

Among leaf detritus on deep soil in shady rain-forest; *Sclerocarya* woodland; wooded grassland; 100-420 m alt.

Near *S. puberulus*.

STYLOCHAETON

S. cuculliferus Peter; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 316-318, 1999; Fl. Zambes. 12/1: 21-22, 2012.

Herb with vertical rhizome 1-1,5 cm Ø; leaf petiole 14-40 cm long, basal part with *very distinct maroon-purple transverse* barring and *distinctly transversely ridged;* blade narrowly triangular to ovate-elliptic in outline, *deeply sagittate*, 13-24 × 5-14 cm, acute; *basal lobes almost as long as anterior lobe*, retrorse, acutely tipped, separated by narrowly triangular sinus; inflorescences appearing before leaves, often paired, peduncle 4-11 cm long; spathe pale green, erect, 4-5 cm long; tube 2,2-2,7 cm long, 0,4-0,5 cm Ø in upper narrower part; basal part inflated, obovoid, 1,5-2 cm long, 1 cm Ø; limb ovate-elliptic, 2,3-2,5 × 0,8-0,9 cm, with *massively thickened margins not revolute*, opening reduced to *narrow lateral slit* (as *S. crassispathus*), apex with conic twisted cusp; spadix 2,6-3,7 cm long; infrutescence underground; berries c. 0,5 mm wide, whitish. Petiole-bases *not persistent*.

Deciduous woodland; *Brachystegia* woodland and grassland; 470-1200 m alt.

S. euryphyllus Mildbr.; Fl. Zambes 12/1: 21, 2012.

Herb; rhizome vertical, 0,5-0,7 cm Ø, with spreading tuberous roots; leaves 1-2; petiole subterranean, 3,5-8 cm long; blade *subcircular*, *shortly* and *narrowly cordate*, 6-21 × 6-19 cm, adpressed to soil surface; basal lobes very short, ± *overlapping;* inflorescences 1-2, appearing with leaves; peduncle subterranean; spathe with base of tube ± subterranean; spathe erect, 7-12 cm long, pale green; tube 2,5-6 × 0,5-0,8 cm, cylindric; limb elliptic-lanceolate, 4,5-5,5 × 1,3-1,7 cm, greenish-yellow inside, acute-acuminate with twisted subulate cusp; spadix 3-4 cm long; berries subglobose-polyhedral, 6 × 5-7 mm, papillose.

Deciduous bushland; termite hills in *Brachystegia* woodland; forest floor; 20-900 m alt.

First found in Mozambique in 2003.

S. grandis N. E. Br.; Thulin, Fl. Somalia 4: 21, 1995; Fl. Ethiopia & Eritrea 6: 36, 1997.

Herb; rhizome 1 cm or more Ø; leaves 1-3; petiole 8-10 cm long; blade ± ovate in outline, 10-20 × 6-11,5 cm, base *truncate* to *broadly cuneate* or subcordate, apex acute; inflorescence *appearing before leaves* at or near ground level, subsessile; spathe with tube c. 7,5 × 1,3 cm, cylindric; limb ovate, c. 2,5 cm long, apiculate, with oblique opening; spadix c. 9 cm long; infrutescence underground [photo. of digging up, in Fauna & Flora (Stockholm) 101/3: 37, 2006].

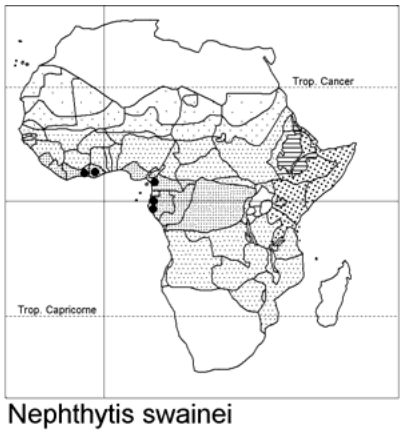
Acacia-Commiphora bushland on sand; 100-180 m alt.

S. hypogaeus Lepr.; Fl. Eth. & Eritrea 6: 36, 1997 *(S. kerensis);* Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 215, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 31, 2012. – Icon.: Berhaut, Fl. ill. Sénégal 9: 72, 1988; Govaerts & Frodin, World checklist Araceae: 497, 2002; Akoegninou & al., Fl. analyt. Bénin: 49, 2006.

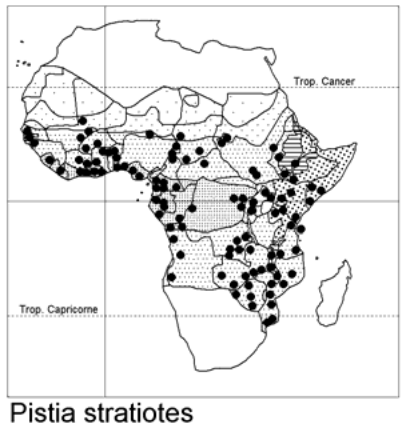
syn.: *S. barteri* N. E. Br.; *S. similis* N. E. Br.; *S. baguirmiensis* A. Chev., nom.; *S. kerensis* N. E. Br. (sometimes recognised as a good species).

Herb with rootstock; leaves appearing after inflorescence, sometimes before, in tufts, generally erect, with petiole 8-15 cm long; sheaths with *transversal*, *purple*, *sinuous bands;* blade *hastate* or *sagittate*, 10-20 × 1,5-10 cm, basal lobes ± narowly triangular, *2-6 cm* long; spathe subcylindric, partly subterranean, 3-8 cm long, purplish, apex acuminate, opening by a lateral slit; spadix at ground-level, ± as long as spathe; infrutescence subterranean.

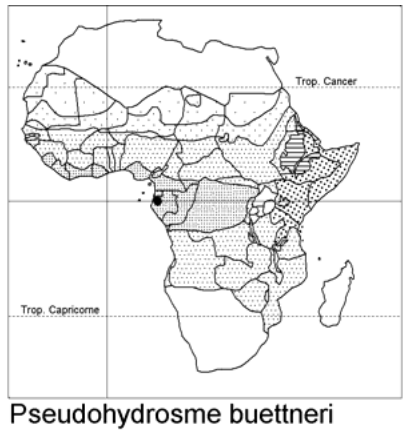
Open forest; deciduous forest; savanna; flood plains; open thicket; sandy or sandy-clayey soils; gallery.



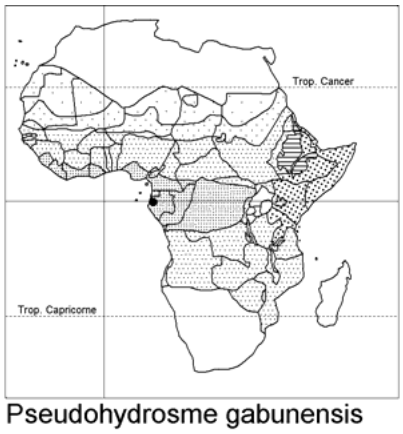
Nephthytis swainei



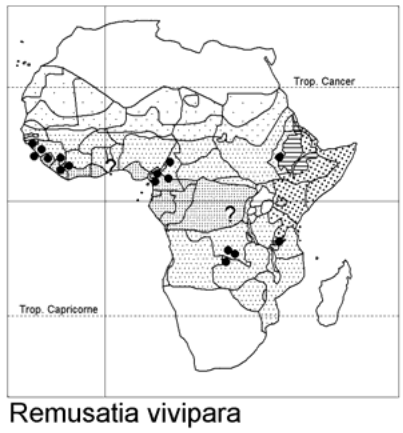
Pistia stratiotes



Pseudohydrosme buettneri

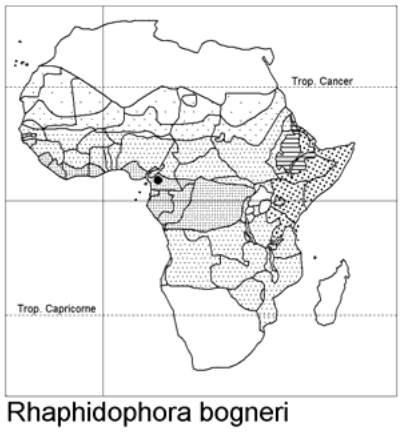


Pseudohydrosme gabunensis

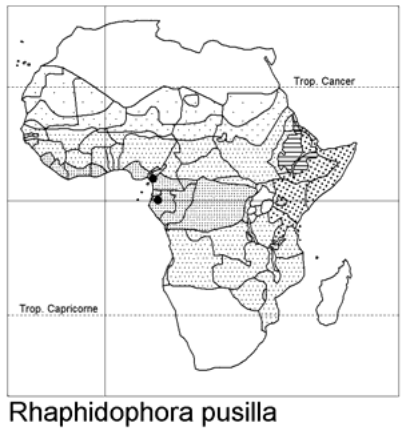


Remusatia vivipara

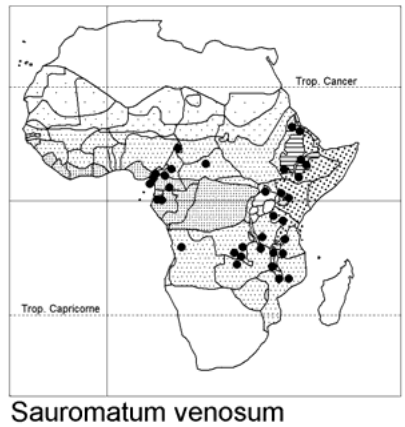
Rhaphidophora africana



Rhaphidophora bogneri

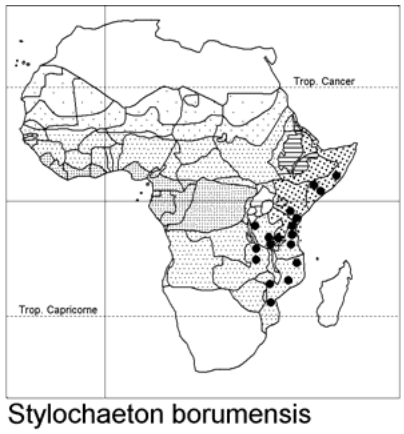


Rhaphidophora pusilla

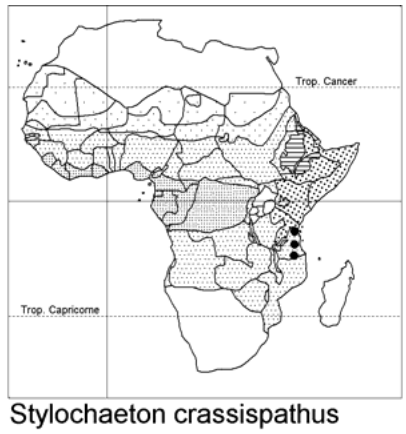


Sauromatum venosum

Stylochaeton bogneri



Stylochaeton borumensis



Stylochaeton crassispathus

S. kornasii Malaisse & Bamps; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 318-320, 1999.

Herb, erect, with tuberous rhizome first ± vertical becoming curved, to 5-6 cm long, 0,5 cm Ø; leaf petiole 3,5-4 cm long; blade *elliptic*, base *cordate*, apex obtuse and apiculate, *7,5-9 × 4,5-5,5 cm;* inflorescences 1-2, *appearing with* the *leaves*, partially underground; peduncle 1,5-2,5 cm long, 2,5-3 mm Ø; spathe conical, with a lateral slit c. 1 cm long; spadix c. 7 cm long, c. 5 mm Ø; infrutescence unknown.

Thicket edge on temporarily flooded soil; 990 m alt.

Only known from 2 collections made in 1984 in the same locality.

S. lancifolius Kotschy & Peyr.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 208, 1985; Friis & Vollesen, Fl. Sudan-Uganda border area…2: 496, 2005; Akoegninou & al., Fl. analyt. Bénin: 50, 2006; Lisowski, Fl. Rép. Guinée 1: 382, 2009; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire : 215, 2011; Onana, Vascul pl. Cameroon…: 155, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 31-32, 2012. – Icon.: Berhaut, Fl. ill. Sénégal 9: 72, 1988 (leaves); Fl. Cameroun 31: 47, 1988; M. Jones, Flow. pl. Gambia: pl. 6, 1994; Mayo & al., Genera Araceae: 152 pl. 34 figs. A, B-C, 1997; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 700, 2010.

syn.: *S. hostiifolius* Engl.; *S. warneckei* Engl.; *S. chevalieri* Engl.; *S. dalzielii* N. E. Br.

Herb; rhizome erect, fleshy, yellow, c. 5 mm Ø, with numerous adventitious roots; *flowers* appearing *before leaves*; these hastate to lanceolate, 10-18 × 5-8 cm; petiole puberulous, 5-15 cm long; blade 10-20 × 4-11 cm, basal lobes very obtuse and rounded, ovate or broadly triangular, > 2 cm long; spathe lanceolate, 2,5-5 × c. 1 cm, apex mucronate, tubular in lower half, purplish outside, whitish inside; spadix usually exserted, whitish; fruits subterranean.

Open forest; small wood edge; scrub; under isolated trees; soil on laterite; sandy soils temporarily very humid; savanna woodland; termite mounds; gallery; to 990-1600 m alt.

S. malaissei Bogner – Icon.: Willdenowia 41: 64-65, 2011.

Seasonally dormant herb c. 40-50 cm tall, with fibrous leaf remnants at base; rhizome erect, 2-4 cm long, 1-1,4 cm Ø, with very thick, tuberous roots; leaves 1-3; petiole 17-30 cm long, 0,3-1 cm Ø, sheath 8-12 cm long; blade lanceolate, 18-23 × 5-7,5 cm, venation reticulate, base cuneate, apex acute; inflorescence unknown; infrutescence ± subterranean, somewhat ellipsoid, c. 1, 3 cm long, 0,8-1,4 cm Ø, spathe remnants absent; berries ± depressed-globose, white, 3-7 mm Ø.

Savanna on laterite; tall termite mound near a dembo; 960-1080 m alt.

Known from only 2 collections made in 1981 and 1986, respectively.

Closely related to *S. shabaensis*.

S. milneanus Mayo

Herb; rhizome ± horizontal, 0,5-1 cm Ø; leaf solitary; petiole 15-26 cm long, green to reddish-purple; blade broadly triangular in outline, sagittate to sagittate-hastate, 18-23 × 10-25 cm, ± sparsely *pubescent* beneath, more densely so on veins, apex acute to obtuse with 0,5-0,7 cm long terminal apiculum; basal lobes separated by oblong to broadly parabolic sinus; inflorescence appearing before leaf; peduncle 1,5 cm long; spathe 11-13 cm long, pale green and densely pubescent outside; basal tube erect, 3,5-5 cm long, upper part cylindric, 1-1,2 cm Ø, lower part *inflated depressed-globose*, 1,5-2,5 cm long, 2-3 cm Ø; limb ovate-elliptic, 6-8 × 2,5-3 cm, outside green to primrose-yellow, apex with 1-1,6 cm long, subulate, twisted apiculum; spadix 5 cm long; fruit unknown.

Brachystegia woodland; 460-600 m alt.

Closely related to *S. salaamicus*; further studies are needed.

S. natalensis Schott – Icon.: Engler, Pflanzenreich 4/23 F: 33 figs. 3 K-O, 1920 (as *S. hennigii* = subsp. **natalensis**); Fl. Zambes. 12/1: 15 (subsp. **obliquinervis**), 17 (subsp. **maximus**), 2012.

syn.: *Gueinzia natalensis* Sond. ex Schott

Herb with vertical rhizome to 15 cm long, 0,5-1 cm Ø, with old *cataphylls* and *petiole-bases persisting* forming a conspicuous *fibrous mass*; roots numerous, stout, tuberous, to 35 cm long; leaves many; petiole 4-43 cm long, green, sometimes with purplish-green transverse markings at base but not transversely barred or ridged; sheath 3,5-18 cm long; blade *very variable*, oblong to triangular in outline: sagittate, hastate, cordate-sagittate, broadly cordate to truncate, 5-31 × 1,8-26 cm, glabrous, apex acute to acuminate or apiculate; basal lobes, if present, separated by broad sinus; inflorescences appearing with leaves; peduncle 2,5-13 cm long; spathe 4-23 cm long, greenish to yellowish or purplish outside with ribbed veins; tube erect, 2-9 cm long, subcylindric above 0,5-1,4 cm Ø, below ± inflated ovoid 1,3-2,5 cm long and 0,7-2 cm Ø; limb lanceolate, ± thickened, acute-acuminate, 1,8-3,5 cm long, erect or forward curving, yellow or purplish inside, margins revolute or not; spadix 1,4-8 cm long, shorter than tube; infrutescence ± cylindric, 4 × 3 cm.

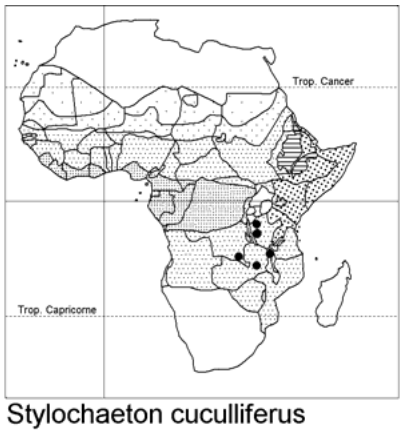
Open woodland; *Brachystegia* woodland; margins of open miombo woodland; wooded grassland; damp areas on arable land; seasonally waterlogged valleys; 0-1800 m alt.

S. Africa, Swaziland.

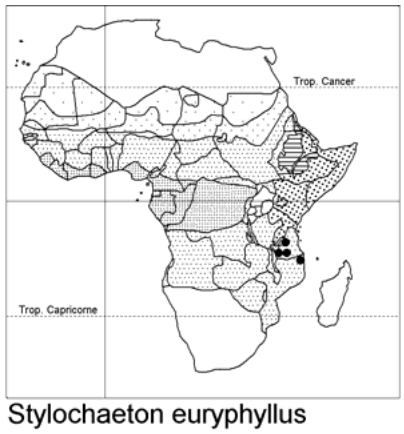
Comprises 3 subspp.: – subsp. **natalensis** (syn.: *S. gazensis* Rendle; *S. hennigii* Engl.) with small hastate leaves; – subsp. **maximus** (Engl.) Bogner & Haigh (bas.: *S. maximus* Engl.) with large cordate-sagittate leaf blade, 29-31 × 24-26 cm, in S-most Mozambique and Zanzibar (only these 2 collections known); – subsp. **obliquinervis** (Peter) Bogner & Haigh (bas.: *S. obliquinervis* Peter; syn.: ? *S. tenuinervis* Peter; ? *S. tenuinervis* Peter var. *pubescens* Peter) with oblong leaves; treated by Mayo as a synonym of *S. borumensis*; leaves very similar to those of *S. kornasii*.

Collections Peter 36261 and 36440 from Tanzania, Kigoma District, Uvinza = *S. tenuinervis* Peter treated as a synonym of *S. natalensis* in Fl. Trop. E. Afr., Araceae: 46, 1985; and collection Peter 36367 b from the same locality = *S. tenuinervis* Peter var. *pubescens* Peter treated as a probable synonym of *S. natalensis*. Collection Peter 36138 from the same locality is treated as *S. natalensis* subsp. *obliquinervis* by Haigh & Boyce in Fl. Zambes., l.c. Collections Peter 35817, 36261, 36367, 36440 (Fl. Trop. E. Afr., l.c.) are from the same locality, seem to correspond with *S. natalensis* subsp. *obliquinervis*.

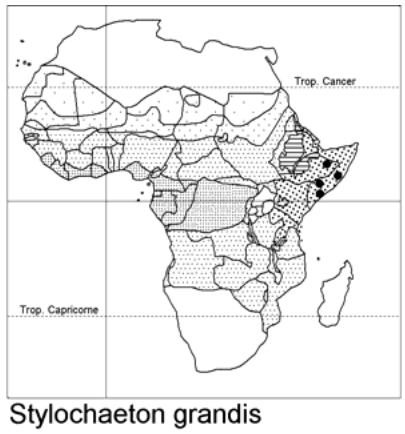
Stylochiton ? *natalense* sensu Rendle in Catalogue Welwitsch's African plants 2/1: 89, 1899, was compared with *S. angolensis* Engl. by Brown in Fl. Trop. Afr. 8: 191-192, 1901.



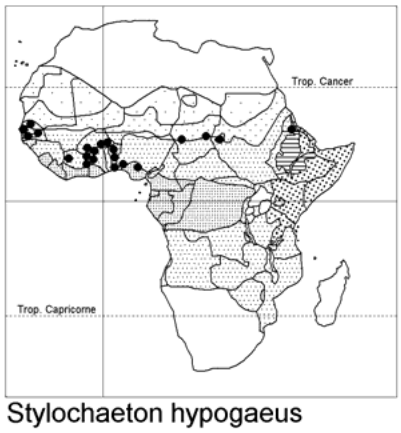
Stylochaeton cuculliferus



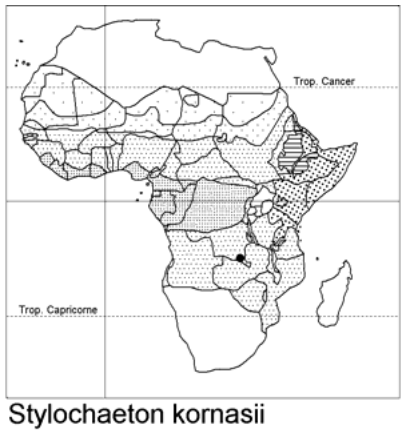
Stylochaeton euryphyllus



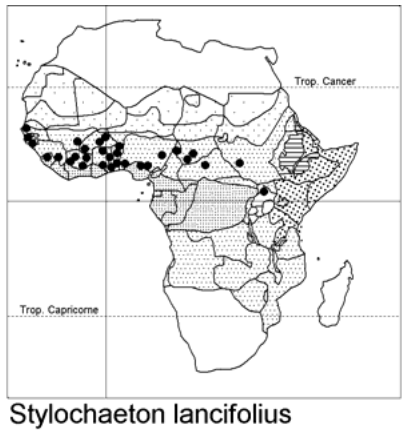
Stylochaeton grandis



Stylochaeton hypogaeus



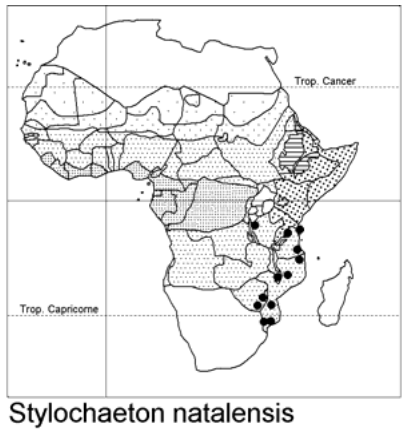
Stylochaeton kornasii



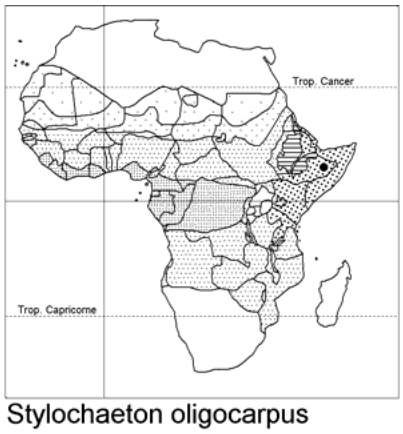
Stylochaeton lancifolius

Stylochaeton malaissei

Stylochaeton milneanus

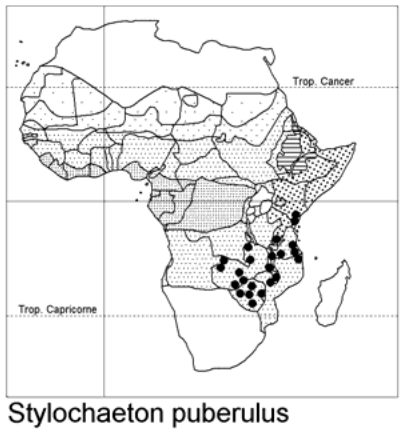


Stylochaeton natalensis



Stylochaeton oligocarpus

Stylochaeton pilosus



Stylochaeton puberulus

STYLOCHAETON

S. oligocarpus Riedl; Thulin in Symb. Bot. Upsal. 35/2: 82, 85, 89, 2011. – Icon.: Linzer Biol. Beitr. 22: 304, 1990; Fl. Eth. & Eritrea 6: 36, 1997.

Herb with tuberous rhizome densely covered by fibres from old leaves; leaf petiole 23-27 cm long; blade hastate-sagittate, base truncate, central lobe 14-20 × 1,5-2 cm, apex sharply pointed; lateral lobes *horizontal*, *7-12* × 0,8-1,7 cm; peduncle c. 1,5 cm long; berries subterranean, whitish, 2,3- × 1,1-1,2 cm (compressed). The type (Gilbert 2047) collected in 1971 lacks spathe, spadix and flowers. A second collection was made in 2006 in Ethiopia, Ogaden, near Kebri Dehar.

In deep shade, dense *Acacia* bushland on very sandy brown soil in flat country (some *Acacia* to 10 m); red sand; c. 1200 m alt.

S. pilosus Bogner – Icon.: Willdenowia 41: 62-63, 2011.

syn.: *S. zenkeri* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 114, 1968, p.p. quoad specim. ex Sierra Leone, non Engl.

Herb, perhaps evergreen, with creeping rhizome 2,5-3- ? cm long, 0,3-0,4 cm Ø; leaves 1-2; petiole 8-13 cm long, 0,2 cm Ø with short hairs; sheath 2-3 cm long; blade broadly ovate, 5-8(-10) × 4-6,5(-7,5) cm, base cordate, apex shortly cuspidate, venation reticulate, hairy beneath; inflorescence solitary, contemporary with the leaves; peduncle c. 1 cm long, 0,5 cm Ø; spathe not constricted, 3,8-4,2 cm long, broader at base, c. 5 mm Ø, narrowing towards apex, ending in a point, upper part slightly twisted and opening by a lateral slit; spadix c. 1,2 cm long; infrutescent without remnants of spathe; berries ± globular, c. 5 mm Ø.

Along path in high bush, frequent.

Known from only 2 collections (Deighton 3960, 3021) made in 1940 and 1935, respectively.

Closely related to *S. zenkeri*.

S. puberulus N. E. Br.; Fl. Zambes. 12/1: 18, 20, 2012.

syn.: *S.* ? *cordifolius* Engl.

Rhizome ± vertical, 1-1,5 cm Ø, often with annular constrictions; cataphylls 6-13 cm long, with awl-like projection to 1,2 cm long; leaves 1-2; petiole 20-40 cm long, pubescent at base, sometimes with purplish or brown markings; sheath 5-11 cm long; blade broadly triangular in outline, cordate-sagittate (-hastate), 14-33 × 14-30 cm, pubescent beneath and densely so on veins, apex rounded to shortly acuminate; basal lobes separated by a shallowly parabolic or oblong-spathulate sinus; inflorescence appearing before leaves, semi-subterranean; spathe erect, 3-5,5 cm long, lower half below ground, cream-coloured; tube 2-3,5 × 0,8-1,1 cm, base ± inflated 0,8-1,4 cm Ø; limb thickened, 1-2,3 × 0,9-1,2 cm, opening by a narrow lateral slit, margins not revolute, apex with a thick sometimes twisted cusp; spadix 2,3-2,6 cm long, hidden within tube; berries white, globose, on a globose subterranean infrutescence c. 3,5 cm Ø.

Deciduous bushland; *Brachystegia* and mopane woodland and wooded grassland; termite mound; 10-1400 m alt.

Leaves easily confused with those of *S. milneanus* but the inflorescences of the 2 taxa are distinct. The semi-subterranean inflorescences of *S. puberulus* are difficult to collect in fertile condition. New collections are needed.

Near *S. crassispathus* but pistillate flowers 12-15 spirally arranged (not 3-5 in a single whorl).

S. cordifolius Engl. is perhaps a distinct species.

STYLOCHAETON

S. salaamicus N. E. Br.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 299, 1994. – Icon.: Mayo & al., Genera Araceae: 354 pl. 114 A, 1997.

Herb with rhizome ± horizontal, 0,5-1,2 cm Ø; leaves *several*; petiole 10-60 cm long, green, with dark green to purple speckles vaguely associated into irregular barring pattern; blade broadly triangular in outline, hastate-sagittate, 6-30 × 6-28 cm, *glabrous* or *sometimes sparsely pubescent* below, apex apiculate to 3 mm long; sinus separating basal lobes usually broad; inflorescence appearing with or without leaves; peduncle 1-4 cm long; spathe 6-23 cm long, pale green, basal tube erect 2-8,5 cm long, 0,5-1,8 cm Ø, *lower part inflated*, 1,5-3,5 cm long, 1-2,7 cm Ø; limb lanceolate-ovate elliptic, 3-14 × 1-4 cm, inside green tinged yellow, apex with short conical apiculum; spadix 2,5-7,5 cm long; berries obpolyhedral, 1 × 1,3 cm, surface convex, papillate-rugose, in globose infrutescence 1,5-2,5 cm Ø

Evergreen forest; wooded grassland; dry bushland; termite mounds; 0-820 m alt.

Near *S. milneanus*. Perhaps a subsp. of *S. natalensis*.

S. shabaensis Malaisse & Bamps; Bull. Jard. Bot. Natl. Belg. 67: 320-322, 1999.

Herb with tuberous ± vertical rhizome to 10-15 cm long, 1-1,5 cm Ø; leaves 2-3; petiole to 35 cm long, *smooth*, green, with purple spots above; blade ovate in outline, *15-24 × 8-18 cm*, broadly cordate at base; inflorescence appearing before leaves, partially subterranean; peduncle 3-5 cm long; spathe subcylindric, greenish-cream, 5-6 × 9-1,5 cm, constricted to form a tube in lower 1/4; *spadix* with male and female parts separated by a *sterile interval 2-3 mm long;* infrutescence subglobular, 1,5 × 1,5 cm.

Termite mound; open forest; wooded savanna; micaschist, schist; gravelly soil; sand; 920-1200 m alt.

Resembling *S. cuculliferus*, with obovoid spathe and conical limb; leaf *blade* narrowly *triangular*, deeply sagittate at base; *petiole transversely ridged* at *base*; *spadix* with male and female parts not separated by a naked axis.

S. tortispathus Bogner & Haigh – Icon.: Fl. Zambes. 12/1: 19, 2012.

Herb with slender horizontal rhizome 0,2 cm Ø, with slender roots from the nodes; leaf petiole 12-18 cm long, with purplish mottling at the shortly pubescent base; sheath to 3,5 cm long; blade broadly cordate, 12-16 × 10-17,5 cm, apex cuspidate, anterior lobe convex; posterior lobes 6-9 cm long, rounded, spreading downwards to outwards, separated by a broadly parabolic to spathulate sinus; inflorescence 1, appearing with the leaves; peduncle pubescent, 3,8-5 cm long; spathe 7-10 cm long, mottled reddish-purple outside; tube 3-5,5 cm long, swollen at base, followed by a strong constriction, swollen again above this; limb 3-4,5 cm long, strongly twisted when dried, apex subulate; spadix 5,2 cm long, male and female parts *separated by a naked axis 1,9 cm long;* female zone globose, 0,7 cm long; fruit unknown.

Miombo woodland in humid soil, locally common; 80 m alt.

Known only from the type collected in 2008.

Close to *S. bogneri*, but differs in having a spathe with one constriction (not 2) and a long sterile zone between female and male flowers.

STYLOCHAETON

S. zenkeri Engl.; Cable & Cheek, Pl. Mt Cameroon: 149, 1998; Cheek & al., Pl. Kupe…: 429, 2004; Sosef & al., Check-list pl. vascul. Gabon: 79, 2006; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 217, 2011. – Icon.: Fl. Cameroun 31: 45, 1988; Mayo & al., Genera Araceae: 152 pl. 34 fig. D, 1997.

syn.: *S. gabonicus* N. E. Br.

Herb c. 45 cm tall, evergreen, with horizontal rhizome 0,4-1 cm Ø, with many long adventitious roots; leaves several; petiole 7,5-28,5 cm long, *glabrous*, purple-red; blade *glabrous*, elliptic, 7,5-20 × 4-11 cm, acute, base shortly cordate, nearly white beneath; posterior lobes obtuse-rounded, to 2 cm long; inflorescences axillary; peduncle purple-red, 2,5-5 cm long; spathe inconspicuous amongst petiole bases, 3,5-7,5 cm long, (greenish) white, tubular at base; spadix less than half the length of spathe; berries red, c. 5 mm Ø.

Evergreen rain-forest; 1-1450 m alt.

Not in Sierra Leone (= *S. pilosus*; Deighton 3960 in Fl. W. Trop. Afr., ed. 2, 3/1: 114, 1968).

Resembling *S. lancifolius* (flowering before leaves; leaves hastate with posterior lobes > 2 cm long; in savanna). Similar to *S. pilosus* (with round hairy leaf blades and hairy petioles).

SYNONYMS:

Stylochaeton angustifolius Peter, incl. var. *lanceolatus* Peter = **Stylochaeton borumensis**

baguirmiensis A. Chev. = **S. hypogaeus**

barteri N. E. Br. = **S. hypogaeus**

chevalieri Engl. = **S. lancifolius**

cordifolius Engl. = ? **S. puberulus**

dalzielii N. E. Br. = **S. lancifolius**

fissus Peter = ? **Anchomanes boehmii**

gabonicus N. E. Br. = **Stylochaeton zenkeri**

gazensis Rendle = **S. natalensis** subsp. **natalensis**

hennigii Engl. = **S. natalensis** subsp. **natalensis**

heterophyllus Peter, incl. fa. *lobatus* Peter, fa. *sagittatus* Peter, fa. *subcordatus* Peter = **S. borumensis**

hostiifolius Engl. = **S. lancifolius**

kerensis N. E. Br. = **S. hypogaeus**

lobatus N. E. Br. = **S. borumensis**

maximus Engl. = **S. natalensis** subsp. **maximus**

natalensis sensu Rendle in Cat. Welw. Afr. Pl. = ? **S. angolensis**

obliquinervis Peter = **S. natalensis** subsp. **obliquinervis**

rogersii N. E. Br. = **S. borumensis**

similis N. E. Br. = **S. hypogaeus**

tenuinervis Peter = **S. natalensis** (subsp. **obliquinervis**)

tenuinervis var. *pubescens* Peter = ? **S. natalensis** (subsp. **obliquinervis**)

tubulosus Peter = **S. borumensis**

warneckei Engl. = **S. lancifolius**

[TYPHONIUM]

Some 37 species in tropical S, SE and E Asia, Malay Archipelago, Australasia. Recently some species were transferred to *Sauromatum* (see above under that genus). Some species are weedy and naturalised outside Asia.

[**Typhonium roxburghii** Schott]; Fl. Trop. E. Afr., Araceae: 6, 1985. – Acaulescent herb with subglobose tuber; leaves radical; petiole 15-30 cm long; blade shallowly to deeply hastate-trilobed, 10-13 × 12-16 cm; peduncle short; spathe 19-30 cm long; tube 3 cm long; limb long-acuminate, 16-27 cm long, dark reddish-purple; spadix slightly shorter than spathe; sterile appendix 8-15 cm long, slender, dark red. – Native of tropical and subtropical Asia; naturalised in Zanzibar.

[**T. trilobatum** (L.) Schott]; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 208-209, 1985. – Icon.: Mayo & al., Genera Araceae: 262 pl. 93 figs. C, D, 1997. Herb 30-50 cm tall; leaves with 3 main divisions; inflorescence solitary; spathe constricted between tube and limb; tube with convolute margins; limb lanceolate; spadix sessile, female zone ± subglobose, separated from male zone by a long axis. With a revolting smell. – Native of India through to China and Penins. Malaysia, considered as a weed around towns. Recorded in Ivory Coast.

SYNONYM:

Typhonium venosum (Dryand. ex Aiton) Hett. & P. C. Boyce = **Sauromatum venosum**

TYPHONODORUM / *1*

Monotypic genus.

Typhonodorum lindleyanum Schott – Icon.: Werth in Mitth. Seminars Orient. Sprachen Königl. Univ. 3: fig. 5, 1901 (as *Arodendron engleri*); Bot. Mag. 136: pl. 8307, 1910; Engler, Pflanzenreich 4/23 Dc: 70-71, 1915; Kirkia 2: pl. 12D (p. 64-65), 1961; Fl. Madagascar 31: fig. 5, 1975; Fl. Mascareignes 192. Aracées: 16, 1984; Mayo & al., Genera Araceae: 249 pl. 85, coul. pl. 366 B, 1997.

syn.: *T. madagascariense* Engl.; *Arodendron engleri* Werth

Rhizomatous herb to *4 m tall* with *banana-like* pseudostem to 30 cm thick at base or more; leaf petiole to 3 m long or more, upper part green, lower part a very broad convolute sheath forming a false stem, whitish-pink, striped and spotted purplish-black; blade triangular in outline, to 1,4 m × 85 cm, sagittate, apex acute, basal lobes separated by triangular sinus; apical, exserted portion of peduncle 25-50 cm long, 4 cm Ø; spathe 50-80 cm long; basal tube yellowish-green outside, becoming inflated and darker green after flowering, inside white to pink, c. 1/3 the length of the expanded cream-yellow acuminate limb; spadix to 55 cm long, with sterile horn-like appendix c. 20 cm long; berries borne in subcylindric, pendent infrutescence enclosed in persistent spathe tube, compressed-obovoid(-globose), bright yellow, c. 4 cm Ø.

In pure stands in fresh water swamps; near sea-level.

Madagascar, Comores, Mascarenes.

[XANTHOSOMA]

Some 66 species in tropical and southern tropical America, West Indies. Long cultivated in the Neotropics as a root- and leaf-vegetable; use spread into the Old World (Nicolson in Taxon 24: 345-347, 1975).

[**Xanthosoma sagittifolium** (L.) Schott], sometimes cited as *X. mafaffa* Schott – Enum. 3: 80, 1995; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 209-210, 1985.

Distributed in Africa and cited in floras and checklists: Fl. W. Trop. Afr., ed. 2, 3/1: 119, 1968; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 32, 2012; Lisowski, Fl. Rép. Guinée 1: 382, 2009 (*X.* "*malaffa*" sphalm.); Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 215, 2011; Akoegninou & al., Fl. analyt. Bénin: 50, 2006; Figueiredo & Smith, Annot. cat. S. Tomé & Principe in Bothalia 41: 46, 2011; Cheek & al., Pl. Kupe…: 429, 2004; Onana, Vascul. pl. Cameroon…: 155, 2011; Sosef & al., Checklist pl. vascul. Gabon: 79, 2006; M. Renier, Fl. Kwango 1: 77, 1948; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 315, 2007; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 46, 2010; Lecron & Malaisse in Bull. Jard. Bot. Natl. Belg. 67: 331-332, 1999 (Haut-Katanga); Fl. Trop. E. Afr., Araceae: 7, 1985; Fl. Zambes. 12/1: 2-3, 2012. – Icon.: Fl. Cameroun 31: 123, 1988; Mayo & al. in Kubitzki, 1998: 61.

Large fleshy herb to 2 m tall, sometimes with a short stout aerial stem, with a milky sap; underground tuber to 35 × 10 cm, staining yellow when cut; leaves rosulate; petiole to > 1 m long; blade sagittate, > 70 × 50 cm, deep green above, paler and pruinose beneath, with subacute basal lobes; spathe to 30 cm long; tube inflated, green, to 8 cm long, persistent; limb creamy-white to yellowish-buff, erect, deciduous; spadix slightly shorter than spathe, without sterile appendix.

Cultivated and naturalised in tropical Africa. Native in tropical America.

Grown for its starchy tuber ("new" coco yam), in the same way as *Colocasia esculenta*. They are easily confused and also so with *Typhonodorum lindleyanum*. Young leaves eaten as a green vegetable.

ZAMIOCULCAS / *1*

Monotypic genus.

Zamioculcas zamiifolia (Lodd.) Engl.; L. Newton, A Check-list of Kenyan Succulent Plants: 15, 2003. – Icon.: Lodd. Bot. Cab. 15: pl. 1408, 1829 (under *Caladium*); Ballya 4-3: 63, 1997; Mayo & al., Genera Araceae: 148 pl. 113 fig. C, 1997; Mayo & al. in Kubitzki, 1998: 52; Bogner in Eggli, Ill. handbook succ. pl.: Monocot.: fig. XXVc, 2001; Fl. Zambes. 12/1: 23, 2012.

bas.: *Caladium zamiifolium* Lodd.

syn.: *Zamioculcas loddigesii* Schott; *Z. lanceolata* Peter

Seasonally dormant or evergreen succulent herb; tuber subcylindric, c. 3-4 cm Ø or more; leaf petiole *succulent*, 15-35 cm long, 1-2 cm Ø, green with darker transverse blotches; blade 20-40 cm long; *leaflets 4-8 per side*, subopposite, distant, oblong-ovate to sometimes oblanceolate, fleshy, 5-15 × 1,5-5 cm, sessile or nearly so, *deciduous* during dormancy; peduncle 3-20 cm long, 1 cm Ø, erect, becoming recurved in fruit, pushing infrutescence into ground-litter; spathe persistent, 5-8 cm long, coriaceous; tube ± ellipsoid, 1-1,5 × 1-2 cm, green outside; limb oblong-ovate, 5-6 × 3,5-5,5 cm, tip cuspidate, pale green to whitish or yellow; spadix 5-7 cm long, without sterile appendix; berries white, c. 1,2 cm Ø.

Humid to dry evergreen forest; forest floor in shade, often on river banks on sand; *Brachystegia* woodland; dry wooded grassland; bushland thicket; often on rocks; locally abundant; sometimes forming pure stands; 0-650 m alt.

NE S. Africa.

NEWTON, L. (1997). Zamioculcas zamiifolia. *Ballya* 4/3: 68-69.

A "borderline succulent", i.e. plant developing "a small amount of water storage tissue without marked enlargement of stems or leaves" (Newton in Ballya 4/3: 62, 1997).

SYNONYM:

Zamioculcas boivinii Decne. = **Gonatopus boivinii**

ZANTEDESCHIA / *1 + 1* ?

Genus of 8 species in Tropical and S. Africa (most species occurring there). One species [*Z. elliottiana* (W. Watson) Engl.] known only from cultivation. Well known among plant breeders and florists worldwide, with a large number of cultivars, grown as ornamentals in gardens, as pot plants or cut-flowers. In trade known as arum or calla lilies.

PERRY, P. L. (1989). A new species of Zantedeschia (Araceae) from the western Cape. *S. Afric. J. Bot.* 55: 447-451 [Table 1 with a comparison of characters in the genus; see also B. Mathew in *Bulb Newsl.* 27: 17-18, 1999; and idem 28: 6, 1999].

PIZANO DE MÁRQUEZ, M. (1999). *Zantedeschia: Calla Lily*. Ediciones Hortitecnia Ltda., Santafé de Bogotá, Colombia. 54 pp.

SINGH, Y. (1996a). *Contributions to the systematics of the genus Zantedeschia Spreng. (Araceae)*. Thesis, degree of Magister Scientiae, Faculty of Biological and Agricultural Science, Department of Botany. University of Pretoria, Pretoria. VI + 169 pp.

SINGH, Y. (1996b). Floral biology of Zantedeschia aethiopica (L.) Spreng. (Araceae). *S. Afric. J. Bot.* 62: 146-150.

Zantedeschia albomaculata (Hook.) Baill. subsp. **albomaculata**; Lecron & Malaisse, Bull. Jard. Bot. Natl. Belg. 67: 323-325, 1999; Cook, Aquat. & wetland pl. south. Afr.: 61-62, 2004; Figueiredo & Smith, Pl. Angola: 172, 2008; idem, Bothalia 39: 192 , 2009 [Kunene Exp.]. – Icon.: Bot. Mag. 85: pl. 5140, 1859 (as *Richardia albomaculata*); ibid. 86: pl. 5176, 1860 (as *R. hastata*); ibid. 95: pl. 5765, 1869 (as *R. melanoleuca*); Tredgold & Biegel, Rhodes. wild. flow.: pl. 2, 1979; Fl. Trop. E. Afr., Araceae: 37, 1985; Fl. Cameroun 31: 41, 1988 (as *Zantedeschia angustiloba*); Mayo & al., Genera Araceae: 233 pl. 77 figs. A-J, 1997; Fl. Zambes. 12/1: 37, 2012.

bas.: *Richardia albomaculata* Hook.

syn.: *Arodes albomaculatum* (Hook.) Kuntze; *Zantedeschia tropicalis* (N. E. Br.) Letty; *Z. melanoleuca* (Hook. f.) Engl., incl. var. *tropicalis* (N. E. Br) Traub; *Calla oculata* Lindl.; *Zantedeschia oculata* (Lindl.) Engl.; *Z. hastata* (Hook.) Engl.; *Z. angustiloba* (Schott) Engl.; *Z. lutwychei* (N. E. Br.) T. Durand & Schinz; *Z. chloroleuca* Engl. & Gilg; *Richardia hastata* Hook.; *Arodes hastatum* (Hook.) Kuntze; *Richardia angustiloba* Schott; *Arodes angustilobum* (Schott) Kuntze; *Richardia melanoleuca* Hook.f., incl. var. *tropicalis* N. E. Br.; *R. lutwychei* N. E. Br.; *Arodes melanoleucum* (Hook. f.) Kuntze

Seasonally dormant perennial herb; tuber ± depressed-globose, 3-7 cm Ø; leaves 2-6, basal; petiole 18,5-75 cm long, 0,4-1,4 cm Ø; blade hastate-sagittate; anterior lobe triangular-lanceolate, 10-40 × 5-9 cm, irregularly spotted with small white-diaphanous necrotic areas, or immaculate; posterior lobes 3-12 × 1,5-3,5 cm; inflorescence appearing with leaves; peduncle 11-80 cm long, 0,4-1,4 cm Ø; spathe convolute, 6-12 cm long; tube obconic,

ZANTEDESCHIA ALBOMACULATA

5 × 2-3,5 cm, inside lemon to greenish-yellow; limb long acuminate, 4-8 × 5-8 cm, cream-yellow to green-yellow outside and inside, usually with a dark maroon patch at base inside; spadix 2,8-6,5 cm long, female zone lacking staminodes, greenish; berries 1-1,8 cm Ø, green.

River sides, islets in river bed; swamps; gallery with *Syzygium cordatum*, soil flooded by 30 cm deep water; wet spongy places; also among rocks on grassy hillsides; forest margins; 1100-1800 m alt.

S. Africa, Swaziland, Lesotho. Introduced in N Nigeria.

Subsp. **macrocarpa** (Engl.) Letty differs in having triangular-hastate leaves sparsely speckled, straw-coloured spathes and a few large berries 2 cm Ø; occurs in S. Africa, Swaziland (map in Singh 1996a: 169). Mambila Plateau; Cameroon above 1500 m alt.

(**Z. rehmannii** Engl.); Fl. Zambes. 12/1: 38-39, 2012. – Icon.: Singh (1996a): 129 (map), 132, Appendix 2; Mayo & al. (1997): 233 pl. 77 fig. K.

syn.: *Z. stehmannii* Sprenger; *Richardia rehmannii* (Engl.) Krelage

Seasonally dormant herb; tuber discoid; leaves *lanceolate, not lobed at base* (only species so in the genus), base of blade tapering to petiole; blade 15-40 × 2-7 cm, apex acuminate, dark green, usually immaculate; petiole 10-20 cm long; peduncle to 60 cm long, glabrous; spathe 9-12 cm long, 1,5-2 cm wide, folded from base for 2/3 length into a narrow cylinder, white to pink, with no internal dark patch; limb spreading, tapering at apex; spadix 3,5-5 cm long; berries green.

Habitat and locality in Mozambique unknown (specimen Foster s.n., K). – Not mapped.

S. Africa, Swaziland.

Cultivated and sometimes naturalised.

[**Z. aethiopica** (L.) Spreng.]; Dobignard & Chatelain, Index synon. fl. Afrique N. 1: 88, 2010; Singh (1996a): 124, Appendix 2 (icon.) – Icon.: Fl. Trop. E. Afr., Araceae: 37, 1985; Mayo & al. (1997) coul. pl. 124 A; Fl. Eth. & Eritrea 6: 39, 1997; Cook (2004): 62; B.-E. Van Wyk & al., Medicin. pl. S. Afr., ed. 2: 317, 2009; Fl. Zambes. 12/1: 36, 2012; Fl. Iberica 18: 310, 207.

bas.: *Calla aethiopica* L.

syn.: *Richardia aethiopica* (L.) Spreng.; *R. africana* Kunth; *Colocasia aethiopica* (L.) Link; *Arodes aethiopicum* (L.) Kuntze; *Calla moschata* Moench; for full synonymy, see World Checklist of Selected Plant Families, Araceae, Roy. Bot. Gard., Kew.

Robust *evergreen* herb; rhizome fleshy; leaves basal, 0,4-1,5 m tall; petiole smooth, stout, to 60 cm long; blade ovate to heart- or arrow-shaped, 15-20 × 10-15 cm; inflorescence beautiful; peduncle 30-60 cm long, triangular in cross-section; spathe c. 15 cm long, 12 cm wide, ivory- white inside, bright green at base outside, folded from slightly below insertion of spadix; limb obliquely spreading with 2 cm long apiculus; spadix bright yellow with clavate-spathulate *staminodes scattered in female zone;* berries c. 1,2 cm long, green, becoming orange at base.

Endemic to S. Africa, Lesotho, Swaziland: in grassland, savanna, forest margins; in marshes, also in standing water.

Cultivated worldwide. In Africa in gardens, parks in moister upland areas (1900-2400). Naturalised in some wet areas, e.g., NW Tunisia (Fl. Medit. 22: 191-196, 2012), SW Ethiopia, tropical NE and E Africa; Réunion, Mauritius. Naturalised in tropical America, S Europe, Philippines, New Zealand.

Some varieties have variegated leaves.

(ZYGANTHERA)

Zyganthera buettneri (Engl.) N. E. Br. = **Pseudohydrosme buettneri**

LEMNACEAE / *4* g. / *13* spp.

APG III family Araceae. See also discussion in Mayo & al., Genera Araceae: 65, 1997.

Family of 4 ! genera and some 35 species of diminutive, free-floating aquatics with minute, leaf-like, poorly differentiated fronds or thalli that bear only a few roots or none at all, mostly reproducing vegetatively (Cabrera & al. in Amer. J. Bot. 95: 1154, 2008; Landolt, 1998a: 264). Recognition of the fifth segregate genus *Landoltia* is unwise (see Ward in J. Bot. Res. Inst. Texas 5: 197-203, 2011).

Rarely flowering in nature. Laboratory research has shown that certain substances, e.g., salicylic acid, a plant hormone, induce profuse flowering (Pieterse, 2013: 1).

The extreme reduction in size and presence of organs has caused difficulties in species recognition, i.e. causes taxonomic problems. There are few detectable morphological characters.

Distribution worldwide. Absent from Arctic, Antarctic and arid areas.

BOGNER, J. & G. PETERSEN (2007). See above under **Araceae**.

CABRERA, L. I. & al. (2008). See above under **Araceae**.

CRAWFORD, D. J. & al. (2006). Speciation in duckweeds (Lemnaceae): Phylogenetic and ecological inferences. *Aliso* 22: 231-242 [with distribution maps].

CUSIMANO, N. & al. (2011). See above under **Araceae**.

DAUBS, E. H. (1965). *A monograph of Lemnaceae*. [Illinois Biological Monographs 34] The University of Illinois Press, Urbana. 118 pp.

GOVAERTS, R. & D. G. FRODIN (2002). See above under **Araceae**.

HESSE, M. (2006). See above under **Araceae**.

KEATING, R. C. (2002). See above under **Araceae**.

KEATING, R. C. (2004a). See above under **Araceae**.

KEATING, R. C. (2004b). See above under **Araceae**.

LANDOLT, E. (1997). How do Lemnaceae (duckweed family) survive dry conditions ? *Bull. Geobot. Inst. ETH (Zürich)* 63: 25-31.

LANDOLT, E. (1998a) Lemnaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants. 4. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae)*: 264-270.

LANDOLT, E. (1998b): I. Anatomy of the Lemnaceae (duckweeds). *In:* LANDOLT, E. & al., eds., *Extreme adaptations in Angiospermous hydrophytes* [*Handbuch der Pflanzenanatomie, Spezieller Teil* 13/4]: 1-127. Gebrüder Borntträger, Berlin & Stuttgart.

LES, D. H. & al. (2002). Phylogeny and systematics of Lemnaceae, the Duckweed family. *Syst. Bot.* 27: 221-240.

PIETERSE, A. H. (2013). Is flowering in Lemnaceae stress-induced ? A review. *Aquat. Bot.* 104: 1-4.

TOBE, H. & T. KADOKAWA (2008). See above under **Araceae**.

(BRUNIERA)

Bruniera vivipara Franch. = **Wolffia arrhiza**

(HORKELIA)

Horkelia arrhiza (L.) Druce = **Wolffia arrhiza**

(HYDROPHACE)

Hydrophace minor (L.) Bubani = **Lemna minor**

trisulca (L.) Bubani = **L. trisulca**

(LANDOLTIA)

Landoltia punctata (G. Mey.) Les & D. J. Crawford, misapplied = **Spirodela oligorrhiza**

LEMNA / *4*

Genus of 14 species distributed worldwide (Halder & Venu in Taiwania 58: 12, 2012). Fronds with 1-5 veins, and 1-several layers of air spaces; pigment cells absent; 1 root per frond; fruit a dry pericarp with 1 seed.

Lemna aequinoctialis Welw.; often cited as *L. paucicostata* or even *L. pusilla*. – Cheek & al., Pl. Kupe…: 449, 2004; Sosef & al., Check-list pl. vascul. Gabon: 249, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Lejoly & al., Fl. Tshopo in Taxonom. 24: 2008; idem, Cat.-fl. Kisangani & Tshopo, ibid. 30: 163, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 86, 2010 (Egypt); Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 231, 2011; Onana, Vascul. pl. Cameroon…: 155, 2011; Figueiredo & Smith, Annot. cat. S. Tomé & Principe: 59, 2011; Renier, Flore du Kwango 1: 74, 1948. – Icon.: Kirkia 2: pl. × C (between p. 65 and 66), 1961; Fl. W. Trop. Afr., ed. 2, 3/1: 128, 1968; Fl. Trop. E. Afr., Lemnaceae: 3, 1973; Thulin, Fl. Somalia 4: 144, 1995; Fl. Eth. & Eritrea 6: 54, 1997; Svensk Bot. Tidskr. 93: 131, 133, 1999; Cook, Aquat. & wetland pl. south. Afr.: 158, 2004; Boulos, Fl. Egypt 4: 115, 2005; Akoegninou & al., Fl. analyt. Bénin: 141, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 501, 2009; Fl. Gabon 41, Lemnaceae: 41, 2010; Fl. Zambes. 12/1: 7, 2012.

syn.: *L. angolensis* Welw. ex Hegelm.; *L. perpusilla* Torr. var. *trinervis* Austin; *L. paucicostata* Hegelm., incl. var. *membranacea* Hegelm.; *L. minima* Blatt. & Hallb.; *L. blatteri* McCann; *L. eleanorae* McCann; *L. aoukikusa* T. Beppu & Murata, incl. var. *hokurikuensis* T. Beppu & Murata; *L. trinervis* (Austin) Small; *L. perpusilla* auctt. afric., non Torr.

Free-floating aquatic herb often forming a scum on pans; frond flat, ovate to lanceolate, 1-6,5 × 0,7-4,5 mm, with *3 veins*, pale green, lacking reddish colour, margins entire; upper surface with 2 papillae, one at centre, the other towards apex; root to 3 mm long, with *2-winged sheath*, *cap sharply pointed;* fruit not winged; seed with 8-26 longitudinal ribs, brownish. Rarely flowering.

Stagnant fresh waters (often seasonal; see Syst. Geogr. Pl. 75: 242, 256, 2009), ponds, dams, canals, ditches, pools (eutrophic conditions); rice fields; still watercourses; sometimes a few individuals together; 0-1600 m alt. – Often growing together with *Spirodela, Wolffia*.

Egypt; S. Tomé; whole southern Africa (map: Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 119, 1994); worldwide in tropical and warmer parts of the world (maps: Aliso 22: 233, 2006; Taxon 50: 988, 2001). Introduced further N into temperate regions, e.g. N. America, S Europe, N China, Japan, with a rice culture.

Confused with *L. perpusilla* Torr. from E & C N. America (maps Taxon 50: l.c., Aliso 22: l.c.), distinguished by a frond with 2-3 papillae, root sheath not winged and tip not sharply pointed, seeds whitish with 35-60 ribs. Also confused with *L. minor*.

L. gibba L.; Fl. Eth. & Eritrea 6: 52, 1997; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 187, 2008; Le Floc'h & Boulos, Fl. Tunisie: cat. syn.: 327, 2008; Le Floc'h & al., Cat. syn. commenté fl. Tunisie: 357, 2010; Dobignard & Chatelain, 2010: l.c. – Icon.: Fl. Trop. E. Afr., Lemnaceae: 3, 1973; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 134, 1994; Svensk Bot. Tidskr. 93: 133, 1999; Cook, 2004: l.c.; Boulos, Fl. Egypt: l.c.; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 39, 2001.

syn.: *Telmatophace gibba* (L.) Schleid.; *Lenticula gibba* (L.) Moench.; *L. gibbosa* P. Renault; *Telmatophace gibbosa* (P. Renault) Montandon; *T. arrhiza* Schur; *T. generalis* E. H. L. Krause; *Lemna trichorrhiza* Thuill. ex Schleid.; *L. cordata* Sessé & Moc.; *L. parodiana* Giardelli

Free-floating aquatic herb covering the water surface; frond to 4 mm thick, broadly ovate, asymmetric, slightly convex, 1-8 × 0,8-6 mm, yellowish-green above, often *reddish* beneath and almost hemispherical and *spongy* with *large inflated hyaline cells* and air spaces (large cells evident in the flat form); without distinct papillae or with papillae near tip of frond; veins 4-5(-7); daughter fronds budding laterally, 2-3 remaining attached with very short stipes; root 1, > 3 cm long, *sheath not winged*, *cap rounded;* fruit with winged margins; seeds whitish, 8-16-ribbed.

Pools, ditches, still fresh water, rice fields; 700-3000 m alt.

The typical spongy form is easily identifiable. The flat form is difficult to separate from *L. minor* (a comparative table in Quad. Bot. Amb. Appl. 15: 136, 2005).

Possibly also in Fl. Zambes. area (see Fl. Zambes. 12/1: 6, 2012). N Africa, S. Africa; Saudi Arabia; almost throughout the world in warm and Mediterranean climatic regions (Europe, W Asia, NW India, W Americas), except Australia, N. Zealand (= *L. disperma* Hegelm.); naturalised in Japan (maps: Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 120, 1994; Aquat. Bot. 83: 121, 2005; Aliso 22: 239, 2006).

L. minor L., incl. var. *minima* (Thuill. ex P. Beauv.) A. Chev., var. *orbiculata* Austin, var. *oxymitra* Hegelm.; Fl. Afr. Centr., Lemnaceae: 7, 1988; Fl. Eth. & Eritrea 6: 52, 1997; Ibn Tattou & Fennane, 2008: l.c.; Le Floc'h & Boulos, 2008: l.c.; Le Floc'h & al., 2010: l.c.; Dobignard & Chatelain, 2010: l.c. – Icon.: Fl. Trop. E. Afr., Lemnaceae: 3, 1973; Troupin, Fl. Rwanda 4: 409, 1988 (as *L. rwandensis*); Svensk Bot. Tidskr. 93: 131, 132, 1999; Fl. Cabo Verde 95, Lemnaceae: 7, 2002; Cook, Aquat. & wetland pl. south. Africa: 159, 2004; Fl. Zambes. 12/1: 7, 2012.

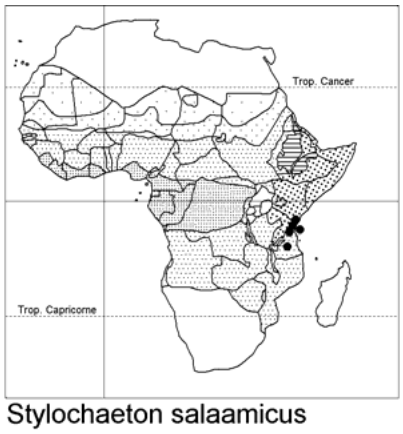
syn.: Enum. 3: 81, 1995; *Lenticula minor* (L.) Scop.; *L. vulgaris* Lam.; *Lemna vulgaris* (Lam.) Lam.; *L. monorhiza* Montandon; *L. minima* Thuill. ex P. Beauv.; *Hydrophace minor* (L.) Bubani; World Checklist of Selected Plant Families, Araceae, Roy. Bot. Gard., Kew.

Free-floating aquatic herb; frond *flat*, dark green, oblong-ovate, 1-10 × 0,6-7 mm, < 1 mm thick, symmetrical, obscurely 3-nerved, upper surface with indistinct papillae along mid vein; lower surface neither reddish nor gibbous; root 1, arising *along a shallow groove*, sheath unwinged, cap rounded; fruit with a narrowly winged margin; seed whitish, 10-16 ribbed.

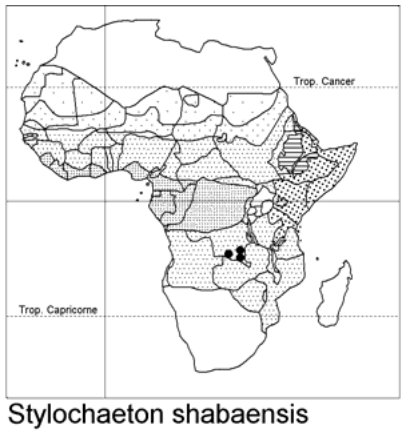
Pools, canals, ditches, quiet water; 50-3400 m alt.

Cosmopolitan in warm, temperate regions, except C. & S. America. Naturalised in Australia, New Zealand (map Africa-S Europe-W Asia: Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 120, 1994).

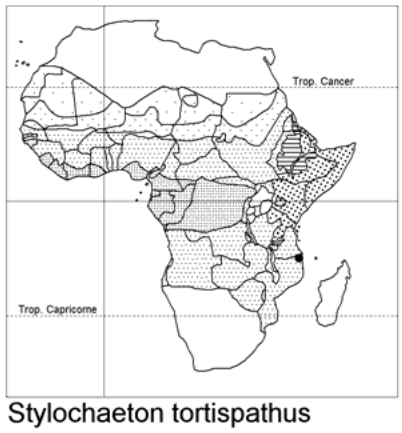
Difficult to distinguish from the flat form of *L. gibba*. The specimens of the gathering Verdcourt 718 b from Kenya (K4) is a mixture of *L. aequinoctialis* and *L. gibba* (fide Landolt, 1986). The collection Exell & Mendonça 570 from S-most Mozambique is mixed with *Wolffia arrhiza* and *Wolffiella denticulata* (Fl. Zambes., l.c.).



Stylochaeton salaamicus

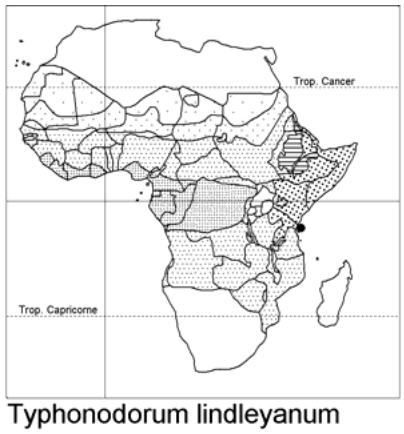


Stylochaeton shabaensis

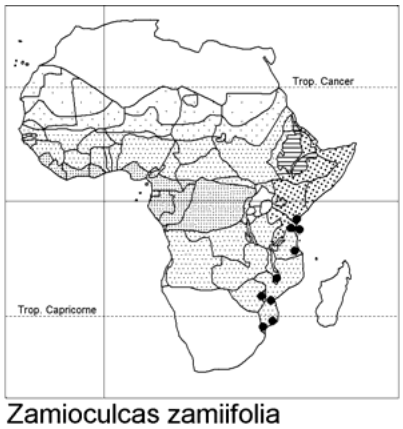


Stylochaeton tortispathus

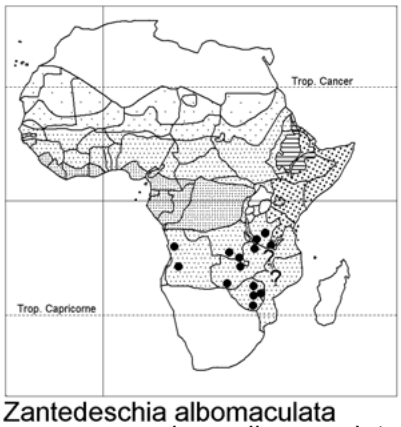
Stylochaeton zenkeri



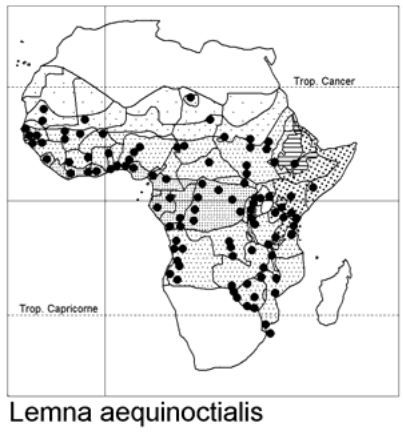
Typhonodorum lindleyanum



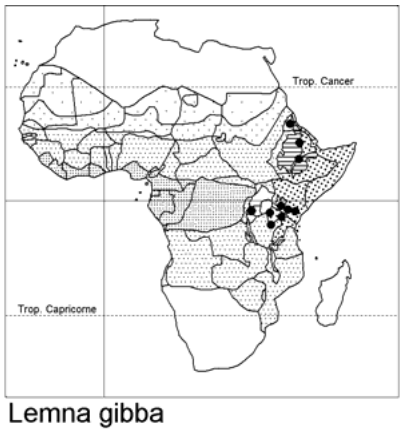
Zamioculcas zamiifolia



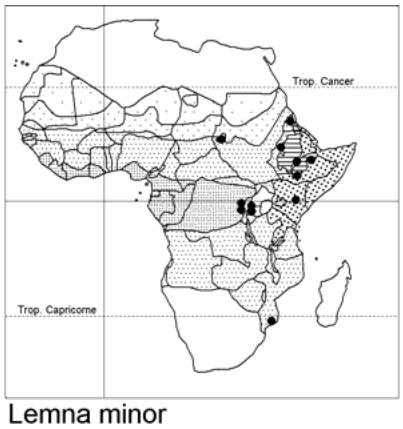
Zantedeschia albomaculata
subsp. albomaculata



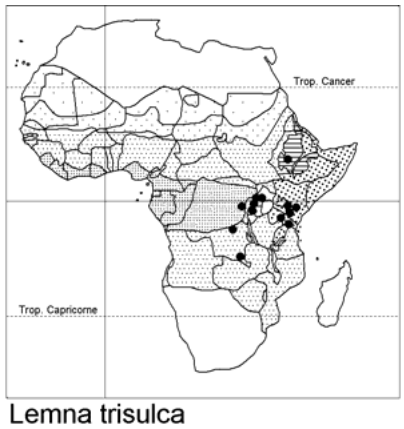
Lemna aequinoctialis



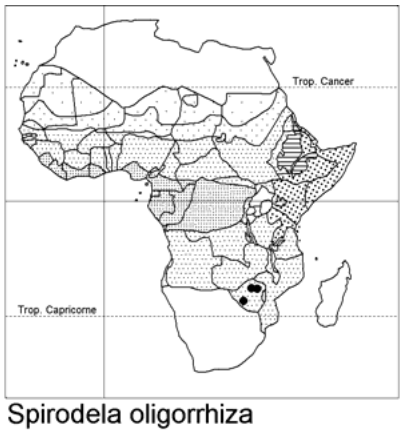
Lemna gibba



Lemna minor



Lemna trisulca



Spirodela oligorrhiza

LEMNA

L. trisulca L., incl. var. *pygmaea* Henn., var. *sagittata* Makino; Fl. Afr. Centr., Lemnaceae: 6, 1988; Fl. Eth. & Eritrea 6: 52, 1997; Ibn Tattou & Fennane, 2008: l.c.; Dobignard & Chatelain, 2010: l.c. – Icon.: Daubs, Monogr. Lemnaceae: 69, 1965; Fl. Trop. E. Afr., Lemnaceae: 3, 1973; Troupin, Fl. Rwanda 4: 409, 1988; Svensk Bot. Tidskr. 93: 136, 1999.

syn.: *Lenticula trisulca* (L.) Scop.; *L. ramosa* Lam.; *Staurogeton trisulcus* (L.) Schur; *Hydrophase trisulca* (L.) Bubani; *Lemna cruciata* Roxb.; *L. intermedia* Ruthe; *L. bisulca* Veesenm.

Submerged aquatic herb; frond thin, oblong-lanceolate, symmetrical, 5-10 × 2-4 mm, with a stipe c. 5-10 mm long, *margins toothed* in upper third; fronds forming *branching chains*, *each frond stalked; fertile fronds* few, non-stipitate, much smaller, free-floating at water surface; root, if present, 1, cap acute; fruit winged; seed 12-18-ribbed.

Freshwater lakes and pools; quiet water; 500-2800 m alt.

All continents except S. America, mainly in northern temperate zones (map: Landolt, 1998b: 115). “In the lowlands of South Africa the summer temperatures are too warm for successful growth of *L. trisulca*” (Landolt, Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 122, 1994).

SYNONYMS:

Lemna angolensis Welw. ex Hegelm. = **Lemna aequinoctialis**

aoukikusa T. Beppu & Murata, incl. subsp. *hokurikuensis* T. Beppu & Murata = **L. aequinoctialis**

arrhiza L. = **Wolffia arrhiza**

bannatica Waldst. & Kit. ex Schleid. = **Spirodela polyrrhiza**

bisulca Veesenm. = **Lemna trisulca**

blatteri McCann = **L. aequinoctialis**

conjugata Willd. ex Schleid. = **L. minor**

cordata Sessé & Moc. = **L. gibba**

cruciata Roxb. = **L. trisulca**

cyclostasa Elliott ex Chev. = **L. minor**

eleanorae McCann = **L. aequinoctialis**

hyalina Delile = **Wolffiella hyalina**

intermedia Ruthe = **Lemna trisulca**

javanica F. A. Bauer ex Hegelm. = **Spirodela oligorrhiza**

major C. A. Mey. ex Griff. = **S. polyrrhiza**

maxima Blatt. & Hallb. = **S. polyrrhiza**

melanorrhiza F. Muell. ex Kurz = **S. oligorrhiza**

minima Blatt. & Hallb. = **Lemna aequinoctialis**

minima Thuill. ex P. Beauv. = **L. minor**

monorhiza Montandon = **L. minor**

obcordata Bojer = **L. minor**

obcordata P. Beauv. = **Spirodela polyrrhiza**

oligorrhiza Kurz = **S. oligorrhiza**

orbicularis Kit. ex Schult. = **S. polyrrhiza**

orbiculata Roxb. = **S. polyrrhiza**

palustris Haenke ex Mert. & U. D. J. Koch = **Lemna minor**

parodiana Giardelli = **L. gibba**

LEMNA

paucicostata Hegelm., incl. var. *membranacea* Hegelm. = **L. aequinoctialis**

perpusilla Torr. var. *trinervis* Austin = **L. aequinoctialis**

perpusilla auctt. afric., non Torr. = **L. aequinoctialis**

pleiorrhiza F. Muell. ex Kurz = **Spirodela oligorrhiza**

polyrrhiza L., incl. var. *concolor* Kurz = **S. polyrrhiza**

punctata sensu auctt., non G. Meyer = **S. oligorrhiza**

pusilla Hegelm. = **S. oligorrhiza**

rwandensis De Sloover = **Lemna minor**

thermalis P. Beauv. = **Spirodela polyrrhiza**

transsylvanica Schur = **S. polyrrhiza**

trichorrhiza Thuill. ex Schleid. = **Lemna gibba**

trinervis (Austin) Small = **L. aequinoctialis**

umbonata A. Br. ex Hegelm. = **Spirodela polyrrhiza**

vulgaris (Lam.) Lam. = **Lemna minor**

(LENTICULA)

Lenticula arrhiza (L.) Lam. = **Wolffia arrhiza**

cyclostasa (Elliott ex Chev.) Kunz = **Lemna minor**

gibba (L.) Moench = **L. gibba**

gibbosa P. Renault = **L. gibba**

minima (Chev.) Kurz = **L. minor**

minor (L.) Scop. = **L. minor**

palustris Garsault = **L. minor**

polyrrhiza (L.) Lam. = **Spirodela polyrrhiza**

ramosa Lam. = **Lemna trisulca**

trisulca (L.) Scop. = **L. trisulca**

vulgaris Lam. = **L. minor**

(LENTICULARIA)

Lenticularia monorhiza Montandon = **Lemna minor**

(PSEUDOWOLFFIA)

Pseudowolffia hyalina (Delile) Hartog & Plas = **Wolffiellla hyalina**

monodii (Ast) Hartog & Plas = **W. hyalina**

repanda (Hegelm.) Hartog & Plas = **W. repanda**

SPIRODELA / *2*

Cosmopolitan (almost) genus of 3 species. "Recognition of the segregate genus *Landoltia* is unwise. Reports of *Spirodela* as occurring in far-southern South America are very probably incorrect" (Ward, o.c.: 203). "The basis for '*punctata*' as applied to the introduced plant is incorrect…" (o.c.: 197); the correct name is *Spirodela oligorrhiza* (Kurz) Hegelm.

Plants with fronds floating on the surface of the water, several cohere together and form large colonies; often growing with *Lemna* and/or *Wolffia* (Cook, Aquat. & wetland pl. south. Africa: 159, 2004). Roots 2-21 on each frond; frond surrounded at the base by a small, scale-like leaflet covering the root point of attachment (absent in *Lemna*); pigment cells presents…(Ward, o.c.).

LES, D. H. & D. J. CRAWFORD (1999). Landoltia (Lemnaceae), a new genus of duckweeds. *Novon* 9: 530-533.

VALKENBURG, J. L. C. H. VAN & R. POT (2008). Landoltia punctata (G. Mey.) D. H. Les & D. J. Crawford (Smal kroos), nieuw voor Nederland. *Gorteria* 33: 41-49 [with a summary of world distribution and a comparative character table].

WARD, D. B. (2011). Spirodela oligorrhiza (Lemnaceae) is the correct name for the lesser greater duckweed. *J. Bot. Res. Inst. Texas* 5/1: 197-203.

Spirodela oligorrhiza (Kurz) Hegelm., incl. var. *javanica* Hegelm., var. *pusilla* Hegelm., var. *melanorrhiza* (F. Muell. ex Kurz) Hegelm., and var. *pleiorrhiza* (F. Muell. ex Kurz) Hegelm. – In more recent literature cited as *S. punctata* or *Landoltia punctata*. – Landolt in Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 117, 119 (map), 1994; Boulos, Fl. Egypt 4: 113-114, 2005; Dobignard & Chatelain, Index. synon. fl. Afrique N. 1: 87, 2010; Ward & Hall in Phytologia 92: 246, 2010. – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 159, 2004; Gorteria 33: 43-44, 46, 2008; Fl. Zambes. 12/1: 7, 2012; Fl. Mascareignes 193, Lemnaceae: 2, 1984.

bas.: *Lemna oligorrhiza* Kurz

syn.: *L. melanorrhiza* F. Muell. ex Kurz; *L. pleiorrhiza* F. Muell. ex Kurz; *L. javanica* F. A. Bauer ex Hegelm.; *L. pusilla* Hegelm.; *Spirodela javanica* (Hegelm.) Hegelm.; *S. pusilla* (Hegelm.) Hegelm.; *S. pleiorrhiza* (F. Muell. ex Kurz) Hegelm.; *S. melanorrhiza* (F. Muell. ex Kurz) Hegelm.; misapplied names: *Lemna punctata* G. Meyer; *Spirodela punctata* (G. Meyer) C. H. Thomps.; *S. sichuanensis* M. G. Liu & K. M. Xie; *Landoltia punctata* (G. Meyer) Les & D. J. Crawford

Frond obovate to elliptic, *1,5-8 × 1,5-3 mm*, flat or gibbous, usually with *papillae* above along midvein (3-7 veins); roots *1-12*, *all perforating* the lobe which covers the point of attachment of the roots, 0,5-7 cm; seeds 10-15-ribbed.

Permanent waters, with *Azolla pinnata*; lake, common around edges; 1200-3700 m alt. (Zimbabwe).

Native only in SE Asia and Australia. Introduced elsewhere, e.g. S. Africa, Egypt; now cosmopolitan, in tropical and warm regions of the world (Fl. China 23: 81, 2010).

Invasive.

Confused with the true *S. punctata* (G. F. W. Meyer) C. H. Thomps. Meyer described the species *Lemna punctata* from Guyana in 1818. The type is lost; neotype (new): Suriname, J. &. P. A. Florschütz 1060, NY, collected in 1951 (Ward, 2011: 201). Thompson's description of the plant was based on a collection made in 1838-1842 by an American expedition to the South Pacific ("Wilkes Expedition"). The specimen label indicated, incorrectly, Orange Harbour, Tierra del Fuego. This means a gap in the distribution: C. & N S. America to Patagonia. It is probable that the specimen got a wrong label, as the expedition collected in Australia/S Pacific (see Ward, o.c.).

S. polyrrhiza (L.) Schleid., incl. var. *masonii* Daubs; Agnew & Agnew, Upl. Kenya wild. flow., ed. 2: 300, 1994; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 484, 1995; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 187, 2008; Lejoly & al., Fl. Tshopo in Taxonom. 24: 36, 2008; idem, Cat.-fl. Kisangani & Tshopo, ibid. 30: 163, 2010; Fl. Gabon 41: 40, 2010 (in key); Dobignard & Chatelain 2010: l.c.; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 231, 2011; Onana, Vascul. pl. Cameroon…: 155, 2011. – Icon.: Fl. W. Trop. Afr., ed. 2, 3/1: 128, 1968; Fl. Trop. E. Afr., Lemnaceae: 6, 1973; Troupin, Fl. Rwanda 4: 409, 1988; Fl. Eth. & Eritrea 6: 54, 1997; Svensk Bot. Tidskr. 93: 136, 1999; Cook, Aquat. & wetland pl. south. Africa: 159, 2004; Boulos, Fl. Egypt 4: 115, 2005; Akoegninou & al., Fl. analyt. Bénin: 141, 2006; Gorteria 33: 46, 2008; Fl. Zambes. 12/1: 5, 2012.

bas.: *Lemna polyrrhiza* L.

syn.: *Lenticula polyrrhiza* (L.) Lam.; *Telmatophace polyrrhiza* (L.) Godr.; *T. orbicularis* (Kit. ex Schult.) Schur; *Lemna orbicularis* Kit. ex Schult.; *L. obcordata* P. Beauv., non Bojer; *L. thermalis* P. Beauv.; *L. orbiculata* Roxb.; *L. bannatica* Waldst. & Kit. ex Schleid.; *L. major* C. A. Mey. ex Griff.; *L. transsylvanica* Schur; *L. polyrrhiza* L. var. *concolor* Kurz; *L. maxima* Blatt. & Hallb.; *Spirodela maxima* (Blatt. & Hallb.) McCann; *S. atropurpurea* Montandon

Free-floating aquatic herb, numerous individuals often cohering or floating together; frond *orbicular-ovate*, 3-8 × 3-8 mm, sometimes tinged pink above, purplish beneath, thin, with 5-12 prominent veins; daughter fronds budding from near point of root insertion in a slit of the mother frond; *roots 7-21* from a *thickened basal part of frond;* root-cap acute; turions (in unfavourable conditions) small, orbicular-reniform, rootless, sinking to bottom of water body; fruit winged at edges and near top; seeds 12-20-ribbed.

Fresh still water, usually in eutrophic conditions, in regions with warm summers; lakes, large dams, among reeds, often with *Lemna*, *Wolffia;* in impounded water of dams forming a dense cover together with *Pistia stratiotes*, *Salvinia*, which harbours snails and their eggs, vectors of the schistosome parasite (Burkill, 1995: l.c.); 0-2000 m alt.

Widespread in Africa: Morocco, Egypt, S. Africa, Madagascar; almost cosmopolitan, but in S. America only in the NW part (maps: Landolt, 1994: 120; Aliso 22: 235, 2006).

SYNONYMS:

Spirodela atropurpurea Montandon = **Spirodela polyrrhiza**

javanica (Hegelm.) Hegelm. = **S. oligorrhiza**

maxima (Blatt. & Hallb.) McCann = **S. polyrrhiza**

melanorrhiza (F. Muell. ex Kurz) Hegelm. = **S. oligorrhiza**

pleiorrhiza (F. Muell. ex Kurz) Hegelm. = **S. oligorrhiza**

punctata (G. Meyer) C. H. Thomps., misapplied = **S. oligorrhiza**

pusilla (Hegelm.) Hegelm. = **S. oligorrhiza**

sichuanensis M. G. Liu & K. M. Xie = **S. oligorrhiza**

(STAUROGETON)

Staurogeton trisulcus (L.) Schur = **Lemna trisulca**

(TELMATOPHACE)

Telmatophace arrhiza Schur = **Lemna gibba**

cylindracea Welw. = **Wolffia cylindracea**

generalis E. H. L. Krause = **Lemna gibba**

gibba (L.) Schleid. = **L. gibba**

gibbosa (P. Renault) Montandon = **L. gibba**

orbicularis (Kit. ex Schult.) Schur = **Spirodela polyrrhiza**

polyrrhiza (L.) Godr. = **S. polyrrhiza**

WOLFFIA / *2*

It has been proposed that *Wulffia* Neck ex Cass. *(Asteraceae)* and *Wolffia* Horkel ex Schleid. (Lemnaceae) should be treated as homonyms, as they are pronounced the same by most English-speaking people (H. Robinson & V. A. Funk, Taxon 54 : 1096, 2005). However, the case then remained unresolved.

Cosmopolitan (temperate, warm temperate and tropical) genus of 7-9 species. It includes the world's smallest flowering plants ; the frond measures 1-1,5 × 0,3 mm, rootless, floating at the water surface. A comparison with the biggest vascular plants is given by J.-M. Groult (in Jardins de France 616 : 53-55, 2012, with figs.) ; the Giant Sequoia named General Sherman, is a tree of 52.508 feet³ (=1486, 86 m³) ; see W. D. Flint, "To find the biggest tree": 109, 2002 (revised ed.).

The frond is extremely simplified, making classification difficult. Air spaces lacking. Only few characters are available : size, shape, pigmentation (J.-X. Yuan & al. in J. Syst. Evol. 49 : 509, 2011). The plants reproduce primarily vegetatively : daughter fronds are produced in a funnel-like budding pouch at the basal end of the parent frond (Armstrong in Fremontia 13/1: 11, 1985). They are probably more abundant than collection data suggest because they are easily overlooked and could be mistaken for blooms of green algae or *Lemna*. They are frequently cultivated as a curiosity ; and readily introduced into new regions even by natural agents.

KUOH, Chang-Sheng & al. (2000). The flower structure and anther dehiscence of Wolffia arrhiza (Lemnaceae). *Taiwania* 45 : 30-37.

Wolffia arrhiza (L.) Horkel ex Wimm. ; Agnew & Agnew, Upl. Kenya wild. flow., ed. 2 : 300, 1994 ; Figueiredo & Smith, Pl. Angola : 187, 2008 ; Ibn Tattou & Fennane, Fl. vascul. Maroc 2 : 187, 2008 ; Dobignard & Chatelain, Index synon. fl. Afr. N. 1 : 87, 2010 ; Fl. Gabon 41 : 40, 2010 (in key) ; Lejoly & al., Fl. Tshopo in Taxonom. 24 : 37, 2008, idem, Cat.-fl. Kisangani & Tshopo, ibid. 30 : 163, 2010 ; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire : 231, 2011. – Icon.: Kirkia 2 : pl. × (between p. 65 & 66), 1961 ; Fl. W. Trop. Afr., ed. 2, 3/1 : 128, 1968 ; Fl. Trop. E. Afr., Lemnaceae : 6, 1973 ; Fl. Afr. Centr., Lemnaceae : 3, 1988 ; Fl. Eth. & Eritrea 6 : 54, 1997 ; Landolt in Kubitzki (1998) : 265 ; Svensk Bot. Tidskr. 93 : 137, 1999 ; Cook, Aquat. & wetland pl. south. Afr.: 160, 2004 ; Akoegninou & al., Fl. analyt. Bénin : 141, 2006 ; Fl. Zambes. 12/1: 5, 2012.

bas.: *Lemna arrhiza* L.

syn.: *Lenticula arrhiza* (L.) Lam. ; *Horkelia arrhiza* (L.) Druce ; *Wolffia michelii* Schleid., nom. illeg. ; *W. delilii* Miq. ; *Lemna microscopica* Schur., nom. inval. ; *Bruniera vivipara* Franch.

WOLFFIA ARRHIZA

Aquatic perennial ; frond spherical to ellipsoid, 0,5-1,5 × 0,4-1,2 mm, shiny (not translucent) and flattened above, with 10-100 stomata, paler green beneath ; for flower structure, see Kuoh & al., o.c. ; plants rarely fruiting.

Ditches, pools ; fresh and still waters ; sometimes abundant enough to form a scum ; sometimes mixed with *Wolfiella, Lemna minor ;* also with *Pistia* (collected and used as a manure) ; 0-2100 m alt.

Canary Isl. ; Morocco, Algeria ; Botswana, S. Africa ; Madagascar ; Europe ; W Asia. Introduced to S. America, Brazil, Colombia. Maps : Landolt in Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60 : 140, 1994 ; ibid.: 119 ; Crawford & al. in Aliso 22 : 235, 2006.

Considered a harmful weed in S. Africa. Also known as a weed in rice fields (Kirkia 2 : 29-30, 1961).

W. cylindracea Hegelm. ; Figueiredo & Smith, Pl. Angola : 187, 2008 ; Fl. Zambes. 12/1: 12, 2012 [in synonymy under *W. globosa* (Roxb.) Hartog & Plas]. – Icon.: Hegelmaier, Lemnaceen…: pl. I figs. 14-15, 1868 ; Landolt in Ber. Geobot. Inst. ETH, Stiftung Rübel 60 : 143-144, 1994.

syn.: *W. globosa* auctt. mult., non (Roxb.) Hartog & Plas ; *Telmatophace cylindracea* Welw. ms.

Frond ellipsoid, 0,4-0,9 × 0,3-0,7 mm, rather intensely green above, with *15-30* stomata, *no translucent edge at tip ;* lower submerged part of the frond pointing straight down.

Seasonal waters ; rocky pools, on mountains in the purest, freshest drinking-water, where no other water plant grows (Welwitsch) ; 300-1000 m alt.

S. Africa (maps in : Landolt, o.c.: 141, 1994, and ibid.: 120, 1994 ; Aliso 22 : 235, 2006).

Cook (Aquat. & wetland pl. south. Afr.: 160, 2004) treats the African populations under *W. globosa*, occurring in S & E Asia (from India E-wards to Indonesia, map in Landolt, o.c.: 141, 1994), and naturalised in N. America (California, Florida), Hawaii, and also recorded from Colombia (Fl. Colombia Monogr. 24, Lemnaceae, 2009).

SYNONYMS :

Wolffia conguensis Welw. ex Trimen = **Wolffiella welwitschii**

delilei Schleid. = **Wolffiella hyalina**

delilii Miq. = **Wolffia arrhiza**

denticulata Hegelm. = **Wolffiella denticulata**

globosa auctt. multt., non (Roxb.) Hartog & Plas = **Wolffia cylindracea**

hyalina (Delile) Hegelm. = **Wolffiella hyalina**

michelii Schleid. = **Wolffia arrhiza**

microscopica Schur = **Wolffia arrhiza**

repanda Hegelm. = **Wolffiella repanda**

welwitschii Hegelm. = **Wolffiella welwitschii**

WOLFFIELLA / *5*

Genus of 7-9 species in warm temperate, subtropical and tropical America and Africa. Frond with 1 layer of air spaces, rootless; flowers originating in a cavity (2 in *W. welwitschii*) at the side of the median line of the upper surface of the frond. Daughter fronds emerging from a terminal flat pouch at end of mother frond.

CRAWFORD, D. J. & al. (1997). Allozyme variation and the taxonomy of Wolffiella. *Aquat. Bot.* 58: 43-54.

Wolffiella denticulata (Hegelm.) Hegelm.; Fl. Zambes. 12/1: 10, 2012. – Icon.: Aqua Planta 10/3: 3, 1985; Landolt in Kubitzki, 1998: 266 (photo.); Cook, Aquat. & wetland pl. south. Afr.: 161, 2004.

Dimorphic; vegetative frond submerged, basal part near the surface of water, the tip bent downwards, cohering 2-7 together (often grouped star-like), narrow, ribbon-shaped, *truncate or rounded at tip*, with *2-4 short triangular* marginal *teeth*, *2-7 × 0,3-0,8 mm*, 0-5 stomata along lateral margins of the base; reproductive frond floating, ovate, 2-4 × 0,8-1 mm. Rarely flowering and fruiting.

Often with other floating plants, e.g., *Lemna minor*, *Wolffia arrhiza* in pools and lakes; c. 50 m alt.

S. Africa (map in Landolt, Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 119, 1994).

W. hyalina (Delile) Monod; Fl. Afr. Centr., Lemnaceae: 9-10, 1988; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 300, 1994 (as *W. lingulata*); Cook (2004): l.c. (in key); Fl. Gabon 41, Lemnaceae: 40, 2010 (in key); Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 87, 2010; Onana, Vascul pl. Cameroon…: 155, 2011. – Icon.: Fl. Somalia 4: 24, 1995; Fl. Eth. & Eritrea 6: 54, 1997 (but no record); Boulos, Fl. Egypt 4: 115, 2005; Fl. Zambes. 12/1: 5, 2012; Masrahi & al. in Feddes Repert. 121: 191, 2011.

syn.: Enum. 3: 81, 1995; *Wolffia hyalina* (Delile) Hegelm.; *W. delilei* Schleid., nom. illegit.; *Pseudowolffia monodii* (Ast) Hartog & Plas

Frond ovate to trapezoid, 1-3 × 0,8-2 mm, solitary or 2 cohering together, pigment cells absent, with some 1-celled teeth along margin or absent; with a hyaline appendage 0,5-5 × *0,6-1,8 mm* at right angles to the frond; daughter fronds remaining connected; *distinct air spaces spread throughout 1/2-4/5* of the distance between the node and the tip. Often flowering and fruiting.

Pools and slowly running fresh water; 200-1700 m alt. Local.

Egypt; recently discovered in Saudi Arabia (Masrahi & al., 2011: l.c). Introduced in C India (maps: Landolt in Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 119, 1994; Aliso 22: 237, 2006).

W. repanda (Hegelm.) Monod; Figueiredo & Smith, Pl. Angola: 187, 2008; Fl. Zambes. 12/1: 10, 2012. – Icon.: Cook (2004): 161.

syn.: Enum. 3: 81, 1995.

Frond floating, ovate, 0,5-1,8 × 0,4-1,2 mm, with several 1-celled teeth along margin, pigment absent; *air spaces indistinct*, restricted to the area around the node; lower wall of pouch elongated to a ribbon-like appendage 1-3-8 × *0,2-0,5 mm*, 1/4 to 1/2 as long as frond. Often flowering and fruiting.

Pools, lakes, seasonal waters, not gregarious, often mixed with other floating plants, e.g., *Lemna aequinoctialis*, *Wolffiella rotunda*, or between emergent reeds; c. 1000 m alt.

N Botswana (maps: see above under *W. hyalina*).

W. rotunda Landolt; Fl. Zambes. 12/1: 9, 2012.

Frond floating on water surface 1-2 together, ovate, 1-3 × 0,9-3 mm, *without teeth* along margin; with many stomata; air spaces indistinct, only around base; pigment cells absent; vegetative and reproductive fronds similar; with a tract of elongated cells situated in the median line of the lower wall of the pouch that is *lacking appendage*. Flowering and fruiting in the field.

Pan in mopane woodland; often mixed with *Lemna aequinoctialis*, *Wolffiella repanda*, *Pistia*; 450-500 m alt.

The type locality (Kariba Gorge, Zambezi Valley) is now under water; but found later in several other places between Charara Safari Area and Mana Pools Natl. Park, plain of the Zambezi, W Zimbabwe (Landolt in Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 117-118, 1994, with map p. 119).

W. welwitschii (Hegelm.) Monod; Fl. Afr. Centr., Lemnaceae: 10, 1988; Fl. Eth. & Eritrea 6: 53, 1997 (no records); Akoegninou & al., Fl. analyt. Bénin: 142, 2006 (no distribution given); Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Daubs, Monogr. Lemnaceae: 89, 1965; Fl. Trop. E. Afr., Lemnaceae: 6, 1973 (under *Wolffiopsis*); Cook, Aquat. & wetland pl. south. Afr.: 161, 2004; Fl. Zambes. 12/1: 5, 2012.

syn.: Enum. 3: 81, 1995; *Wolffia conguensis* Welw. ex Trimen, nom. nud.

Frond submerged, basal part near the surface of the water, tip bent downwards, cohering 2-3 together, tongue-shaped and bent backwards at base (saddle-like), 3-9 × 0,8-5 mm, apex rounded, margins without teeth, with *0-12 stomata*; *air spaces distinct;* with a tract of *elongated cells running along the median line of the lower wall of the pouch;* flowers 2 per frond (reproductive fronds narrower than vegetative ones). Often flowering and fruiting.

Quiet water; pools and lakes (sometimes under shade) in and near the forest zone; not gregarious; usually mixed with other floating plants, *Nymphaeaceae*, or among reeds; 0-2100 m alt.

S. Africa, Botswana; C. America, N S. America, Caribbean region (maps: Daubs, o.c.: 89; Landolt in Ber. Geobot. Inst. ETH, Stiftung Rübel, Zürich 60: 119, 1994).

SYNONYM:

Wolffiella monodii Ast = **Wolffiella hyalina**

(WOLFFIOPSIS)

Wolffiopsis welwitschii (Hegelm.) Hartog & Plas = **Wolffiella welwitschii**

TYPHACEAE / *1* g. / *4* spp.

Family with a single genus *Typha*, cosmopolitan, tropical and temperate, of 10-15 species, perennial aquatic or marsh herbs with creeping rhizomes. *Sparganium* has sometimes been included, *Sparganiaceae*.

Monoecious herbs with minute numerous flowers in dense terminal cylindrical double spikes, male ones in upper portion; leaves in 2 opposite rows. Hybrids occur frequently. Rhizomes and immature inflorescences are edible, the leaves used for weaving. Occasionally cultivated for ornament, but sometimes becoming weeds in irrigation systems and rice fields.

KIM, C. & H.-K. CHOI (2011). Molecular systematics and character evolution of Typha (Typhaceae) inferred from nuclear and plastid DNA sequence data. *Taxon* 60: 1417-1428.

KUBITZKI, K. (1998). Typhaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 4. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae)*: 457-460. Springer-Verlag, Berlin & Heidelberg.

(MASSULA)

Massula latifolia (L.) Dulac = **Typha latifolia**

TYPHA / *4*

Typha capensis (Rohrb.) N.E. Br.; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 13/4: 89-90, 2010. – Icon.: Kirkia 2: pl. V (between p. 56 and p. 57), 1961; Fl. south. Afr. 1: 55, 1966 (as *T. latifolia* subsp. *capensis*); Levyns, Guide plant genera SW Cape (Contrib. Bolus Herb. 21): 47, 2003; Cook, Aquat. & wetland pl. south. Afr.: 258, 2004; B.-E. Van Wyk & al., Medicin. pl. S. Africa, ed. 2: 301, 2009.

syn.: Enum. 3: 82, 1995; *T. latifolia* L. fa. *capensis* Rohrb. ex Kronf. 1889, in syn. of *T. latifolia* subsp. *capensis* Rohrb. 1869; *T. aequinoctialis* Welw. ex Kronf. 1889; *T. aequinotialis* Welw. ms.; *T. latifolia* sensu Napper in Fl. Trop. E. Afr., Typhaceae: 3 fig. 1/9, 1971 (pollen from Kerfoot 2984, fide Fl. Zambes. 13/4: 89, 2010).

Stem erect, 2-4 m tall; leaf-sheaths sometimes purple-spotted within; blade linear, to 2 m × 1-2 cm, tip obtuse, base narrow; inflorescence spike *contiguous*, rarely separated, *male* usually *much shorter* than the female; *female spike bright-chestnut* or *reddish-brown* at maturity, 12-32 cm long, *1,4-2,3 cm Ø*.

Swamps; dams; lagoons; river banks with *Polygonum*, *Rumex*, *Asteraceae*; 0-2000 m alt.

S. Africa, Botswana, Lesotho, Swaziland, Namibia.

"Troublesome in dams, rivers, irrigation furrows" (Kirkia 2: l.c.).

It is quite likely that *T. capensis* has arisen through hybridization between *T. latifolia* and *T. domingensis*, followed perhaps by polyploidy (vide Archiv Hydrobiologie, Beiheft 27: 129-139, 1987 and Cook, Aquat. & wetl. pl. south. Africa, 2004).

T. domingensis Pers., incl. var. *australis* (Schumach.) Gèze, var. *eudomingensis* Gèze, var. *javanica* (Schnizl. ex Rohrb.) Gèze, var. *sachetiae* Fosberg, fa. *strimonii* Chesm. & Delip.; and incl. subsp. *australis* (Schumach.) F. M. Vásquez in Folia Extremadur. 6:11, 2012. – Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 298, 1994; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 216-217, 2000; Figueiredo & Smith, Pl. Angola: 207, 2008; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 308, 2008; Le Floc'h & Boulos, Fl. Tunisie: 383, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 391, 2010; Chatelain & al., Cartes distrib. pl. Côte

d'Ivoire: 260, 2011; Thiombiano & al., Cat. pl. vascul. Burkina Faso: 121, 2012. – Icon.: Fl. W. Trop. Afr., ed. 2, 3/1: 130, 1968 (as *T. australis*); Fl. Mascareignes 191, Typhacées: 2, 1984; Thulin, Fl. Somalia 4: 95, 1995; Fl. Eth. & Eritrea 6: 384, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 123, 2001; Fl. Cabo Verde 101, Typhaceae: 7, 2002; Cook, Aquat. & wetland pl. south. Afr.: 258, 2004; Boulos, Fl. Egypt 4: 118, 2005; Akoegninou & al., Fl. analyt. Bénin: 256, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 570, 2009; Fl. Gabon 40, Typhaceae: 65, 2010; Fl. Zambes. 13/4: 88, 2010.

syn.: Enum. 3: 82, 1995; *T. angustifolia* L. var. *domingensis* (Pers.) Griseb., and subsp. *domingensis* (Pers.) Rohrb.; *T. angustifolia* var. *australis* (Schumach.) Rohrb., and subsp. *australis* (Schumach.) Kronf., and subsp. *angustata* (Bory & Chaub.) Briq., and var. *aethiopica* (Rohrb.) Cufod.; *T. media* Bory & Chaub.; *T. gigantea* Schur ex Kunth; *T. macranthelia* Webb & Berthel.; *T. abysssinica* Rchb. f. ex Rohrb.; *T. angustata* Bory & Chaub. var. *abyssinica* (Rchb. f. ex Rohrb.) Graebn. ! and var. *aethiopica* Rohrb. and var. *leptocarpa* Rohrb., and subsp. *angustata* (Bory & Chaub.) Briq. var. *leptocarpa* (Rohrb.) Cufod.; *T. aethiopica* Kronf.; full synonymy in World Checklist of Selected Plant Families, Typhaceae, Roy. Bot. Gard. Kew.

Larger and more robust than *T. capensis*; to 1-5 m tall; leaf-sheaths to 1,5 m with *sloping scarious-margined shoulders*, rarely rounded at top; median leaves *purple-spotted* within and *up the base of the blade*; blade linear to 1,5 m × 0,8-1,3 cm, *midrib flat* or *semilunar*; scape to 4 m; male spike 17-40 cm long, 0,9-1,5 cm Ø, *not* (or rarely) *contiguous* with the female 18-34 cm long, 1,4-2,2 cm Ø, bright chestnut or reddish-brown at maturity, gap 1-3-9 cm long; female flowers always with bracteoles with shortly *mucronate* apex.

Swamps (reed-), dams; margins of lakes, rivers, lagoons, pools; to 2 m deep fresh or brackish water; fine textured soils; often in disturbed places; sometimes in large formations; 0-2250 m alt. According to Burkill, l.c. forming a sudd blanket in the Senegal River and the Niger Delta.

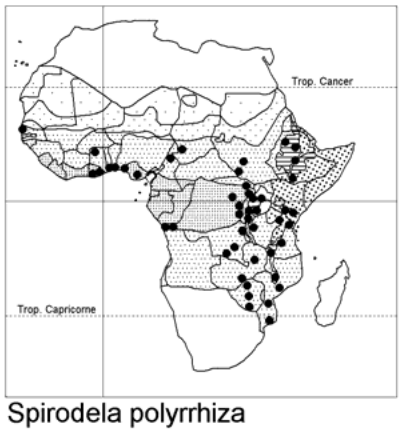
"Should be treated as a single highly-variable worldwide species of tropical and warm-temperate regions" (Fl. Zambes. 13/4: 89, 2010). Divided into 2 subspp. by Vásques in Fol. Bot. Extremadur. 6: 9-11, 2012.

Canary Isl., N. Africa; Cape Verde Isl.; Namibia, Botswana, S. Africa ?, Mauritius, Réunion, Seychelles; tropical and subtropical regions worldwide; also Mediterranean Region and beyond (Botanica Serbica 34: 111-114, 2010). In temperate regions replaced by the closely related *T. angustifolia* L.

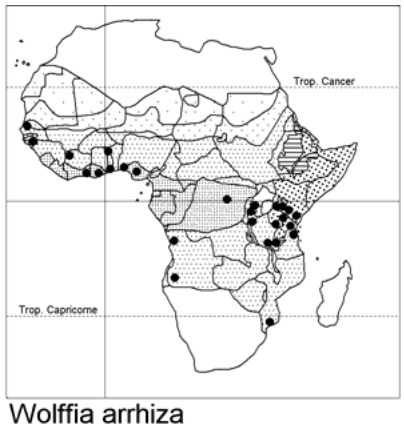
T. elephantina Roxb., incl. var. *schimperi* (Rohrb.) Graebn.; Fl. Eth. & Eritrea 6: 385, 1997; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 217, 2000; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 391, 2010. – Icon.: Maire, Fl. Afr. N. 1: 172, 1952; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 123, 2001; Boulos, Fl. Egypt 4: 118, 2005.

syn.: *T. schimperi* Rohrb.; *T. maresii* Batt.; *T. latifolia* L. subsp. *maresii* (Batt.) Batt.

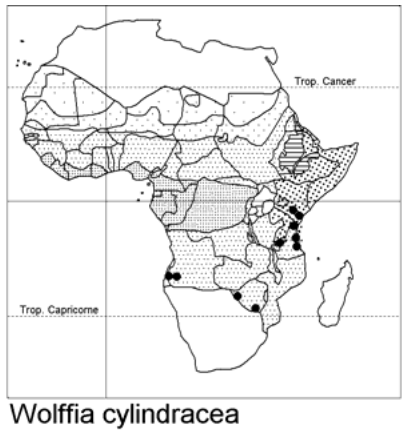
Similar to *T. domingensis* but more robust; leaf blade c. 1-3 cm wide, *angular* in cross section, keeled, especially towards base (for comparison between the two species, see Aquat. Bot. 9: 383-385, 1980, *T. domingensis* cited as *T. angustata*).



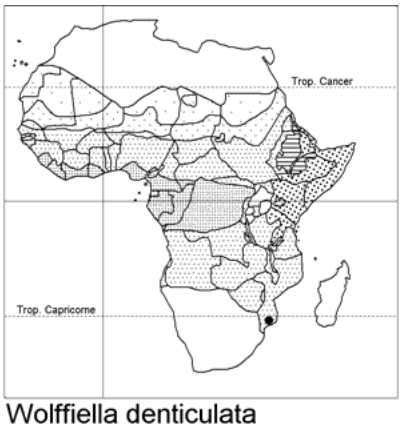
Spirodela polyrrhiza



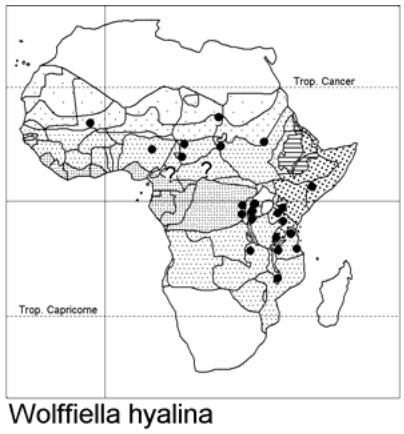
Wolffia arrhiza



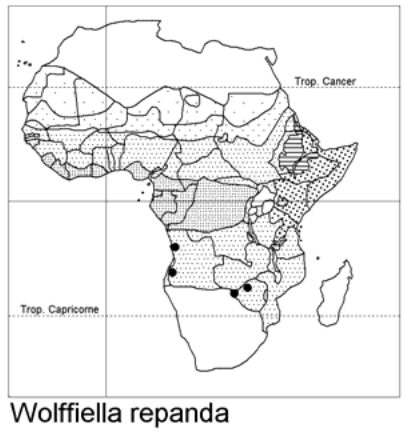
Wolffia cylindracea



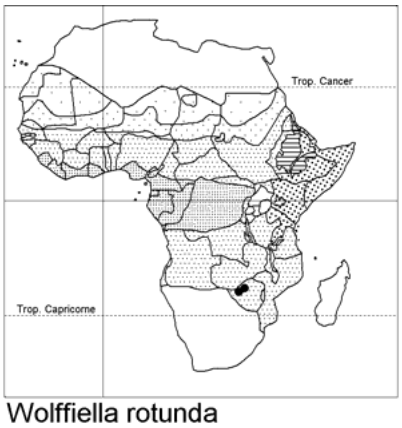
Wolffiella denticulata



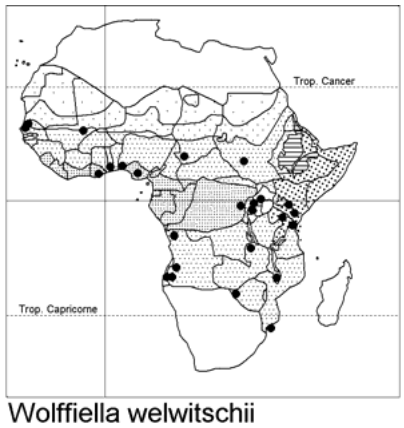
Wolffiella hyalina



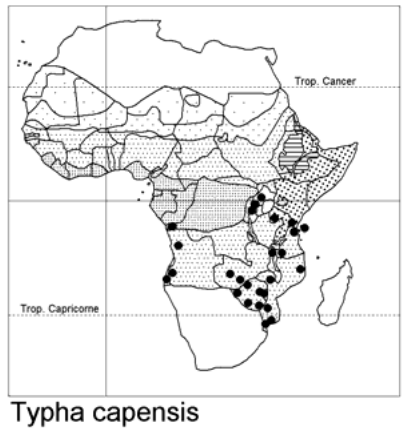
Wolffiella repanda



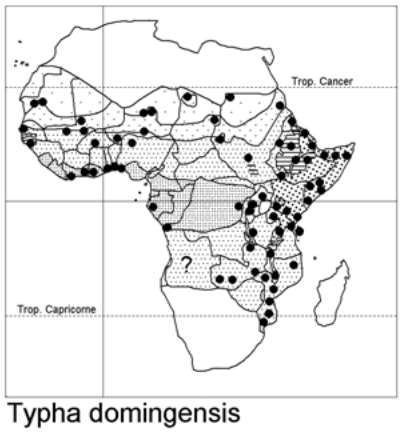
Wolffiella rotunda



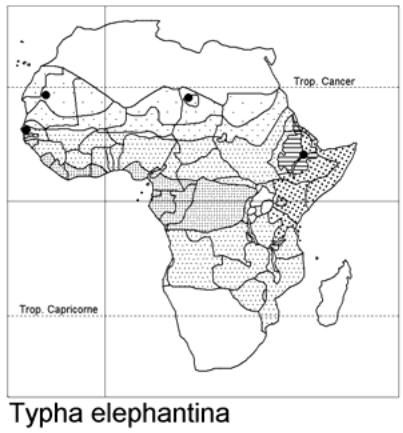
Wolffiella welwitschii



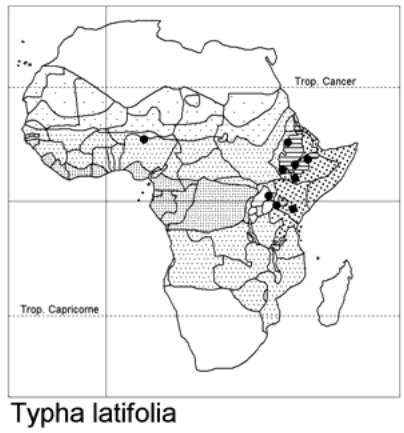
Typha capensis



Typha domingensis



Typha elephantina



Typha latifolia

TYPHA ELEPHANTINA

Red loamy soil near river; dayas, in water; on the edge of permanent water; cultivated or bare land; invasive; to 1300 m alt.

Algeria, Libya, Egypt; Palestine, Saudi Arabia, Yemen through to India, Myanmar, Nepal, Pakistan, Tajikistan, Turkmenistan, Uzbekistan, China.

A plant with long roots; planted, e.g., in India to prevent erosion. Used in Saharan oases as wind-breaks and shelters; young roots and leaf bases edible (Burkill, l.c.).

T. latifolia L., excl. subsp. *capensis* Rohr. (= *T. capensis*) and subsp. *maresii* (Batt.) Batt. (= *T. elephantina*); Fl. W. Trop. Afr., ed. 2, 3/1: 131, 1968; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 298, 1994; Ibn Tattou & Fennane, Fl. Maroc 2: 308, 2008; Le Floc'h & Boulos, Fl. Tunisie: 383, 2008; idem, Cat. synon. fl. Tunisie: 419, 2010; Dobignard & Chatelian, Index synon. fl. Afr. N. 1: 391, 2010. – Icon.: Maire, Fl. Afr. N. 1: 171, 1952; Fl. Trop. E. Afr., Typhaceae: 3, 1971 p.p. (cf. above under *T. capensis*); Fl. Eth. & Eritrea 6: 384, 1997; Kubitzki (1998): 459-460.

syn.: *T. elatior* Boreau, nom. illegit.; *T. ambigua* Schur ex Rohrb.; *T. spathulifolia* Kronf.; *T. intermedia* Schur; *Massula latifolia* (L.) Dulac; for fully synonymy, see World Checklist of Selected Plant Families, Typhaceae, Roy. Bot. Gard. Kew.

Robust herb 1,5-3 m tall with short woody rhizome with stolons; leaf blade linear, glaucous, to 2 m × 0,8-1 cm, flat above, semilunar below, tip obtuse; inflorescence spikes *contiguous*; female spike 13-25 cm long, 2,25-4 cm Ø, *yellow-green* becoming *dark sepia-brown* or *almost black*, sometimes constricted or interrupted, separated by 0-3,5 cm, bracteoles absent; male spike 8-12 cm long, 1,3-2,5 cm Ø.

Swamps, dams and rivers with permanent flow; edges of lakes; ditches; shallow waters to 30-60 cm depth; 1300-2200 m alt.

Temperate N Hemisphere; Europe; Morocco, Algeria, Tunisia; SW Asia; Australia; N., C. & S. America. "Almost worldwide but absent from the southern hemisphere S of 30° S" (Cullen, European Garden Flora, ed. 2, 1, Monocot.: 413, 2011). – Not in Gabon as cited by Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 217, 2000 (see comment in Fl. Gabon 40, Typhaceae: 66, 2010).

Also cultivated for ornament.

SYNONYMS:

Typha abyssinica Rchb. f. ex Rohrb. = **Typha domingensis**

aequalis Schnizl. = **T. domingensis**

aequinoctialis Welw. (ex. Kronf.) = **T. capensis**

aethiopica Kronf. = **T. domingensis**

ambigua Schur ex Rohr. = **T. latifolia**

americana Rich. ex Rohrb. = **T. domingensis**

angustata Bory & Chaub, incl. var. *abyssinica* (Rchb. f. ex Rohrb.) Graebn., var. *aethiopica* Rohrb. and subsp. *aethiopica* (Rohrb.) Kronf., and var. *gracilis* Nyman and var. *leptocarpa* Rohr., and subsp. *angustata* (Bory & Chaub.) Briq. var. *leptocarpa* (Rohrb.) Cufod. = **T. domingensis**

angustifolia L. subsp. *angustata* (Bory & Chaub.) Briq. and var. *australis*(Schumach.) Rohrb. and subsp. *australis* (Schumach.) Kronf. and var. *brownii* Kronf. and var. *domingensis* (Pers.) Griseb. and subsp. *domingensis* (Pers.) Rohrb. = **T. domingensis**

angustifolia var. *inaequalis* Kronf. = **T. latifolia**

angustifolia subsp. *javanica* (Schnizl. ex Rohrb.) Graebn. = **T. domingensis**

TYPHA

angustifolia var. *media* Kronf. and var. *sonderi* Kronf. = **T. latifolia**

angustifolia sensu auctt., non L. = **T. domingensis**

australis Schumach. = **T. domingensis**

brownii Kunth = **T. domingensis**

crassa Raf. = **T. latifolia**

ehrenbergii Schur ex Rohrb. = **T. domingensis**

elatior Raf., non Boenn. = **T. latifolia**

elatior Boreau = **T. latifolia**

elongata Dudley = **T. latifolia**

engelmannii A. Br. ex Rohrb. = **T. latifolia**

gigantea Schur ex Kunth = **T. domingensis**

gracilis Schur, non Rchb. = **T. domingensis**

intermedia Schur = **T. latifolia**

javanica Schnizl. ex Rohrb. = **T. domingensis**

latifolia L. fa. *capensis* Rohrb. ex Kronf. 1889 = **T. capensis**

latifolia subsp. *capensis* Rohrb. 1869 = **T. capensis**

latifolia subsp. *maresii* (Batt.) Batt. = **T. elephantina**

latifolia sensu auctt. = **T. capensis**

macranthelia Webb & Berthel. = **T. domingensis**

maresii Batt. = **T. elephantina**

maxima Schur ex Rohrb. = **T. domingensis**

media Bory & Chaub. = **T. domingensis**

palustris Bubani = **T. latifolia**

schimperi Rohrb. = **T. elephantina**

spathulifolia Kronf. = **T. latifolia**

JUNCACEAE / *2* g. / *20 + 1* ? spp.

A nearly cosmopolitan family, comprising 7 genera, c. 443 species, resembling grasses or sedges (*Cyperaceae*): in temperate to artic regions on both hemispheres, quite common in the subtropics, *rare in the tropics*.

Inflorescence a cluster of terminal or apparently lateral cymes, sometimes reduced to a 1- or 2-flowered head, subtended by scale-like bracts; flowers bisexual with 6 scale-like perianth segments; stamens 3 or 6; ovary superior; stigmas 3, brush-like; fruit a capsule.

ABDEL KHALIK, K. N. (2010). Seed coat morphology and its systematic significance in Juncus L. (Juncaceae) in Egypt. *J. Syst. Evol.* 48: 215-223.

DRÁBKOVÁ, L. & al. (2003). Phylogeny of the Juncaceae based on rbcL sequences, with special emphasis on Luzula DC. and Juncus L. *Pl. Syst. Evol.* 240: 133-147.

JONES, E. & al. (2007). The Juncaceae-Cyperaceae interface: a combined plastid sequence analysis. *Aliso* 23: 55-61.

KÖBELE, C. P. & H.-J. TILLICH (2001). Die Infloreszenzen der Juncaceae. *Sendtnera* 7: 137-161.

ORIANÍ, A. & al. (2012). Contributions to the floral anatomy of Juncaceae (Poales-Monocotyledons). *Flora* 207: 334-340.

ZÁVESKÁ DRÁBKOVÁ, L. Z. (2010). Phylogenetic relationships within Juncaceae: Evidence from five regions of plastid, mitochondrial and nuclear ribosomal DNA, with notes on morphology. *In:* SEBERG, O. & al., eds., *Diversity, phylogeny, and evolution in the monocotyledons:* 389-416.

(JUNCOIDES)

Juncoides johnstonii (Buchenau) Kuntze = **Luzula johnstonii**

JUNCUS / *16 + 1* ?

Almost cosmopolitan genus of some 250 species, most in temperate S hemisphere; at high altitude in the tropics. Some are ecologically important, and even locally dominant in swampy places. In the past the plants were used for producing plaited mats or chair seats, also for paper making.

ABDEL KHALIK, K. N. (2010). Seed coat morphology and its systematic significance in Juncus L. (Juncaceae) in Egypt. *J. Syst. Evol.* 48: 215-223.

KIRSCHNER, J. & al. (2002a). *Juncaceae 2: Juncus subg. Juncus, Species Plantarum: Flora of the World* Part 7. Australian Biological Resources Study, Canberra. VIII + 336 pp.

KIRSCHNER, J. & al. (2002b). *Juncaceae 3: Juncus subg. Agathryon, Species Plantarum: Flora of the World* Part 8. Australian Biological Resources Study, Canberra. VIII + 192 pp.

ROMERO ZARCO, C. (2009). Contribuciones a la flora vascular de Marruecos (15). *Acta Bot. Malacit.* 34: 295-302.

Juncus acutus L. subsp. **acutus**; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 180, 2008; Le Floc'h & Boulos, Fl. Tunisie…: 324-325, 2008; idem, Fl. Tunisie: 354, 2010; Acta. Bot. Malacit. 34: 301, 2009; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 159, 2010. – Icon.: Maire, Fl. Afr. N. 4: 278, 1957; Kirschner & al. (2002a): 7, 274 (map); Boulos, Fl. Egypt 4: 96, 2005.

syn.: *J. spinosus* Forssk.; *J. multibracteatus* Tineo; *J. variegatus* Caruel; see World Checklist of Selected Plant Families, Juncaceae, Roy. Bot. Gard. Kew.

Herb 0,5-1,5 m tall, densely caespitose with inconspicuous rhizome; stem 2-6 mm Ø, rigid; basal leaves 1-5, terete, 1,5-4 mm Ø, pungent, shorter than stem; inflorescence 5-15 × 3-7 cm, usually *dense* (with many, few-flowered confluent heads); capsule *4-6 mm* long, apex *conical* (*or obtuse* in subsp. **leopoldii**), with *80-120* seeds.

Sandy bed of oued (wadi) in dense *Tamarix* formation.

Coastal W Europe, Mediterranean Region, Egypt, Near East, Black Sea and S Caspian area. Introduced in Australia, New Zealand (map, see above).

Comprises 2 subspp.; subsp. **leopoldii** (Parl.) Snogerup with a large disjunct distribution range (SW Europe, Atlantic Isl., N African coast; S. Africa; SW USA, W Mexico, C S. America (map as above). – Rare intermediates between the subspecies are known from SW Europe, N Africa, Azores.

J. bufonius L.; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 50, 2001; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 181, 2008; Le Floc'h & Boulos, Fl. Tunisie…: 325, 2008; idem, Fl. Tunisie…: 354-355, 2010; Acta Bot. Malacit. 34: 297-298, 2009; Dobignard & Chatelain, Index synon. Fl. Afrique N. 1: 160-161, 2010. – Icon.: Maire, Fl. Afrique N. 4: 263, 1957; Fl. Mascareignes 188, Joncacées : 4, 1978; Fl. Eth. & Eritrea 6: 388, 1997; Kirschner & al. (2002b): 11, 152 (map); Boulos, Fl. Egypt 4: 99, 2005.

syn.: see Kirschner & al. (2002b): 9-10; World Checklist of Selected Plant Families, Juncaceae, Roy. Bot. Gard. Kew. – excl. *J. bufonius* var. *ambiguus* (Guss.) Husn., subsp. *ambiguus* (Guss.) Schinz & Thell., var. *congdonii* (S. Watson) J. T. Howell, var. *fasciculatus* Nyman, subsp. *fasciculatus* K. Richt., var. *fasciculiflorus* Boiss., var. *hybridus* (Brot.) Asch., subsp. *hybridus* (Brot.) Arcang., subsp. *insulanus* (Viv.) Briq. ex Jahand. & Maire, var. *kochii* Buchenau, subsp. *mogadorensis* H. Lindb., var. *mogadorensis* (H. Lindb.) Maire & Weiller, subsp. *mutabilis* (Neuman) H. Lindb. all = **J. hybridus**.

Annual tufted herb, with 1 stem 2-45 cm tall, simple or branched from base, *leafy*; sheathing cataphylls evident at stem-base; leaf blade 1-25 × 0,1-0,2 cm; inflorescence a much-branched panicle with 1-sided cymes; flowers with short pedicels, laxly arranged; capsule ovoid to ellipsoid, *3,5-5 mm* long, shorter than perianth, apex acute to subacute.

Waterlogged soil; damp or wet places near streams and paths in grassland and cultivated land; irrigated fields, gardens; 1980-3260 m alt.

Very variable in general habit (and the occurrence of cleistogamous triandrous forms).

Cosmopolitan, in temperate areas and mountains (highlands in the tropics), but Europe and W Asia may be considered as the native distribution area (frequent dispersal with waterfowl). In Africa: Morocco through to Egypt, S. Africa, Madagascar, Mascarenes. – Gaps in the known distribution area may be due to insufficient collection or exploration (Kirschner & al., 2002b: 10).

J. capitatus Weigel; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Ibn Tattou & Fennane, o.c.: 181, 2008; Le Floc'h & Boulos, o.c.: 325, 2008; idem, o.c.: 355, 2010; Dobignard & Chatelain, o.c.: 162, 2010; Onana, Vascul. pl. Cameroon…: 166, 2011. – Icon.: Fl. Eth. & Eritrea 6: 388, 1997; Kirschner & al. (2002a): 61, 285 (map).

syn.: Kirschner & al., o.c.: 59; World Checklist of Selected Plant Families, Juncaceae, Roy. Bot. Gard. Kew.

Tufted *annual* herb with stems 1-15 × 0,02-0,08 cm; leaves all basal; blades 1-8 × 0,03-0,08 cm, flat or channelled; inflorescence usually a single *terminal globose* cluster of 2-12 *crowded* flowers; *lowermost bract herbaceous*, usually *longer* than inflorescence; capsule 1,7-2,5 mm long, much shorter than perianth.

Wet soil near streams and along paths; grassland; 2000-2850 m alt.

Europe; Madeira, Canary Isl.; N Africa; S. Africa, Lesotho; SW Asia through to Kazakhstan. Introduced in N. and S. America, Australia, New Zealand.

J. dregeanus Kunth subsp. **bachitii** (Hochst. ex Steud.) Hedberg; Cheek & al., Pl. Mt Oku…: 185, 2000; Puff & Sileshi, Pl. Simen: 236, 2005; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 111, 2006; Onana, Vascul pl. Cameroon…: 166, 2011; Gereau & al., Lake Nyasa florist. checklist: 68, 2012. – Icon.: Fl. Trop. E. Afr., Juncaceae: 5, 1966; Fl. Eth. & Eritrea 6: 388, 1997; Kirschner & al (2002a): 35, 278 (map); Burrows & Willis, Pl. Nyika Plateau, Malawi: 312, 2005; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 337, 2008; Fl. Zambes. 13/4: 101, 2010.

syn.: Enum. 3: 160, 1995.

Tufted perennial herb with short rhizome; stems erect, 10-45 × 0,04-0,15 cm, glabrous; leaves *flat*, *many*, *near base;* blade 3-25 × 0,1-0,5 cm; inflorescence *dark-brown*, terminal: a *dense* head of flowers usually subtended by 1-4 stalked heads, each head 0,5-1, 2 cm Ø, with 5-20 flowers; stamens 6; capsule subglobose, 2,2-2,5 mm long, brown.

Swamps; shallow, still water at edges of streams in rain-forest; evergreen bushland; moor grassland; *Loudetia arundinacea* grassland with scattered trees, in seepage area; c. 1800-3800 m alt.

Subsp. **dregeanus** with paler perianth segments and only 3-4 stamens, occurs in S. Africa, Lesotho, Swaziland (map: Kirschner 2002a: 278).

J. effusus L.; Fl. Trop. E. Afr., Juncaceae: 2-3, 1966; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 181, 2008; Le Floc'h & Boulos, Fl. Tunisie…: 325, 2008; idem, Fl. Tunisie…: 355, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 162-163, 2010; Fl. Zambes. 13/4: 104, 2010 (subsp. **laxus**). – Icon.: Fl. Eth. & Eritrea 6: 388, 1997; Kirschner & al. (2002b): 90 (subsp. **laxus**), 172-173 (maps of subspp.); Cook, Aquat. & wetland pl. south. Afr.: 153, 2004; Svensk Bot. Tidskr. 105: 282, 2011.

syn.: *J. communis* E. Mey. 1819, nom. superfl., incl. subsp. *effusus* (L.) Celak. 1867, nom. invalid.; *J. laevis* Wallr. 1822, nom. superfl.; *J. conglomeratus* L. var. *effusus* (L.) Kostel.; See World Checklist of Selected Plant Families, Juncaceae, Roy. Bot. Gard., Kew.

Perennial herb with horizontal much-branched rhizome forming dense tussocks with numerous clustered stems; stems 0,6-1,2 m long, 0,15-0,5 cm Ø, with prominent white soft pith in the middle; leaves reduced to cataphylls 1-20 cm long with a blade usually *absent or reduced* needle-like deciduous, 2-5 mm long; sheaths often red brown; inflorescence: a *lateral* corymb, much-branched, diffuse or compact with numerous stalked or subsessile flowers, each subtended by a bract and 2 bracteoles; capsule 1,6-2,5 mm long, ovoid, ± equalling perianth.

By streams, swampy ground in evergreen bushland and rain-forest; grassland; 1350-3120 m alt.

Very variable in shape of inflorescence, size and colour of floral parts; several varieties have been described.

Probably native in Europe, W and C Asia, Africa, N. America, mountains of S. America; now cosmopolitan as introduced and naturalised in many places.

Comprises 5 subspp., 2 in our area: – subsp. **effusus** (Ethiopia, S. Africa, Madagascar, Mascarenes); – subsp. **laxus** (Robyns & Tournay) Snogerup [syn.: Enum. 3: 160, 1995; *J. canariensis* Willd. ex E. Mey.; *J. effusus* var. *canariensis* (Willd. ex E. Mey.) Buchenau] in the Atlantic Isl.; Africa S of Sahara, incl. S. Africa, Madagascar, Mascarenes.

Can be confused with *J. conglomeratus* L.

J. engleri Buchenau; Kirschner & al. (2002a): 30, 278 (map).

syn.: Enum. 3: 160, 1995.

Herb perennial, loosely caespitose with creeping-ascending rhizome, without stolons; stems ascending, 25-60 cm tall, rooting at nodes; leaves basal, linear-lanceolate, 12-40 × *0,3-1,2 cm*; inflorescence *lax*, ± erect, anthelate; main branches usually 5-10, *1-8 cm* long; secondary branches subdistal; heads hemispherical, 1-10-flowered; lower bract *distinctly shorter* than inflorescence; capsule oblong-ovoid, apex apiculate.

Wet boggy places; along streams in forest; grassland; 1400-1750 m alt.

Closely related to *J. lomatophyllus* Spreng. from Zimbabwe and S. Africa, which has usually slightly wider leaves, longer anthers (1,5 mm long not 0,5-0,8 mm), and longer style (1,5 mm long not 0,2 mm), resulting in a distinctly beaked capsule.

Confused with *J. oxycarpus*.

J. exsertus Buchenau, incl. subsp. *lesuticus* Burtt; Kirschner & al. (2002a): 239, 319 (map); Fl. Zambes. 13/4: 103-104, 2010. – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 153, 2004.

syn.: *J. rostratus* Buchenau

Herb perennial, usually 30-55 cm tall, caespitose; rhizome short, horizontal; cataphylls 1-2; basal leaf usually 1 or absent; cauline leaves 2-4, *septate*, c. 5-16 cm long, 1,2-3,5 mm Ø; inflorescence rich, decompound, much-branched, of 5-10 to many obconical to semiglobose 2-15-flowered heads each 5-9 mm wide; capsule distally narrowly *trigonous-prismatic*, 3,5-3,8 mm long, exceeding tepals, *acuminate*, *rostrum 0,3-0,5 mm* long.

River banks or in shallow water; marshes; very wet swamps; sometimes forming large stands; 200-2600 m alt.

Variable; subsp. *lesuticus* is a dwarf plant.

Namibia, S. Africa, Lesotho, Swaziland.

(**J. fontanesii** J. Gay ex Laharpe subsp. **fontanesii**); Kirschner (2002a) : 235-236, 318 (map).

syn.: *J. articulatus* sensu Desf., non L.

Perennial herb with stolons to 2 m long, rhizome usually absent; stems erect, 5-40 cm tall; cauline leaves 2-5, unitubular, septate; inflorescence with 3-15 semiglobose heads, each with 4-25 flowers; capsule 4-5,8 mm long, exceeding perianth, with mucro.

A N. African plant (Morocco through to Tunisia, S Europe through to Turkey) indicated by Quézel (Bull. Soc. Hist. Nat. Afrique N. 50: 22, 1959), with the distribution: Mediterranean region, Ethiopia, Kenya. The plant from the latter two countries is *J. oxycarpus*. The specimen from Chad, Tibesti, needs reevaluation. Not mapped.

J. hybridus Brot.; Thulin, Fl. Somalia 4: 98, 1995; Kirschner (2002b): 12-13, 153 (map); Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 182, 2008; Le Floc'h & Boulos, Fl. Tunisie: 355, 2010; Acta Bot. Malacit. 34: 299, 2009; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 164, 2010. – Icon.: Boulos, Fl. Egypt 4: 101, 2005.

syn.: *J. mutabilis* Savi; *J. insulanus* Viv.; *J. ambiguus* Guss.; *J. dinteri* Poelln.; *J. mogadorensis* (H. Lindb.) Förther & Podlech; *J. bufonius* L. subsp. *mogadorensis* H. Lindb.; for other names under *J. bufonius*, see above under that species; World Checklist of Selected Plant Families, Juncaceae, Roy. Bot. Gard. Kew, and Kirschner (2002b): l.c.

Annual herb *5-30 cm* tall, usually caespitose; root system small; stems erect, many, crowded, 5-20 cm long; basal leaves usually 2-10 cm × c. 0,6-1,1 mm; cauline leaves usually 1-3, often equalling to exceeding inflorescence; inflorescence lax, many-50-flowered, of several sickle-shaped cymes, in *2-6-flowered fan-shaped clusters*, to c. 12 × 5 cm; capsule ± ellipsoid, 3,5-4,5 mm long, slightly shorter than inner tepals.

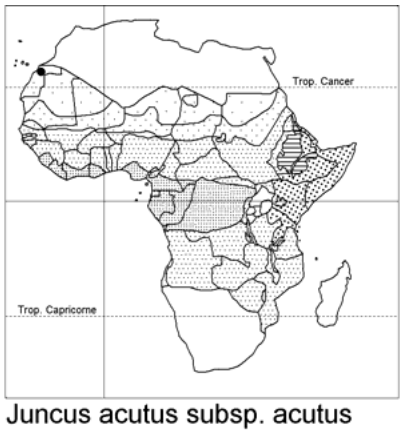
On clay along stream in evergreen bushland with *Buxus*, *Cadia* on limestone; c. 1300 m alt.

S Europa; Macaronesia; N Africa; Near East, Middle Asia. Introduced to Britain, S. Africa, W N. America, SE S. America, Australia; probably also in New Zealand.

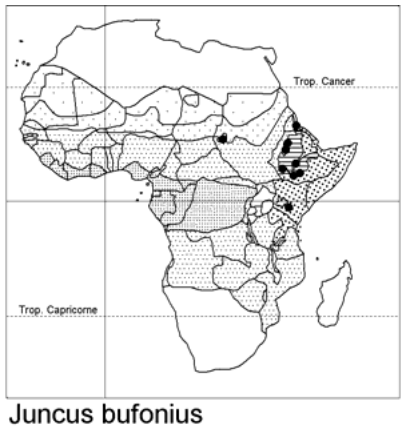
According to Förther & Podlech (Sendtnera 8: 46, 2002), it seems justified to keep *J. mogadorensis* as a distinct species.

J. inflexus L. subsp. **inflexus**; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 183, 2008; Le Floc'h & Boulos, Fl. Tunisie: 326, 2008; idem, Fl. Tunisie…: 355, 2010; Acta Bot. Malacit. 34: 301, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 164, 2010. – Icon.: Fl. Kingd. Saudi Arabia ill. 3: 55, 2001; Kirschner & al. (2002b): 106, 176 (map); Boulos, Fl. Egypt 4: 99, 2005 (detail); Svensk Bot. Tidskr. 105: 281, 2011.

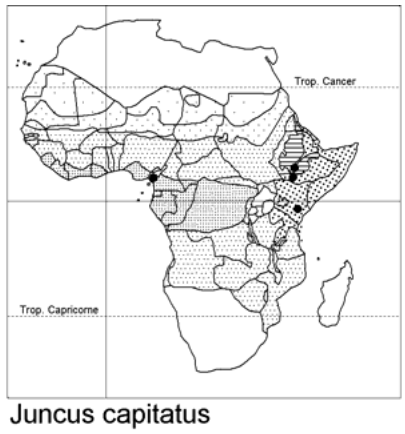
syn.: *J. glaucus* var. *acutissimus* Buchenau; *J. acutissimus* (Buchenau) Adamson; *J. glaucus* Sibth., nom. illegit.; *J. glaucus* Ehrh. ex P. Gaertn., B. Mey. & Scherb., nom. illegit.; see Kirschner & al (2002b): l.c.; World Checklist, l.c.



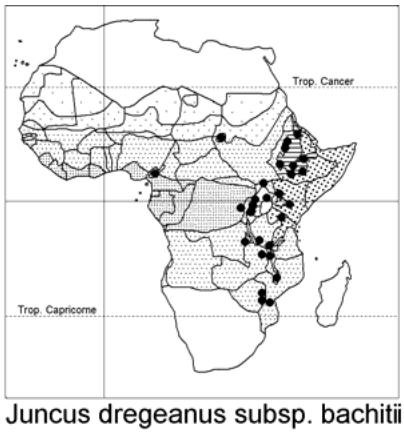
Juncus acutus subsp. acutus



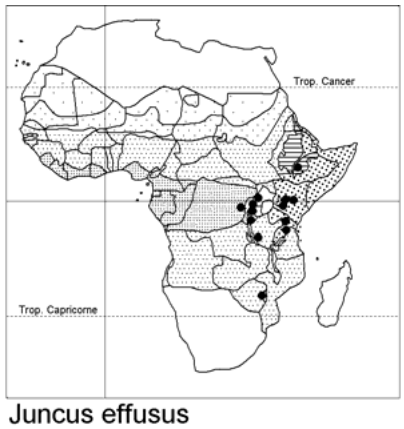
Juncus bufonius



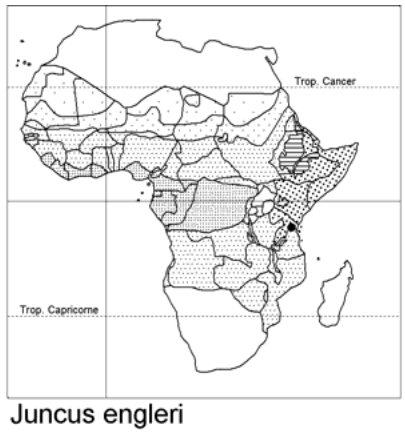
Juncus capitatus



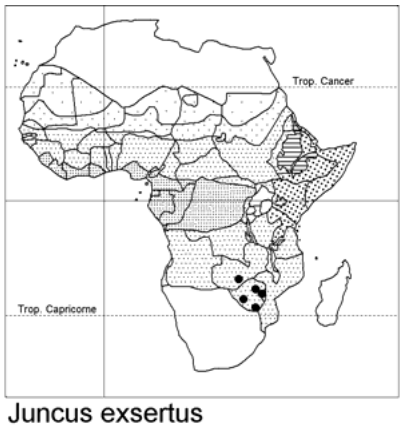
Juncus dregeanus subsp. bachitii



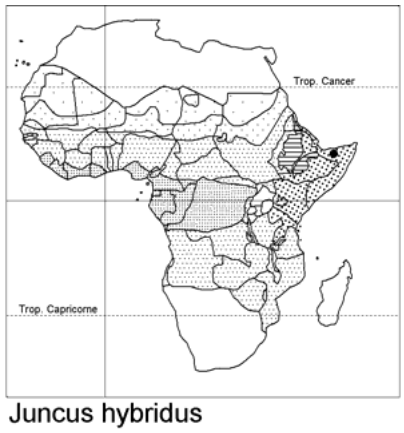
Juncus effusus



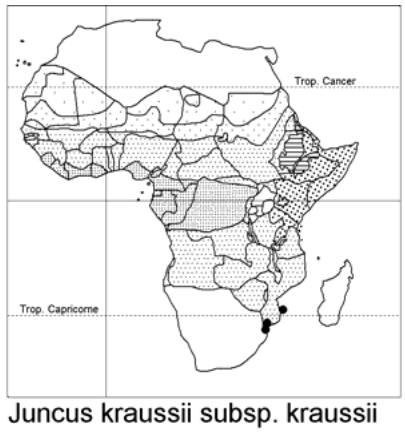
Juncus engleri



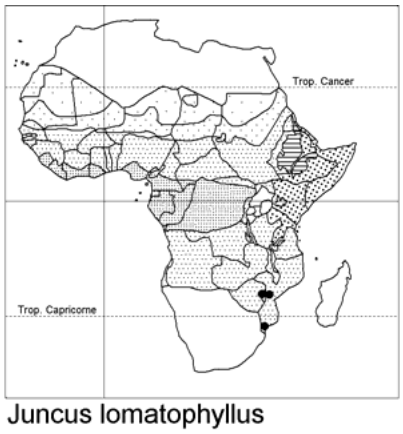
Juncus exsertus



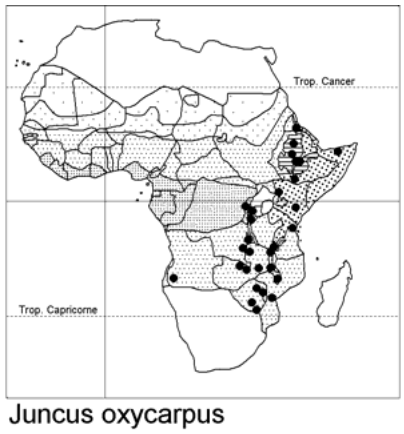
Juncus hybridus



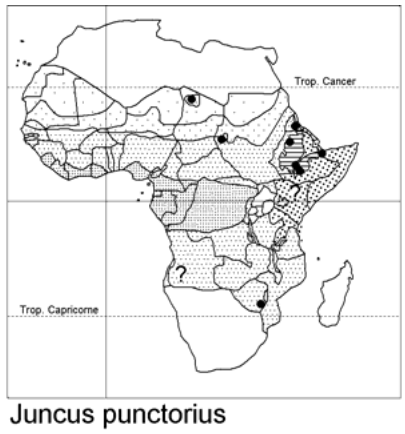
Juncus kraussii subsp. kraussii



Juncus lomatophyllus



Juncus oxycarpus



Juncus punctorius

JUNCUS INFLEXUS

Herb perennial, densely caespitose, rhizomatous, 0,5-1,2 m tall; rhizome short, stout; stems leafless, terete, with c. *10-22 prominent ridges* that are *flat*, *widely separated* from one another; cataphylls *3-5*, *distally loose*, *dark red brown* and *glossy* at base, upper cataphylls 5-15 cm long; inflorescence pseudolateral; flowers 50-120, occasionally fewer or to 200, solitary; style *c. 0,5 mm* long; capsule trigous, 2,5-4 mm long, ± equalling tepals.

Ecology unknown in Zaire (in Egypt: wettest parts of wadis, above 1500 m alt.).

Eurasia; N Africa, S. Africa, Madagascar (in all considered native); Probably introduced in N. America, S. America, Jawa, Australia, New Zealand.

Very variable locally and regionally, and several infraspecific taxa are often recognized. 2 subspp. are accepted in Kirschner & al. (2002b): 103-107: – subsp. **inflexus**; – subsp. **brachytepalus** (Trautv. ex V. I. Krecz. & Gontsch.) Novikov, in C Asia from Iran-Afghanistan through to China (map in Kirschner 2002b: 176). – The variety *acutissimus* Buchenau is a slender form with paler cataphylls from S. Africa (deserves perhaps subspecific status).

Locality in EC Zaire not specified, but presence there indicated by Kirschner & al. (2002b): l.c. – Not mapped by us.

J. kraussii Hochst. subsp. **kraussii** – Icon.: Kirschner & al. (2002a): 21, 277 (map); Cook, Aquat. & wetland pl. south. Afr.: 154, 2004; Fl. Zambes. 13/4: 101, 2010 (seed).

syn.: Enum. 3: 160, 1995; *J. kraussii* var. *effusus* Adamson and var. *parviflorus* Adamson; *J. spretus* Schult. & Schult. f., nom. inval.

Herb perennial, c. 0,4-2 m tall; rhizome creeping, densely branched; leaves terete, 0,2-1 m long, 1-5 mm Ø; lower 2 bracts leaf-like, longer than inflorescence; inflorescence usually *lax*, rarely consisting of a few clusters; flowers dark; capsule *2-3 mm* long, *trigono-ellipsoidal* to *trigono-obovoid;* seeds with *very short unequal appendages*, 0,8-0,9 mm long. Dioecious with functionally unisexual flowers.

Strongly saline marshes; along rivers, rarely along coastal sands; 0-1700 m alt.

S. Africa, Lesotho.

Further 2 subspecies are recognized: – subsp. **australiensis** (Buchenau) Snogerup, in Australia, New Zealand; – subsp. **austerus** (Buchenau) Snognerup, in temperate S. America (maps in Kirschner & al. 2002a: 277).

Stems are used for weaving and basketry (Traynor & al. in Bothalia 40: 135-144, 2010); with a great conservation concern in S. Africa.

J. lomatophyllus Spreng. 1821, incl. var. *aristatus* Buchenau, var. *lutescens* Buchenau, and var. *congestus* Adamson; Fl. Zambes. 13/4: 99-100, 2010. – Icon.: Kirschner & al. (2002a): 32, 278 (map); Cook, o.c.: 154, 2004. – Neotype: Cole s.n., Cape of Good Hope, s.d.

syn.: *J. cymosus* Lam. 1789 (based on a mixture of 2 different species; cf. Taxon 53: 816, 2004); *J. capensis* Thunb. var. *latifolius* E. Mey.; *J. viridifolius* Adamson

Herb perennial, 15-85 cm tall; rhizome densely leafy, creeping, stolons often present; stems rigid, terete, with longitudinal grooves; leaves basal, cataphylls absent; blades *flat*, *0,5-1,5 cm wide*, blue-green with an occasional red tinge; inflorescence a lax panicle, appearing terminal; capitula 10-50, semiglobose, each 2-12-flowered; capsule ovoid, 2-3 mm long, beaked, shorter than perianth.

JUNCUS LOMATOPHYLLUS

Permanently wet places: streams, edges of ponds and reservoirs; 0-1700 m alt.

S. Africa, Lesotho, Swaziland. Introduced in New Zealand.

Closely related to *J. engleri*.

J. oxycarpus E. Mey. ex Kunth, incl. var. *microcephalus* Adamson, subsp. *australis* Weim., and subsp. *sparganioides* Weim.; Fl. Afr. C., Juncaceae: 6-7, 1973; Kirschner & al. (2002a): 238, 319 (map); Burrows & Willis, Pl. Nyika Plateau, Malawi: 314, 2005; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Fl. Trop. E. Afr., Juncaceae: 5, 1966; Fl. south. Afr. 4/2: 81, 1985; Lidia 3: 136, 1994; Thulin, Fl. Somalia 4: 96, 1995; Fl. Eth. & Eritrea 6: 388, 1997; Cook, Aquat. & wetland pl. south. Afr.: 155, 2004; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 335, 2008; Fl. Zambes. 13/4: 101, 2010.

syn.: Enum. 3: 81, 1995; *J. brevistilus* Buchenau; *J. gentilis* N. E. Br.

Herb perennial, 30-80 cm tall, densely caespitose; rhizome short, horizontal, thick; stem erect, 0,4-0,8 m tall, occasionally stoloniferous when in running water; leaves 3-5, basal and cauline, *terete*, *septate*; cataphylls 0-4; inflorescence decompound, divaricate; capitula globose or semiglobose, many-flowered, on wiry branchlets of varying lengths; capsule trigonous, *oblong*, 2,5-3,5 mm long, *enclosed* in perianth.

Swamps, marshes, edges of streams in rain-forest; riverine forest; grassland; pools; lakes; often forming large stands; wet sandy meadows with *Salix*, *Rubus*, *Potamogeton*, *Ranunculus* spp.; near streams; with *Xyris* spp. in river; 0-3150 m alt.

S. Africa, Botswana, Lesotho.

Cited from Morocco by Durand & Schinz, 1894, but not later confirmed (fide Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 183, 2008). Also recorded from Mt Oku, Cameroon, at 2200 m alt. (Cheek & al., 2000: 185) but later not confirmed.

Closely allied to *J. fontanesii* from the Mediterranean region (cf. above under that species).

J. punctorius L. f., incl. var. *exaltatus* (Decne.) Buchenau, var. *schimperi* (Hochst. ex A. Rich.) Buchenau, var. *mauritanicus* (Trab.) Buchenau & Trab., and subsp. *mauritanicus* Trab.; Kirschner & al. (2002a): 170, 306 (map); Figueiredo & Smith, Pl. Angola: 187 , 2008; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 183, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 165, 2010 ; Fl. Zambes. 13/4: 102, 2010. – Icon.: Maire, Fl. Afr. N. 4: 287, 1957; Lidia 3: 136, 1994; Thulin, Fl. Somalia 4: 96, 1995; Fl. Eth. & Eritrea 6: 388, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 56, 2001; Cook, Aquat. & wetland pl. south. Afr.: 155, 2004; Boulos, Fl. Egypt 4: 101, 2005; Puff & Sileshi, Pl. Simen: 237, 2005 (in habitat, under a *Salix mucronata*).

syn.: *J. exaltatus* Decne., incl. var. *capensis* Kunth, non *J. capensis* Thunb.; *J. capensis* var. *capensis* Spreng. ex Buchenau, nom. inval.; *J. schimperi* Hochst. ex A. Rich.; *J. mauritanicus* Trab.

Herb perennial, 0,4-2,2 m tall, loosely caespitose; rhizome long, creeping; stem rigid, 0,3-0,8 m tall; cataphylls 2-3; *1 cauline leaf* 20-40 cm long, in upper part of stem; inflorescence a panicle of 10-80 heads, compact, semiglobose to globose, each with 8-30 flowers; capsule ovoid, apiculate, *3-angled*, c. 0,5 mm long.

Permanently wet places; swamps; marshes; riverbanks; 0-3180 m alt.

Morocco, Algeria, Libya, Egypt; Namibia, S. Africa, Lesotho; Palestine, Arabia, S Iran, W Pakistan. – Disjunct distribution.

JUNCUS

J. rigidus Desf.; Figueiredo & Smith, Pl. Angola: 187, 2008; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 183, 2008; Acta Bot. Malacit. 34: 301, 2009; Le Floc'h & Boulos, Fl. Tunisie…: 326, 2008; idem, Fl. Tunisie: 355-356, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 166, 2010. – Icon.: Thulin, Fl. Somalia 4: 96, 1995; Kirschner & al. (2002a): 19, 276 (map); Chaudhary, Fl. Kingdom Saudi Arabia ill. 3: 54, 2001; Cook, Aquat. & wetland pl. south. Afr.: 155, 2004; Boulos, Fl. Egypt 4: 96, 2005; Fl. Zambes. 13/4: 101, 2010.

syn.: Enum. 3: 160, 1995; *J. maritimus* Lam. var. *rigidus* (Desf.) Rouy, subsp. *rigidus* (Desf.) Nyman, fa. *rigidus* (Desf.) Maire & Weiller, var. *biancae* Lojac., and var. *arabicus* Asch. & Buchenau; but excl. var. *socotranus* Bucheanu (= *J. socotranus*); *J. procerus* Bianca, nom. illegit.; *J. nevskii* V. I. Krecz. & Gontsch.; *J. arabicus* (Asch. & Buchenau) Adamson

Herb perennial, 0,3-1,5 m tall; rhizome compact, creeping, to 1 cm Ø; stems terete, hard; cataphylls present; leaves basal 0,25-1,1 m long; blades terete, 1,5-3 mm Ø; inflorescence a lax pseudo-lateral panicle with 60-150 heads, each head 2-6-flowered; tepals uniformly coloured *green to straw-yellow* (sometimes slightly darker but *without darkened midrib*); capsule narrowly trigono-ovoid, 3,5-5 mm long, usually exceeding tepals; seeds *fusiform*, 0,5-0,7 mm long with *white appendages* 0,8-1,2 mm long at each end.

Sandy and saline places; drier areas next to wells and seasonally wet depressions; in or near pools and water courses; often in gypseous soils; marshy places with *Scirpus*, *Tamarix*; sometimes in large stands; brackish waters; salt pan areas; 0-2000 m alt.

Botswana, Caprivi Strip, S. Africa; N Africa, and from Cyprus, Syria, Israel, Arabian Peninsula to S Afghanistan, SW Pakistan, Turkmenistan.

Closely related to *J. kraussii*, but flowers more loosely arranged. Confused with *J. maritimus*.

J. sphaerocarpus Nees; Thulin, Fl. Somalia 4: 97-98, 1995; Fl. Eth. & Eritrea 6: 387, 1997; Kirschner & al. (2002b): 7-8, 152 (map); Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 184, 2008; Acta Bot. Malacit. 34: 300, 2009; Le Floc'h & Boulos, Fl. Tunisie…: 326, 2008; idem Fl. Tunisie: 356, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 166, 2010. – Icon.: Maire, Fl. Afr. N. 4: 261, 1957 (as *J. tenageia* subsp. *sphaerocarpus*); Fl. Palaestina 4, Plates: pl. 193, 1986.

syn.: *J. tenageia* Ehrh. ex L. f. var. *intermedius* Gand., and subsp. *acicularis* (H. Roux) Bonnier & Layens; *J. haussknechtii* Ruhmer; *J. acicularis* H. Roux; *J. subglobosus* K. F. Wu, nom. illeg.; *J. anuricus* var. *wui* Novikov; *J. tenageia* β *pallidus* Neilr.

Annual caespitose herb with many crowded *erect* or *erecto-patent* stems *> 8 cm* tall (4-30 cm); each stem with 1-4 cauline leaves, 1-5 cm × 0,5-1,3 mm, flat, tip acute; inflorescence lax and constitutes 1/2 to 9/10 of plant height; flowers borne singly, remote; inflorescence branches *erecto-patent;* capsule *subglobose*, c. *2-3 mm* long; seeds *0,35-0,45 × 0,3 mm.*

On clay along stream in evergreen bushland with *Buxus*, *Cadia* on limestone; c. 1300 m alt.

Mediterranean area; C and SE Europe; N Africa, Middle Asia to NW China.

JUNCUS

J. tenageia Ehrh. L. f. subsp. **tenageia**; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 184, 2008;

Le Floc'h & Boulos, Fl. Tunisie…: 326, 2008; idem Fl. Tunisie: 356, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 167, 2010. – Icon.: Maire, Fl. Afr. N. 4: 261, 1957; Fl. Eth. & Eritrea 6: 388, 1997; Kirschner & al. (2002b): 6, 151 (map).

syn.: *J. vaillantii* Thuill.; *J. gracilis* Lej., nom. illegit.; *J. tenageia* var. *filiformis* Gaudin, var. *racemosus* Gaudin, var. *strictus* Gaudin, and fa. *pauciflorus* Albert; *Tenageia vaillantii* (Thuill.) Rchb.

Herb annual, 0,5-35 cm tall, one-stemmed or caespitose; basal leaves numerous, 0,2-10 cm × 0,1-0,8 mm, cauline leaves 0-3; inflorescence constituting less than 1/2 to *1/3 of plant height*, of umbelloid loose to subdense erecto-patent sickle-shaped cymes; flowers single; capsule ± subglobose, 1,5-2 mm long; seeds 0,3-0,45 mm long.

Wet ground along river; > 1200 m alt.

Morocco, Algeria, Tunisia; SW, S, SE, E, C Europe; Cyprus; Turkey, Caucasus.

Comprises 2 subspp.; subsp. **perpusillus** Fern.-Carv. & Navarro, in Portugal, Spain, Morocco (map: Kirschner 2002b: l.c.).

SYNONYMS:

Juncus acicularis H. Roux = **Juncus sphaerocarpus**

acutissimus (Buchenau) Adamson = **J. inflexus** subsp. **inflexus**

acutus L. var. *conglobatus* Trautv. = **J. acutus**

acutus var. *decompositus* Guss., subsp. *decompositus* (Guss.) Arcang., var. *effusus* Buchenau, var. *longibracteatus* Buchenau, var. *multibracteatus* (Tineo) K. Richt., and subsp. *variegatus* (Caruel) Nyman = **J. acutus** subsp. **acutus**

aletaiensis K. F. Wu = **J. bufonius**

ambiguus Guss. = **J. hybridus**

amuricus var. *wui* Novikov = **J. sphaerocarpus**

arabicus (Asch. & Buchenau) Adamson = **J. rigidus**

articulatus sensu Desf., non L. = **J. fontanesii** subsp. **fontanesii**

bachitii Hochst. ex Steud. = **J. dregeanus** subsp. **bachitii**

balansae Trab. = **J. punctorius**

bilineatus Gand. = **J. bufonius**

bogotensis Kunth, incl. var *compactus* (Hoppe ex Mert. & W. D. J. Koch) Farw. = **J. effusus** subsp. **effusus**

brevistilus Buchenau = **J. oxycarpus**

bufonius L. var. *ambiguus* (Guss.) Husn. = **J. hybridus**

bufonius L. subsp. *ambiguus* (Guss.) Schinz & Thell., var. *congdonii* (S. Watson) J. T. Howell, var. *fasiculatus* Nyman, subsp. *fasciculatus* K. Richt., var. *fasciculiflorus* Boiss., var. *hybridus* (Brot.) Asch., subsp. *hybridus* (Brot.) Arcang., subsp. *hybridus* (Brot.) Farw., subsp. *insulanus* (Viv.) Briq. ex Jahand. & Maire = **J. hybridus**

bufonius var. *kochii* Buchenau, subsp. *mogadorensis* H. Lindb., var. *mogadorensis* (H. Lindb.) Maire & Weiller, fa. *mutabilis* Neuman, subsp. *mutabilis* (Neuman) H. Lindb. = **J. hybridus**

caffer Bertol. = **J. kraussii** subsp. **kraussii**

canariensis Willd. ex E. Mey. = **J. effusus** subsp. **laxus**

capensis Thunb. var. *latifolius* E. Mey. = **J. lomatophyllus**
capensis var. *capensis* Spreng. ex Buchenau = **J. punctorius**
caespifolius Raf. = **J. bufonius**
communis E. Mey., incl. var. *effusus* (L.) E. Mey., subsp. *effusus* (L.) Celak. = **J. effusus**
conglomeratus L. var. *effusus* (L.) Kostel. = **J. effusus**
creticus Raf. = **J. bufonius**
cymosus Lam. = **J. lomatophyllus**
dinteri Poelln. = **J. hybridus**
divaricatus Gilib. = **J. bufonius**
effusus L. var. *canariensis* (Willd. ex E. Mey.) Buchenau = **J. effusus** subsp. **laxus**
ericetorum Pollich = **J. capitatus**
erythropodus V. J. Krecz. = **J. bufonius**
exaltatus Decne., incl. var. *capensis* Kunth = **J. punctorius**
fasciculatus Bertol., non Schrank = **J. hybridus**
fasciculiflorus Adamson = **J. kraussii** subsp. **kraussii**
fontanesii sensu Engl., non Laharpe = **J. oxycarpus**
gentilis N. E. Br. = **J. oxycarpus**
glaucescens Laharpe = **J. inflexus** subsp. **inflexus**
glaucus Sibth. = **J. inflexus**
glaucus Erhr. ex P. Gaertn., B. Mey. & Scherb. = **J. inflexus** subsp. **inflexus**
glaucus var. *acutissimus* Buchenau = **J. inflexus** subsp. **inflexus**
globiceps Bajtenov = **J. capitatus**
gracilis Lej. = **J. tenageia** subsp. **tenageia**
var. *capitatus* Roth = **J. capitatus**
haussknechtii Ruhmer = **J. sphaerocarpus**
indescriptus sensu Adamson, non Steud. = **J. dregeanus** subsp. **bachitii**
insulanus Viv. = **J. hybridus**
karelinii Steud. = **J. acutus** subsp. **acutus**
kochii F. W. Schultz = **J. bulbosus**
kraussii Hochst. var. *effusus* Adamson and var. *parviflorus* Adamson = **J. kraussii** subsp. **kraussii**
laevis Wallr. = **J. effusus**
var. *diffusus* Wallr. = **J. effusus** subsp. **effusus**
var. *effusus* (L.) Wallr. = **J. effusus**
laxus Robyns & Tournay = **J. effusus** subsp. **laxus**
lomatophyllus sensu Baker, Fl. Trop. Afr., excl. S. Africa, non Spreng. = **J. engleri**
maritimus Lam. var. *arabicus* Asch. & Buchenau = **J. rigidus**
var. *biancae* Lojac. = **J. rigidus**
subsp. *rigidus* (Desf.) Nyman = **J. rigidus**
var. *rigidus* (Desf.) Rouy = **J. rigidus**
fa. *rigidus* Desf.) Maire & Weiller = **J. rigidus**
var. *socotranus* Buchenau = **J. socotranus** (Buchenau) Snogerup (from Socotra to Iran)
var. *somalensis* Chiov. = **J. rigidus**
maritimus auct., non Lam. = **J. rigidus**
mauritanicus Trab. = **J. punctorius**
mogadorensis (H. Lindb.) Förther & Podlech = **J. hybridus**
multibracteatus Tineo = **J. acutus** subsp. **acutus**
mutabilis Lam. = **J. capitatus**
mutabilis Savi = **J. hybridus**

mutabilis subsp. *ambiguus* (Guss.) Nyman = **J. hybridus**
nevskii V. I. Krecz. & Gontsch. = **J. rigidus**
oehleri Graebn. = **J. effusus** subsp. **laxus**
procerus Bianca = **J. rigidus**
quartinianus A. Rich. = **J. oxycarpus**
rostratus Buchenau = **J. exsertus**
schimperi Hochst. ex A. Rich. = **J. punctorius**
spinosus Forssk. = **J. acutus** subsp. **acutus**
spretus Schult. & Schult. f. = **J. kraussii** subsp. **kraussii**
subglobosus K. F. Wu = **J. sphaerocarpus**
tenageia Ehrh. ex L. f. subsp. *acicularis* (H. Roux) Bonnier & Layens = **J. spaerocarpus**
var. *filiformis* Gaudin = **J. tenageia** subsp. **tenageia**
var. *intermedius* Gaudin = **S. sphaerocarpus**
tenageia ß *pallidus* Neilr. = **J. sphaerocarpus**
fa. *pauciflorus* Albert = **J. tenageia** subsp. **tenageia**
var. *racemosus* Gaudin = **J. tenageia** subsp. **tenageia**
var. *sphaerocarpus* (Nees) Cariot & St.-Lag. = **J. sphaerocarpus**
subsp. *sphaerocarpus* (Nees) Trab. = **J. sphaerocarpus**
var. *strictus* Gaudin = **J. tenageia** subsp. **tenageia**
tenellus S. Geuns = **J. capitatus**
triandrus Gouan = **J. capitatus**
vaillantii Thuill. = **J. tenageia** subsp. **tenageia**
variegatus Caruel = **J. acutus** subsp. **acutus**
viridifolius Adamson = **J. lomatophyllus**

LUZULA / *4*

Genus of c. 115 species, ± cosmopolitan, most in temperate regions of the Northern Hemisphere, also in the Arctic, some species in the tropics (mountains).

BOZEK, M. & al. (2012). Chromosome and genome size variation in Luzula (Juncaceae), a genus with holocentric chromosomes. *Bot. J. Linn. Soc.* 170 : 529-541.

KIRSCHNER, J. & M. CHEEK (2000). New combinations in tropical African Luzula sect. Luzula (Juncaceae). *Kew Bull.* 55 : 899-903.

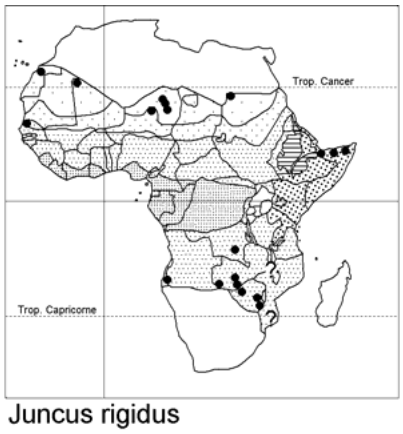
KIRSCHNER, J. & al. (2002). *Juncaceae 1: Rostkovia to Luzula, Species Plantarum : Flora of the World* 6. Australian Biological Resources Study, Canberra. 237 pp.

ORIANI, A. & al. (2012). Contributions to the floral anatomy of Juncaceae (Poales-Monocotyledons). *Flora* 207 : 334-340.

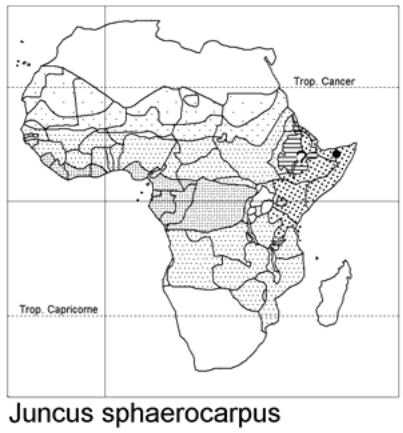
Luzula abyssinica Parl., incl. var. *simensis* (Hochst.) Buchenau, var. *volkensii* (Buchenau) Engl., and var. *kilimandscharica* Engl.; Fl. Trop. E. Afr., Juncaceae : 10, 1966 ; Fl. Afr. C., Juncaceae : 11-12, 1973 ; Kirschner & al. (2002) : 119, 122, 212 (map) ; Puff & Sileshi, Pl. Simen : 236, 2005 ; Gereau & al., Lake Nyasa florist. checklist : 68, 2012. – Icon.: Fl. Eth. & Eritrea 6 : 390, 1997 ; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda : 337, 2008.

syn.: Enum. 3 : 161, 1995 ; *L. spicata* (L.) DC. var. *simensis* Hochst.; *L. macrotricha* Steud., nom. illegit.; *L. campestris* (L.) DC. var. *mannii* sensu Robyns, Fl. Spermat. Parc Natl. Albert 3 : 347, 1955, quoad specim. Humbert 8598.

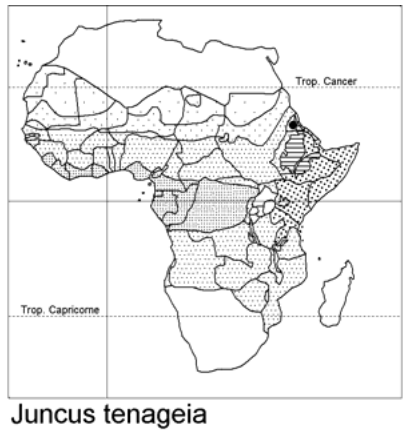
Tufted rhizomatous perennial herb, rarely with stolons ; stem 15-60 × 0,06-0,3 cm, angular ; leaves many, particularly near base ; blade 5-30 × 0,3-1,2 cm, margins with few to many white hairs ;



Juncus rigidus



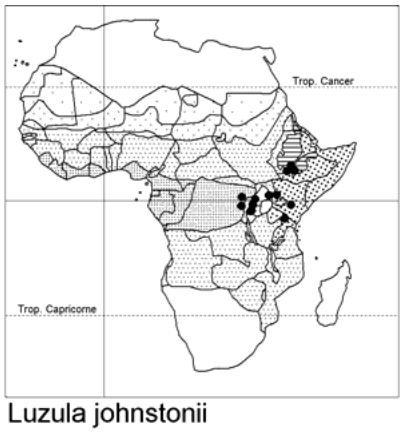
Juncus sphaerocarpus



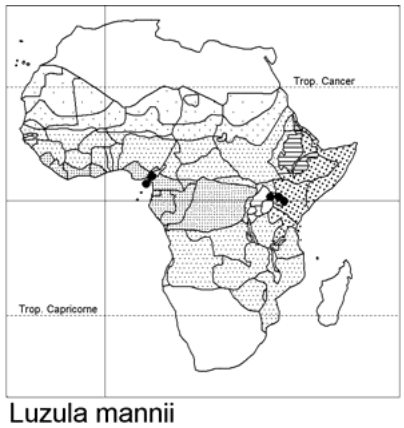
Juncus tenageia

Luzula abyssinica

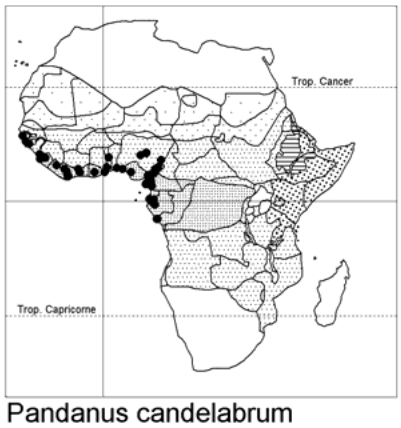
Luzula atlantica subsp. tibestica



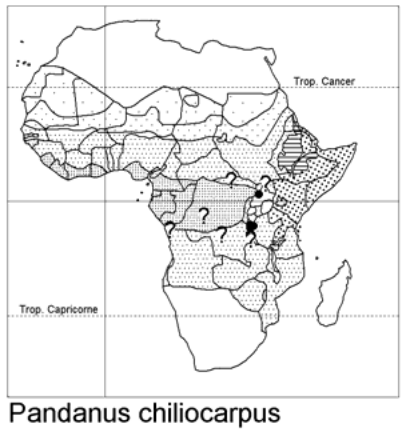
Luzula johnstonii



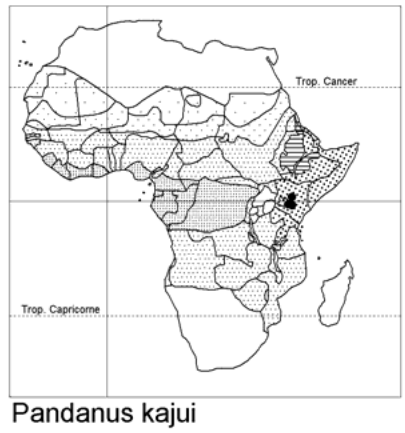
Luzula mannii



Pandanus candelabrum



Pandanus chiliocarpus



Pandanus kajui

LUZULA ABYSSINICA

inflorescence consisting of 2-3 erect branches to 6 cm long, bearing to 10 subsessile contiguous spicate heads, each of 10-20 flowers, giving the appearance of *a single*, *lobed spike*; if the heads are separated then the branches are all erect *(not in an umbel).*

Swamps and damp places in rain-forest and grassland; moor and moor grassland, sheltered or in the open among rocks; wet soil and paths; wet, grassy clearings in rain-forest; *Senecio* and *Ericaceae* forest; 2000-4550 m alt.

Variable species, in height, size of leaves, hairiness.

L. atlantica Braun-Blanq. subsp. **tibestica** Quézel; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 168, 2010. – Icon.: Maire, Fl. Afr. N. 4: 308, 1957 (subsp. **atlantica**).

syn.: *L. tibestica* (Quézel) Zahran ex Romo & Boratyński

Near *L. atlantica* typical but: basal leaves 7,1-7,9 mm wide (not 8-9,5) and 8-10 cm long (not 10-13); glomerule of flowers with only 2-4 flowers (not 2-7), outer sepals more lengthily acuminate with a black awn (not reddish-brown), capsule 1,5-1,2 mm (not 2 × 1,15), seed 0,6-0,7 × 0,6 (not 0,8-1 × 0,8 mm).

Bottoms of dark gorges in seepage areas with *Cystopteris fragilis*, in volcanic lappiaz of crater; 3100 m alt. (see Collect. Bot. Barcelona 30: 55-56, 2011).

L. atlantica subsp. **atlantica** occurs in Morocco [Kirschner & al., 2002: 37-38, 195 (map)].

The names of plants cited by Romo & Boratyński were revised by J.-P. Lebrun in Bothalia 14: 512-513, 1983, who gave the correct names; later *Helictotrichon tibesticum = H. elongatum*, and *Spergularia tibestica = S. microsperma,* were added to the list.

L. johnstonii Buchenau; Kirschner & al. (2002): 166, 224 (map); Fl. Trop. E. Afr., Juncaceae: 7-8, 1996. – Icon.: Robyns, Fl. spermat. Parc Natl. Albert 3: 345, 1955; Fl. Afr. C., Juncaceae: 9, 1973; Fl. Eth. & Eritrea 6: 390, 1997.

Herb perennial, with stolons 2-20 cm long and somewhat distant stems; stems 15-60 × 0,05-0,2 cm, angular; leaves many near base, fewer above; blades 5-25 × 0,3-0,9 cm, with scattered long white hairs; inflorescence *lax*, many-branched, with 1- and 2-sided cymes; major inflorescence-branches 1-8 cm long, each carrying *1 sessile* and *1-6 stalked* flowers.

Damp places, usually in shade of rain-forest; open parts of woodland; moor; swampy soil in bamboo or *Senecio* and *Ericaceae* forests; wet soil in swamps, near streams and paths; sometimes very common locally; 2200-4200 m alt.

L. mannii (Buchenau) Kirschner & Cheek; Cable & Cheek, Pl. Mt Cameroon: 167, 1998 (under *L. campestris*); Onana & Cheek, Red Data Book flow. pl. Cameroon: 382, 559 (map), 2011. – Icon.: Fl. Trop. E. Afr., Juncaceae: 9, 1966 (as *L. campestris* var. *gracilis*); Kew Bull. 55: 902, 2000 (subsp. **mannii**); Kirschner & al. (2002): 120-121, 212 (maps).

bas.: *L. campestris* (L.) DC. var. *mannii* Buchenau

syn.: *L. campestris* subsp. *mannii* (Buchenau) Weim.

Herb perennial, 10-65 cm tall; rhizome horizontal or ascending, stolons short; stem rigid, erect, c. 1,7 mm Ø; basal leaves 7-13 cm × 4-8 mm, cauline leaves 2-3, 3,5-7 cm × 2,5-4,5 mm, densely hairy, margins densely serrulate; inflorescence dense, of 3-4 sessile and 2-7 pedunculate clusters, peduncles with secondary branches and 1-3 sessile *clusters* on each branch; peduncles 2-11 cm long, 0,3-0,5 mm Ø; clusters *echinate*, globular, 0,6-1,2 cm Ø, of more than 13 flowers.

LUZULA MANNII

On young, volcanic soils; wet places and by streams in grassland and moor; 2700-c. 4000 m alt.

Bioko /Fernando Poo.

Comprises 2 subspp.: – subsp. **mannii**, with straight, rigid peduncles and blackish tepals, in Cameroon, Bioko/Fernando Poo; – subsp. **gracilis** (S. Carter) Kirschner & Cheek [bas.: *L. campestris* (L.) DC. var. *gracilis* S. Carter], with flexuose to arcuate peduncles and pale brown tepals, in Kenya/Uganda border area (Mt Elgon).

SYNONYMS:

Luzula campestris (L.) DC. var. *gracilis* S. Carter = **Luzula mannii** subsp. **gracilis**

var. *mannii* Buchenau = **L. mannii** subsp. **mannii**

var. *mannii* sensu Robyns 1955, quoad specim. Humbert 8598 = **L. abyssinica**

subsp. *mannii* (Buchenau) Weim. = **L. mannii**

macrotricha Steud. = **L. abyssinica**

spicata (L.) DC. var. *erecta* E. Mey. and var. *simensis* Hochst. = **L. abyssinica**

tibestica (Quézel) Zahran ex Romo & Boratyński = **L. atlantica** subsp. **tibestica**

volkensii Buchenau = **L. abyssinica**

(TENAGEIA)

Tenageia vaillantii (Thuill.) Rchb. = **Juncus tenageia** subsp. **tenageia**

PANDANACEAE / *1* g. / *11* native spp.

By Henk Beentje (1) and Martin W. Callmander (2)

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The authors are grateful to Chiara Nepi (Museo di Storia Naturale dell'Università degli Studi di Firenze, Sezione di Botanica), Thomas Haevermans (Museum national d'Histoire naturelle de Paris), Adélaïde Stork and Cyrille Chatelain (Conservatoire et Jardin botaniques de la Ville de Genève) and Tariq Stévart (Missouri Botanical Garden, St. Louis & National Botanic Garden of Belgium) for their support, advice and help in this study. Ben Stone was very helpful to HB when he embarked on East African pandanology in the early 1990s. Financial support to MWC was provided by an EDIT Integration Research Grant.

In the order *Pandanales* the paleotropical family *Pandanaceae* is close to the neotropical *Cyclanthaceae*, based on morphological (Cox & al., 1995) and molecular (Chase & al., 1995) evidence. The family countains c. 700 species assigned to five genera (in decreasing order of species richness): *Pandanus* Parkinson (c. 450 spp.), *Freycinetia* Gaudich. (c. 200 spp.), *Benstonea* Callm. & Buerki (c. 50 spp.), *Martellidendron* (Pic. Serm.) Callm. & Chassot (6 spp.) and *Sararanga* Hemsl. (2 spp.). *Pandanaceae* can be readily recognized by their leaves: coriaceous, M-shaped in transverse section, generally with prickles on margins (except some *Pandanus* cultivars and most *Freycinetia* species where prickles are subtle). They are root climbers *(Freycinetia),* trees and shrubs *(Benstonea, Martellidendron, Pandanus),* trees

PANDANACEAE

(Sararanga) or epiphytes (*Benstonea*). The center of family diversity is in New Guinea where four out of the five genera are present (except *Martellidendron*) with c. 150 sp., many of which are still to be described). In Continental Africa, the specific diversity is small compared to the offshore microcontinent of Madagascar (c. 85 spp. of *Pandanus* and five *Martellidendron* spp.) or the Mascarenes archipelago (25 *Pandanus* spp.): only the genus *Pandanus* occurs, in which we recognize 12 African species. The systematics of this family have puzzled generations of botanists due to the apparent convergence/homology of key morphological characters (especially in its largest genus *Pandanus*). Molecular analysis based on plastid data greatly contributed to infer the evolution of this family and provided evidence of the five lineages currently recognized at generic level (see Buerki & al. 2012; Callmander & al., 2003; Callmander & al., 2012).

Several pandans are economically important throughout the family's distribution range. Species such as *P. conoideus* Lam. (New Guinea) and *P. tectorius* Parkinson (Pacific Islands) are edible and the fruit pulp is an important source of protein for indigenous people. *Pandanus amaryllifolius* Roxb. is widely cultivated from India to South East Asia for the fragrance of its leaves and is used as spice in cooking. In Africa, several species are widely cultivated: *Pandanus utilis* Bory is cultivated in Senegal and Mozambique and its leaves are also used for basketry and thatching. *Pandanus odoratissimus* L. f. is also cultivated (see below). Other Pandanus species are planted and cultivated as garden trees, especially cultivars of *P. tectorius* s.l., e.g. *Walters 2150* (MO) from Libreville, Gabon.

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PANDANUS / *11*

About 450 species in the tropics and subtropics of the Old World. To accommodate the wide morphological variability found within the genus and to simplify identification, an elaborate infra-generic classification system has been developed (see Stone, 1974). Seven subgenera and 81 sections are currently recognized. All but one of the African species belongs to *Pandanus* subg. *Vinsonia*, with the only exception, *P. kirkii*, belonging to *Pandanus* subg. *Pandanus*. The African pandans have generally a clear morphological affinity with Madagascar and the nearby western Indian Ocean Islands (Seychelles, Mascarenes and the Comores). Except *P. kirkii* which belongs to the sea-dispersed species of *Pandanus* sect. *Pandanus* (see Stone, 1973 and under the species), all African species seems to be monophyletic and cluster together in a strictly African clade (see Buerki & al., 2012).

The first African *Pandanus* was published by Palisot de Beauvois in 1804, *P. candelabrum*, on very poor and fragmented material (see Huynh, 1989 and above); several taxa were published piecemeal after. Rendle (1894) was the first to attempt a complete revision of the genus recognizing eight species. In his monograph of *Pandanaceae*, Warburg (1900) included 16 species of which eight were new. When Stone (1973) published the first modern synopsis of the African species of *Pandanus*, he

recognized 17 species native to the continent. Between 1984 and 1997, Huynh described c. 30 new species from Africa leading to c. 50 *Pandanus* species for the continent. With the publication of Pandanaceae for the *Flora of Tropical East Africa* and *Flora Zambesiaca* by Beentje (1993, 2009), the taxonomy of the genus is in good order in these regions. On the contrary, species of Western and Central Africa, which represent three-quarters of those found on the continent, are poorly known: *"The taxonomy of the family is difficult, not least of all African species, because of the wretched state of many specimens"* (Beentje, 1993: 1). This difficulty is mainly linked with the fact that all the systematics of the family is based on (often) fragmentary fruiting and leaf material (especially true for Africa where very few and complete collections are available; for a guide to collecting of Pandans, see Stone in Ann. Missouri Bot. Gard. 70: 137-145, 1983). This exemplifies the impossibility of understanding the variation in one species from a single individual: foliage and fruiting differences between juveniles and adults, the impact of ecological factors or even drying artefacts on herbarium sheets. Furthermore, taxonomists such as Prof. H. St John and Dr. K.-L. Huynh frequently and almost automatically regarded new collections as representing new species. Successive collections from the same population might become types of new species. This narrow species concept frequently led to serious problems and to a very large number of binomials. None of the species described by Huynh from western Africa had been critically reviewed yet and many are therefore here reduced to synonymy in this critical checklist. Several species are imperfectly known and their taxonomic status is not clear. We provide this overview of African pandans to serve as a first attempt to improve our understanding of a poorly known family in Continental Africa, to encourage new and more complete collections (including ecological data, digital pictures, silica-gel DNA samples). This is the only way to increase our knowledge of the African screwpines.

Dioecious trees or shrubs; often with stilt roots or aerial roots from lower stem, and sometimes from the branches. Stem growth conspicuously sympodial (appearing dichotomous). Leaves tristichous, alternate and appearing spiral (through torsion of stem), crowded towards the apex of the branch, simple, medium-sized to large, sessile, sheathing, lanceolate or linear, coriaceous, keeled and often 3-plicate, usually with small prickles on the midrib beneath, on the margins, and rarely on the distal ventral pleats as well. Inflorescences terminal or terminating lateral shoots, enclosed at first by spathaceous and often coloured bracts. Flowers unisexual and small. Pistillate flowers without perianth, with 1 to several ovaries; ovary 1-locular, free or almost joined with adjacent ovaries of the same flower, but always with separate stigmas corresponding to the number of locules; style absent or vestigial; stigma appressed or erect, often V- to kidney-shaped; ovules anatropous, solitary. Fruiting heads [syncarp] globose to oblong, solitary or several in a spiciform arrangement, composed of many fruits joined together but with distinct apices: fruits a drupe or cluster of partly fused drupes; pericarp thin; mesocarp fibrous with spongy pith, fleshy; endocarp fibrous, enclosing the locules in an integral structure. Seeds inseparable from the endocarp; testa membranous; endosperm white, homogenous, with subbasal embryo. Staminate inflorescence, a raceme of spikes, pending; flowers without perianth, rarely vestigial perianth; stamens few to numerous, in umbellate groups, the filaments generally connate in a *stemonophore*, rarely free, the anthers erect and basifix, 2-thecous, opening lengthwise by slits; ovary absent, rarely vestigial.

Key to African taxa

1 Leaves with long flagella/cauda prolonging the apex; fruiting heads usually solitary; carpels/drupes united into phalanges with distinct apices divided by shallow grooves; stamens racemose with a distinct axi .... 2 (subgenus *Pandanus* section *Pandanus*)

– Leaves without or only very short prolongation at apex; fruiting heads solitary or in groups; carpels/drupes free (or if connate with individual heads almost indistinguishable, not separated by grooves); stamens crowded at the apex of a column ..... 3 (subgenus *Vinsonia*)

2 Most marginal leaf prickles less than 5 mm long, greenish or brown-tipped; phalanges with short or no shoulders; seashore in Kenya and Tanzania ..... **P. kirkii**

– Most marginal leaf prickles more than 5 mm long, white; ripe phalanges with distinct fleshy shoulders; cultivated but surviving as an escape in Mozambique, in swamp .... **P. odoratissimus**

3 Sheathing leaf bases with marginal lobes [*P. rabaiensis*] or without [*P. thomensis*]; carpels connate into phalanges with (2-)4-14 apices ..... 4 (sect. *Dauphinensia,* sect. *Vinsonia*)

– Sheathing leaf bases without marginal lobes; carpels free, sometimes with a few 2-3-locular phalanges intermixed..... ..... 5 (sect. *Heterostigma*)

4 Syncarps 2-7, each 7-20 × 5-12 cm; drupes 15-30 mm long; anthers 1.8-2 mm long; East Africa ..... **P. rabaiensis**

– Syncarps solitary, 22 × 15 cm; drupes 75 mm long; anthers 3 mm long; São Tomé ..... **P. thomensis**

5 Adult leaves less than 4 cm wide 6

– Adult leaves over 4 cm wide 8

6 West Africa, West of 3° W and N of 10° N; drupes < 350 per syncarp, 27-45 mm long ..... **P. senegalensis**

– South of 8° S 7

7 West Africa; West of 16° E; drupes per syncarp probably < 350, 15-29 mm long ..... **P. welwitschii**

– East Africa; East of 25° E; drupes per syncarp > 400, 18-34 mm long..... **P. livingstonianus**

8 Syncarps usually several per peduncle..... 9

– Syncarps usually solitary..... 10

9 Drupes per syncarp probably < 350; West and coastal Central Africa..... **P. candelabrum**

– Drupes per syncarp > 300, 20-25 mm long; Kenya..... ..... **P. kajui**

10 Drupes per syncarp probably < 350, 50-53 mm long; coastal Gabon to N Angola..... **P. gossweileri**
Drupes per syncarp > 400, 18-40 mm long; East of 25° E 11

11 Leaves 130-270 × 4-8 cm; syncarp 19-38 × 8-20 cm; East DRCongo to Uganda and Tanzania ..... **P. chiliocarpus**

– Leaves 30-150 × 1.5-5 cm; syncarp 6-15 × 6-10 cm; Zambia to Mozambique ..... **P. livingstonianus**

Pandanus utilis and *P. tectorius*, often cultivated in gardens are omitted from the key.

Pandanus candelabrum P. Beauv.; Fl. Senegal: 187, 1967; Fl. anal. Togo: 683, 1984; Fl. Gabon 28: 17, 1986; Cable & Cheek, Pl. Mt Cameroon: 180, 1998 (sub. nom. *P. satabiei)*; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c52, 2001; Sosef & al., Checklist Gabonese vascular plant: 322, 2006; Lisowski, Fl. de la Répu. Guinée: 442, 2009; Onana, Vascular plants of Cameroun 176-177, 2011; Chatelain & al., Boissiera 64: 244-245, 2011. – Icon: Rendle in J. Bot. 32: Tab. 347, 5-6, 1894; Fl. West Tr. Afr.: 171, 1968; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 865, 2006; Beentje & Bandeira, Field guide of the Mangrove trees of Afr. & Madag.: 42-43, 2007; Piatek & Mossebo in Polish Bot. J. 53: 140, 2008.

Typus. – Nigeria. Fleuve Formose [fleuve Niger], s.d., *Palisot de Beauvois s.n.* (lecto-: G [G00004217]; isolecto-: G [G00340894], P [P00459587]) (lectotypified by Huynh, 1984: 340).

syn.: *Heterostigma heudelotianum* Gaudich.; *Pandanus heudelotianus* (Gaudich.) Balf. f. Typus. – Nigeria. Senegambia in upper Guinea, s.d., *Heudelot 381* (holo-: P [P00459597, P00758114 carpo.]; iso-: FI).

P. abbiwii Huynh. Typus. – Ghana. Pokuase, 15.III.1985, *Abbiw* s.n. (holo-: P [P00836314 carpo.]; iso-: G [G00369739], GC, K [K000781586]).

P. akeassii Huynh. Typus. – Ivory Coast. Tai-Tabou road, between Sakré & Djiroutou near Para, 16.V.1985, *Aké Assi 16847* (holo-: P [P00836312 carpo.]; iso-: G [G00369736], K [K000781587], UCJ).

P. akeassii Huynh var. *limitaneus* Huynh. Typus. – Ivory Coast. Between Tai & Grabo, near Sakré, VII.1975, *Aké Assi* s.n. (holo-: P [P00836311 carpo.]; iso-: G [G00369738], K [K000781808], UCJ).

P. barterianus Rendle. Typus. – Equatorial Guinea [Bioko]. Fernando Po, s.d., *Barter s.n.* (holo-: K [K000781809]).

?P. chevalieri Huynh. Typus. – Guinea. Fouta Djalon, Collengui, III.1905, *Chevalier 13539A-a* (holo-: P [P00459590]).

?P. columellatus Huynh. Typus. – Senegal. Casamance, Samandeniéry, en face de Sedhiou, I.1900, *Chevalier s.n.* (holo-: BR [BR0000008815804]; iso-: BR [BR000000 8815811]; P [P00459591, P00459592]).

?P. crassicollis Huynh. Typus. – Togo. Atakpamé, 26.III.1908, *Von Doering 315* (holo-: B [B100167999]; iso-: B [B100167998).

P. crassilix Huynh. Typus. – Cameroon. Island in Marimba Creek, 1.II.1883, *Krause* 3364 (holo-: B [B100167996]; iso-: FI [FI000960]).

?P. denudatus Huynh. Typus. – Togo. Entre Pangalam et Koumoniadé, 10 km N Sokodé, 26.IV.1978, *Hakki & al. 430* (holo-: B [B100167995]).

?*P. djalonensis* Huynh. Typus. – Guinea. Plateaux ferrugineux du Fouta Djalon, c. 1000-1300 m, IX.1930, *Chevalier s.n.* (holo-: FI [FI000980]).

P. freetownensis Huynh. Typus. – Sierra Leone. Near Freetown, Heddle's farm, s.d., *Lane-Poole* s.n. (holo-: FI [FI000977]).

P. gabonensis Huynh. Typus. – Gabon. Bords Komo, près Mbel, 12.I.1968, *Hallé & Villiers 4332* (holo-: P [P00459593]; iso-: P [P00757838]).

P. parvicentralis Huynh. Typus. – Gabon. Libreville, p.k. 18, 10.III.1969, *I.N.E.F s.n.* (holo-: P [P00459595]).

P. guineabissauensis Huynh. Typus. – Guinea-Bissau. Fulacunda, entre Bolola e Buba, 1.VIII.1945, *Espirito Santo 2156* (holo-: LISC [LISC003422]; iso-: COI).

P. kamerunensis Warb. Typus. – Cameroon. Sine loc., s.d., *Schran s.n.* (holo-: B†; iso-: FI [FI000998]).

P. kerstingii Warb. Typus. – Togo. Basari, 1902, *Kersting 693* (holo-: B [B100176655, B100176656, B100176657]; iso-: FI [FI000996]).

P. lachaisei Huynh. Typus. – Ivory Coast. Bandama River bank near Tiassalé, VIII.1958, *Aké Assi s.n.* (holo-: P [P00836313 carpo.]; iso-: G [G00369737], K [K00078 1805]).

P. latiloculatus Huynh. Typus. – Cameroon. 17 km N Kribi, 8.III.1969, *Bos 4101* (holo-: WAG [WAG0002617, WAG000 2618]; iso-: K [K000781580], M [M0106838], P [P00459596], PRE [PRE07264500], YA [YA0031879]).

P. liberiensis Huynh. Typus. – Liberia. Ganta, 16.II.1936, *Harley* 834 (holo-: K [K000435967]).

P. oblongicapitellatus Huynh. Typus. – Sierra Leone. Sasseni, 1892, *Scott Elliot 4504* (holo-: K [K000697932]; iso-: FI [FI001013]).

?P. parachevalieri Huynh. Typus. – Guinea. Fouta Djalon, Collengui, III.1905, *Chevalier 13539A-c* (holo-: P [P00459588]).

P. problematicus Huynh. Typus. – Sierra Leone. Near Freetown, Heddle's farm, 1914, *Lane-Poole s.n.* (holo-: FI [FI001049, 2 sheets]).

?P. pseudochevalieri Huynh. Typus. – Guinea. Fouta Djalon, Collengui, III.1905, *Chevalier 13539A-b p.p.* (holo-: P [P00459589]).

P. satabiei Huynh. Typus. – Cameroon, 30 km W of Edea along Ndonga stream, 20.XII.1973, *Letouzey 12472* (holo-: YA; iso-: P [P00459594], YA).

P. sierraleonensis Huynh. Typus. – Sierra Leone. N°2 river, 1.III.1965, *Morton 1748* (holo-: K [K000435965]; iso-: K [K000435964, K000781801], WAG [WAG000 2618, WAG0002620, WAG0002621, WAG0002622]).

P. tenuimarginatus Huynh. Typus. – Cameroun. Sine loc, s.d., 1888, *Coll. Illegib.* (holo-: FI [FI001068]).

P. teuszii Warb. Typus. – Gabon. Sine loc., s.d., *Teusz s.n.* (holo-: B†; iso-: FI [FI003584]).

P. tiassaleensis Huynh. Typus. – Ivory Coast. Tiassalé region, Amani-Ménou, 19.III.1985, *Aké Assi* 16813 (holo-: P [P00836320 carpo.]; K [K000781807]).

P. togoensis Warb. Typus. – Togo. Misahöhe, 20.IV.1894, *Baumann 223* (holo-: B [B100168000, B100176654]).

P. triangularis Huynh. Typus. – Sierra Leone. Near Njala, II.1933, *Deighton 2625* (holo-: K [K000781585]; iso- K [K000781812]).

P. umbellatus Martelli. Typus. – Ivory Coast. Sine loc., 1896, *Jolly 32* (holo-: FI [FI003588]).

P. unwinii Martelli. Typus. – Nigeria, S., near Benin, 16.IX.1907 *Unwin s.n.* (holo-: FI [FI001064]).

?P. leonensis Lodd. ex H. Wendl., *nom nud.*; *P. nigeriensis* Huynh, *nom. nud*.

Tuckeya candelabrum (P. Beauv.) Gaudich.

Tree 3-20 m high, branched in upper part and candelabra-shaped; stem to 25 cm in diam.; proroots to 3 m high, 7-8 cm in diam. Leaves (0.7-)1-2.5(-4) m long, (2-)4-6.5(-11.5) cm wide, attenuate or caudate to 5-10 cm; marginal teeth 1.1-5.3 mm long, 2-50 mm apart, antrorse (or retrorse near base), rarely bifurcate. Pistillate inflorescence at anthesis 3.3-8 × 2.4-3.7 cm, all ovaries separate; stigma reniform. Infructescence a compound

PANDANUS CANDELABRUM

spike or a solitary syncarp. Bracts 8-13, 10-112 × 3.5-10 cm. Syncarps (1-)3-6, dark green ripening light yellow, pleasant smell, ovoid, (6-)10.5-31 × (5.5-)7-17 cm, triquetrous, basal ones smaller than terminal, each with 200-300 drupes; peduncle slightly curved, (26-)33-75 × 0.7-2.8 cm; drupes (2.5-)3-5(-7) × 0.8-2.4 × 0.5-1.6 cm, 5-6(-9)-angular, 1-3(-5)-locular; pileus conical, 5-12 mm high, sometimes with spinules below stigma; stigmas 1-3(-5), horizontal to sub-vertical, reniform; endocarp (0.6-)1-2.5 cm long, mesocarp spongy, fibrous. Staminate inflorescence 29-32 cm long, peduncle 1-4 cm, with 9-10 spikes of 14-35 × 2.2-3.5 cm each, strongly scented; bracts to 93 × 4 cm; stamens subumbellate, 6-12 fused in many fasciculate bundles *('stemonophore')* 4-12 mm long; filament 0.6-7 mm, anther 1-2.4 × 0.4-0.5 mm, acuminate and often curved.

River-banks in forest or open, swamps (in water up to 1.2 m deep), mangrove edges, in small groups or solitary; sea level-1300 m.

West Africa (Benin, Cameroon, Equatorial Guinea [incl. Bioko], Gabon, Gambia, Ghana, Guinea, Guinea-Buissau, Liberia, Nigeria, Ivory Coast, Senegal, Sierra Leone, Togo).

The lack of good recent fertile collections from *Pandanus* in western Africa coupled with the very incomplete type material of *P. candelabrum* are both reponsible of the longlasting uncertainty around this species. The choice of Huynh to segregate each collection as a new species based on strict biometry (leaning on collections obviously at different maturation stages and drying artefacts) or on unreliable characters, i.e. place of the center of the seed locule in a drupe (infra/supramedian), is certainly not defendable. We have tried in this critical checklist to take an objective view of the collections in western Africa. It is clear that one species seems to be widespread in the whole region along river-banks, mangroves edges and swamps. It is also possible that more than one species is involved in the « Pandanus candelabrum complex » (see also comments under *P. senegalensis* for the Fouta Djalon Guinean collections). To solve this question, reliable collections are much needed including digital pictures and field observations on the variability of each *Pandanus* population in the region. Some monitoring of *Pandanus* population has been done in Gabon recently showing that this species seems not to be fruiting every year (Stévart, pers. comm.) which will render the task to solve the taxonomy of this species even more laborious. The two species described by Huynh (1986) in the *Flore du Gabon* (*P. gabonensis* and *P. parvicentralis*) agree with normal variation of *P. candelabrum*. However it is likely that more than one species occurs as native to Gabon (Stévart, pers. comm.) and more collections and careful field study are much needed to solve the taxonomy of the widespread and morphologically variable *P. candelabrum*.

P. chiliocarpus Stapf; Robyns & Tournay, Fl. des Spermat. Parc Natl. Albert: 11, 1955; Lovett & al., Field guide moist for. trees Tanzania: 292, 2006; Kalema & Beentje, Conservation checklist of the trees of Uganda: 191, 2012. – Icon.: Eggeling & Dale, Indigenous trees Uganda, ed. 2: 294, 1952; Fl. Trop. E. Afr., Pand.: 6, 3, 1993.

Typus. – Uganda. Toro Distr.: by Nsonge and Dura riv., s.d., *Dawe 523* (holo-: K; iso-: FI).

syn.: *P. hemiacanthus* Peter. Typus. – Tanzania. Buha Distr.: Mkalinzin-Kwa Bikare, s.d., *Peter 38846* (holo-: B†).

P. africanus H. St. John, *nom. nud.*; *P. kasaiensis* H. St. John, *nom. nud.; P. kigomaensis* H. St. John, *nom. nud.*; *P. rotundus* H. St. John, *nom. nud.; P. ugandaensis* H. St. John, *nom. nud. et inval.* in Hamilton, Uganda Forest trees: 76. 1981; *P. welwitschii* sensu Peter, Fl. Deusch Ost-Afrika 1: 111. 1930 [non Rendle 1894].

PANDANUS CHILIOCARPUS

Tree 7-15 m high, stem c. 10-20 cm in diam.; proproots many, to 0.5-1 m high, 5-7 cm across. Leaves (smaller on side branches, larger in terminal tuft) 1.3-2.7 m long, 4-8 cm wide; marginal spines 3-5 mm long, 6-16(-30) mm apart. Syncarps (presumably solitary) 13-38 × 7.5-20 cm, somewhat trigonous, with c. 1800 drupes; peduncle 25-35 cm long with scars of 8 bracts, these to 65 × 3.4 cm; drupes 33-60 × 10-16 × 7-10 mm, 5-6-angular, 1(-2)-locular; pileus sub-conical, 4-6 mm high; stigmas 1(-3), horizontal to sub-vertical, reniform; endocarp 12-15 mm long, mesocarp fibrous. Staminate inflorescence 14-26 cm long, with 4-6 spathes each 7-11 cm long, 1.4-2 cm across ; lower bract 10.5 × 3.1 cm, upper bract 4.5 × 0.6 cm, spiny on midrib and margins; stamens subumbellate with 6-8 stamens per umbel, *stemonophore* (3-)5-8 mm long, filaments (0.6-)1.5-5.3 mm, anthers 1.8-2.8 × 0.7-0.8 mm, base equal to slightly unequal, apiculate.

Swamps and stream-beds in forest, riverine forest, gregarious; 750-1200 m.

Uganda, Tanzania, possibly Democratic Republic of the Congo (specimens resemble *P. chiliocarpus*, e.g. *Robyns* 2245 (K) from Moba, just across Lake Tanganyika, but also *Liben 3721* (BR [BR0000008815941]) from Malungu, *Evrard 4419* (BR [BR0000008897244]) from Central Congo), *Wagemans 180* (BR [BR0000008815996]) from lower Congo near the coast.), possibly also in South Sudan (*Myers 6503,* K; *Schweinfurth 3263,* K).

There are clear relationships with *P. candelabrum* and *P. welwitschii*, especially for the collections from Democratic Republic of the Congo that are associated with *P. chiliocarpus* tentatively.

(**P. gossweileri** Huynh); Figueiredo & Smith, Pl. Angola: 194, 2008.

Typus. – Angola. Cabinda, Buco Zau, 400 m, 1916, *Gossweiler 7174* (holo-: K [K000435960]; iso-: LISJC, LISU).

syn.: *P. bilobatus* Huynh. Typus. – Angola, Cuanza Sul, Ucua (Dembos), 15.IX.1932, *Gossweiler* 9644 (holo-: COI [COI00077127]; iso-: LISC).

Tree to 8-10 m, branched. Leaves to 2 m long, 4.8(-9.5) cm wide in the middle; marginal prickles up to 4.7 mm long and 19-28 mm apart. Syncarp solitary, ovoid, dimensions unknown, number of drupes presumed in low hundreds; drupes 5-5.3 × 0.7-1 × 0.4-0.6 cm; pileus conical, 5-6-angular, 6-12 mm high; stigmas 1-2, reniform, horizontal; endocarp c. 10-18 mm long; mesocarp fibrous. Staminate inflorescence 14 cm long with 8 spikes; lower spikes 8.5-11 × 1.6-2.1 cm, upper 3.2-3.8 × 0.8-1.1 cm; stamens in groups of 4-13 on a *stemonophore* to 5.4 mm long, subumbellate; filaments 2.4 mm; anthers oblong, 1.2-1.6 × 0.4 mm, apex often curved.

Along riverine forests; 0-400 m.

Angola.

Very near to *P. candelabrum* and *P. welwitschii*. A doubtful taxon based on very fragmented material. – Not mapped.

P. kajui Beentje. – Icon.: Fl. Trop. E. Afr., Pand.: 3, 1993.

Typus. – Kenya. Embu Distr.: 25 km E Embu, Ena riv. Bridge, 19.X.1961, *St. John 26589* (holo-: EA [EA000002755, EA000002756]; iso-: B [B100167994], BISH [BISH1011539], BR [BR0000008816078], K [K000435962], L [L0050506], MO, P [P02087140, P00836322 carpo.]).

syn.: *P. embuensis* H. St John, *nom. nud.*; *P. murira* Beentje in Utafiti 1: 96. 1988, *nom. nud.*

Tree 9-15 m high, sparsely branched, stem c. 20 cm in diam.; stilt roots 1-2 m high, to 9 cm across, with sharp conic spines in longitudinal rows. Leaves 0.4-2.3 m long, 3-13 cm wide; marginal teeth 3-5 mm long, 2-13 mm apart. Syncarps (1-)5 together, peduncle not quite pendent, trigonous, 35 cm long. Syncarp broadly ovoid, slightly trigonous, 7-11 × 6-10 cm, with 300-700 drupes; drupes 1(-3)-locular, the lower one 20-25 mm long; pileus pyramidal, 4-7 mm high, 7-16 mm across; stigma reniform-rounded; endocarp c. 10 mm long in young fruit, mesocarp fibrous. Staminate inflorescences with 5-6 spikes, each 4.5-6 × 2-3 cm ; bracts similar to leaves, lowermost 32 × 6 cm, uppermost 4 × 2 cm; stamens in subumbellate groups of 5-6 on a *stemonophore*, filaments 2.5-4 mm long, anthers 2.2-3 × 1 mm.

Riverine fringe; 750-1200 m.

Kenya.

P. kirkii Rendle; Sauer in Ann. Missouri Bot. Gard. 52: 439, 1965. – Icon.: Stone in Ann. Missouri Bot. Gard. 60: 261, 1973; Fl. Trop. E. Afr., Pand.: 5, 1993; Thulin, Fl. Somalia 4: 274, 1995; Lovett & al., Field guide moist for. trees Tanzania: 292, 2006.

Typus. – Tanzania. Mainland opposite Zanzibar, 1867, *Kirk s.n.* (holo-: K [K000435961]).

syn.: *P. heddei* Warb. Typus. – Tanzania. Dar es Salaam, 1900, *Hedde 31* (holo-: B†).

P. usaramensis Martelli. Typus. – Tanzania. Dar es Salaam, 1905, *Stuhlmann s.n.* (holo-: FI [FI000992, FI000993]).

P. platycarpus Warb. Typus. – Tanzania. Sine loc., s.d., *Krauss s.n.* (holo-: B†; iso-: FI [FI001052]).

P. warburgii Martelli. Typus. – East Africa. Sine loc., s.d., *Holz s.n.* (holo-: B†).

P. cuneatus H. St. John, *nom. nud.* [non Huynh 1999]; *P. inframedius* H. St. John, *nom. nud.; P. mkadi* H. St. John, *nom. nud.*; *P. mombasaensis* H. St. John, *nom. nud.*; *P. pembaensis* H. St. John, *nom. nud.*; *P. profundus* H. St. John, *nom. nud.; P. radians* H. St. John, *nom. nud.*; *P. rimosus* H. St. John, *nom. nud.*; *Pandanus sessilis* Bojer, *nom. inval.*; *P. zanzibarensis* H. St. John, *nom. nud.*

Tree, 4-15 m; stilt-roots from lower part of stem, with small sharp spines in longitudinal rows. Leaves 0.9-1.5(-3) m long, 4.7-6.6 cm wide, attenuate into a long flagella at the apex; marginal prickles 1.3-4 mm long, 2-13 mm apart. Syncarp solitary, almost round, 8-18 × 5-16 cm; peduncle 15-40 cm long; drupes 4-6 × (3-)4-5(-6) × (2-)3-4 cm, 4-5-angular, 5-11(-14)-locular, incompletely fused into c. 38 phalanges; pileus composed of 5-11(-14) domes with distinct apices separated by grooves, yellow-brown to orange when ripe; stigma reniform, often sub-vertical; endocarp c. 1 cm cm long, mesocarp fibrous. Staminate inflorescences with 9-12 spikes, to 10 × 2.5 cm; bracts green to cream in color, lowermost 50 × 5 cm, diminishing in size to the uppermost 5 × 2 cm; stamens racemose, each raceme c. 1 cm long, filaments 0.3-1.8 mm long, anthers 2-4.5 × c. 1 mm, apiculate.

Coastal, above the high tide mark on sandy beaches, and on coral near the sea; 0-10 m.

Kenya, Somalia, Tanzania.

This species has the most western distribution of the seashores and oceanic dispersal group of species of *Pandanus* sect. *Pandanus*. *Pandanus kirkii* and its relatives: *P. maximus* Martelli (Grande Comore) and *P. balfourii* Martelli (Seychelles), which may be synonymous (see Stone, 1973), are replaced by *P. odoratissums* L. f. from India to Borneo and the Philippines and further East by *P. tectorius* Parkinson in the remaining part of Melanesia to the Pacific Islands (incl. Hawaii) (see maps in Stone, *Compt. Rend. Soc. Biogéogr. Séance* 458, 1975: 80). A collection of a staminate plant in Nosy Be (small island in the northwestern coast of Madagascar), *Bernardi 11895* (G) has been determined by Stone as *P. kirkii*. This collection is from near the ex-ORSTOM center and may likely be a cultivated tree of either *P. kirkii* or *P. odoratissimus*.

P. livingstonianus Rendle; Gomes e Sousa, Dendrol. Moçamb.: 177-178, 1966. –Icon.: Huynh in Bot. Helvetica 107: 92, 1997; Coates Palgrave, Trees of Southern Afr., 3rd ed.: 96, 2002 (map); Beentje & Bandeira, Field Guide to the mangrove trees of Afr. & Madag.: 81, 2006; Fl. Zambesiaca 12/2: 150, 2009.

Typus. – Mozambique. Luabo, Zambesi, XII.1859, *Kirk s.n.* (holo-: K [KEBC00000056]; iso-: FI [FI001033]).

syn.: *P. gasicus* Huynh. Typus. – Mozambique. Gaza, Macia, Tuane, Rio Uagunumbo, 10.III.1970, *Balsinhas 1620* (holo-: LMU).

P. globulatus Huynh. Typus. – Mozambique. Zambézia, Pebane, c. 43 km, estrada para Mualama, c. 30 m, 15.I.1968, *Torre & Correia 17139* (holo-: LISC [LISC003403]).

P. mosambicus Huynh. Typus. – Mozambique. Manica, Mts Chimanimani, E side of Musapa gap, 31.I.1962, *St. John 26630* (holo-: BISH; iso-: A, BR [BR0000008815972], EA [EA000002765], K [K000435959, K000781833], LISC [LISC003404], LMA, US [US0057329]).

P. petersii Warb. Typus. – Mozambique. *Peters s.n.* (holo-: K [KEBC00000056]; iso-: FI [FI001032]).

P. serrimarginalis Huynh. Typus. – Mozambique. Gaza, Macia, praia de S. Matinho do Bilene, 14.XII.1961, *Lemos & Balsinhas 309* (holo-: LMA [2 sheets]; iso-: BISH).

P. trilateralis Huynh, *nom. nud.*

Tree 3-20 m high, solitary or clumped; crown narrowly pyramidal or columnar in the open to more ovoid underneath other trees, with a terminal tuft of large leaves on the stem, and lateral branches ending in tufts of smaller leaves. Stem 10-25 cm in diameter; stilt-roots to 3 m high. Leaves 0.3-1.1 m long, 1.5-3 cm wide, on young vigorous trees 0.5-1.5 m long and 2.5-5 cm wide, rigid; prickles on leaf margin 0.6-3.3 mm long. head at anthesis 4.3-6 cm long, 2-4.5 cm across, erect, the ovaries all separate; styles reniform. Syncarp solitary, ovoid with pointed apex, (6-)11-15 cm long, 6-10 cm wide, with 450-600 drupes. Peduncle 16-31 cm long; bracts to 36(-57) × 3 cm; drupes 18-34 × 5-12 × 5-18 mm, (4-)5-6-angled, 1(-3)-locular; pileus 2.5-5 mm long, 5-18 mm across, slightly raised; stigma 1(-3), reniform to horseshoe-shaped; endocarp 7-11 mm long, mesocarp fibrous. Staminate flowers in densely branched spiciform inflorescences; peduncle ± 12 cm long; axis of inflorescence 10-30 cm long with 6-10 branches, each subtended by conspicuous large off-white or cream bracts to 31(-89) × 5 cm; inflorescence branches cylindrical, 3-17 × 1-3 cm, densely packed with many flattened

PANDANUS LIVINGSTONIANUS

stemonophores 2-7.5(-11) mm long, each bearing at its apex (2-)4-7(-11) stamens; filaments (0.6-)1.1-3.7 mm long, slightly flattened; anthers 1-2.8 mm long, ellipsoid, apex rounded with a small apiculum, creamy white.

Along river-banks, in freshwater swamps, often gregarious; 0-1200 m.

Democratic Republic of the Congo, Mozambique, Zambia.

Gomes e Sousa (1966) says that the species is fast diminishing in numbers, as river-banks are being cleared.

[**P. odoratissimus** L. f.]; St. John in Taxon 12: 201-204, 1963; Stone in Gard. Bull. Singapore 22: 231-257, 1967. – Icon.: Stone in Nat. Hist. Bull. Siam Soc. 24: 14, 1971; Stone in Fl. Camb. Laos Vietnam 20: 22, 1983.

Typus. – Sri Lanka. Sine loc., 1777/78, *Thunberg s.n.* (holo-: LINN).

Tree to 10 m, erect or rarely decumbent, with candelabra-like branching, or less often a much-branched clump-forming shrub 3-4.5 m; stem to 20 cm in diam. Leaves linear, subcoriaceous, (7-)10-48 × 3.5-11 cm, olive green and slightly glaucous above, paler green below; margins whitish or pale green and with (occasionally red-brown tipped) white prickles 3–6(–10) mm long and 7-45 mm apart, smaller and less spaced higher up; midrib with reflexed prickles 3–6 mm long and 4-45 mm apart. Pistillate inflorescence with terminal arching to pendulous solitary syncarp; peduncle 9-40 × 0.8-2 cm, 3-sided, the lower bracts leaf-like, the upper bracts yellowish-white and gradually shorter, the uppermost bracts linear-lanceolate. Syncarp ellipsoid or globose, (9-)15-23(-30) × (9-)12-20 cm, composed of many (26-143) phalanges; phalanges free but tightly crowded, orange-red to red, soft and fleshy when ripe, oblong-ellipsoid or obovoid, 30-80 × 22-45 mm, composed of 4-10 fused carpels or fewer near cephalium apex or more at cephalium base; each carpel ending in a U- or V-shaped stigma 2-4 × 2-4 mm, these arranged concentrically on the rather flattened or low-pyramidal phalange apex, sometimes greenish; phalange sides ± smooth; abrupt fleshy dark red 'shoulders' 3-6 mm wide of the mature phalanges are typical, but do not last upon drying, as both colour and structure disappear, endocarp 15-30 mm long, bony, walls 1.5-4 mm thick; seeds ellipsoid, 8–18 × 3.5–5 mm; basal mesocarp fibrous and fleshy, extensive. Staminate inflorescence terminal arcuate and pendent, creamy white, a 30-60 cm long raceme of spikes (usually 5, 7, 9 or 11); peduncle fleshy and soon desintegrating, the creamy white bracts similar to those on the pistillate inflorescence, lowest floral bract 48 × 2.2 cm, at base with marginal prickles, at apex long-subulate, the median bract 19 × 2.6 cm, unarmed except near apex; spikes dense, cylindric, 2.5-4(-7.5) × 1.5-2 cm, with many staminate flowers; each spike of a fleshy central axis with *stemonophore* 13 mm long each bearing 19-24 stamens; stamens with filament 0.5–2 mm long, anthers 2-3.6 × 0.5-0.9 mm, of which the apiculus 0.3-0.7 mm, often contorted when dry. Inflorescence decaying quickly after maturing.

Occurs naturally on the indo-malesian coasts from Sri Lanka to Micronesia and the Philippines but also at low altitude along streams and marshes.

Cultivated on Pemba (*St. John 26611*, EAH, K) and in Mozambique for the fragrant staminate inflorescences (also persists as semi-wild in a swamp in this country).

Pandanus odoratissimus belongs to a group of sea-dispersed species of *Pandanus* sect. *Pandanus*. This group includes *P. kirkii* (naturally occurring on the East coasts of Africa, see above), *P. maximus*

PANDANUS ODORATISSIMUS

Martelli (Grande Comore), *P. balfourii* Martelli (granitic Seychelles Islands) and *P. tectorius* (replacing *P. odoratissums* further East from eastern Borneo to the South Pacific Islands) (Stone, 1974). It can be distingued from the native African *P. kirkii* by its much longer and very white margin prickles and by its ripe fruit with strongly developed shoulders (see Stone, 1967).

P. rabaiensis Rendle; Fl. Mascareignes, Pand. 190: 13, 2003. – Icon.: Stone in Ann. Missouri Bot. Gard. 60: 267, 1973; Lounibos in Cah. ORSTOM., sér. Ent. méd. et Parasitol., 17: 27, 1979; Fl. Trop. E. Afr., Pand.: 3, 1993; Lovett & al., Field guide moist for. trees Tanzania: 292, 2006.

Typus. – Kenya. Kilifi Distr.: Rabai Hills, I.1886, *Taylor s.n.* (holo-: BM [BM000922194] pro parte [Pistillate only]).

syn.: *P. engleri* Warb. Typus. – Tanzania. Lushoto Distr.: below Sakare, s.d., *Engler 981* (holo-: B [B100167990]).

P. goetzei Warb. Typus. – Tanzania. Iringa Distr.: Lofia river, 6.I.1899, *Goetze 437* (holo-: B [B100167991, B100167992]; iso-: FI [FI003587]).

P. hahnii Warb. Typus. – Martinique. In cultivation, from "East African Islands" (?), *Hahn s.n.* (holo-: B†; iso-: FI [icono.]).

P. stuhlmannii Warb. Typus. – Tanzania. Uzaramo Distr.: Dar es Salaam, 7.I.1894, *Stuhlmann 6072* (holo-: B [B100167989]; iso-: FI [FI003586]).

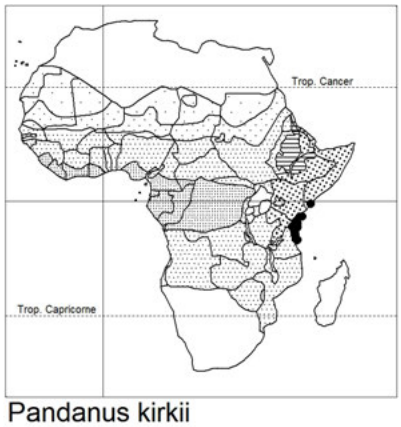
P. bicarpelatus H. St. John, *nom. nud.*; *P. cidaris* H. St. John, *nom. nud.; P. diminuens* H. St. John, *nom. nud.*; *P. mafiaensis* H. St. John, *nom. nud.; P. makuti* H. St. John, *nom. nud.; P. petraeus* H. St. John, *nom. nud.; P. usambaraensis* H. St. John, *nom. nud.; P. kambicalcicola* H. St. John, *nom. nud.*

Tree 3-20 m tall, to 25 cm in diam., with sharp conic spines 2-7 mm; stilt roots to 2 m high in swampy sites, much less on solid ground. Leaves 1.2-4 m long, (1.3-)5-16 cm wide; marginal prickles 2-5 mm long, 5-13(-33) mm apart. Infrutescence not quite pendent, plurisyncarpic with 2-7 heads. Syncarp red, 7-20 × 5-12.5 cm, ellipsoid; peduncle to 75 × 2.5 cm; drupes 15-30 × 22-28 × 15-23 mm, (2-)4-6-locular; pileus 5-20 mm high, 15-35 mm across; stigmas 4-6, reniform; endocarp 16-19 mm high, mesocarp (slightly) spongy and fibrous. Staminate inflorescences white, 12-30 cm long; individual spadices 5-6 in number, to 14 × c. 3.5 cm; lowermost bracts whitish, the proximal to 67 × 5.5 cm, the distal 11 × 1.7 cm; stamens subumbellate, often with two tiers of umbels. *Stemonophore* 5-10.5 mm long, each bearing 5-8 stamens; filaments 0.5-1 mm; anthers linear, 1.8-2 mm long, rounded at apex, spirally contorted after anthesis.

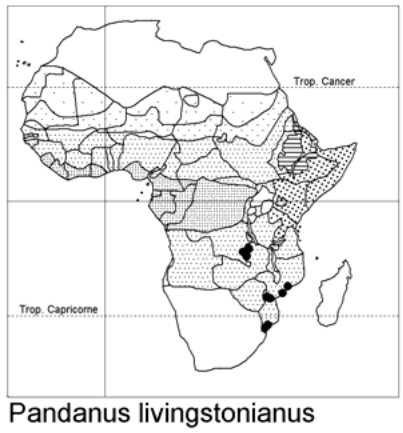
On the coast in swampy sites and on limestone, on white sand with giant heath, more inland in riverine forest or along streams in evergreen forest; 0-1400 m.

Kenya, Tanzania; not known elsewhere.

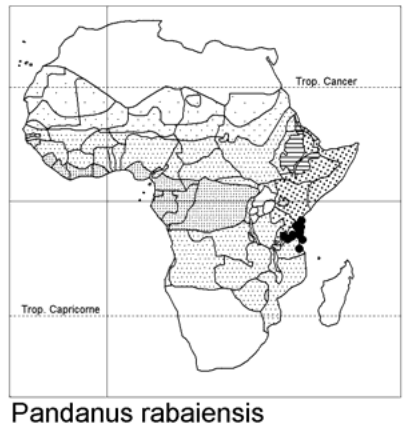
Pandanus rabaiensis is the only known taxon of *Pandanus* sect. *Dauphinensia* H. St. John occurring outside Madagascar (see Callmander & Laivao, 2002a).



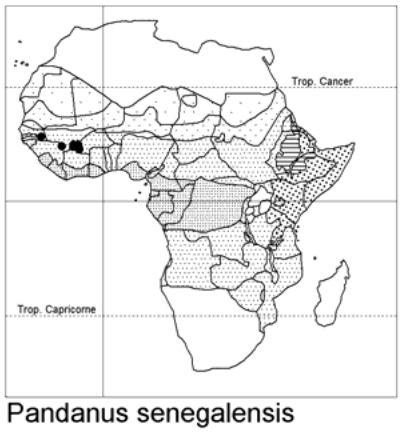
Pandanus kirkii



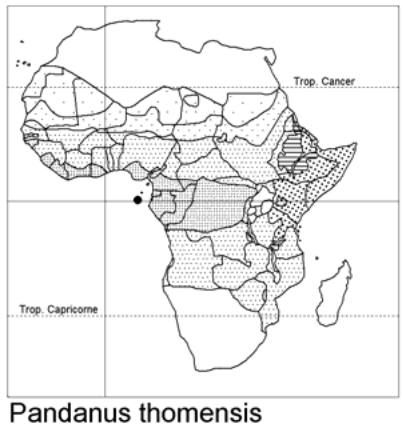
Pandanus livingstonianus



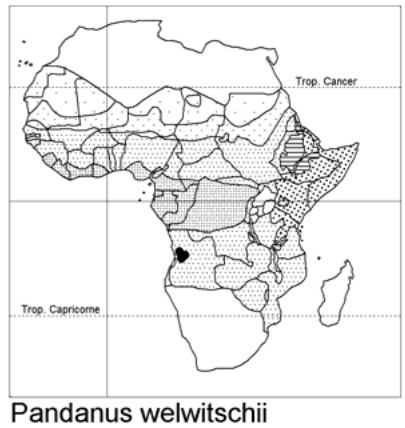
Pandanus rabaiensis



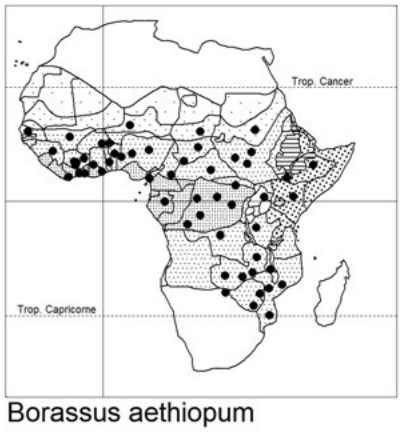
Pandanus senegalensis



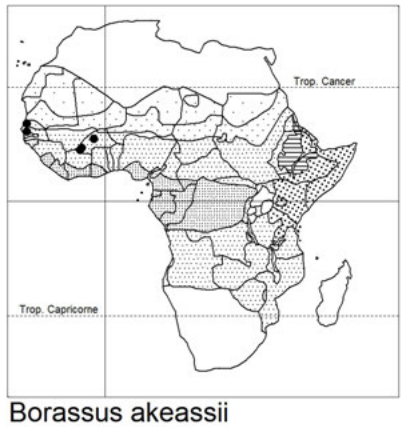
Pandanus thomensis



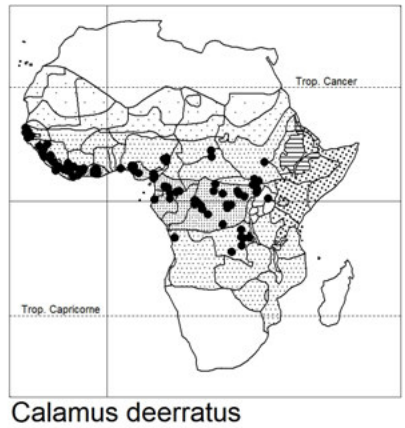
Pandanus welwitschii



Borassus aethiopum



Borassus akeassii



Calamus deerratus

PANDANUS

P. senegalensis Huynh. – Icon.: Huynh in Candollea 42: 137, 138, 1987.

Typus. – Senegal. Banharé, piste de Niokolo-Koba, 2 km au N du carrefour Poko, 28.XII.1960, *Raynal & Raynal 6966* (holo-: P [P00459602, P00836274 carpo.]; iso-: P [P00459603]).

syn.: *Pandanus brevifrugalis* Huynh. Typus. – Burkina Faso. Banfora, Comoe falls, 27.V.1955, *ABI 2995* (holo-: ABI).

P. cissei Huynh. Typus. – Mali. Près du point de croisement entre la route Sikasso-Finkolo-Koloko et la riv. Farako, 12.I.1989, *Malgras et al. 13* (holo-: P [P00836318 carpo.]; iso-: G [G00369732]).

P. echinops Huynh. Typus. – Mali. Point de croisement entre la route Sikasso-Finkolo-Farako et la riv. Farako de Mendéla, 11.V.1988, *Malgras et al. 16* (holo-: P [P0083 6319 carpo.]; iso-: G [G00369733]).

P. farakoensis Huynh. Typus. – Mali. Près du point de croisement entre la route Sikasso-Finkolo-Farako et la riv. Farako de Mendéla, 8.VI.1988, *Malgras et al. 22* (holo-: P [P00836315 carpo.]; iso-: G [G00369735]).

P. laferrerei Huynh. Typus. – Mali. Farako, région de Sikasso, near Ngolokounadougou, 10.III.1968, *Laferrère 29* (holo-: K [K000781816 carpo.]; iso-: K [K000 435966]).

P. malgrasii Huynh. Typus. – Mali. Finkolo, 22.I.1988, *Malgras 1* (holo-: P [P00836321 carpo.]; K [K00078 1806]).

P. muralis Huynh. Typus. – Mali. Ngolokounadougou, 11°12’32’’N 5°26’10’’W, 13.IV.1989, *Malgras et al. 41 (lég. Cissé)* (holo-: P [P00836317 carpo.]; iso-: G [G003 69731]).

P. raynalii Huynh. Typus. – Mali. Ngolokounadougou, forêt classée du Farako, chutes Farako, 14.XII.1978, *Raynal 21010* (holo-: P [P00459600]).

P. sikassoensis Huynh. Typus. – Mali. Près du point de croisement entre la route Sikasso-Finkolo-Koloko et la riv. Farako, 11.V.1988, *Malgras et al. 14* (holo-: P [P0083 6316 carpo.]; iso-: G [G00369730]).

P. malensis Huynh, *nom. nud*.

Tree 2-6 m tall. Leaves 0.8-1.3 m long, 2.5-4 cm wide; marginal prickles 0.5-5 mm long, 5-28 mm apart. Syncarp solitary (sometimes plurisyncarpic), pendulous at maturity, slightly ovoid to oblong-ovoid, 8.5-14(-18) cm long, 6.5-12 cm wide, with number of drupes in low hundreds (< 400); peduncle 20-27 cm long, 0.7-1 cm thick at apex; bracts foliaceous, to 38 × 2.5 cm; drupes 2.7-4.5 × 0.5-2(-3.3) × 0.5-1.2(-1.6) cm, 5-6-angular, 1(-3-9)-locular; pileus 2-6 mm long, somewhat flat to broadly pyramidal; stigma 1(-3), reniform; endocarp 0.7-2 cm long, mesocarp fibrous. Staminate inflorescence unknown.

Gallery forest, waterfalls; 100-500 m.

Burkina Faso, Mali, Senegal.

Huynh (1988) described *P. raynalii* stating it was close to *P. senegalensis*; the differences were held to be in the length of the germinating tube, the siting of the apex of the mesocarp, and the shape of the upper endocarp (attenuate rather than thick). We believe that these two taxa are the same, as the characters of leaves, syncarp, drupes, endocarp and mesocarp are all very similar. Another species, *P. brevifrugalis*, described by Huynh (1988) also falls into this taxon, with its typical short and flat pileus. The Fouta Djalon Guinean collections from *Chevalier* (types of *P. chevalieri, P. djalonensis, P. parachevalieri* and *P. pseudochevalieri*) are close to *P. senegalensis* and may be better placed here. More collections are needed to understand the taxonomy of this species.

PANDANUS SENEGALENSIS

Huynh (1988, 1995, 1996) placed several species that we have placed in synonymy with *P. senegalensis* under *Pandanus* sect. *Souleyetia*; except for *P. muralis* which he placed in a newly described section: *Pandanus* sect. *Pseudophalanx* (Huynh 1995: 38). *Pandanus* sect. *Souleyetia* is endemic to Madagascar and Mauritius, and *P. senegalensis* and its synonyms should be placed in sect. *Heterostigma*. *Pandanus* sect. *Pseudophalanx* is clearly a synonym of *Pandanus* sect. *Heterostigma*. The incompletely fused carpel character mentioned by Huynh to describe sect. *Pseudophalanx* is obviously a drying artefact.

P. thomensis Henriq.; Stone in Ann. Missouri Bot. Gard. 60: 270, 1973; Figueiredo & al. in Bothalia 41: 66, 2011. – Icon.: Henriques in Bol. Soc. Brot. 5: 206, 1887.

Lectotypus (here designated). – São Tomé. Rodia, regione inferiore, c. 500 m, XII. 1885, *Quintas 113* (lecto.-: COI [COI000 05915, excluding staminate flowers]; iso-: B [B10016 7988]; FI [FI003589], K [K000527234]). Paralectotypus. – Sao Thomé. Ins. Rolas, c. 500 m, V.1885, *Moller s.n.* (paralecto-: COI [COI00 005915, staminate flower; isoparalecto-: FI [FI003590]).

Tree 8-15 m tall, branched. Leaves 1.6 m long, 9 cm wide in mid-leaf; marginal teeth dense, retrorse. Syncarp solitary, terminal, erect at first, then pendulous on long peduncle, ovoid, 22 × 15 cm; bract 5 × 4 cm; drupes obconic, rather convex above, 7.5-8.4 × 3.7-5.6 × 3-3.8 cm, 10-14-locular; pileus sulcate and tuberculate; stigmas sessile, rather thick, irregularly radiating; mesocarp spongy and fibrous above. Staminate inflorescences terminal leafy spicate panicle; spathes increasing in size upwards, keeled, with sparse teeth on midrib, rather shorter than spadix branches; rachis fleshy, compressed; stamens irregularly umbellate on stalk 6 × 1 mm; filaments thick, conical, ± connate; anthers 3 mm long, shortly apiculate.

Presumably in streamside forest ; about 500 m.

São Tomé.

Henriques (1887: 207) cited two collections as types: *Quintas s.n. [Quintas 113]* and *Moller s.n.*). There is confusion about which of these two collections represents a pistillate and a staminate plant; both were collected in 1885. Henriques specifically noted that the plant fructified in December which is the *Quintas* collection, and the later is here designated as the lectotype. The collection in B is considered as an isolectotype even if it is annoted «leg. Moller».

P. welwitschii Rendle; Stone in Ann. Missouri Bot. Gard. 60: 271, 1973; Figueiredo & Smith, Pl. Angola: 194, 2008; Fl. Zambesiaca 12/2: 152, 2009.

Typus. – Angola. Pungo Andongo, Candumba, Ilha Calemba, Condo, III.1857, *Welwitsch 5770* (holo-: BM [BM000922195, BM000922196]; iso-: FI [FI003583]).

syn.: *P. angolensis* Huynh. Typus. – Angola. Distr. Cuanza Sul: près de Lussusso, 75 km de Donodo vers Quibala, 200 m, 20.III. 1974, *Dechamps, Murta & Silva 1585* (holo-: LISC [LISC003402]; iso-: BR [BR0000008815903]).

P. angolensis fo. *cacondensis* Huynh. Typus. – Angola. Distr. Cuanza Sul: près de la ville de Caconda, Benguela, 1907, *Gossweiler s. n.* (holo-: LISC [LISC003402]; iso-: BR [BR0000008815903], FI [FI000976]).

Tree 3-6 m tall, stem c. 30 cm in diam.; lower branches with smaller leaves, apical tufts of leaves very large. Leaves 1.2-1.5 m long and 3.7-4 cm wide; marginal prickles 1.1-5.3 mm long, 10-25 mm apart, retrorse and antrorse. Syncarp solitary, ovoid, 15 × 7.5 cm, number of drupes unknown; drupes 1.5-2.9 × 0.5-1 × 0.5-0.8 cm, 5-6-angular, 1(-2)-locular; pileus 4-5.7 mm long,

broadly pyramidal or table-shaped; stigma reniform; endocarp 12-13 mm long, mesocarp fibrous. Staminate inflorescence unknown.

Streamsides, in water; 200-1700 m.

Angola.

Possibly the same as *P. livingstonianus* (and published at the same time, see Beentje, 2009). The protologue specifically states the tree lacks stilt roots (which are always present in *P. livingstonianus*, as well as in all other African pandans).

DOUBTFUL SPECIES:

Pandanus butayei De Wild. Syntypus. – Democratic Republic of the Congo. Sine loc., s.d., *Gillet 2247.* (holo-: BR [BR0000008815828]). – Congo. N'Lenfu s.d., *Butaye s.n.* (holo-: BR [BR0000008815835, BR0000008815842, BR0000008815859]).

This species was considered as *nom. subnudum* by Stone (1973: 272). The two syntypes at BR represent only leaves and very old drupes. The description is very succinct and not helpful. It is probably related to *Pandanus chiliocarpus*.

Pandanus insolitus Huynh. Typus. – Democratic Republic of the Congo. Sine loc., s.d., *Agesmit s.n.* (holo-: FI [FI001000]).

This species is only known by old separate drupes. It is obviously not a species originating from Africa. Looking at the morphology of the drupes, this collection is probably associated with SE Asia and either represent a cultivated species or a label error. We would be inclined to assume the latter option because no species with this kind of morphology has been recorded in Africa.

SYNONYMS:

Heterostigma heudelotianum Gaud. = **Pandanus candelabrum**

Pandanus abbiwii Huynh = **Pandanus candelabrum**

akeassii Huynh = **P. candelabrum**

akeassii var. *limitaneus* Huynh = **P. candelabrum**

angolensis Huynh = **P. welwitschii**

angolensis fa. *cacondensis* Huynh = **P. welwitschii**

barterianus Rendle = **P. candelabrum**

bicarpelatus H. St. John, *nom. nud.* = **P. rabaiensis**

bilobatus Huynh = **P. welwitschii**

brevifrugalis Huynh = **P. senegalensis**

butayei De Wildeman = **see doubtful species**

chevalieri Huynh = **P. candelabrum**

cidaris H. St. John, *nom. nud.* = **P. rabaiensis**

columellatus Huynh = **P. candelabrum**

crassilix Huynh = **P. senegalensis**

diminuens H. St. John, *nom. nud.* = **P. rabaiensis**

djalonensis Huynh = **P. candelabrum**

echinops Huynh = **P. senegalensis**

embuensis H. St. John, *nom. nud.* = **P. kajui**

engleri Warb. = **P. rabaiensis**

freetownensis Huynh = **P. candelabrun**

gasicus Huynh = **P. livingstonianus**

globulatus Huynh = **P. livingstonianus**

goetzei Warb. = **P. rabaiensis**

gossweileri Huynh = **P. welwitschii**

guineabissauensis Huynh = **P. candelabrum**

hahnii Warb. = **P. rabaiensis**

heddei Warb. = **P. kirkii**

hemiacanthus Peter = **P. chiliocarpus**

heudelotianus (Gaud.) Balf. f. = **P. candelabrum**

insolitus Huynh = **see doubtful species**

kambicalcicola H. St. John, *nom. nud.* = **P. rabaiensis**

kamerunensis Warb. = **P. candelabrum**

kigomaensis H. St. John, *nom. nud.* = **P. chiliocarpus**

kerstingii Warb. = **P. candelabrum**

lachaisei Huynh = **P. candelabrum**

laferrerei Huynh = **P. candelabrum**

latiloculatus Huynh = **P. candelabrum**

leonensis Wendl., *nom. nud.* = **P. candelabrum**

liberiensis Huynh = **P. candelabrum**

mafiaensis H. St. John, *nom. nud.* = **P. rabaiensis**

makuti H. St. John, *nom. nud.* = **P. rabaiensis**

malensis Huynh *nom. nud.* = **P. senegalensis**

malgrasii Huynh = **P. senegalensis**

mosambicus Huynh = **P. livingstonianus**

muralis Huynh = **P. senegalensis**

murira Beentje, *nom. nud.* = **P. kajui**

nigeriensis Huynh, *nom. nud.* = **P. candelabrum**

oblongicapitellatus Huynh = **P. candelabrum**

parachevalieri Huynh = **P. candelabrum**

pembaensis H. St. John, *nom. nud.* = **P. kirkii**

parvicentralis Huynh = **P. candelabrum**

petersii Warb. = **P. livingstonianus**

profundus H. St. John, *nom. nud.* = **P. kirkii**

problematicus Huynh = **P. candelabrum**

pseudochevalieri Huynh = **P. candelabrum**

petraeus H. St. John, *nom. nud.* = **P. rabaiensis**

radians H. St. John, *nom. nud.* = **P. kirkii**

raynalii Huynh = **P. senegalensis**

rotundus H. St. John, *nom. nud.* = **P. chiliocarpus**

satabiei Huynh = **P. candelabrum**

serrimarginalis Huynh = **P. livingstonianus**

sessilis Bojer, *nom. nud.* = **P. kirkii**

sierraleonensis Huynh = **P. candelabrum**

stuhlmannii Warb. = **P. rabaiensis**

tenuimarginatus Huynh = **P. candelabrum**

teuszii Warb. = **P. candelabrum**

tiassaleensis Huynh = **P. senegalensis**

togoensis Warb. = **P. candelabrum**

triangularis Huynh = **P. candelabrum**

ugandaensis H. St. John, *nom. nud. et inval.* = **P. chiliocarpus**

usambaraensis H. St. John, *nom. nud.* = **P. rabaiensis**

umbellatus Martelli = **P. candelabrum**

unwinii Martelli = **P. candelabrum**

usaramensis Martelli = **P. kirkii**

warburgii Martelli = **P. kirkii**

Tuckeya candelabrum (P. Beauv.) Gaud. = **Pandanus candelabrum**

PALMAE (ARECACEAE) / *15* g. / *63* spp.

F. W. Stauffer (1), D. Ouattara (2) & A. L. Stork (1)

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(2) Nangui Abrogoua University of Abidjan, Côte d'Ivoire

The palm family is composed of about 185 genera and 2485 species (Dransfield & al., 2008), mainly distributed in tropical regions, fewer in subtropical and temperate regions. The African palm flora (excluding Madagascar) is low in terms of both number of genera and species when compared with other parts of the tropics (Dransfield, 1988). Continental Africa is represented by 17 genera and 65 species of palms; in tropical regions of the continent the family is represented by 15 genera and 63 species. The monotypic genera *Chamaerops* and *Jubaeopsis* are not considered in the current treatment as they are regarded as not naturally distributed in tropical regions of the continent.

The African palm fossil record is limited but available data provide an outline of palm evolution from the Late Cretaceous through the Neogene, the earliest unequivocal record for the continent attributed to the Campanian, between 83.5 and 70.6 Mya (Pan & al., 2006). Palms are conspicuous components of several vegetation types in Africa and are of great economic significance both to subsistence cultures and to highly organized commercial agriculture (Dransfield, 1988).

Some African palm genera (e.g. *Hyphaene, Raphia*) are still incompletely known or heavily undercollected in a proper way. A large amount of the available herbarium specimens are fragmentary and hence almost uninformative for taxonomic identification. An important effort of collection is needed for an accurate taxonomic recognition at the specific level.

The family was studied at a continental scale by Tuley (1995) and several treatments have been proposed in the frame of floristic inventories at regional or country level (e.g. Dransfield, 1986, 2010; Chapman & Chapman, 2001; Aké Assi, 2002; Harris, 2002; Aké Assi & al., 2006; Hawthorn & Jongkind, 2006; Sosef & al., 2006; Baker, 2008; Lisowski, 2009; Lejoy & al., 2010; Couvreur & al., 2013).

Palms are among the most economically important plants for African populations. The relatively low number of species present in the continent is in contrast with the extremely high diversity of uses proposed. For many taxa (e.g. *Borassus*, *Elaeis*, *Hyphaene*, *Laccosperma*, *Raphia*) almost all organs present a wide range of uses and this has been documented in several excellent publications (e.g. Burkill, 1997; Diniz & Martins, 2002; Sunderland, 2003; Latham & Konda, 2007).

The present contribution should merely be regarded as a thorough compilation of available data on African palms (see list below), to which we have added new data resulting from our current taxonomic and floristic studies in West African countries. The synonymy proposed is mostly based on Govaerts & Dransfield (2005) and Sunderland (2012).

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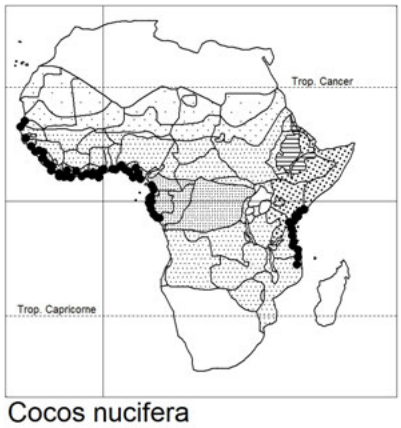
BORASSUS / *2*

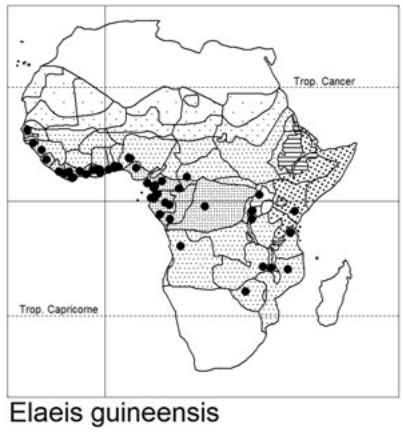
The genus *Borassus* (5 spp.) is one of the most widespread genera in the palm family. The genus is pleonanthic, dioecious and contains species with massive, solitary, frequently ventricose stems, and costapalmate leaves. The inflorescences are strongly dimorphic and bear unisexual flowers; the fruits are normally quite large.

Borassus is widely distributed in tropical Africa, Madagascar, north-eastern Arabia, through India and Southeast Asia to New Guinea (Bayton, 2007; Dransfield & al., 2008); its natural presence in Australia is still subject of controversy. These palms commonly grow in sandy lowlands, and open secondary forests or savannahs. African populations are often found in large gregarious groups (Tuley, 1995).

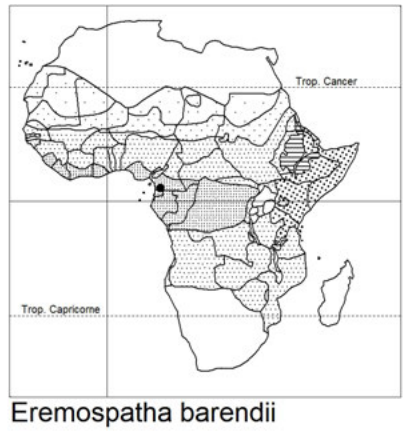
Many species are of important commercial value in different countries throughout their range of distribution. Although almost all parts of these palms are useful, the sweet sap tapped from the stem or the inflorescences remains the most important product obtained from the palm. The latter is transformed in syrup, sugar or by fermentation converted into alcohol (Mollet, 1999).



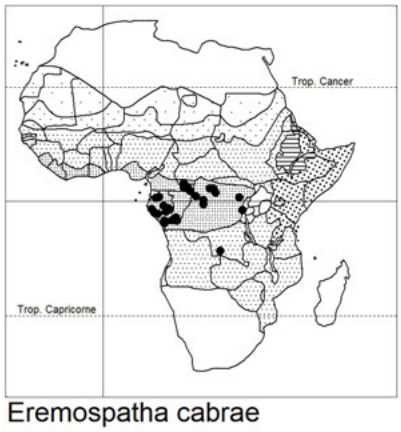
Cocos nucifera



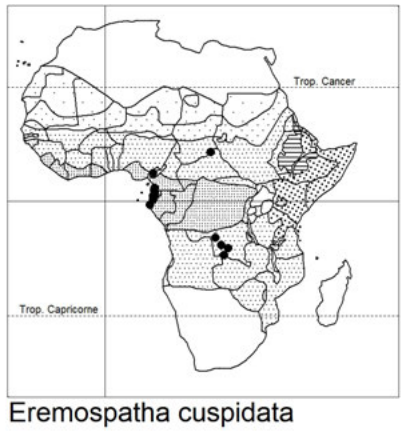
Elaeis guineensis



Eremospatha barendii



Eremospatha cabrae



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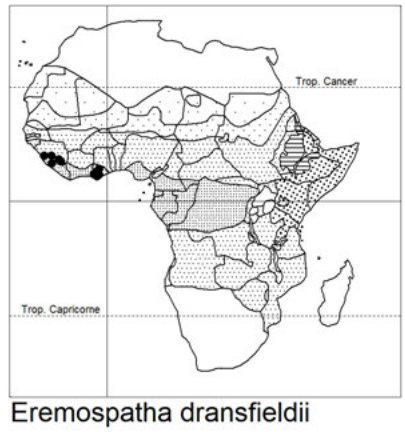
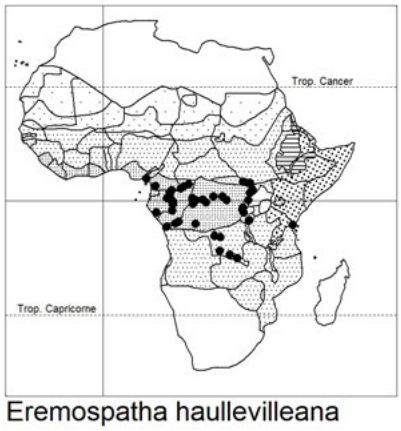
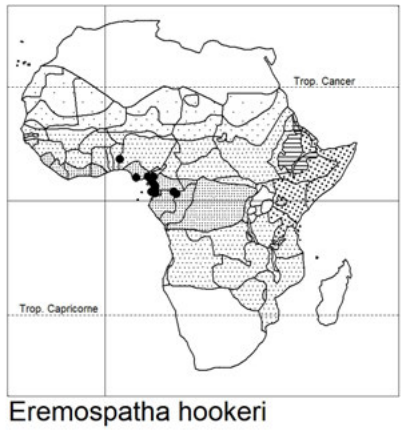


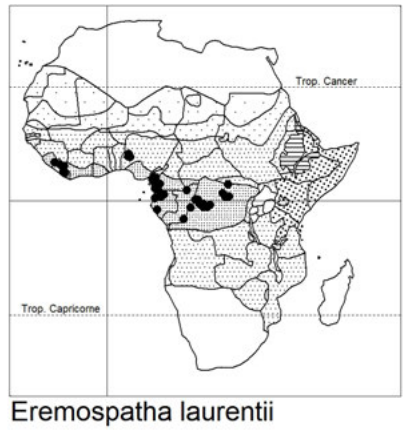
Eremospatha dransfieldii



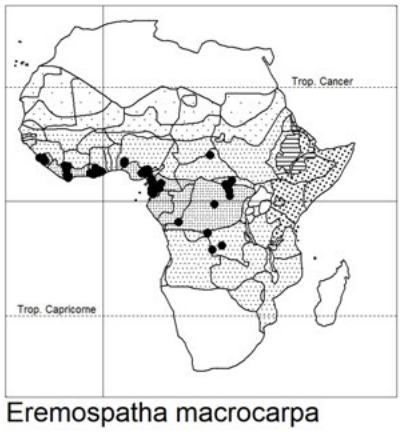
Eremospatha haullevilleana



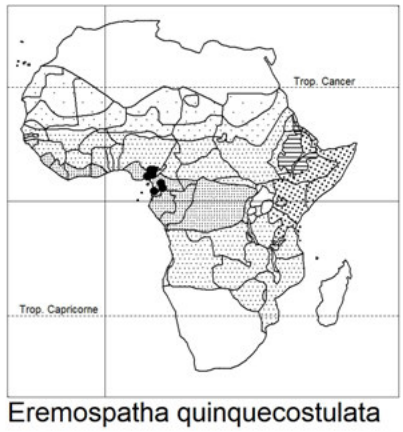
Eremospatha hookeri



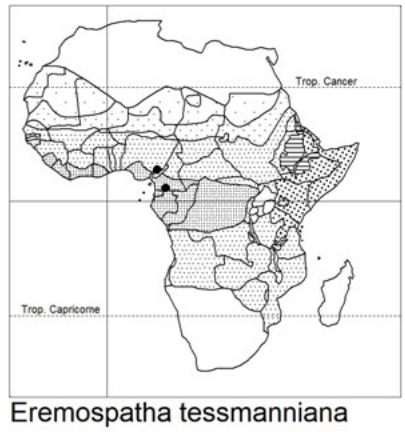
Eremospatha laurentii



Eremospatha macrocarpa



Eremospatha quinquecostulata



Eremospatha tessmanniana

BORASSUS

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syn.: *B. aethiopum var. bagamojense* Becc.; *B. aethiopum* var. *senegalense* Becc.; *B. deleb* Becc.; *B. flabellifer* var. *aethiopum* (Mart.) Warb.; *B. sambiranensis* Jum. & H. Perrier

Stem to 25-30 m tall and to 40-cm in diameter at breast height, almost always ventricose (reaching a diameter of 80-85 cm) about 10 m above the base of the stem; leaves 18-27 (-40); fruits massive, to 17 cm long and to 11 cm wide, broadly ovoid and usually flat-topped, the shape apparently strongly depending on the number of seeds developing and on close-packing in the infructescence, yellow to dull orange or red at maturity.

The species grows in riverine forests and savannahs in low-lying areas, particularly on sandy or alluvial soils. In West Africa the patchy distribution observed in this species may be influenced by man and elephants (Dransfield, 1982, 2010).

Found across sub-Saharan Africa as far south as northern South Africa, and the horn of Africa. The palm was not recorded by Bayton (2007) in Angola but according to Baker (2008) its presence in this country seems likely. Present also on a number of off-shore islands and also in the Sambirano region of northwest Madagascar. *B. aethiopum* grows from sea level to 1200 m.

BORASSUS AETHIOPUM

Ecological studies on this species are available for wild populations in Ivory Coast (Barot & al., 2000; Barot & Gignoux, 2003) and Benin (Ouinsavi, 2011).

There has been some debate about the recognition of *B. aethiopum* and *B. flabellifer* as different species; however, Dransfield (1986) and Bayton (2007) provided convincing arguments to keep them separated.

Several authors (e.g. Mollet, 1999; Bayton, 2007) have reported that this palm is used for wine production and this activity may threaten wild populations of this species in some West African countries (Sambou, 2002). The undeveloped endosperm and the cotyledonary stalks are consumed and the leaves used for thatch and weaving. The fruits have been reported to be eaten in Guiné-Bissau (Diniz & Martins, 2002) and also in Ivory Coast. For a comprehensive description of the uses of this palm in Africa see Giffard (1967) and Burkill (1997).

B. akeassii Bayton, Ouédr. & Guinko, Bot. J. Linn. Soc. 150: 420 (2006); Bot. J. Linn. Soc. 150: 420 (2006); Kew Bulletin 62: 574 (2007); Fl. anal. Bénin: 54 (2006); Boissiera 65: 32 (2012). – Icon.: Bot. J. Linn. Soc. 150: 421 (2006); Kew Bulletin 62: 576 (2007); Palms 53: 37-42 (2009).

syn.: *B. aethiopum* var. *domesticus* A. Chev.

Stem to 15 m tall and to 80 cm in diameter, almost always ventricose; leaves 8-22; fruits large, 15 cm long and to 12 cm in diameter, ovoid, yellowish green at maturity.

Growing in the Sudan savannahs, with 800-1100 mm annual rainfall

Present in Benin, Burkina Faso, Central African Republic, Côte d'Ivoire, Mali, Niger, Nigeria, Senegal (Aké Assi & Guinko, 1996; Arbonnier, 2002), although the species may be much wider than suggested due to the misidentification of the palm *B. aethiopum* (Bayton, 2007). The species is always found in lowland savannahs.

Borassus akeassii is apparently closely related to *B. flabellifer* (Aké Assi & Guinko, 1996; Ouédraogo & al., 2002). Bayton (2007) studied both species in detail and found several characters, in particular related to the transverse commissures in the leaf blade that enable a clear differentiation between them.

Bayton (2007) reported that this palm is used in Burkina Faso for wine production. The undeveloped endosperm is consumed and the leaves used for thatch and weaving.

CALAMUS / *1*

The genus *Calamus* (374 spp.) is the largest palm genus. It consists of pleonanthic, dioecious palms, most often with clustered, high-climbing stems and pinnate leaves; inflorescences bearing unisexual flowers; fruits covered by imbricate scales.

Calamus has a very wide distribution, occurring in tropical west and central Africa, India, Burma, south China through the Malay Archipelago to Australia and Fiji. The greatest abundance and diversity of species has been reported for the archipelagos of Malesia (Sunderland, 2012).

The genus ranges from sea-level to over 3000 m (in Asian species), although clearly most diverse in the rain forests at low altitudes (Dransfield & al., 2008).

Many species of *Calamus* (e.g. *C. caesius, C. manan, C. trachycoleus*) are of important commercial value in Asia. Although intensively used for the stem, called "rattan", the uses reported in this genus include thatching, fish traps construction, edible fruits, medicine, etc. (Dransfield & al., 2008)

BAKER, W. J. (2008). Palmae. *In:* Plants of Angola (E. FIGEREIDO & G. F. SMITH, eds.). *Strelitzia* 22: 172-173.

CALAMUS

DRANSFIELD, J. (1986). Palmae. *In:* POLHILL, R. M. (ed.), *Flora of Tropical East Africa*, A. A. Balkema, Rotterdam, The Netherlands. 466 pp.

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SUNDERLAND, T. C. H. (2012). A taxonomic revision of the rattans of Africa (Arecaceae: Calamoideae). *Phytotaxa* 51: 1-76.

Calamus deerratus G. Mann & H. Wendl., Trans. Linn. Soc. London 24: 429 (1864); Fl. W. Trop. Afr., ed. 2 3(1): 166 (1968); Fl. Trop. E. Africa, Palmae: 43 (1986); Palm. Afr. 50 (1995); Bases Doc. Fl. Guinea Equat.: 375 (1999); Woody Pl. W. Afr. Forest: 870 (2006); Fl. anal. Bénin: 54 (2006); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 62 (2007); Strelitzia 22: 172 (2008); Fl. Rép. Guinée: 383 (2009); Fl. Zambes. 13(2): 47 (2010); Boissiera 64: 215 (2011); Boissiera 65:32 (2012); Phytotaxa 51: 6 (2012). – Icon.: Fl. Trop. E. Africa, Palmae: 42, 164 (1986); Garcia Orta, Sér. Bot. 16: 47 (2002); Field Guide Rattans Afr. 62, 63 (2007); Fl. Zambes. 13(2): 48 (2010); Phytotaxa 51: 7 (2012).

syn.: *C. akimensis* Becc.; *C. barteri* Drude; *C. falabensis* Becc.; *C. heudelotii* Becc. & Drude; *C. laurentii* De Wild.; *C. leprieurii* Becc.; *C. perrottetii* Becc.; *C. schweinfurthii* Becc.; *Eremospatha deerrata* (G. Mann & H. Wendl.) T. Durand & Schinz; *Palmijuncus deerratus* (G. Mann & H. Wendl.) Kuntze

Stems 20-30 m long, up to 4 cm in diameter; leaves ecirrate, 1-1.75 m long; flagellum emerging from the leaf axil, up to 3.5 m long; leaflets often grouped and generally irregularly arranged; male and female inflorescences similar in aspect, up to 3,5 m long; fruits oblong to broadly ellipsoid, 1,5 cm long, 1 cm wide, covered by 17-20 rows of scales, dull brown when ripe.

This species largely prefers to grow in swamps, where it can form very dense populations, and riverine forests. It can be also found in the understory of wet forests. Species exclusively present in lowlands although in East Africa also reported to grow at 1000-1500 m (Dransfield, 1986).

Previews studies have suggested the presence of almost 10 species of *Calamus* for Africa. In most cases these species have been described from limited and incomplete collections at different stages of growth (Tuley, 1995). The detailed study of Sunderland (2012) has accurately demonstrated that the genus in Africa is represented by only one, very polymorphic, species.

This species represents the most widely distributed rattan of Africa; it is present from the Gambia and Casamance in Senegal, southwards to northern Angola and Zambia and eastwards to southern Sudan and Uganda (Baker, 2008; Lisowski, 2009; Sunderland, 2012).

Widely used as a source of cane, particularly in the absence of more desirable species. Commonly used for weaving (Diniz & Martins, 2002; Sunderland, 2007). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

COCOS / *1*

The genus *Cocos* is monotypic and consists of pleonanthic, monoecious palms, with solitary stems and regularly pinnate leaves. The fruits are large, ovoid to oblong, green to yellow (size and colour largely depending on the cultivar).

The genus *Cocos* has a very wide distribution, occurring in cultivation in almost all tropical coastal areas of the world. Naturalised self-propagating populations are relatively common. The genus is most often associated to low altitudes. Its origin remains uncertain although frequently associated to western Pacific regions (Dransfield & al., 2008).

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

TULEY, P. (1995). *The Palms of Africa*. The Trendrine Press, UK, 189 pp.

VAN DER VOSSEN, H. A. M. & G. S. MKAMILO (Eds.) (2007). *Ressources végétales de l'Afrique tropicale 14. Oléagineux.* 260 pp.

Cocos nucifera L., Sp. Pl.: 1188 (1753); Scripta Bot. Belg. 4: 106 (1993); Fl. Ethiopia & Eritrea 6: 526 (1997); Pl. Mt Cameroon: 179 (1998); Check-list Pl. Vasc. Gabon: 320 (2006); Strelitzia 22: 172 (2008); Fl. Rép. Guinée: 383 (2009); Fl. Zambes. 13(2): 63 (2010); Boissiera 65: 33 (2012).-Icon. : Fl. Zambes. 13(2): 64 (2010).

syn.: *Calappa nucifera* (L.) Kuntze; *Cocos indica* Royle; *C. mamillaris* Blanco; *Cocos nana* Griff.; *C. nucifera* var. *angustifolia* Hassk.; *C. nucifera* var. *aurea* auct.; *C. nucifera* var. *javanica* G.V. Narayana; *C. nucifera* var. *microcarpa* Hassk. ex F.W.T. Hunger (nom. superfl.); *C. nucifera* var. *nana* (Griff.) G.V. Narayana; *C. nucifera* var. *pumila* Hassk.; *C. nucifera* var. *rubescens* Hassk.; *C. nucifera* var. *spicata* K.C. Jacob; *C. nucifera* var. *synphyllica* Becc.; *Diplothemium henryanum* F. Br.; *Palma cocos* Mill. (nom. superfl.).

Stem to 25 m tall and 20-30 cm in diameter, almost always straight; leaves numerous, to 5 m long, frequently with an arched rachis and more or less pendant leaflets; inflorescences once branched, covered by a woody peduncular bract; fruits 1-seeded.

In Africa common in coastal habitats, particularly sandpits and similar in-shore island situations (Tuley, 1995).

Cocos nucifera has been subject of intensive agronomic research, in particular with respect to fruit characters. As indicated for the genus, *C. nucifera* is widespread in almost all tropical coastal areas of the world. Although predominant in low altitudes it will flower and fruit in humid equatorial regions at altitudes up to 900 m (Dransfield & al., 2008).

Much of the morphological diversity expressed in this species was described in the almost 50 varieties proposed by Blume (1847), all of them regarded by Govaerts & Dransfield (2005) as synonyms of one single polymorphic species.

Cocos nucifera is one the most economically important palm species. Particularly in the Old World almost all organs of the palm (e.g. stems, leaves, and fruits) are used. The importance of this species as a source of vegetal oil in African countries has been thoroughly documented by van der Vossen & Mkamilo (2007). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

ELAEIS / *1*

The genus *Elaeis* is represented by only 2 species and consists of pleonanthic, monoecious palms, with solitary stems and regularly pinnate, plumose leaves. Inflorescences unisexual, emerging from the base of the leaf sheaths. Infructescences compact, frequently armed by the woody and sharply spiny floral bracts. Fruits laterally flattened-ovoid to oblong, yellow, orange to red when ripe (size and colour largely depending on the cultivar).

The genus *Elaeis* is distributed in the wild in tropical ecosystems of Africa and America. One species *E. oleifera* is distributed in Central America south to northern Colombia and scattered localities in the amazon region (Henderson & al., 1995), whereas *E. guineensis* is endemic from West Africa. Nowadays, this species is intensively cultivated for oil production around the world, in particular in south eastern Asian countries.

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VAN DER VOSSEN, H. A. M. & G. S. MKAMILO (2007). *Ressources végétales de l'Afrique tropicale 14. Oléagineux.* 260 pp.

Elaeis guineensis Jacq., Select. Stirp. Amer. Hist.: 280 (1763); Check-list Pl. Vasc. Gabon: 320 (2006); Fl. W. Trop. Afr., ed. 2 3(1): 161 (1968); Fl. Trop. E. Africa, Palmae: 50 (1986); Scripta Bot. Belg. 4: 106 (1993); Palm. Afr. 102 (1995); Pl. Mt Cameroon: 179 (1998); Bases Doc. Fl. Guinea Equat.: 375 (1999); Prelim. checklist vasc. pl. Mozambique 30: 120 (2004); Fl. anal. Bénin: 56 (2006); Woody Pl. W. Afr. Forest: 868 (2006); Check-list Pl. Vasc. Gabon: 320 (2006); Strelitzia 22: 172 (2008); Fl. Rép. Guinée: 383 (2009); Fl. Zambes. 13(2): 66 (2010); Boissiera 64: 215 (2011); Boissiera 65: 33 (2012). – Icon.: Fl. Trop. E. Africa, Palmae: 49, 188-189 (1986); Fl. Zambes. 13(2): 67 (2010).

syn.: *Elaeis dybowskii* Hua; *E. guineensis* f. *androgyna* A. Chev.; *E. guineensis* f. *caryolitica* Becc.; *E. guineensis* f. *dioica* A. Chev.; *E. guineensis* f. *dura* Becc.; *E. guineensis* f. *fatua* Becc.; *E. guineensis* f. *ramosa* A. Chev.; *E. guineensis* f. *semidura* Becc.; *E. guineensis* f. *tenera* Becc.; *E. guineensis* subsp. *nigrescens* A. Chev. (nom. inval.); *E. guineensis* subsp. *virescens* A. Chev.; *E. guineensis* var. *albescens* Becc.; *E. guineensis* var. *angulosa* Becc.; *E. guineensis* var. *ceredia* A. Chev.; *E. guineensis* var. *compressa* Becc.; *E. guineensis* var. *gracilinux* A. Chev.; *E. guineensis* var. *idolatrica* A. Chev.; *E. guineensis* var. *intermedia* A. Chev.; *E. guineensis* var. *leucocarpa* Becc.; *E. guineensis* var. *macrocarpa* A. Chev.; *E. guineensis* var. *macrocarya* Becc.; *E. guineensis* var. *macrophylla* A. Chev.; *E. guineensis* var. *macrosperma* Welw.; *E. guineensis* var. *madagascariensis* Jum. & H. Perrier; *E. guineensis* var. *microsperma* Welw.; *E. guineensis* var. *pisifera* A. Chev.; *E. guineensis* var. *repanda* A. Chev.; *E. guineensis* var. *rostrata* Becc.; *E. guineensis* var. *sempernigra* A. Chev.;

E. guineensis var. *spectabilis* A. Chev.; *E. macrophylla* A. Chev. (nom. nud.); *E. madagascariensis* (Jum. & H. Perrier) Becc.; *E. melanococca* Gaertn.; *E. nigrescens* (A. Chev.) Prain (nom. inval.); *E. virescens* (A. Chev.) Prain; *Palma oleosa* Mill.

Stem to 30 m tall and 40-50 cm in diameter, almost always straight and densely covered by leaf sheath remnants; leaves up to 50, to 8 m long, frequently with an arched rachis and more or less regularly inserted, clustered leaflets; inflorescences and infructescences tightly compressed by the surrounding leaf sheaths; fruits 3-4 cm long, 2-3 cm in diameter, topped by a solid stigmatic remain.

This palm is mostly associated to humid areas and riparian locations, normally associated to semi-shadow conditions; however, it easily adapts to a wide range of vegetation types including open savannahs or secondary forests.

Elaeis guineensis is distributed in lowland, humid areas of West Africa and the Congo Basin. It also occurs in restricted riparian locations in East and Southern Africa, Madagascar (probably introduced) and the off-shore Indian and Atlantic Ocean islands (Tuley, 1995; Dransfield & al., 2008). Although this is species generally present in lowland areas, it has been reported to grow up to 680 m in Cameroon (Harvey & al., 2010) and in East Africa it reported to grow up to 1500 m (Dransfield, 1986).

While *Elaeis oleifera* is relatively well known from a morphologic and taxonomic point of view, the morphological plasticity displayed in *E. guineensis* originated the description of a large number of varieties, remarkably in the treatments of Chevalier (1910) and Beccari (1914). All infra-specific taxa described are nowadays regarded by Govaerts & Dransfield (2005) as synonyms of one single and polymorphic species.

The oil palm *(Elaeis guineensis)* is one of the most economically important members of the family. Almost all organs of the palm are used by local populations. The trunks and the leaves are used for house construction and thatch; the fruits are used for cooking the famous oil palm soup or *sauce graine*. The sweet sap tapped from the stem is an important product obtained from the palm (see Mollet, 1999 for details). The latter is transformed in syrup, sugar or by fermentation converted into alcohol. The oil, wine and the roots of this species have been reported to be used in local medicine in Guiné-Bissau (Diniz & Martins, 2002). The importance of this species as a source of vegetal oil in African countries has been thoroughly documented by van der Vossen & Mkamilo (2007). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

Abundant archaeological evidence of the occurrence of the endocarp of this palm in the rain forest and woodland savanna zones of West and Central Africa from about 5000 B.P. has shown the species to be an important element of subsistence economy of the region (Sowunmi, 1999).

EREMOSPATHA / *11*

The genus *Eremospatha* is composed of 11 species. It consists of pleonanthic, hermaphroditic, spiny palms; most often with high-climbing, solitary or clustered stems, entire-bifid leaves when juvenile and regularly or irregularly pinnate leaves at maturity, the latter with a cirrus emerging from the rachis apex. The combination of leaf sheaths without spines and stem sometimes presenting a conspicuous knee below leaf junction is quite characteristic for this genus.

Well distributed in several countries of West Africa and the Congo basin, with outliers in Uganda, Tanzania and Zambia (Sunderland, 2012).

EREMOSPATHA

Eremospatha is a shade tolerant rattan palm well represented in the lowland forest, often below 1000 m.

Many species of *Eremospatha* are of important commercial value (Sunderland, 2007) and as other African rattans, overexploitation of the wild populations is threatening the survival of many populations of these palms.

As pointed out by Sunderland (2012) many species have been described on the base of juvenile developmental stages, which are often represented by polymorphic entire-bifid leaf blades. Vegetative organs (e.g. flowers, fruits) are not known for many species and would be required for a better definition of their taxonomic status. The leaf polymorphism in two species of the genus *(Eremospatha laurentii, E. dransfieldii)* growing in Ivory Coast was studied by Kouassi (2005).

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KOUASSI, K. I., S. BAROT, J. GIGNOUX & I. A. ZORO BI (2008). Demography and life history of two rattan species, Eremospatha macrocarpa and Laccosperma secundiflorum, in Côte d'Ivoire. *J. Trop. Ecol.* 24: 493-503.

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SUNDERLAND, T. C. H. (2012). A taxonomic revision of the rattans of Africa (Arecaceae: Calamoideae). *Phytotaxa* 51: 1-76.

Eremospatha barendii Sunderl., J. Bamboo Rattan 1: 361 (2002); Field Guide Rattans Afr. 22 (2007); Phytotaxa 51: 28 (2012). – Icon.: Field Guide Rattans Afr. 22, 23 (2007); Phytotaxa 51: 29 (2012); Palms 57: 131 (2013).

syn.: none reported in the literature.

Stems to 25-30 m long, circular in cross-section; leaves up to 2.4 m long; cirrus up to 1.2 cm long; leaflets up to 26 on each side of the rachis, opposite or sub-opposite, linear-lanceolate, more or less regularly inserted in the rachis; inflorescences up to 30 cm long; flowers unknown; fruits oblong, 2.3-2.8 cm long and 1.5-1.7 cm in diameter.

Poorly-known species thought to occur in gaps in high forest (Sunderland, 2012).

This species is known only from two locations near Lolodorf, Cameroon (Sunderland, 2012).

Eremospatha barendii is characterized by the presence of conspicuous inflorescence bracts and a dry, splitting ocrea, the latter only shared with *E. wendlandiana*.

No uses have been recorded for this palm (Sunderland, 2007).

E. cabrae (De Wild. & T. Durand) De Wild.; Ann. Mus. Congo Belge, Bot., V, 1: 95 (1903); Palm. Afr. 45 (1995); Field Guide Rattans Afr. 14 (2007); Phytotaxa 51: 18 (2012). – Icon.: Field Guide Rattans Afr. 14, 15 (2007); Phytotaxa 51: 19 (2012).

syn.: *Calamus cabrae* De Wild. & T. Durand; *E. rhomboidea* Burret; *E. suborbicularis* Burret

Stems of 20-30 (-50) m long; leaves 1.5-2 m; cirrus up to 1 m long; leaflets 8-10 on each side of the rachis, obovate to trapeziform, more or less regularly inserted in the rachis; inflorescences up to 40 cm long; flowers born in close pairs; fruits cylindrical to rhomboid, 2.5-3 cm long and 1.6-1.9 cm in diameter.

EREMOSPATHA CABRAE

This species is associated to swamp vegetation and riverine forests (Sunderland, 2012).

Eremospatha cabrae is restricted to Gabon, southwards to Angola and across to the lowland forests of the wider Congo Basin (Baker, 2008; Sunderland, 2012).

According to Sunderland (2007) split or whole stems are used for a wide range of purposes (woven products, construction of cane bridges, etc).

E. cuspidata (G. Mann & H. Wendl.) H. Wendl. in O.C.E.de Kerchove de Denterghem, Palmiers: 244 (1878); Palm. Afr. 51 (1995); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 30 (2007); Strelitzia 22: 172 (2008); Fl. Zambes. 13: 40 (2010); Phytotaxa 51: 30 (2012); – Icon.: Field Guide Rattans Afr. 30, 31 (2007); Fl. Zambes. 13: 41 (2010); Phytotaxa 51: 31 (2012).

syn.: *Calamus cuspidatus* G. Mann & H. Wendl.

Stems to 12-15 m long, circular in cross-section; leaves up to 2 m long; cirrus 50-75 cm long; leaflets 15-20 on each side of the rachis, opposite or sub-opposite, linear-lanceolate, more or less regularly inserted in the rachis; inflorescences 30-38 cm long; flowers borne in close pairs; fruits oblong-cylindrical, 2-2.4 cm long and 1.6-2 cm in diameter.

This is a highly unusual African rattan as it is commonly found in the deep white savannah areas characteristic of the coastal forest of the Congo Basin, where it forms dense, scrambling thickets (Sunderland, 2012).

Relatively uncommon species restricted to the Congo Basin (Sunderland, 2012) and cited by Baker (2008) for Angola; growing from sea level to 1200 m.

The split stems are used for light basketry and weaving, particularly in the absence of other species (Sunderland, 2007).

E. dransfieldii Sunderl., Kew Bull. 58: 988 (2003 publ. 2004); Woody Pl. W. Afr. Forest: 872 (2006); Field Guide Rattans Afr. 18 (2007); Phytotaxa 51: 23 (2012). – Icon.: Field Guide Rattans Afr. 18, 19 (2007); Phytotaxa 51: 24 (2012).

syn.: none reported in the literature.

Stems to 40 m long, circular in cross-section; leaves up to 3.5 m long; cirrus 1.2-1.5 m long; leaflets up to 40 on each side of the rachis, highly variable in shape, obovate-ellipticus to oblanceolate to rhomboid, inequidistant. The inflorescences, flowers and fruits have never been collected.

This is a light demanding species found particularly along forest margins, in tree-fall gaps and along road sides (Sunderland, 2012).

Eremospatha dransfieldii is mainly found in the Western region of Ghana and eastern Ivory Coast, with outliers in Sierra Leone (Sunderland, 2012). Recent floristic inventories in Ivory Coast identified a few, highly endangered, populations of this species in the South-eastern region of the country (Stauffer & Ouattara, in prep.).

The canes of this palm are mainly used for furniture frames and coarse basketry and traded in Ghana and Côte d'Ivoire (Sunderland, 2007).

EREMOSPATHA

E. haullevilleana De Wild., Ann. Mus. Congo Belge, Bot., V, 1: 96 (1903); Fl. Trop. E. Africa, Palmae: 35 (1986); palm. Afr. 45 (1995); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 26 (2007); Strelitzia 22: 172 (2008); Phytotaxa 51: 38 (2012). – Icon.: Fl. Trop. E. Africa, Palmae: 34 (1986); Field Guide Rattans Afr. 26, 27 (2007); Phytotaxa 51: 39 (2012); Palms 57: 128 (2013).

syn.: none reported in the literature.

Stems to 25 m long, circular in cross-section; leaves bifid at juvenile stage, when adult pinnate, up to 1.2 m long; cirrus 60 cm long; inflorescences up to 35 cm long; flowers born in close subdistichous pairs; fruits oblong, 2.5-3 cm long and 1.5-2 cm in diameter.

This species is found both in closed-canopy forest and in open areas (Sunderland, 2012). In West Africa this species has been reported in the riverine and swamp forest, apparently from lowlands to 1300 m. (Dransfield, 1982).

Eremospatha haullevilleana occurs in the lowland forest of the Congo Basin (Sunderland, 2012) and reported by Baker (2008) for Angola.

This is a preferred species for basketry and weaving throughout its range. The apical bud is consumed and in the Democratic Republic of Congo the fruits are used for decoration (Sunderland, 2007).

E. hookeri (G. Mann & H. Wendl.) H. Wendl. in O.C.E.de Kerchove de Denterghem, Palmiers: 244 (1878); Fl. W. Trop. Afr., ed. 2 3(1): 168 (1968); Palm. Afr. 45 (1995); Pl. Mt Cameroon: 179 (1998); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 11 (2007); Phytotaxa 51: 15 (2012). – Icon.: Palm. Afr. 44 (1995); Field Guide Rattans Afr. 11-13 (2007); Phytotaxa 51: 16 (2012).

syn.: *Calamus africanus* Rollisson (nom. superfl.); *C. hookeri* G. Mann & H. Wendl.

Stems to 30 m long, often branching; leaves bifid at juvenile stage, when adult pinnate, up to 2.2 m long; cirrus up to 60 cm long; leaflets up to 20 on each side of the rachis, very variable in shape, more or less regularly inserted in the rachis; inflorescences up to 40 cm long; flowers unknown; fruits ovoid to cylindrical, 2.5-3 cm long and 1.5-1.7 cm in diameter.

This species is shade tolerant and often found under forest canopy conditions; however, it is also common in gaps and forest margins and is found in a wide range of edaphic conditions, from swamp vegetation to well-drained volcanic soil (Sunderland, 2012).

Eremospatha hookeri has a distinct Guineo-Congolian distribution primarily in the northernmost part of the Congo Basin (Sunderland, 2012); its presence in Angola remains to be confirmed (Baker, 2008).

Although recognized by handicraft makers and rattan traders as less resistant that *E. macrocarpa*, this palm is still intensively used in West African countries. In Nigeria, the base of the leaf sheath is used as chewstick (Sunderland, 2007). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

E. laurentii De Wild., Bull. Jard. Bot. État Bruxelles 5: 147 (1916).; Palm. Afr. 45 (1995); Pl. Mt Cameroon: 179 (1998); Check-list Pl. Vasc. Gabon: 320 (2006); Woody Pl. W. Afr. Forest: 872 (2006); Field Guide Rattans Afr. 16 (2007); Phytotaxa 51: 20 (2012). – Icon.: Palm. Afr. 94, 95, 162, 163 (1995); Field Guide Rattans Afr. 16, 17 (2007); Phytotaxa 51: 21 (2012); Palms 57: 127 (2013).

EREMOSPATHA LAURENTII

syn.: none reported in the literature.

Stems to 30 m long, more or less triangular in cross-section; leaves up to 3 m long; cirrus 1.2-1.5 m long; leaflets up to 30 on each side of the rachis, linear-lanceolate, more or less regularly inserted in the rachis; inflorescences 24-32 cm long; flowers born in close pairs; fruits ovoid or cylindrical, 1.6-2.2 cm long and 1.7-2.0 cm in diameter.

This species is equally found in open areas as well as in canopy forests (Sunderland, 2012)

Eremospatha laurentii occurs in the northern Congo Basin, with outliers in forests of Upper Guinea, with pronounced disjunction from Ivory Coast to Benin (Sunderland, 2012). Its presence in Ivory Coast was pointed out by Kouassi & al. (2005) in the frame of a study on foliar polymorphism in species of *Eremospatha* and *Laccosperma*, and also confirmed by us during a recent visit to the Tai National Park, in the South-western part of the country.

This palm is recognized by handicraft makers and rattan traders as less resistant than *E. macrocarpa*. The canes of this palm are according to Sunderland (2007) rarely used for either furniture manufacture or basketry.

E. macrocarpa Schaedtler, Hamburger Garten- Blumenzeitung 31: 163 (1875); Fl. W. Trop. Afr., ed. 2 3(1): 168 (1968); Palm. Afr. 45 (1995); Pl. Mt Cameroon: 179 (1998); Bases Doc. Fl. Guinea Equat.: 375 (1999); Fl. anal. Bénin: 57 (2006); Woody Pl. W. Afr. Forest: 872 (2006); Field Guide Rattans Afr. 24 (2007); Fl. Rép. Guinée: 383 (2009); Boissiera 64: 215 (2011); Phytotaxa 51: 34 (2012). – Icon.: Palm. Afr. 44, 161 (1995); Field Guide Rattans Afr. 24, 25 (2007); Phytotaxa 51: 35 (2012).

syn.: *Calamus macrocarpus* G. Mann & H. Wendl. (nom. illeg.); *E. sapinii* De Wild.

Stems to 50-75 (-150 m) m long, circular in cross-section; leaves bifid at juvenile stage, when adult pinnate, up to 3.5 m long; cirrus 1.2-2 m long; leaflets up to 25 on each side of the rachis, linear-lanceolate, opposite to sub-opposite, more or less regularly inserted; inflorescences up to 55 cm long; flowers born in close pairs; fruits oblong, 2.2-2.6 cm long and 1-1.5 cm in diameter.

This is an extremely light demanding species, occurring in gap vegetation and forest margins (Sunderland, 2012). Ecological studies on the population structure, reproductive strategy and life history of this species in Ivory Coast were undertaken by Kouassi & al. (2008, 2009).

Eremospatha macrocarpa is one of the most widespread species in the genus. It is distributed from Senegal through the lowland forest of the Congo Basin (Lisowski, 2009; Sunderland, 2012).

This is the most valuable rattan species in Africa as deemed to be the best producer of cane. Its canes are stronger, more durable and flexible and are even comparable to Southeast Asia small diameter rattans (Sunderland, 2007). The species is frequelty used for the manufacture of chairs, baskets, bracelets, and many other objects. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

E. quinquecostulata Becc., Webbia 3: 279 (1910); Palm. Afr. 123 (1995); Field Guide Rattans Afr. 32 (2007); Phytotaxa 51: 10 (2012). – Icon.: Field Guide Rattans Afr. 32, 33 (2007); Phytotaxa 51: 14 (2012).

syn.: none reported in the literature.

Stems 10-20 m long, more or less circular in cross-section; leaves to 1 m long; cirrus up to 40-50 cm; leaflets arranged in groups of 2 or 4; inflorescences, flowers and fruits unknown.

This species has been reported growing in high forest.

EREMOSPATHA QUINQUECOSTULATA

The variability of this species has never been assessed. Tuley (1995) did not recognize this palm as a valid taxon and suggested that it may be better considered as a juvenile form of unknown provenance. However, Sunderland (2012) confirmed that this palm corresponds indeed to a distinct taxon. It is critical to collect and thoroughly study the reproductive organs of this still imperfectly known species in order to better establish its morphologic and taxonomic identity.

Populations of this species are only known from SE Nigeria through Cameroon (Sunderland, 2012).

This species can be easily differentiated from all other *Eremospatha* by its leaf sheaths of more or less 1 cm in diameter, inconspicuous knees and clearly inequidistant leaflets.

In Gabon the stem is split and employed for basic weaving, particularly in the absence of other species (Sunderland, 2007).

E. tessmanniana Becc., Webbia 3: 278 (1910); Bases Doc. Fl. Guinea Equat.: 375 (1999); Field Guide Rattans Afr. 28 (2007); Phytotaxa 51: 33 (2012). – Icon.: Field Guide Rattans Afr. 28, 29 (2007); Phytotaxa 51: 14 (2012).

syn.: none reported in the literature.

Stems to 60-80(-150) m long, circular in cross-section; leaves bifid at juvenile stage, when adult pinnate, to 1 m long; cirrus 40-60 cm long; inflorescences, flowers and fruits never collected.

This species grows on well-drained soils in closed-canopy forests (Sunderland, 2012).

Uncommon palm only known from the Takamanda region of the Cameroon/Nigeria border and cross border region of Cameroon and the Rio Muni territory of Equatorial Guinea (Sunderland, 2012).

No economic importance reported so far for this taxon (Sunderland, 2007).

E. wendlandiana Dammer ex Becc., Webbia 3: 290 (1910); Fl. W. Trop. Afr., ed. 2 3(1): 168 (1968); Palm. Afr. 45 (1995); Pl. Mt Cameroon: 179 (1998); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 20 (2007); Strelitzia 22: 172 (2008); Phytotaxa 51: 26 (2012). – Icon.: Palm. Afr. 44, 162 (1995); Field Guide Rattans Afr. 20, 21 (2007); Phytotaxa 51: 27 (2012); Palms 57: 127 (2013).

syn.: *E. korthalsiifolia* Becc.

Stems to 60 m long, more or less circular in cross-section; leaves up to 2 m long; cirrus up to 2 m long; leaflets up to 20 on each side of the rachis, rhomboid or trapezoid, more or less regularly inserted; inflorescences up to 80 cm long; flowers born in close pairs, fruits ovoid to broadly cylindrical, 2.5-3.5 cm long and 1.8-2.4 cm in diameter.

This species is commonly found in gap vegetation and forest margins, although it is commonly present in the juvenile form in closed-canopy forest (Sunderland, 2012).

Eremospatha wendlandiana is distributed from SE Nigeria to Gabon, with outliers in the Central African Republic (Sunderland, 2012). It was reported for Angola by Baker (2008).

This species is used for several minor purposes and it does not have much commercial value (Sunderland, 2007).

HYPHAENE / *7*

The genus *Hyphaene* (apparently only 8 spp.) is distributed in dry regions of continental Africa, Madagascar, the Red Sea and the coasts of the Gulf of Eilat, Arabia and western India. One species reported from Sri Lanka may be an introduction (Dransfield & al., 2008). The genus *Hyphaene* is pleonanthic, dioecious and contains species with small to massive and tall, solitary or basally clustered, erect or creeping stems, costapalmate leaves and fruits conspicuously polymorphic. The presence of stem branching in some species of this genus represents a unique character with respect to other members of the palm family. These palms commonly grow in sandy lowlands, and open secondary forests or savannahs.

Herbarium samples of *Hyphaene* can be easily confused with *Borassus*. The specimens of *Hyphaene* are characterized by the presence of red dark rounded scales on the leaf blade and very indistinct lateral veins, whereas in *Borassus* specimens these scales are lacking and the lateral veins are clearly distinct.

Many species of *Hyphaene* provide an important resource for the rural population. The most important resources are the leaves which are used in basket weaving. Furthermore, the fruit is a key nutritive resource during the end of the dry season when food is scarce. Petioles and stems are used in construction and apparently adult stems were tapped in the past.

Despite its economic and ecologic importance *Hyphaene* remains and extremely poorly known genus in need of a thorough and modern taxonomic revision.

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HYPHAENE

Hyphaene compressa H. Wendl., Bot. Zeitung (Berlin) 36: 116 (1878); Fl. Trop. E. Africa, Palmae: 26 (1986); Palm. Afr. 26 (1995); Fl. Ethiopia & Eritrea 6: 524 (1997); Fl. Zambes. 13(2): 56 (2010); Fl. Trop. E. Africa, Palmae: 29 (1986); Prelim. checklist vasc. pl. Mozambique 30: 120 (2004); Fl. Zambes. 13(2): 59 (2010). – Icon.: Fl. Trop. E. Africa, Palmae: 25 (1986); Palm. Afr. 154 (1995); Palms 48: 184 (2004).

syn.: *Chamaeriphes compressa* (H. Wendl.) Kuntze; *H. benadirensis* Becc.; *H. incoje* Furtado; *H. kilvaensis* (Becc.) Furtado; *H. mangoides* Becc.; *H. megacarpa* Furtado; *H. multiformis* Becc.; *H. multiformis* subsp. *ambigua* Becc.; *H. multiformis* subsp. *compressa* (H. Wendl.) Becc.; *H. multiformis* subsp. *deformis* Becc.; *H. multiformis* subsp. *diminuta* Becc.; *H. multiformis* subsp. *gibbosa* Becc.; *H. multiformis* subsp. *intermedia* Becc.; *H. multiformis* subsp. *kilvaensis* Becc.; *H. multiformis* subsp. *macrocarpa* Becc.; *H. multiformis* subsp. *mahengensis* Becc.; *H. multiformis* subsp. *manca* Becc.; *H. multiformis* subsp. *morogorensis* Becc.; *H. multiformis* subsp. *moshiensis* Becc.; *H. multiformis* subsp. *nasuta* Becc.; *H. multiformis* subsp. *obconica* Becc.; *H. multiformis* subsp. *obesa* Becc.; *H. multiformis* subsp. *odorata* Becc.; *H. multiformis* subsp. *panganensis* Becc.; *H. multiformis* subsp. *plagiosperma* Becc.; *H. multiformis* subsp. *rovumensis* Becc.; *H. multiformis* subsp. *semiplaena* Becc.; *H. multiformis* subsp. *stenosperma* Becc.; *H. multiformis* subsp. *subglobosa* Becc.; *H. multiformis* subsp. *tangatensis* Becc.; *H. multiformis* subsp. *trigibba* Becc.; *H. multiformis* subvar. *lindiensis* Becc.; *H. semiplaena* (Becc.) Furtado

Stem to 20 m tall and to 40 cm in diameter, solitary or apparently forking below ground and producing 2-4 stems of more or less the same size; leaves to 15; fruits extremely polymorphic in shape and size, to 12 cm long and 9 cm wide, orange-brown at maturity.

Hyphaene compressa grows in coastal lowland regions and extends to inland areas along water courses, growing from see level to 1400 m. This species has been also reported growing in secondary vegetation.

At least 32 different names are nowadays considered as synonyms of this extremely polymorphic species (e.g. Dransfield, 1986); most of these synonyms correspond to infraspecific taxa proposed by Beccari (1924) for a taxonomically complex *H. multiformis.*

This species is endemic from East Africa. It was reported for Kenya and Tanzania and apparently extending north to Somalia and southwards to Mozambique (Dransfield, 2010). *Hyphaene compressa* may display some degree of hybridization with other species of *Hyphaene* present in its northern range of distribution.

The leaves of this palm fulfill many subsistence and economic needs of the nomadic pastoralist and agro-pastoralist communities in the northern and eastern regions of Kenya (Amwatta, 2004).

This is a highly polymorphic palm (Dransfield, 2010) that requires further taxonomic study.

H. coriacea Gaertn.; Fl. Trop. E. Africa, Palmae: 29 (1986); Palm. Afr. 25 (1995). -Icon.: Fl. Trop. E. Africa, Palmae: 25, 30, 32 (1986); Palm. Afr. 25, 94, 95, 153 (1995); Fl. Zambes. 13(2): 44, 59 (2010).

syn.: *Chamaeriphes coriacea* (Gaertn.) Kuntze; *C. shatan* (Bojer ex Dammer) Kuntze; *C. turbinata* (H. Wendl.) Kuntze; *Corypha africana* Lour.; *H. baronii* Becc.; *H. beccariana* Furtado; *H. coriacea* var. *minor* Drude; *H. hildebrandtii* Becc.; *H. natalensis* Kuntze; *H. oblonga* Becc.; *H. parvula* Becc.; *H. pileata* Becc.; *H. pleuropoda* Becc.; *H. pyrifera* Becc.; *H. pyrifera* var. *arenicola* Becc.; *H. pyrifera* var. *gosciaensis* (Becc.) Becc.; *H. pyrifera* var. *margaritensis* Becc.; *H. shatan* Bojer ex Dammer; *H. spaerulifera* Becc.; *H. spaerulifera* var. *gosciaensis* Becc.; *H. tetragonoides* Furtado; *H. turbinata* H. Wendl.; *H. turbinata* var. *ansata* Becc.; *H. wendlandii* Dammer

HYPHAENE CORIACEA

Stem to 5 m tall and to 25 cm in diameter, solitary or clustered, with decumbent growth form; leaves 8-15; fruits extremely polymorphic in shape and size, to 6 cm long and 4 cm wide, pale green when immature, ripening dark brown.

Hyphaene coriacea grows in coastal lowland regions, especially sand dunes, and rarely extends to inland areas; it is distributed from see level to 300 m.

At least 23 different names, all of them considered nowadays as synonyms, have been proposed for this species.

This species is distributed in Kenya and Tanzania, extending to Somalia and southwards to Mozambique and South Africa; also distributed in Madagascar (Dransfield, 2010); from sea level to 250 m.

The name *Hyphaene coriacea* has been widely misused and often applied to other species *(H. compressa).* Also, more recent field work has emphasized the plasticity of this species and the gradual continuum in form between the dwarf, coastal dune type to the more erect type (Tuley, 1995).

No uses have been reported for this species.

H. guineensis Schumach. & Thonn. in H. C. F.Schumacher, Beskr. Guin. Pl.: 445 (1827); Palm. Afr. 30 (1995); Palms 48: 14 (2004); Check-list Pl. Vasc. Gabon: 320 (2006); Strelitzia 22: 172 (2008). –Icon.: Palms 48: 10, 12, 13, 16. (2004)

syn.: *Chamaeriphes guineensis* (Schumach. & Thonn.) Kuntze; *H. depressa* Becc.; *H. doreyi* Furtado; *H. gossweileri* Furtado; *H. luandensis* Gossw. (nom. nud.); *H. mateba* Becc.; *H. nephrocarpa* Becc.; *H. welwitschii* Furtado.

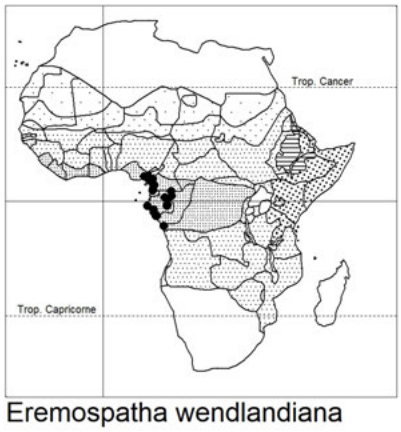
Stem to 14 m tall and to 30-35 cm in diameter, frequently solitary or apparently forking below ground and producing 2 stems of more or less the same size; leaves to 14; fruits pear-shaped of with tree prominent lobes, 6-8 cm long and 6-7 cm wide, pale green when immature, ripening dark red-brown.

Hyphaene guineensis grows in coastal lowland regions, especially on sandy soils with superficial groundwater; however, it has never been observed growing in inundated areas. This species is mostly distributed from see level to 300 m.

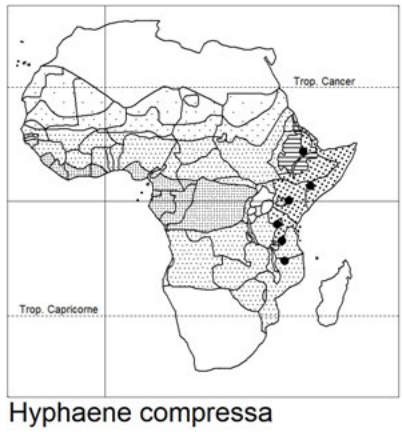
The palm is distributed in West Africa (Ghana, Guinée-Bissau, Guinée-Conakry), Central Africa (Gabon, Congo, Central African Republic) and in Angola.

This species seems to be relatively well understood from a taxonomical point of view; however, it remained rather poorly known since its first description in 1827 (Furtado, 2004; Van Valkenburg & Dransfield, 2004).

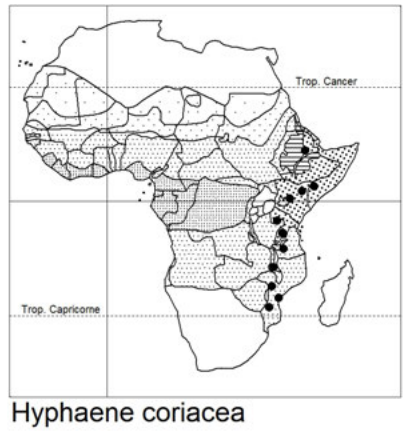
The leaflets were traditionally used in Angola and Congo for making coarse bags for packaging peanuts and oil palm nuts (Van Valkenburg & Dransfield, 2004). In South-East Ghana the wood is used for the frame of houses and the leaves are used to make hats and fans.



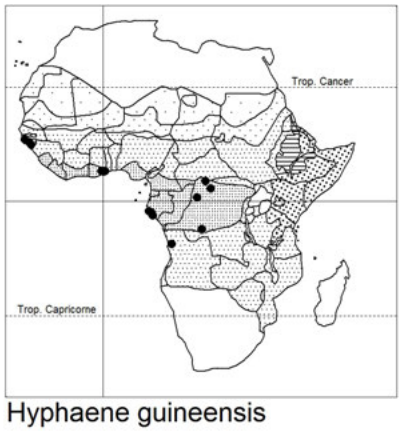
Eremospatha wendlandiana



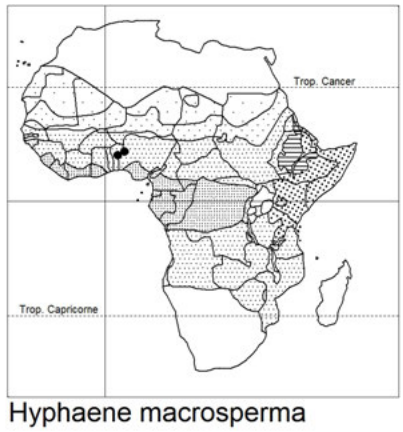
Hyphaene compressa



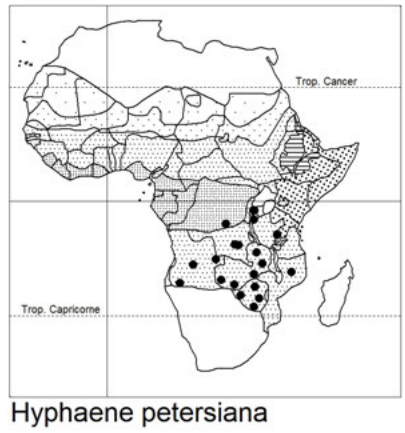
Hyphaene coriacea



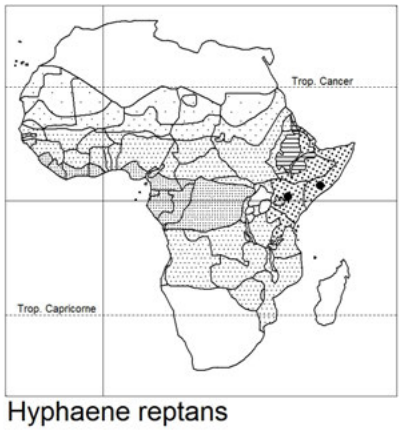
Hyphaene guineensis



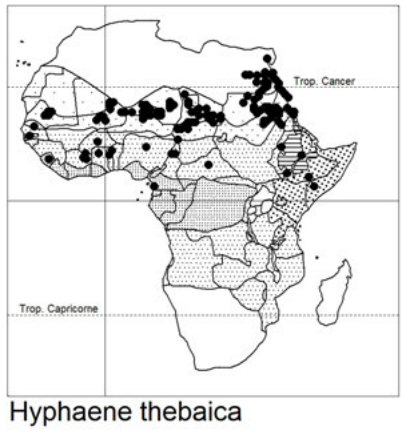
Hyphaene macrosperma



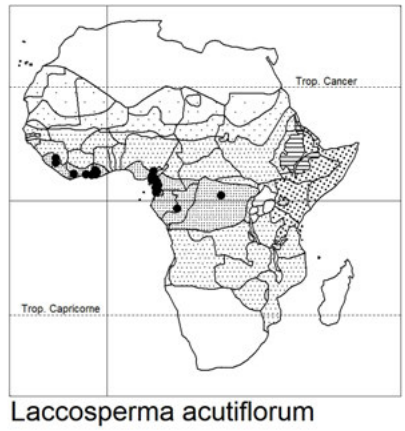
Hyphaene petersiana



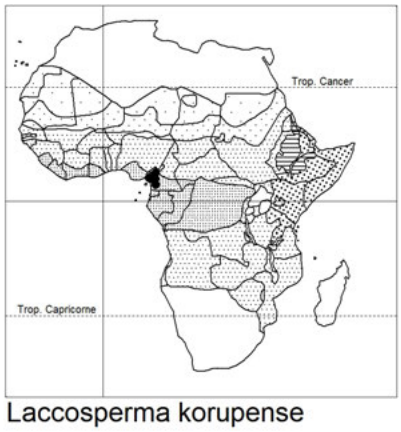
Hyphaene reptans



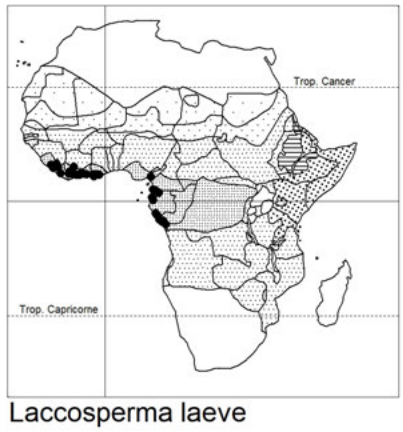
Hyphaene thebaica



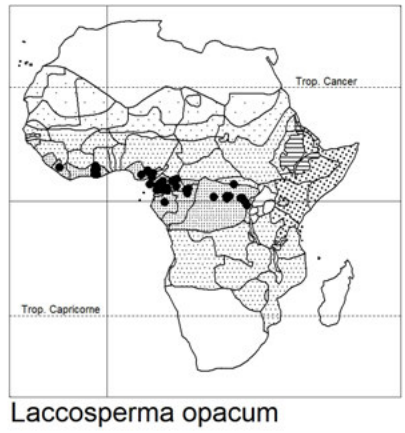
Laccosperma acutiflorum



Laccosperma korupense



Laccosperma laeve



Laccosperma opacum

H. macrosperma H. Wendl., Bot. Zeitung (Berlin) 39: 92 (1881).

syn.: *Chamaeriphes macrosperma* (H. Wendl.) Kuntze

This is an extremely poorly studied species only known from the original description proposed by Wendland (1881). This author only had fruit and seed material to establish the taxonomic identity of the palm. The fruits were described as ovate and slightly oblique, with a flat apical region, 7 cm long and 6 cm in diameter,

Its ecology remains unknown and no information was provided in the original description of the species.

Wendland (1881) indicated that the original material that he studied was collected in *"Central Afrika"* by Mr. Baiki. We suppose that he meant William Balfour Baikie (1825-1864), a Scottish explorer who visited the river Niger and many of its tributaries in at least two different expeditions. Although many publications (e.g. Govaerts & Dransfield, 2005) indicate that the species is endemic to Benin, its origin should be further verified as it may be also attributed to Nigeria. Additional information on this intriguing species may be found in any of the travel reports produced by Baikie.

No uses have been reported for this species.

H. petersiana Klotzsch ex Mart., Hist. Nat. Palm. 3(ed. 2): 227 (1845); Fl. Trop. E. Africa, Palmae: 24 (1986); Palm. Afr. 29 (1995); Checklist Zimbabwean vasc. pl. 33: 85 (2004); Tree Atlas Namib. 38 (2005); Checklist Zambian vasc. pl. 32: 106 (2005); Strelitzia 22: 172 (2008); Fl. Zambes. 13(2): 53 (2010). – Icon.: Fl. Trop. E. Africa, Palmae: 25, 154-156 (1986); Tree Atlas Namib. 39 (2005); Fl. Zambes. 13(2): 54 (2010).

syn.: *Chamaeriphes benguelensis* (Welw. ex H. Wendl.) Kuntze; *C. ventricosa* (J. Kirk) Kuntze; *H. aurantiaca* Dammer; *H. benguelensis* Welw. ex H. Wendl.; *H. benguelensis* var. *ventricosa* (J. Kirk) Furtado; *H. bussei* Dammer; *H. goetzei* Dammer; *H. obovata* Furtado; *H. ovata* Furtado; *H. plagiocarpa* Dammer; *H. ventricosa* J. Kirk; *H. ventricosa* subsp. *ambolandensis* Becc.; *H. ventricosa* subsp. *anisopleura* Becc.; *H. ventricosa* subsp. *aurantiaca* (Dammer) Becc.; *H. ventricosa* subsp. *benguelensis* (Welw. ex H. Wendl.) Becc.; *H. ventricosa* subsp. *bussei* (Dammer) Becc.; *H. ventricosa* subsp. *goetzei* (Dammer) Becc.; *H. ventricosa* subsp. *petersiana* (Klotzsch ex Mart.) Becc.; *H. ventricosa* subsp. *plagiocarpa* (Dammer) Becc.; *H. ventricosa* subsp. *russisiensis* Becc.; *H. ventricosa* subsp. *useguhensis* Becc.

Stem to 20 m tall and to 35 cm in diameter, solitary or very rarely clustered; leaves 20-25; fruits more or less rounded, obovoid or ovoid, never regularly compressed, 5-8 cm long and 5-6 cm wide, rich red-brown to chestnut

Hyphaene petersiana grows in the savannah or in secondary vegetation; it grows on sodic-saline alluvial soils with high water tables. In East Africa it grows in inland regions, usually confined to alkaline soils with relatively high water-tables; it is distributed from see level to 1300 m.

This species is sometimes confused with *Borassus aethiopum*, the two taxa being easily distinguished by the well-defined petiole-spines in *Hyphaene petersiana* vs. erose spines in *Borassus*, and the elongate pointed segments in *Hyphaene* vs. the stiffer, broader, more rounded segments in *Borassus* (Dransfield, 2010).

This species is distributed in Tanzania, occurring from Lakes Manyara and Eyasi southwards; common throughout the Zambesi region, reaching N. Transvaal, through the Democratic Republic of Congo to the West coast of Africa in Angola and Namibia.

The leaves of this palm are intensively collected for basket weaving and as documented by Dijkman (1999) this may represent a threat for wild populations in southern Zimbabwe

H. reptans Becc., Agric. Colon. 2: 151 (1908); Fl. Trop. E. Africa, Palmae: 23 (1986); Palm. Afr. 25 (1995). – Icon.: Palm. Afr. 156 (1995).

syn.: *H. migiurtina* Chiov.

This is an imperfectly studied taxon almost only known from the original description (cf. Beccari, 1908). It is apparently different from all other *Hyphaene* in its creeping habit, the several arms of the dichotomies radiating outwards from a central point, the stem flattened, tending to lie on the surface of the ground. Additional material is critical for a better understanding of this taxon.

This palm grows in extreme arid, desert conditions and associated with perched water tables.

This species is sometimes confused at vegetative stage with *Borassus aethiopum*, from which it can be distinguished by the presence of red dark rounded scales in the lamina and very indistinct lateral veins.

Hyphaene reptans is apparently restricted to Kenya, with reports to be confirmed in Somalia and Arabia.

No information has been reported on the economic importance of this species and in general it remains a poorly known palm that requires further study.

H. thebaica (L.) Mart., Hist. Nat. Palm. 3: 226 (1838); Fl. W. Trop. Afr., ed. 2 3(1): 169 (1968); Palm. Afr. 28 (1995); Fl. Ethiopia & Eritrea 6: 522 (1997); Fl. Egypt (Boulos) 3: 104 (2002); Fl. anal. Bénin: 58 (2006); Boissiera 55: 33 (2012). – Icon.: Palm. Afr. 151, 152 (1995); Palms 52: 23-27 (2008).

syn.: *Chamaeriphes crinita* (Gaertn.) Kuntze; *C. thebaica* (L.) Kuntze; *Corypha thebaica* L.; *Cucifera thebaica* (L.) Delile; *Douma thebaica* (L.) Poir.; *H. baikieana* Furtado; *H. crinita* Gaertn.; *H. cuciphera* Pers.; *H. dahomeensis* Becc.; *H. dankaliensis* Becc.; *H. nodularia* Becc.; *H. occidentalis* Becc.; *H. santoana* Furtado; *H. sinaitica* Furtado; *H. togoensis* Dammer ex Becc.; *H. tuleyana* Furtado; *Palma thebaica* (L.) Jacq.

Stem to 20 m tall, although reported of 4-5 m (Leeuwenberg 7588-WAG) and to 15-20 cm in diameter, frequently solitary or apparently forking below ground and producing 2 or more stems of more or less the same size; stems conspicuously branched; leaves 8-12; fruits ovoids, 4-6 cm long and 4-5 cm wide, brown to dark brown when ripe.

This is a palm of arid, desert climates, associated with the heavy soils of drainage lines and alluvial flats with high water tables.

The distribution of *H. thebaica* is rather complex due to the fact that the species is economically important and has traditionally been planted by human populations. It has been reported for the Sahel region (Burkina Faso, Mali, and Niger) and also in tropical West African countries (Côte d'Ivoire, Ghana and Senegal). This palm is also present in Cameroon, Somalia and Ethiopia (Tuley, 1995; Arbonier, 2009, Hedberg, & al., 2009). Its presence in Angola needs to be confirmed (Baker, 2008).

Possible hybridization of this species with other taxa of *Hyphaene* has been reported by several authors and observed by us in the Botanical Garden of the University of Accra (Ghana).

In some West African countries (e.g. Ghana, Nigeria) the petiole and the leaf blade are used for the elaboration of baskets hats and fans. The stems, in particular those from male individuals, are sold as timber due to its recognized resistance to insects. The fruits are known to be occasionally eaten. A detailed description on the leaf collecting practices in this species was carried out by Kahn and Luxereau (2008). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

LACCOSPERMA / *6*

The genus *Laccosperma* is composed of six species. It consists of pleonanthic, hermaphroditic, spiny palms; most often with high-climbing, clustered stems and pinnate leaves, the latter with a cirrus emerging from the rachis apex. The combination of hermaphroditic flowers and armed leaf sheaths observed in *Laccosperma* is unique among African rattans.

Largely distributed in lowland areas of West and Central Africa (Congo Basin).

Laccosperma is a shade tolerant rattan palm well represented in inundated or non-inundated areas of the lowland forest. It easily reaches the canopy, where it produces large inflorescences and infructescences.

Many species of *Laccosperma* are extremely important from a commercial point of view (Sunderland, 2007). Overexploitation of the wild populations is threatening the survival of many representatives of this rattan palm genus.

As pointed out by Sunderland (2012) relatively few informative specimens are available for this genus, which has strongly hindered its taxonomic study. Some large-diameter species of *Laccosperma* are still subject of confusion and require to be studied in more detail.

BAKER, W. J. (2008). Palmae. *In:* Plants of Angola (E. FIGEREIDO & G. F. SMITH, eds.). *Strelitzia* 22: 172-173.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

KOUASSI, E., K. KOUASSI & D. TRAORE (2005). Polymorphisme foliare des espèces de rotins de la forêt classée de la Haute Dodo (Côte d'Ivoire). *Rev. Ivoir. Sci. Technol.* 6: 259-279.

KOUASSI, K. I., S. BAROT, & I. A. ZORO BI (2009). Population structure and reproductive strategy of two multiple-stemmed rattans of Côte d'Ivoire. *Palms* 53: 20-30.

KOUASSI, K. I., S. BAROT, J. GIGNOUX & I. A. ZORO BI (2008). Demography and life history of two rattan species, Eremospatha macrocarpa and Laccosperma secundiflorum, in Côte d'Ivoire. *J. Trop. Ecol.* 24: 493-503.

LISOWSKI, S. (2009). Arecaceae. Flore (Angiospermes) de la République de Guinée. *Scripta Bot. Belg.* 41: 382-384.

SUNDERLAND, T. C. H. (2007). *Field guide to the Rattans of Africa*. Royal Botanic Gardens, Kew. Kew publishing 66 pp.

SUNDERLAND, T. C. H. (2012). A taxonomic revision of the rattans of Africa (Arecaceae: Calamoideae). *Phytotaxa* 51: 1-76.

Laccosperma acutiflorum (Becc.) J. Dransf., Kew Bull. 37: 456 (1982); Palm. Afr. 37 (1995); Pl. Mt Cameroon: 179 (1998); Woody Pl. W. Afr. Forest: 870 (2006); Field Guide Rattans Afr. 44 (2007); Phytotaxa 51: 56 (2012). –Icon.: Palm. Afr. 158-160 (1995); Field Guide Rattans Afr. 44, 45 (2007); Phytotaxa 51: 57 (2012).

syn.: *Ancistrophyllum acutiflorum* Becc.; *Neoancistrophyllum acutiflorum* (Becc.) Rauschert

Stems 30-50 (-70) m long, circular in cross-section; leaves up to 3.5 m long; cirrus 1.2-1.8 m long; leaflets to 50 on each side of the rachis, linear-lanceolate, regularly inserted and more or less equal in size; inflorescences to 2 m long; flowers 1-1.2 cm long and 3 mm wide; fruits oblong-obovoid, 1.8-2 cm long and 1.3-1.5 cm in diameter, covered with brown scales when ripe.

This is a light demanding species commonly found in open or disturbed areas. It grows commonly in seasonally-inundated and swamp forest although it can be also present in drier areas.

Laccosperma acutiflorum is widely distributed from Sierra Leone to Cameroon south to Gabon and the Democratic Republic of Congo (Sunderland, 2012).

Frequently confused with *L. secundiflorum* from which it can be easily distinguished by the presence of linear-lanceolate (vs. sigmoid) leaflets. The leaf polymorphism of this species in Ivory Coast was studied by Kouassi (2005).

Despite the large stem size, this species is reported to possess very poor quality cane and therefore is rarely used (Sunderland, 2007).

L. korupense Sunderl., Kew Bull. 58: 989 (2003 publ. 2004); Field Guide Rattans Afr. 42 (2007); Phytotaxa 51: 43 (2012). – Icon.: Field Guide Rattans Afr. 42, 43 (2007); Phytotaxa 51: 44 (2012); Palms 57: 127 (2013).

syn.: none reported in the literature.

Stems to 10 m long, slightly oval in cross-section; leaves up to 1 m long; cirrus 70 cm long; leaflets 10-18 on each side of the rachis, opposite or sub-opposite, linear-lanceolate, irregularly inserted in the rachis. The inflorescences, flowers and fruits of this species are unknown.

This species has been reported growing in the lowland forest understory.

Restricted to the coastal forests of Cameroon, locally abundant in the Korup National Park and surrounding areas (Sunderland, 2012).

This is a relatively recently published species that is well defined by some vegetative characters (e.g. lack of acanthophylls on the cirrus); however, it remains critical to collect the reproductive organs in order to better establish its taxonomic identity.

No uses have been reported for this species (Sunderland, 2007).

L. laeve (G. Mann & H. Wendl.) Kuntze, Revis. Gen. Pl. 2: 729 (1891); Palm. Afr. 39 (1995); Woody Pl. W. Afr. Forest: 870 (2006); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 38 (2007); Strelitzia 22: 173 (2008); Boissiera 64: 215 (2011); Phytotaxa 51: 49 (2012). – Icon.: Field Guide Rattans Afr. 38-41 (2007).

syn.: *Ancistrophyllum laeve* (G. Mann & H. Wendl.) Drude; *Calamus laevis* G. Mann & H. Wendl.; *Neoancistrophyllum laeve* (G. Mann & H. Wendl.) Rauschert ex J. Dransf.

Stems to 12-14 m long, circular in cross-section; leaves up to 1.5 m long; cirrus up to 70 cm long; leaflets 2-4-folded, 10-12 on each side of the rachis, sigmoid, inequidistant and unequal in size; inflorescences 40-50 cm long; flowers 6-8 mm long and 2-3 mm wide; fruits ovoid at maturity, to 1cm long and 6-8 mm in diameter, covered with bright red to orange scales when ripe.

This is a deep shade tolerant species commonly found in high forest in the lower to mid-canopy (Sunderland, 2012).

Laccosperma laeve is distributed from Liberia and Ivory Coast to Cameroon and Gabon (Sunderland, 2012). Its presence in Angola was reported by Baker (2008). The species has not been reported in Ghana, Togo, Benin and Nigeria but this may be an artefact of collection and the palm may be found in these countries with additional botanical efforts. Indeed, we found this species during a recent visit to the Ankasa Natural Reserva (South-Western Ghana).

This species can sometimes be confused with *L. opacum*, from which it can be easily distinguished by the presence of unarmed leaflet margins. The two species often grow sympatrically.

Rarely used for basketry or weaving although in Gabon the stems are pounded and woven into a rope. In the Congo the roots are roasted and eaten to improve virility (Sunderland, 2007). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

LACCOSPERMA

L. opacum Drude, Bot. Zeitung (Berlin) 35: 635 (1877); Palmiers: 249 (1878); Revis. Gen. Pl.: 729 (1891); Fl. Trop. E. Africa, Palmae: 36 (1986); Pl. Mt Cameroon: 179 (1998); Fl. anal. Bénin: 58 (2006); Check-list Pl. Vasc. Gabon: 320 (2006); Woody Pl. W. Afr. Forest: 870 (2006); Field Guide Rattans Afr. 35 (2007); Boissiera 64: 215 (2011); Phytotaxa 51: 46 (2012). – Icon.: Palm. Afr. 38 (1995); Field Guide Rattans Afr. 35-37 (2007); Phytotaxa 51: 47 (2012).

syn.: *Ancistrophyllum opacum* (Drude) Drude; *Calamus opacus* G. Mann & H. Wendl. (nom. illeg.); *Neoancistrophyllum opacum* (Drude) Rauschert ex J. Dransf.; *Palmijuncus opacus* (Drude) Kuntze

Stems to 10-15 m long, circular in cross-section; leaves up to 1.2 m long; cirrus 50 cm long; leaflets 2-4-folded, 10-12 on each side of the rachis, sigmoid, inequidistant and unequal in size; inflorescences up to 40 cm long; flowers 8 mm long and 2 mm wide; fruits rounded, 1.2 cm in diameter, covered with pale-brown scales.

This is an extremely deep shade tolerant species commonly found in high forest in the lower to mid-canopy (Sunderland, 2012). *L. opacum* prefers well-drained soils.

Laccosperma opacum is distributed from Liberia and Ivory Coast to Cameroon, Gabon and the Congo Basin to eastern Democratic Republic of Congo (Sunderland, 2012).

This species can sometimes be confused with *L. laeve*, from which it can be easily distinguished by the presence of armed leaflet margins.

This species is rarely used for basketry or weaving although the stems are cut and the potable sap drunk, and the palm heart may be roasted and eaten (Sunderland, 2007). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

L. robustum (Burret) J. Dransf., Kew Bull. 37: 457 (1982); Check-list Pl. Vasc. Gabon: 320 (2006); Field Guide Rattans Afr. 46 (2007); Strelitzia 22: 173 (2008); Phytotaxa 51: 58 (2012). – Icon.: Field Guide Rattans Afr. 46, 47 (2007); Phytotaxa 51: 60 (2012); Palms 57: 125 (2013).

syn.: *Ancistrophyllum robustum* Burret; *Neoancistrophyllum robustum* (Burret) Rauschert

Stems to 30-45 m long, circular in cross-section; leaves up to 3.5 m long; cirrus 1.5-2 m long; leaflets 45-65 on each side of the rachis, linear-lanceolate, equidistant or inequidistant depending of the level of the rachis, conspicuously pendant; inflorescences poorly known; flowers 1 cm long and 2,5-3 mm wide; fruits oblong-obovoid, 1.2-1.5 cm long and 0.8-1.2 cm in diameter.

This species grows commonly in forest gaps and disturbed areas; it is present equally in seasonally-inundated or non-inundated areas.

Laccosperma robustum is a common species distributed from SE Nigeria to the Central Congo Basin (Sunderland, 2012). Its presence in Angola was reported by Baker (2008).

Frequently confused with other large diameter species of *Laccosperma (L. acutiflorum, L. secundiflorum)* from which it can be distinguished by its pendant (vs. horizontally arranged) leaflets.

Highly prized as a source of cane and widely traded throughout its range. The whole stems are used predominantely for furniture frames or are split and woven for coarse basketry (Sunderland, 2007).

LACCOSPERMA

L. secundiflorum (P. Beauv.) Kuntze, Revis. Gen. Pl. 2: 729 (1891); Palm. Afr. 36 (1995); Pl. Mt Cameroon: 179 (1998); Fl. anal. Bénin: 58 (2006); Woody Pl. W. Afr. Forest: 870 (2006); Check-list Pl. Vasc. Gabon: 321 (2006); Field Guide Rattans Afr. 48 (2007); Fl. Rép. Guinée: 384 (2009); Boissiera 64: 215 (2011); Phytotaxa 51: 51 (2012). – Icon.: Palm. Afr. 160 (1995); Field Guide Rattans Afr. 48, 49 (2007); Phytotaxa 51: 52 (2012).

syn.: *Ancistrophyllum laurentii* De Wild.; *A. majus* Burret; *A. secundiflorum* (P. Beauv.) G. Mann & H. Wendl.; *Calamus secundiflorus* P. Beauv.; *Laccosperma laurentii* (De Wild.) J. Dransf.; *L. majus* (Burret) J. Dransf.; *Neoancistrophyllum laurentii* (De Wild.) Rauschert; *N. majus* (Burret) Rauschert; *N. secundiflorum* (P. Beauv.) Rauschert

Stems to 30-50 m long, circular in cross-section; leaves up to 3.5 m long; cirrus 1.5-1.8 m long; leaflets 2-4-folded, 25-40 on each side of the rachis, sigmoid, regularly inserted and more or less equal in size; inflorescences 2.5-3 m long; flowers 1-1.2 cm long and 3-3.5 mm wide; fruits ovoid-oblong, 1-1.2 cm long and 0.8-1.2 cm in diameter, in development covered with bright red scales, the latter becoming brown when ripe.

This is a lowland high forest species, commonly found under a forest canopy. Ecological studies on the population structure, reproductive strategy and life history of this species in Ivory Coast were undertaken by Kouassi & al. (2008, 2009). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

Laccosperma secundiflorum is widely distributed from Senegal to Cameroon south to the Democratic Republic of Congo (Lisowski, 2009; Sunderland, 2012). Its presence in Cabinda requires to be verified (Baker, 2008).

Most large diameter species of *Laccosperma* have been treated as a *L. secundiflorum* complex; however, Sunderland (2012) provided arguments to clearly distinguish all of them *(L. acutiflorum, L. secundiflorum, L. robustum)* as different taxonomic entities.

This is the most frequently used large diameter rattan in Africa, especially used in the construction of furnitures. The canes are used for the frame of chairs, armchairs and beds and also used to make fish traps and baskets (Sunderland, 2007; Ouattara & Stauffer in prep.).

LIVISTONA / *1*

The genus *Livistona* (36 spp.) is pleonanthic, hermaphroditic and contains species with small to large growth habit and palmate or costapalmate leaves. *Livistona* is distributed from Africa and Arabia to the Hymalayas and Ryukyu Islands, south through Indochina and Malesia to New Guinea, the Solomon Islands and Australia (Dransfield & al., 2008; Dowe, 2009). The ecology of the genus is extremely diverse, including species from lowland and montane forest, subtropical woodlands, savannahs and desert areas.

DOWE, J. (2003). The non-Australian species of Livistona. *Palms & Cycads* 79-80: 4-13.

DOWE, J. (2009). A taxonomic account of Livistona R. Br. (Arecaceae). *Gard. Bull. Singapore* 60: 185-344.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

FORD, H. & C. BEALY (2004). Status of the Bankoualé palm, Livistona carinensis, in Djibouti. *Palms* 48: 94-101.

SHAPCOTT, A., J. L. DOWE & H. FORD (2009). Low genetic diversity and recovery implications of the vulnerable Bankoualé palm Livistona carinensis (Arecaceae), from north-eastern Africa and the southern Arabian Peninsula. *Conserv. Genet.* 10: 317-327.

LIVISTONA

Livistona carinensis (Chiov.) J. Dransf. & N. W. Uhl, Kew Bull. 38: 200 (1983); Gard. Bull. Singapore 60: 252 (2009). – Icon.: Palm. Afr. 145 (1995); Palms & Cycads 79-80: 10, 11, 13 (2003); Palms 48: 94, 96, 97 (2004); Gard. Bull. Singapore 60: 332 (2009).

syn.: *Hyphaene carinensis* Chiov.; *Wissmannia carinensis* (Chiov.) Burret

Stem to 40 m tall and to 40 cm in diameter, covered with prominent leaf scar; leaves 30-40, forming a globose to conical crown; fruits globose, 0.5-2 (-5) cm of diameter, dark brown to black.

Livistona carinensis grows in or adjacent to intermittently flowing streams or soaks in valley bottoms, but never fully dry soils, in semi-arid regions with less than 400 mm per year.

This species is endemic from north-eastern Africa and the Southern Arabian Peninsula. It has been reported in Djibouti (Goda Mountains), Somalia (Carin, Uncad, Galgala, Marajo, Duub Shabeel and Xamur) and Yemen (in the Hadramaut region at El Mintaq and Wadi Hadjer), normally growing between 200 and 975 m (Tuley, 1995; Dowe, 2003, 2009). The populations in Yemen and Somalia are highly significant for the conservation of the species genetic diversity (Shapcott & al., 2009). Ecological data (e.g. population structure and regeneration) on wild populations from Djibouti was presented by Ford and Bealy (2004).

Based on morphology this species is similar to other *Livistona* from western and northwestern Australia, but this appears to be an example of ecological convergence. At species level *L. carinensis* contains very low genetic diversity (Shapcott & al., 2009).

The stem of this palm have been reported to be useful for timber, which has produced a rapid decline of wild populations throughout its range of distribution.

MEDEMIA / *1*

The genus *Medemia* (1-2 spp.) is pleonanthic, dioecious, with large growth habit and costapalmate leaves. *Medemia* is distributed in Egyptian Nubia and northeastern Sudan. The recognition of one *(M. argun)* or two species *(M. abiadensis, M. argun)* has been subject of some debate (Boulos, 1968; Tuley, 1995; Gibbons & Spanner, 1996) and requires of further study.

Wild populations of *Medemia* have been reported to grow on desert conditions as well as transitional areas of desert-savannah; occasionally associated to seasonal rivers, dry for most of the year.

Confusion of *Medemia* with some members of *Hyphaene* can be avoided by noting the absence of petiole spines, the short tapered costa and the absence of any hastula (Tuley, 1995).

BOULOS, L. (1968). The discovery of Medemia palm in the Nubian desert of Egypt. *Bot. Notiser.* 121: 118-120.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

GIBBONS, M. & T. SPANNER (1996). Medemia argun lives. *Principes* 40: 65-74.

IBRAHIM, H. & W. J. BAKER. (2009). Medemia argun past, present and future. *Palms* 53: 9-19.

TULEY, P. (1995). *The Palms of Africa*. The Trendrine Press, UK, 189 pp

MEDEMIA

Medemia argun (Mart.) Württemb. ex H. Wendl., Bot. Zeitung (Berlin) 39: 93 (1881); Bot. Notiser. 121: 117 (1968); Palm. Afr. 32 (1995); Principes 40: 73 (1996). – Icon.: Bot. Notiser. 121: 118 (1968); Palm. Afr. 157 (1995); Principes 40: 68, 70-72 (1996).

syn.: *Areca passalacquae* Kunth (name attributed to a fossil); *Hyphaene argun* Mart.; *Medemia abiadensis* H. Wendl.

Stem to 10 m tall and to 30-40 cm in diameter, solitary, robust and conspicuously ringed; leaves 25-50, forming a dense, rounded crown; fruits ovoid, 4-5 cm long and 2.7-3 cm wide, shiny, dark violet to black at maturity.

As indicated in the genus description this species grows on desert conditions as well as transitional areas of desert-savannah.

Gibbons and Spanner (1996) pointed out that based on differences of fruit size and ecological conditions *M. argun* and *M. abiadensis* may be regarded as different species and suggest that further studies should be undertaken in order to assess the taxonomic identity of these palms.

This species is endemic from Egyptian Nubia and north-eastern Sudan.

Leaves of juvenile palms are used as material for making rope and mats (Gibbons and Spanner, 1996). *Medemia argun* is considered a very rare and hence highly endangered palm. The uncontrolled use of the leaves may be regarded as an additional threat for the palm. A detailed historical account on *M. argun* in Egypt, including data on the populations and their conservation status was published by Ibrahim & Baker (2009).

NYPA / *1*

The genus *Nypa* is monotypic and corresponds to a palm subfamily on its own (Nypoideae). It is pleonanthic, monoecious, with a prostrate growth habit, dichotomously branching stems, large pinnate leaves and an unusual inflorescence composed by one apical head-like aggregate composed of female flowers and between 5 and 10 axillar spikes of male flowers sparsely inserted in a longitudinal rachis.

Nypa is naturally distributed from Sri Lanka and the Ganges Delta to Australia, the Solomon Islands and the Ryukyu Islands. Introduced in the late 19th century to the Niger Delta in West Africa, *Nypa* has now spread thence to western Cameroon (Tuley, 1995; Sunderland & Morakinyo, 2002; Beentje & Bandeira, 2007; Dransfield & al., 2008)

Nypa is widely recognized as a mangrove palm, occurring in a large diversity of estuarine situations often subject to inter-tidal conditions; it usually grows in soft mud, often in extensive and very dense natural stands (Tuley, 1995; Dransfield & al., 2008).

BEENTJE, H. & S. BANDEIRA (2007). Palmae. *Field guide to the mangrove trees of Africa and Madagascar*. Kew publishing, Royal Botanic Gardens, 90 pp.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

LETOUZEY, R. (1978). Notes phytogeographiques sur les palmiers du Cameroun. *Adansonia* 18: 293.

SUNDERLAND, T. C. H. & A. B. MORAKINYO (2002). Nypa fruticans, a weed in West Africa. *Palms* 46: 154-155.

TULEY, P. (1995). *The Palms of Africa*. The Trendrine Press, UK, 189 pp

NYPA

Nypa fruticans Wurmb, Verh. Batav. Genootsch. Kunsten 1: 349 (1779); Bot. Mangr. 295 (1994); Palm. Afr. 85 (1995); Mangr. Trees Afr. & Mad. 32 (2007). – Icon.: Palm. Afr. 86, 180 (1995); Bot. Mangr. 296, 297 (1994); Mangr. Trees Afr. & Mad. 32 (2007).

syn.: *Cocos nypa* Lour.; *Nipa arborescens* Wurmb ex H. Wendl.; *N. fruticans* (Wurmb) Thunb.; *N. litoralis* Blanco; *Nypa fruticans* var. *neameana* F. M. Bailey

Stems short, prostrate or subterranean, up to 70 cm across; leaves 5-10, up to 10 m long; inflorescence emerging from the mud, 1-1.5 m long; fruits forming a globose head of 15-20 cm in diameter, compressed and irregularly angled, 10-12 cm long and 5-7 cm wide, dark brown at maturity.

As indicated in the genus description this species grows on a large diversity of estuarine situations often subject to inter-tidal conditions.

The morphology and ecology of this palm are almost unique among African palms. The identification of the species is relatively easy, especially when observing the structure of the inflorescence or the infructescence.

This palm was introduced from Singapore in 1906 and 1912 and again 1946. Nowadays it is spread from Lagos to the Woury Estuary near Douala (Sunderland & Morakinyo, 2002). According to Tuley (1995) there are now reservations with regard to its colonial power as it could possibly be achieving the status of a serious weed, to the exclusion of the native mangrove species.

For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997); this species is sometimes used for thatching (Beentje & Bandeira, 2007).

ONCOCALAMUS / *4*

The genus *Oncocalamus* is composed of four species. It consists of pleonanthic, monoecious, spiny palms; most often with high-climbing, clustered stems, entire-bifid leaves when juvenile and pinnate leaves at maturity, the latter with a cirrus emerging from the rachis apex. *Oncocalamus* can be easily distinguished from all other African rattans due to the presence of a very complex floral arrangement. In fact, flowers are arranged in a central group of 1-3 female flowers flanked by 2 lateral cincinni of 2-4 male flowers.

This genus has a distinct Guineo-Congolian distribution and ranges from south-eastern Nigeria to northern Angola (Baker, 2008; Sunderland, 2012).

Oncocalamus grows predominantly in lowland tropical rain forest.

Some publications have argued that *Oncocalamus* is composed of only one polymorphic species *(O. mannii);* however, the most recent taxonomic assessment of the genus (Sunderland, 2012) has demonstrated that it contains four well defined species.

Unlike other African rattans almost no uses have been reported for the genus; however, they may be locally used as a source of cane (Dransfield & al., 2008).

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

SUNDERLAND, T. C. H. (2012). A taxonomic revision of the rattans of Africa (Arecaceae: Calamoideae). *Phytotaxa* 51: 1-76.

ONCOCALAMUS

Oncocalamus macrospathus Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 749 (1942); Check-list Pl. Vasc. Gabon: 321 (2006); Field Guide Rattans Afr. 54 (2007); Strelitzia 22: 173 (2008); Phytotaxa 51: 68 (2012). – Icon.: Field Guide Rattans Afr. 54, 55 (2007); Phytotaxa 51: 69 (2012).

syn.: none reported in the literature.

Stems to 30-35 m long; leaves up to 2 m long; cirrus 1.5 m long; leaflets 25-40 on each side of the rachis, linear-lanceolate or slightly sigmoid, regularly inserted and more or less equal in size; inflorescences 30-40 cm long; flowers 5 mm long and 3.5-4.5 mm wide; fruits more or less globose, 1.8-2 cm in diameter.

This species is found in forest margins, tree-fall gaps and other open areas and is particularly common in seasonally-inundated forest alongside water courses.

Onococalamus macrospathus is distributed from Cameroon, south of the Sanaga River, to Cabinda (Baker, 2008; Sunderland, 2012).

No uses have been recorded for this species (Sunderland, 2007).

O. mannii (H. Wendl.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers: 252 (1878); Fl. W. Trop. Afr., ed. 2 3(1): 168 (1968); Palm. Afr. 83 (1995); Pl. Mt Cameroon: 179 (1998); Bases Doc. Fl. Guinea Equat.: 375 (1999); Check-list Pl. Vasc. Gabon: 321 (2006); Field Guide Rattans Afr. 51 (2007); Phytotaxa 51: 65 (2012). – Icon.: Palm. Afr. 178, 179 (1995); Field Guide Rattans Afr. 51-53 (2007); Phytotaxa 51: 66 (2012); Palms 57: 125, 126 (2013).

syn.: *Calamus mannii* H. Wendl.; *C. niger* J. Braun & K. Schum. (nom. illeg.); *O. acanthocnemis* Drude; *O. phaeobalanus* Burret

Stems to 15-30 m long; leaves up to 1.2 m long; cirrus 60 cm long; leaflets 25-35 on each side of the rachis, linear-lanceolate or slightly sigmoid, regularly inserted and more or less equal in size; inflorescences 30-35 cm long; flowers 5-6 mm long and 2-3 mm wide; fruits more or less globose to sub-globose, 1.8-2.2 cm long and 1.6-2 cm in diameter.

This species is common in open areas, roadside and forest gaps.

Onococalamus mannii is distributed from southern Cameroon to Gabon (Sunderland, 2012). Its presence in Cabinda requires to be verified (Baker, 2008).

For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997). The cane of this species is poor in quality as it is rather inflexible and prone to breaking. However, in particularly the absence of other specie, *O. mannii* can be employed for basketry (Sunderland, 2007).

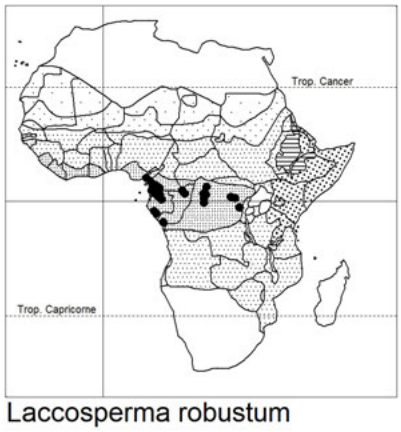
O. tuleyi Sunderl., J. Bamboo Rattan 1: 365 (2002); Field Guide Rattans Afr. 57 (2007); Phytotaxa 51: 71 (2012). – Icon.: Field Guide Rattans Afr. 57-59 (2007).

syn.: none reported in the literature.

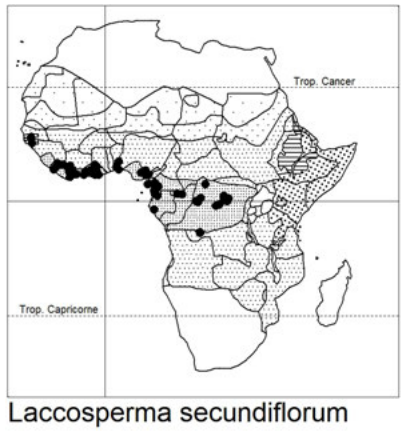
Stems to 30 m long; leaves up to 2 m long; cirrus 0.6-1 m long; leaflets 30-50 on each side of the rachis, linear-lanceolate or slightly sigmoid, regularly inserted and more or less equal in size; inflorescences 35-40 cm long; flowers at anthesis not known; fruits more or less globose, 1.9-2.1 cm long and 1.6-1.8 cm in diameter.

This species is present at the forest edge, adjacent to open areas, and in gap regrowth vegetation in forest.

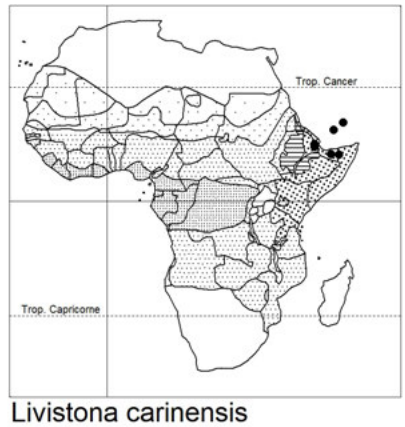
Onococalamus tuleyi is restricted to coastal forest from SE Nigeria to SW Cameroon, north of the Sanaga River and is allopatric with *O. mannii* (Sunderland, 2012).



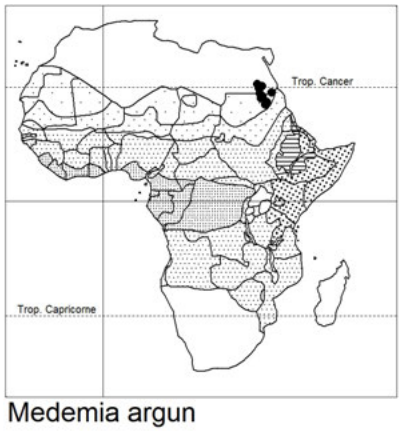
Laccosperma robustum



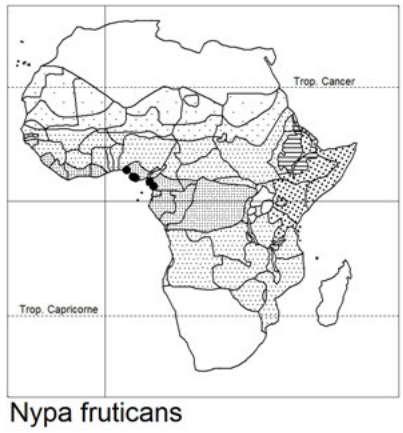
Laccosperma secundiflorum



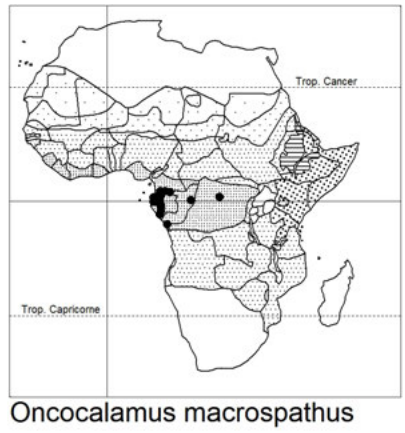
Livistona carinensis



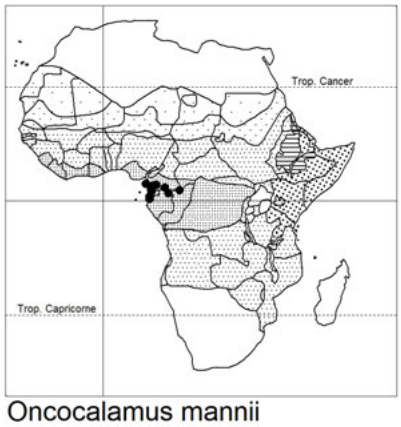
Medemia argun



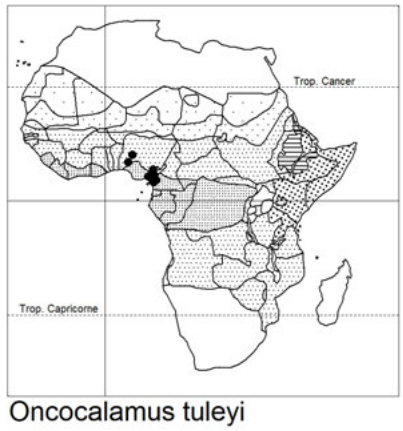
Nypa fruticans



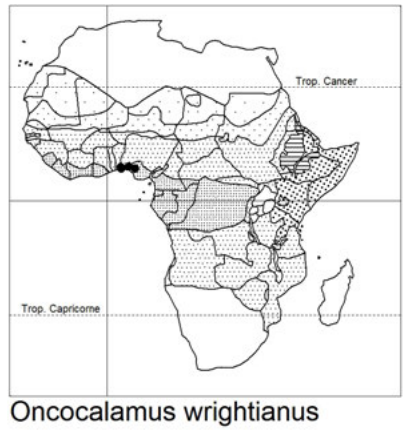
Oncocalamus macrospathus



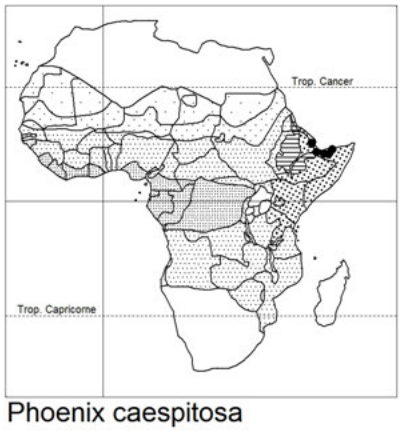
Oncocalamus mannii



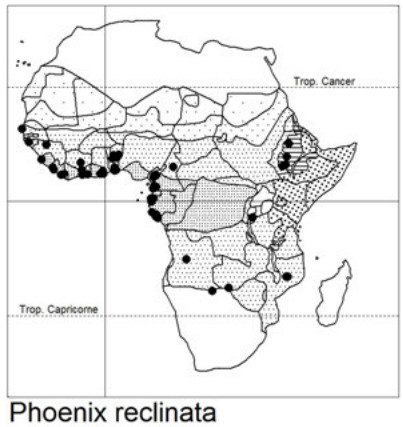
Oncocalamus tuleyi



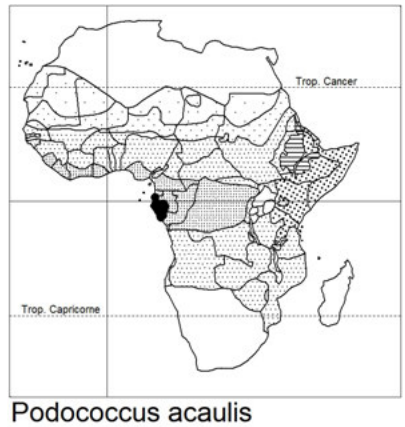
Oncocalamus wrightianus



Phoenix caespitosa



Phoenix reclinata



Podococcus acaulis

ONCOCALAMUS TULEYI

The base of the leaf sheath is often used by the indigenous communities of south-western Cameroon as chew-stick and in Nigeria the stem epidermis is often used for tying yams to their climbing poles (Sunderland, 2007).

O. wrightianus Hutch., Kew Bull. 17: 181 (1963); Fl. W. Trop. Afr., ed. 2 3(1): 168 (1968); Fl. anal. Bénin: 59 (2006); Field Guide Rattans Afr. 60 (2007); Phytotaxa 51: 63 (2012). – Icon.: Field Guide Rattans Afr. 60 (2007); Phytotaxa 51: 64 (2012).

syn.: none reported in the literature.

Stems to 10 m long; leaves up to 60 m long, unarmed; cirrus 35-45 cm long; leaflets composed of 2-4 folds, broadly lanceolate, ovate or sigmoid; inflorescences, flowers and fruits unknown.

This species has been reported growing in swamp forest.

Onococalamus wrightianus is present from south Benin to sowth-western Nigeria (Sunderland, 2012).

It is critical to collect and thoroughly study the reproductive organs of this still imperfectly known species in order to better establish its morphologic and taxonomic identity.

In Nigeria the split stem is used to make tying materials of different sorts (Sunderland, 2007).

PHOENIX / *2*

The genus *Phoenix* (14 spp.) is one of the most emblematic genera in the palm family. The genus is pleonanthic, dioecious and it is composed of species with dwarf to large and massive growth form, solitary or multiple stems and pinnate leaves; inflorescences interfoliar.

It is distributed from the Atlantic islands through Africa, Crete, the Middle East and India to Honkong, Taiwan, Philippines, Sumatra and Malaya (Barrow, 1998; Dransfield, 2008); two species have been reported in tropical Africa. One species (*P. atlantica* A. Chev.) present in Cape Verde Island (Henderson & al., 2006).

Many species of *Phoenix* (e.g. *P. dactylifera*) are of important commercial value in different countries throughout the range of distribution. In fact, almost all parts of these palms are extremely useful at a local context and in the case of the date palm the fruits (fresh or dried) are commercialized at a large scale.

BAKER, W. J. (2010). Palmae. *In: The plants of Dom, Bamenda Highlands, Cameroon* (CHEEK, M., Y. HARVEY & J. M. ONANA, eds.). Royal Botanic Gardens, Kew, 162 pp.

BARROW, S. (1998). A Monograph of Phoenix L. (Palmae: Coryphoideae). *Kew Bull.* 53: 513-575.

CHEVALIER, A. (1952). Recherches sur les Phoenix africains. *Revue Int. Bot. Appl. Agric. Trop*. 32: 205-356.

COLLENETTE, S. (1985). *An illustrated guide to the flowers of Saudi Arabia.* Scorpion publishing Ltd., London.

DARBYSHIRE, I. & M. CHEEK (2004). Palmae. *In: The plants of Bali Ngemba forest reserve, Cameroon* (HARVEY, Y., J. POLLARD, I. DARBYSHIRE, J. M. ONANA & M. CHEEK, eds.) A Conservation Check-list. Royal Botanic Gardens- Kew and National Herbarium of Cameroon. RBG, Kew. UK. 154 pp.

DRANSFIELD, J. (2010). Arecaceae (Palmae). *In:* TIMBERLAKE, J. R. & E. S. MARTINS (eds.). *Flora Zambesiaca* 13: 35-68.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

HENDERSON, S., N. BILLOTTE & J.-C. PINTAUD (2006). Genetic isolation of Cape Verde Island Phoenix atlantica (Arecaceae) revealed by microsatellite markers. *Conservation Genetics* 7: 213-223.

MOORE, H. E. (1971). Wednesdays in Africa. *Principes* 15: 111-119.

PHOENIX

Phoenix caespitosa Chiov., Fl. Somala 1: 317 (1929); Palm. Afr. 17 (1995); Kew Bulletin 53: 543 (1998).

syn.: *P. arabica* Burret

Stemless palm, clustering and forming extensive thickets; leaves to 3 m long; leaflets up to 50 on each side of rachis, inserted in 1-2 planes of orientation; fruits spheroid-ovoid, 10-16 mm long and 8-12 mm in diameter, deep orange to purplish brown when ripe.

Phoenix caespitosa grows in dry wadis, semi-desert bushland and rocky crevices up to 900 m in Somalia (Thulin, 1995) and up to 1950 m in Saudi Arabia (Collenette, 1985).

According to Barrow (1998) this species has been reported for Somalia (Sanag, Nugaal and Bari regions) and apparently also in Djibouti (near Bankoualé) based on a report of Moore (1971). It may be also present in the Arabian Peninsula.

No uses have been reported for this species.

P. reclinata Jacq., Fragm. 1: 27 (1801); Fl. W. Trop. Afr., ed. 2 3(1): 169 (1968); Ethnobotany of the Kwanyama Ovambos: 120-121 (1985).; Fl. Trop. E. Africa, Palmae: 15 (1986); Scripta Bot. Belg. 4: 107 (1993); Palm. Afr. 16 (1995); Fl. Ethiopia & Eritrea 6: 515 (1997); Kew Bulletin 53: 533 (1998); Pl. Mt Cameroon: 180 (1998); Bases Doc. Fl. Guinea Equat.: 375 (1999); S. Afr. Bot. Div. Network Report 33: 85 (2004); Prelim. checklist vasc. pl. Mozambique 30: 120 (2004); Checklist Zambian vasc. pl. 32: 106 (2005); Check-list Pl. Vasc. Gabon: 321 (2006); Strelitzia 22: 173 (2008); Fl. Rép. Guinée: 384 (2009); Fl. Zambes. 13(2): 49 (2010); Boissiera 64: 215 (2011); Boissiera 65: 34 (2012). – Icon.: Fl. Trop. E. Africa, Palmae: 16 (1986); Palm. Afr. 94, 146-148 (1995); Garcia Orta, Sér. Bot. 16: 49 (2002); Fl. Zambes. 13(2): 51 (2010).

syn.: *Fulchironia senegalensis* Lesch.; *P. abyssinica* Drude; *P. baoulensis* A. Chev.; *P. comorensis* Becc.; *P. djalonensis* A. Chev.; *P. dybowskii* A. Chev.; *P. equinoxialis* Bojer; *P. leonensis* Lodd. ex Kunth; *P. reclinata* var. *comorensis* (Becc.) Jum. & H. Perrier; *P. reclinata* var. *madagascariensis* Becc.; *P. reclinata* var. *somalensis* Becc.; *P. spinosa* Schumach. & Thonn.

Clustering palm often forming extensive thickets; stem 10-12 m long; leaves arcuate, 2-3.5 m long; leaflets 80-130 on each side of rachis, regularly arranged distally in one plane of orientation but medial and basally arranged in groups of 3-5; fruits ovoid-ellipsoid to almost obovoid, 13-20 mm long and 7-13 mm in diameter, yellow to bright orange when ripe.

Phoenix reclinata grows in extremely different habitats including seasonally inundated areas, riverine forest, and coastal savannahs and even in rain forest conditions (Barrow, 1998).

This species occurs throughout tropical and subtropical Africa, northern and south-western Madagascar and the Comoro Islands (Barrow, 1998). This is a common lowland species, reported by Darbyshire & Cheek (2004) and Baker (2010) growing up to 1570-1650 m in North-West Cameroon.

According to Barrow (1998) the vegetative polymorphism of the species, most probably related to ecological conditions, has led to recognition of certain extreme phenotypes as distinct species or varieties. Many of these taxa were described by Chevalier (1952).

All parts of this species (e.g. trunks, leaves, palm heart) are used for a wide range of purposes (Barrow, 1998). Dransfield (1982, 2010) pointed out that this species is widely used in East Africa as a source of material for fine weaving and that the fruits are rarely eaten. The fruits have been reported to be eaten in Guiné-Bissau (Diniz & Martins, 2002) and also in Ivory Coast. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

PODOCOCCUS / *2*

The genus *Podococcus* is represented by only two species and consists of pleonanthic, monoecious palms, acaulescent or when the stem aerial then erect, solitary or clustered; leaves pinnate; inflorescences interfoliar, rarely infrafoliar, spicate, bearing male and female flowers.

The genus *Podococcus* is distributed from the Niger Delta almost to the Congo River, in a band no further than 200 km from the coast with conspicuous disjunction between the Cross River in Nigeria and the Sanaga River in Cameroon. The genus is present in lowland evergreen forest on *terra firme*, but also on relatively dry patches in swamp forest; from sea level to 700 m.

AEDO, C., T. TALLERIA & M. VELALLOS (1999). *Bases documentales para la flora de Guinea Ecuatorial: Plantas vasculares y hongos*. CSIC, Real Jardín Botánico de Madrid.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

VAN VALKENBURG, J. L. C. H. & T. C. H. SUNDERLAND (2008). A revision of the genus Podococcus (Arecaceae). *Kew Bull.* 63: 251-260.

VAN VALKENBURG, J., T. SUNDERLAND, L. NGOK BANAK & Y. ISSEMBÉ (2007). Sclerosperma and Podococcus in Gabon. *Palms* 51: 77-83.

Podococcus acaulis Hua, Bull. Mus. Hist. Nat. (Paris) 1: 315 (1895); Check-list Pl. Vasc. Gabon: 321 (2006); Kew Bulletin 63: 253 (2008). – Icon.: Kew Bulletin 63: 254 (2008).

syn.: none reported in the literature.

Clustering acaulescent palm; leaves broadly radiating from base; leaflets to 10 on each side of rachis, rhomboid, subopposite, with praemorse margins; fruits narrowly ovoid or with narrowly ovoid lobes, 2-3 cm long and 0,5-1 cm in diameter, olive-green turning purplish brown when ripe.

Podococcus acaulis is distributed in Gabon and the region just crossing the Republic of Congo border.

This species grows in lowland evergreen forest on *terra firma* including low hills, sometimes reported along streams, persisting in logged forest or present in old secondary forest.

No uses have been reported for this species

P. barteri G. Mann & H. Wendl., Trans. Linn. Soc. London 24: 426 (1864); Fl. W. Trop. Afr., ed. 2 3(1): 160 (1968); Palm. Afr. 88 (1995); Bases Doc. Fl. Guinea Equat.: 377 (1999); Check-list Pl. Vasc. Gabon: 321 (2006); Kew Bulletin 63: 253 (2008); Strelitzia 22: 173 (2008). – Icon.: Palm. Afr. 89, 181, 182 (1995); Kew Bulletin 63: 254 (2008).

syn.: none reported in the literature.

Small, solitary or clustered palm; stem erect, to 2 (-3) m tall; leaves undivided when juvenile becoming pinnate when adult; leaflets to 7 on each side of rachis, rhomboid, subopposite, with praemorse margins; fruits narrowly ellipsoid or with narrowly ellipsoid lobes, 3 cm long and 0,6 cm in diameter, bright orange when ripe.

Podococcus barteri is distributed from the Niger Delta almost to the Congo River, excluding the region between the Cross and the Sanaga rivers in Cameroon. The species has been also reported on the island of Bioko (Fernando Pó) in Equatorial Guinea (Aedo & al., 1999), but no specimens have been apparently found in order to confirm its presence there.

This species grows in lowland evergreen forest on *terra firma* including low hills but also on relatively dry patches in swamp forest and on river banks; it grows from 0 to 700 m.

PODOCOCCUS BARTERI

The fruit of this palm is edible and the base of the leaf sheath is used as a chew stick for teeth cleaning (van Valkenburg & Sunderland, 2008). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

RAPHIA / *20*

The genus *Raphia* is represented by 20 species and consists of hapaxanthic, monoecious palms, with massive, solitary or clustered growth habit; leaves pinnate; inflorescences interfoliar or suprafoliar, branched to 2 orders; fruits covered by imbricate scales.

The genus *Raphia* is widely distributed in tropical Africa and one species in Madagascar, the latter maybe of introduced origin. The species *R. taedigera* is present in West Africa (Otedoh, 1977) and tropical America (Henderson & al., 1995); however, this requires of further study.

Most species in this genus grow in swampland conditions but *R. regalis* has also been reported on hillslopes in humid tropical rain forest.

Since the first complete revision of the genus *Raphia* by Beccari (1910), a further 17 species and one infra-specific taxon have been described mostly based on fragmentary herbarium material. Many attempts to tackle this taxonomically difficult genus have been carried out (e.g. Hutchinson & Dalziel, 1936; Tuley & Russell, 1966) The contribution by Otedoh (1982), including the proposal of five sections within the genus and the description of several new species and varieties greatly improved our knowledge on these palms; however, the treatment of Tuley (1995) remains the most comprehensive study carried out for the genus so far. It is clear that a modern revision is urgently required in order to define the taxonomic identity of many of the still imperfectly known binomials proposed. Detailed ecological data is very scant for many species and for some of them is completely lacking.

Raphia palms are among the most economically important plants in Africa. The long and resistant leaf petioles are frequently used in house construction and the fibers from the young leaves are useful for elaborating ropes, mats or traditional robes. The high-wine producing capacity of some species (e.g. *R. hookeri*) is largely appreciated in tropical Africa (Mollet, 1999).

ARBONIER M. (2009). *Arbres, arbustes et lianes des zones sèches d'Afriques de l'Ouest*. 3e édition. Quae, MNHN, Paris, France 573 p.

BAKER, W. J. (2008). Palmae. *In:* Plants of Angola (E. FIGEREIDO & G. F. SMITH, eds.). *Strelitzia* 22: 172-173.

BAKER, W. J. (2010). Palmae. *In: The plants of Dom, Bamenda Highlands, Cameroon* (CHEEK, M., Y. HARVEY & J. M. ONANA, eds.). Royal Botanic Gardens, Kew, 162 pp.

BECCARI, O. (1910). Studio monografico del genere Raphia. *Webbia* 3: 37-130.

BURKILL, H. M. (1985). *The useful plants of West Africa* (Tropical). Families A-D Vol. 1. Royal Botanical Garden, Kew.

DARBYSHIRE, I. & M. CHEEK (2004). Palmae. *In: The plants of Bali Ngemba forest reserve, Cameroon* (HARVEY, Y., J. POLLARD, I. DARBYSHIRE, J. M. ONANA & J. M. CHEEK, eds.). A Conservation Check-list. Royal Botanic Gardens- Kew and National Herbarium of Cameroon. RBG, Kew. UK. 154 pp.

DRANSFIELD, J. (2010). Arecaceae (Palmae). *In:* TIMBERLAKE, J. R. & E. S. MARTINS (eds.). *Flora Zambesiaca* 13: 35-68.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

FAFIOYE, O., S. O. FAGADE & A. A. ADEBISI (2005). Toxicity of Raphia vinifera P. Beauv. fruit extracts on biochemical composition of Nile Tilapia (Oreochromis niloticos, Trewavas). *Biokemistri* 17: 137-142.

HUTCHINSON, J. & J. M. DALZIEL (1936). Raphia P. Beauv. *Fl. West Trop. Afr.* 2: 387-390.

LISOWSKI, S. (2009). Arecaceae. Flore (Angiospermes) de la République de Guinée. *Scripta Bot. Belg.* 41: 382-384.

MOLLET, M. (1999). L'utilisation durable des palmiers Borassus aethiopum, Elaeis guineensis et Raphia hookeri pour l'extraction de vin de palme en Côte d'Ivoire: *Tropenökologisches Begleitprogram – TÖB*, FTWF- 12f: 1- 69.

OTEDOH, J. (1975). The distribution of Raphia regalis Becc. (Palmae) in Africa. *Nigerian Field* 40: 172-178.

OTEDOH, J. (1977). The African origin of Raphia taedigera. *Nigerian Field* 42: 11-16.

OTEDOH, M. O. (1982). A revision of the genus Raphia. *J. Nig. Inst. Oil Palm Res*. 6: 145-189.

OUATTARA, D., F. W. STAUFFER & A. BAKAYOKO (2013). Lectotypification de *Raphia sudanica* A. Chev. (Arecaceae, Calamoideae), et commentaires sur la biologie et la conservation de l'espèce. *Adansonia* (in press).

TULEY, P. & T. RUSSELL (1966). The Raphia palms reviewed. *Nigerian Field* 32: 54-65.

WILDEMAN, E. de (1916). Palmaceae. *Bull. Jard. Bot. Bruxelles* 5: 144-148.

Raphia africana Otedoh, J. Nigerian Inst. Oil Palm Res. 6(22): 156 (1982); Palm. Afr. 64 (1995). –Icon: J. Nig. Inst. Oil Palm Res. 6: 175 (1982).

syn.: none reported in the literature.

Tall, basally clustered palm; stems 2-4, 5-10.7 m long or more; leaves 13-17 m long; leaflets 175-185 on each side of rachis; inflorescences 4-6, massive and pendant; fruits turbinate to oblong, 6-10 cm long and 3.5 cm in diameter, covered by light brown to ivory-yellowish scales.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch. Unlike the rest of the members of the Section, *R. africana* is the only species that is considered as good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp.

This palm is only known from cultivation in South-East Nigeria (Cross River State), but probably also occurs southwards of the Cameroon range.

Raphia africana grows in dense rain forest but as mentioned above also culticated in swamps and on dry land, especially at Ibiaku Offot village, Uyo-Nwaniba road and at Oban (Otedoh, 1982)

Further studies are required on this species as some similarities (e.g. growth habit, 2-4 stems branching from the base and external fibres) with *R. mannii* and *R. longiflora* have been proposed by Otedoh (1982) and Tuley (1995).

The species is known to yield much palm wine, good piassaba and raffia fibers. The long petioles and rachis are used in construction and the larvae growing in the dead stems are eaten. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

R. australis Oberm. & Strey, Bothalia 10: 29 (1969); J. Nig. Inst. Oil Palm Res. 6: 151 (1982); Palm. Afr. 65 (1995); Prelim. checklist vasc. pl. Mozambique 30: 120 (2004); Fl. Zambes. 13(2): 45 (2010). – Icon.: Palm. Afr. 177 (1995).

syn.: none reported in the literature.

Stout, solitary palm; stem 10 m long; leaves in the crown forming a tight rosette; leaflets to 120 on each side of rachis; inflorescences erect, with an overall structure conical in shape; fruits ellipsoid, sometimes slightly crescent-shaped, 6-9 cm long and 3-5 cm in diameter, covered by yellowish to dark-brown scales.

The presence of 7-13 or more, erect primary branches and a main inflorescence axis 3-5 m long is shared with another species of Section Moniliformes, Subsection Erectae *(R. regalis),* as defined by Otedoh (1982).

Reported from South Mozambique to the Natal and Cape Provinces in South Africa. According to Tuley (1995) this species has been also planted in several sites in South Africa.

This palm is generally associated to swamp conditions.

There are some superficial similarities with *R. farinifera*, from which it can be differentiated by its conspicuously erect compound inflorescence, a reproductive character that is only shared with *R. regalis* within the genus.

No uses have been reported for this species.

R. farinifera (Gaertn.) Hyl., Lustgården 31-32: 88 (1952); Fl. W. Trop. Afr., ed. 2 3(1): 166 (1968); J. Nig. Inst. Oil Palm Res. 6: 163 (1982); Fl. Trop. E. Africa, Palmae: 38 (1986); Palm. Afr. 66 (1995); Prelim. checklist vasc. pl. Mozambique 30: 120 (2004); Checklist Zimbabwean vasc. pl. 33: 85 (2004); Checklist Zambian vasc. pl. 32: 106 (2005); Strelitzia 22: 173 (2008); Fl. Zambes. 13(2): 43 (2010). – Icon.: Fl. Trop. E. Africa, Palmae: 39, 172 (1986); Fl. Zambes. 13(2): 44 (2010).

syn.: *Metroxylon ruffia* (Jacq.) Spreng.; *R. kirkii* Engl. ex Becc.; *R. kirkii* var. *grandis* Engl. ex Becc.; *R. kirkii* var. *longicarpa* Engl. ex Becc.; *R. lyciosa* Comm. ex Kunth; *R. pedunculata* P. Beauv.; R. *polymita* Comm. ex Kunth; *R. ruffia* (Jacq.) Mart.; *R. tamatavensis* Sadeb.; *Sagus farinifera* Gaertn.; *S. pedunculata* (P. Beauv.) Poir.; *S. ruffia* Jacq.

Tall and massive, clustering or rarely solitary palm; stem to 25 m long or more, with leaves up to 20 m long; leaflets to 150-180 on each side of rachis; inflorescences pendant, 3-4 m long; fruits variable in shape, ranging from ellipsoid-ovoid to squarely cylindrical, 7.5-10 cm long and 4-5.5 cm in diameter, covered by bright orangey-brown to reddish-brown scales.

Reported to be widely distributed in West, East, Central and northerly regions of Southern Africa and also present in the North and East of Madagascar (Baker, 2008; Dransfield, 2010). This palm has been frequently reported to be cultivated. The populations of West Africa require to be studied in detail as they may represent another taxon.

This is a lowland riparian and swamp forest palm, also found in semi-cultivation conditions throughout its range of distribution. In East Africa reported to grow in gallery forest and fresh-water swamp-forest, from lowland to 2500 m (Dransfield, 1986).

There are some superficial similarities with *R. australis*, from which it can be differentiated by its clearly pendant compound inflorescence, a reproductive character that is shared with most species in the genus.

The species is used in several Africal countries for palm wine production and as building material.

R. gentiliana De Wild., Miss. Ém. Laurent: 29 (1905); J. Nig. Inst. Oil Palm Res. 6: 148 (1982); Palm. Afr. 67 (1995).

syn.: *R. gentiliana* var. *gilletii* De Wild.; *R. gilletii* (De Wild.) Becc.; *R. sankuruensis* De Wild.

Moderate, apparently solitary palm; stem 6 m long with leaves up to 10 m long, arching away from the axis; leaflets to 120 on each side of rachis; inflorescences pendant, 2 m long; fruits variable in shape, ranging from tapering club shaped to more globose or ellipsoid-ovoid, 4-6.5 cm long and 3-3.5 cm in diameter, covered by yellowish-brown brown scales which become darker at maturity.

The presence of 4-6, pendulous primary branches and a main inflorescence axis 0.5-1.6 m long is shared between this species and the other three species of Section Moniliformes, Subsection Moniliformes *(R. matombe, R. ruwenzorica, R. textilis),* as defined by Otedoh (1982).

Reported to be present in the Central African Republic to the northern and central region of the Democratic Republic of Congo.

This is most probably an inland swamp species; however, according to Tuley (1995) it is also widely cultivated.

Raphia gentiliana remains an imperfectly known taxon that requires further study.

The species has a good reputation for palm wine production and for building material.

R. hookeri G. Mann & H. Wendl., Trans. Linn. Soc. London 24: 438 (1864); Fl. W. Trop. Afr., ed. 2 3(1): 162 (1968); J. Nig. Inst. Oil Palm Res. 6: 152 (1982); Palm. Afr. 68 (1995); Bases Doc. Fl. Guinea Equat.: 377 (1999); Woody Pl. W. Afr. Forest: 868 (2006); Check-list Pl. Vasc. Gabon: 321 (2006); Fl. anal. Bénin: 61 (2006); Strelitzia 22: 173 (2008); Fl. Rép. Guinée: 384 (2009); Boissiera 64: 215 (2011). – Icon: J. Nig. Inst. Oil Palm Res. 6: 174 (1982); Palm. Afr. 69, 165-170 (1995).

syn.: *Raphia angolensis* Rendle; *R. gigantea* A. Chev.; *R. hookeri* var. *planifoliola* Otedoh; *R. hookeri* var. *rubrifolia* Otedoh; *R. longirostris* Becc.; *R. maxima* Pechuël-Loesche; *R. sassandrensis* A. Chev.; *Sagus hookeri* (G. Mann & H. Wendl.) Rollisson

Tall, solitary or rarely clustered palm; stem 15 m long or more, with leaves to 10-15 m long; leaflets to 160-180 on each side of rachis; inflorescences pendant, up to 3.5 m long; fruits variable in shape, ranging from ellipsoid to nearly cylindrical and turbinate, 5-12 cm long and 4-6 cm in diameter, covered by yellow-brown scales.

This species is widely distributed from Senegal to the Congo Basin (Otedoh, 1982; Tuley, 1995; Lisowski, 2009); its presence in Angola was reported by Baker (2008). Its current and extremely expanded distribution may be largely due to the fact that this is a highly appreciated palm (e.g. wine extraction) frequently subject to cultivation or semi-cultivation.

Wild populations are to be found near coastal swamp-riparian vegetation, under saline and deltaic conditions

The presence of abundant broad, curled, dark, ribbon-like fibers covering at the level of the leaf sheaths and the stem characterizes this and the other two species of Section Temulentae *(R. rostrata, R. sese),* as defined by Otedoh (1982).

Otedoh (1982) recognized three varieties for this species (*R. hookeri* var. *hookeri, R. hookeri* var. *planifoliola* and *R. hookeri* var. *rubrifolia*); the first two varieties were defined based on the type and angle of insertion of the leaflets in the leaf rachis, whereas *R. hookeri* var. *rubrifolia* was defined based on its orange to reddish-brown petioles. All these infra-specific taxa have been now placed under synonymy.

This is one of the most useful species within the genus. It is well known for piassaba and fiber extraction as well as largely exploited for palm wine production (see Mollet, 1999 for details). In south-central Ivory Coast women use the fibers of young leaves to manufacture traditional clothes and handicrafts. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

R. laurentii De Wild., Miss. Ém. Laurent: 26 (1905); J. Nig. Inst. Oil Palm Res. 6: 158 (1982); Palm. Afr. 70 (1995); Strelitzia 22: 173 (2008).

syn.: none reported in the literature.

Small to moderate, solitary palm; stem 2-4 m long, with leaves to 15 m long; leaflets to 160-180 on each side of rachis; inflorescences pendant or inserted at a more obtuse angle with respect to the stem, up to 2 m long; fruits ranging from oblong-cylindrical to ellipsoid-ovoid, 4.5-6 cm long and 3.5-4.5 cm in diameter, covered by orange-red scales when young, becoming yellowish-green when the fruit is ripe.

This species has been reported from Central and Southern Democratic Republic of Congo. Its presence in Angola was pointed out by Baker (2008).

Raphia laurentii forms large stands in swamp vegetation.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp. *R. laurentii* is the only solitary species of the Section *Raphia*.

No uses have been reported for this species.

R. longiflora G. Mann & H. Wendl., Trans. Linn. Soc. London 24: 438 (1864); J. Nig. Inst. Oil Palm Res. 6: 158 (1982); Palm. Afr. 71 (1995).

syn.: none reported in the literature.

Moderate, clustered palm; stems 2-4, about 3-7 m long, with leaves to 7-10 m long; leaflets to 160 on each side of rachis; inflorescences pendant, total size unknown; fruits ranging from ellipsoid-elongate to turbinate, 4.5-5.5 cm long and 3.5-4 cm in diameter, covered by light reddish-brown scales when young, becoming darker when the fruit is ripe.

This palm was first collected on Corisco Island (29 km southwest of the Rio Muni estuary that defines the border between Equatorial Guinea and Gabon). According to Tuley (1995) despite the limited sightings of this palm, one would nevertheless anticipate its occurrence anywhere in near-coastal swamps and offshore islands between the Niger and the Congo (Zaire) Deltas.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp.

Raphia longiflora presents some similarities with other two-basally branched species of Section *Raphia (R. mannii, R. africana);* however, according to Tuley (1995) it differs from these species by the presence of a characteristic obconical fruit pedicel.

No uses have been reported for this species.

R. mambillensis Otedoh, J. Nigerian Inst. Oil Palm Res. 6(22): 163 (1982); Palm. Afr. 71 (1995). –Icon.: J. Nig. Inst. Oil Palm Res. 6: 178 (1982); Palm. Afr. 165, 167, 173, 174 (1995).

syn.: none reported in the literature.

Small, almost stemless palm; stems prostrate, scarcely rising above ground, with leaves to 5-8 m long; leaflets 60-90 on each side of rachis; inflorescences 3-5, curved and arising from the ground, to 1.5 m long or more; fruits ellipsoid to turbinate, 3.5-7.5 cm long and 2.5-3.5 cm in diameter, covered by dark reddish-brown scales.

RAPHIA MAMBILLENSIS

A particular vegetative character that can be observed in this species is the presence of conspicuous filaments of yellowish-reddish brown wax along the lower mid rib of the leaflets.

This palm is distributed in the Cameroon Range and associated outlying plateau along the Nigerian border. According to Otedoh (1982) this species also grows north-eastwards through the Central African Republic to South-West Soudan.

Raphia mambillensis is a montane species, probably native to stream sides and wet hollows on the 1500 m erosion surface. This palm was reported by Darbyshire & Cheek (2004) and Baker (2010) growing up to 1570-1633 m in North-West Cameroon.

The midribs of this species are extensively used for house construction and the leaflets for thatching. Just before emergence the inflorescence is tapped for sap and the fruits reported to be used in medicine whereas the seeds could be chewed as kola. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

R. mannii Becc., Agric. Colon. 4: t. VI, f. 8-9 (1910); J. Nig. Inst. Oil Palm Res. 6: 158 (1982); Palm. Afr. 73 (1995).

syn.: *R. wendlandii* Becc.

Small to moderate, clustered palm; stems 2-4, about 1-5 (-10) m long, with leaves to 5-12 m long; leaflets to 160-180 on each side of rachis; inflorescences 4-5, pendant, 1 m long; fruits tending to be broader at the base, and slightly oblong in shape, 5-7.5 cm long and 3.5-4.5 cm in diameter, covered by light yellow scales.

This palm has been reported from Bioko (Fernando Pó) in Equatorial Guinea and Southern Nigeria.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp.

No uses have been reported for this species.

R. matombe De Wild., Bull. Jard. Bot. Etat Bruxelles 5: 144 (1916); J. Nig. Inst. Oil Palm Res. 6: 148 (1982); Palm. Afr. 72 (1995); Strelitzia 22: 173 (2008).

syn.: *R. gossweileri* Burret; *R. macrocarpa* Burret

The growth habit and most leaf features of this palm remain unknown; leaflets apparently to 100 on each side of the rachis; inflorescence pendant, about 1 m long; fruits variable in size and shape ranging from near globose to turbinate, covered by tan to reddish-brown scales.

The presence of 4-6, pendulous primary branches and a main inflorescence axis 0.5-1.6 m long is shared between this species and the other three species of Section Moniliformes, Subsection Moniliformes *(R. gentiliana, R. ruwenzorica, R. textilis),* as defined by Otedoh (1982).

Reported from Angola (Cabinda) to the southern region of the Democratic Republic of Congo (Otedoh, 1982; Baker, 2008).

There is no ecological data associated to this palm.

Although readily recognized by its distinctive partial inflorescence with conspicuous brown bracts and bracteoles, this remains an imperfectly known taxon that requires further study.

No uses have been reported for this species.

RAPHIA

R. monbuttorum Drude, Bot. Jahrb. Syst. 21: 111 (1895); J. Nig. Inst. Oil Palm Res. 6: 158 (1982); Palm. Afr. 74 (1995).

syn.: *R. dolichocarpa* Burret; *R. pycnosticha* Burret; *R. mortehanii* De Wild.

Small, clustered palm; stems about 2-4 m long, with leaves to 5-10 m long, erect on emergence but arching when mature; leaflets to 170-200 on each side of rachis; inflorescences 4-5, pendant, 2-3 m long; fruits ranging from cylindrical to oblong-ellipsoid in shape, 4.5-7.5 cm long and 3.5-4.5 cm in diameter, covered by reddish to brown-orange scales.

Widely distributed palm from the inland regions east of the Cameroon Range to the northerly part of the Congo Basin and the wetter areas of Southern Soudan.

This is a riparian-swamp species adapted to a wide range of rainfall conditions

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp.

A variant form of this species, based on the presence of symmetrically arranged opposite leaflets (vs clearly opposite leaflets characteristic of the species) was originally described as *R. mortehannii* by Wildeman (1916), and treated as the variety *R. monbuttorum var. mortehannii* by Otedoh (1982). These taxa are now treated as synonyms of *R. monbuttorum;* however, it is clear that the establishment of the taxonomic identity of this palm requires further study.

No uses have been reported for this species.

R. palma-pinus (Gaertn.) Hutch. in J. Hutchinson & J.M.Dalziel, Fl. W. Trop. Afr. 2: 387 (1936); Fl. W. Trop. Afr., ed. 2 3(1): 162 (1968); J. Nig. Inst. Oil Palm Res. 6: 158 (1982); Palm. Afr. 74 (1995); Woody Pl. W. Afr. Forest: 868 (2006); Strelitzia 22: 173 (2008). – Icon: J. Nig. Inst. Oil Palm Res. 6: 176 (1982); Garcia Orta, Sér. Bot. 16: 49 (2002).

syn.: *R. gaertneri* G. Mann & H. Wendl.; *R. gracilis* Becc.; *Sagus palma-pinus* Gaertn.

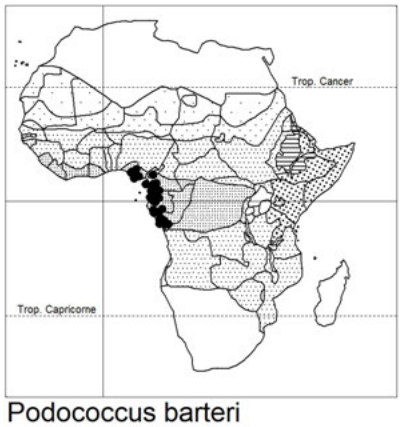
Small, almost stemless, clustered palm; stems about 2-4 m long, with leaves to 9 m long, erect on emergence and slightly arching when mature; leaflets to 100-150 on each side of rachis; inflorescences 4-6, pendant, 1-3 m long; fruits wider at the base and tapering to the apex, 3.5-5.5 cm long, covered by yellow to yellowish-brown scales.

This species is restricted to the coastal belt between the Gambia Basin West to Ghana in the Ankasa Natural Reserve (Tuley, 1982; Tuley, 1995; Lesowski, 2009). Its presence in Angola was reported by Baker (2008).

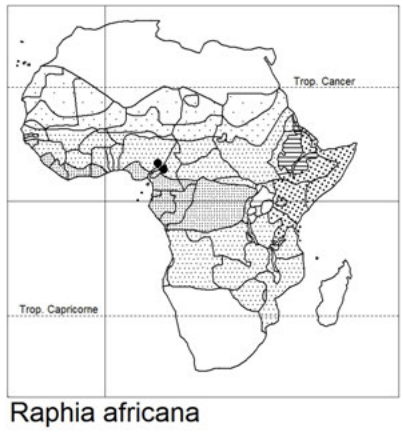
This is a lowland swamp and riparian palm, often associated with shady conditions and extremely high rain fall.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp.

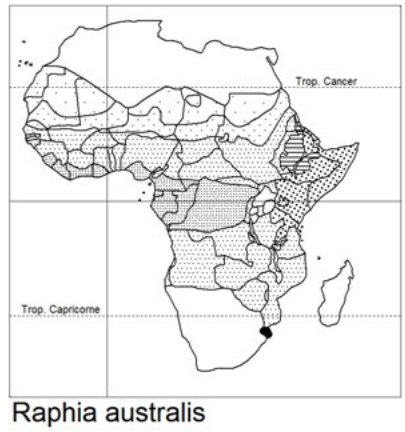
Based on differences in the morphology of the rachillae and the size of the flowers and the fruits, Otedoh (1985) proposed two subspecies for this palm *(R. palma-pinus* subsp. *palma-pinus* and *R. palma-pinus* subsp. *nodostachys).* Pending further study these infraspecific taxa were retained by Tuley (1996) but regarded as synonyms of *R. palma-pinus* by Govaerts & Dransfield (2005).



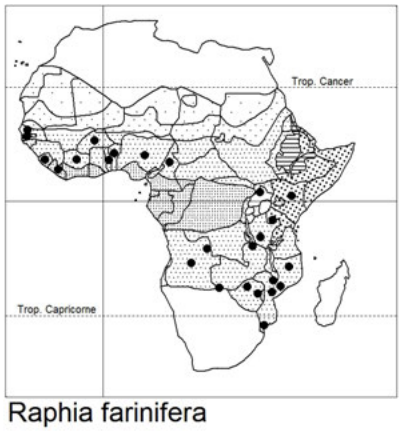
Podococcus barteri



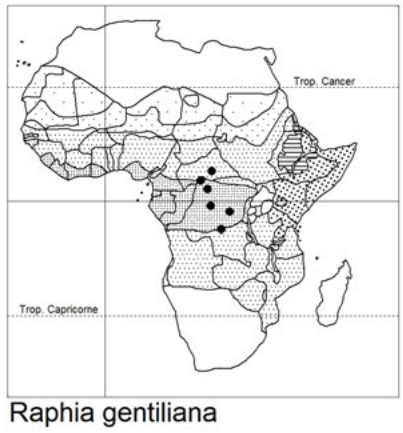
Raphia africana



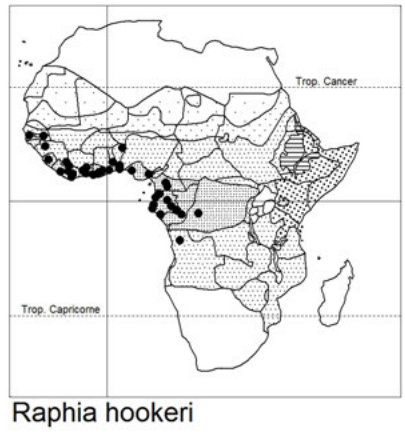
Raphia australis



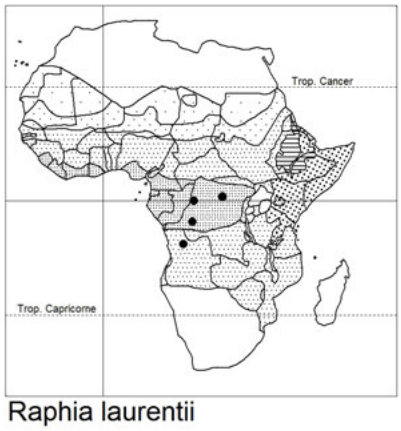
Raphia farinifera



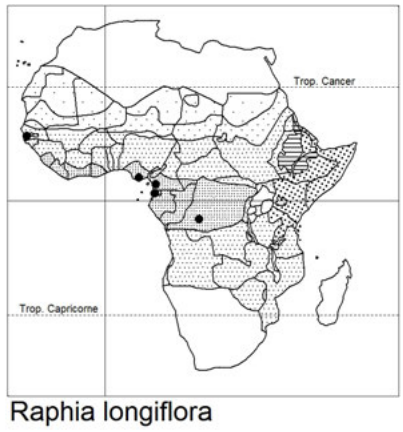
Raphia gentiliana



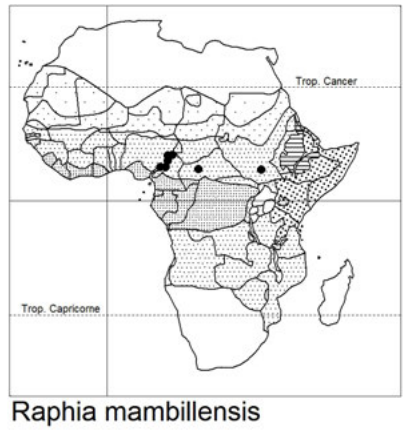
Raphia hookeri



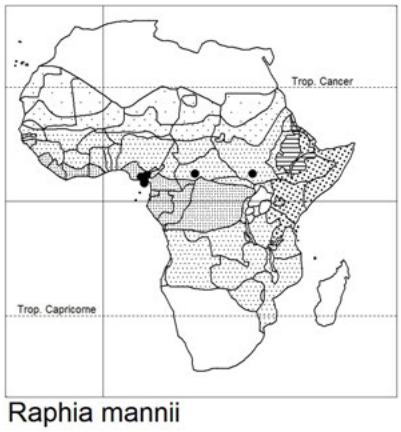
Raphia laurentii



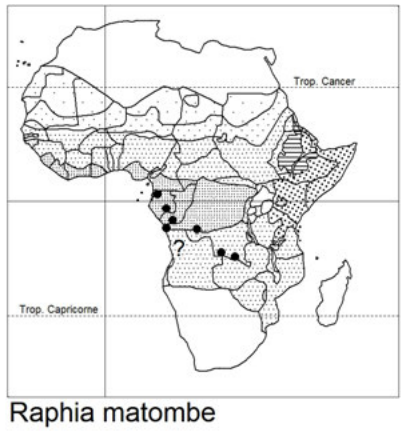
Raphia longiflora



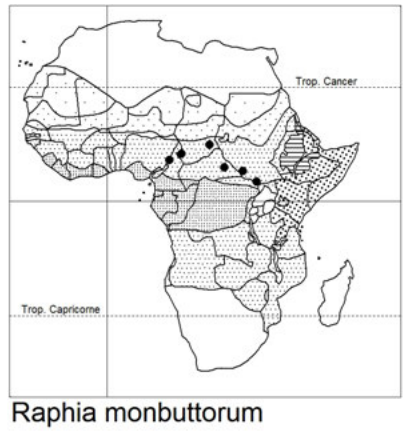
Raphia mambillensis



Raphia mannii



Raphia matombe



Raphia monbuttorum

RAPHIA PALMA-PINUS

Locals do not exploit palm wine from this palm as it does not develop any aerial stem. In south-west Ivory Coast the leaves are sometimes used for thatch and in Guiné-Bissau a large number of uses have been reported for the rachis and the leaflets (Diniz & Martins, 2002). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

R. regalis Becc., Webbia 3: 125 (1910); Fl. W. Trop. Afr., ed. 2 3(1): 166 (1968); J. Nig. Inst. Oil Palm Res. 6: 151 (1982); Palm. Afr. 75 (1995); Bases Doc. Fl. Guinea Equat.: 377 (1999); Checklist Pl. Vasc. Gabon: 321 (2006); Strelitzia 22: 173 (2008).

syn.: *R. insignis* Burret

Small, almost stemless palm; stems when present about 1 m long, with leaves extremely long, to 20-25 m, erect on emergence and slightly arching when mature; leaflets to 180 on each side of rachis; inflorescences erect, to 3 m long; fruits variable in size and shape, 4.5-9.5 cm long and 2-4.5 cm in diameter, ovoid but more narrow towards the base, with a somewhat curved form, covered by reddish-brown scales.

The presence of 7-13 or more, erect primary branches and a main inflorescence axis 3-5 m long is shared with another species of Section Moniliformes, Subsection Erectae *(R. australis),* as defined by Otedoh (1982). With leaves reaching 25 m long this species is reported to have the longest leaves in the Plant Kingdom.

This species is widely distributed from South Nigeria to Angola (Otedoh, 1982; Baker, 2008).

Raphia regalis is a tropical rainforest species apparently associated to acid soils on low hills and rocky outcrops of the Basement Complex but it is also found in more hydromorphic situations at the base of the footslopes in such situations.

The species is used as a source for building material. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

R. rostrata Burret, Notizbl. Bot. Gart. Berlin-Dahlem 12: 307 (1935); J. Nig. Inst. Oil Palm Res. 6: 155 (1982); Palm. Afr. 76 (1995); Strelitzia 22: 173 (2008).

syn.: none reported in the literature.

Tall, solitary palm; stem 15-20 m long or more, with leaves to 12-15 m long; leaflets to 175-185 on each side of rachis; inflorescences pendant, apparently extremely long but no precise data available; fruits oblong, variable in size, generally of 4.5-9 cm long and 3-4 cm in diameter, covered by dark reddish-brown scales.

This species occurs from the lower Congo Basin southward to Angola (Otedoh, 1982; Baker, 2008).

The palm is associated to swamp ecosystems.

The presence of abundant broad, curled, dark, ribbon-like fibers covering at the level of the leaf sheaths and the stem characterizes this species and the other two species of Section Temulentae *(R. hookeri, R. sese),* as defined by Otedoh (1982). Tuley (1995) considers that although available data on this species is still limited the currently known differences supports its recognition as a valid species, instead of a variety of the closely related West African wine palm *R. hookeri.*

No uses reported so far for this species.

RAPHIA

R. ruwenzorica Otedoh, J. Nigerian Inst. Oil Palm Res. 6(22): 148 (1982); Palm. Afr. 77 (1995).-Icon: J. Nig. Inst. Oil Palm Res. 6: 173 (1982).

syn.: *R. monbuttorum* var. *macrocarpa* Robyns & Tournay

Tall, solitary palm; stem erect, to 10 m tall; leaflets 140-150 on each side of rachis; fruits turbinate to ellipsoid, 10-13 cm long and 5-6 cm in diameter, covered with dark brown scales.

The presence of 4-6, pendulous primary branches and a main inflorescence axis 0.5-1.6 m long is shared between this species and the other three species of Section Moniliformes, Subsection Moniliformes *(R. gentiliana, R. matombe, R. textilis),* as defined by Otedoh (1982).

This species is only known from East Democratic Republic of Congo, around lakes Edward (Idi Amin Dada) and Kivu, and Burundi. Its presence in Rwanda has also been reported.

The palm grows in high altitude savannah, between 800 and 1500 m.

This remains an imperfectly known taxon that requires further study.

Otedoh (1982) pointed out that the fibers of this palm are apparently useful for rope making.

R. sese De Wild., Miss. Ém. Laurent: 28 (1905); Scripta Bot. Belg. 4: 107 (1993); J. Nig. Inst. Oil Palm Res. 6: 155 (1982); Palm. Afr. 78 (1995).

syn.: none reported in the literature.

Moderate to tall, solitary palm; stem to 9 m long or more, with leaves to 7 m long; leaflets to 170-180 on each side of rachis; inflorescences pendant, somewhat constraint and apparently not longer than a meter; fruits ovoid-ellipsoid, 5-7 cm long and 4 cm in diameter, covered by orange-yellowish to brown scales.

Wild populations of this palm have been reported in the central and north-eastern Democratic Republic of Congo.

This species is adapted to riparian conditions.

The presence of abundant broad, curled, dark, ribbon-like fibers covering at the level of the leaf sheaths and the stem characterizes this species and the other two species of Section Temulentae *(R. hookeri, R. rostrata),* as defined by Otedoh (1982).

No uses have been reported for this species.

R. sudanica A. Chev., Bull. Soc. Bot. France 55(8): 95 (1908); Fl. W. Trop. Afr., ed. 2 3(1): 166 (1968); J. Nig. Inst. Oil Palm Res. 6: 166 (1982); Palm. Afr. 78 (1995); Fl. anal. Bénin: 61 (2006); Boissiera 64: 215 (2011); Boissiera 65: 34 (2012); Adansonia (2013, in press). – Icon.: Palm. Afr. 165, 167, 170, 171 (1995).

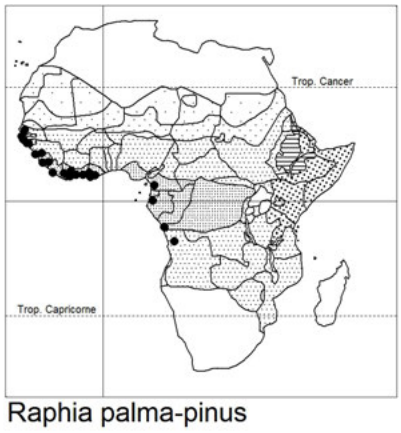
syn.: *R. bandamensis* A. Chev.; *R. heberostris* Becc.; *R. humilis* A. Chev.

Small, solitary palm; stems 1-5 (-8) m long; leaves 1-5 (-8) m long, erect on emergence and slightly arching when mature; leaflets to 40-60 on each side of rachis; inflorescences slightly pendant, to 1-1.5 m long; fruits oblong-ovoid, 4.7-5 cm long and 2.8-3 cm in diameter, covered by reddish-brown scales.

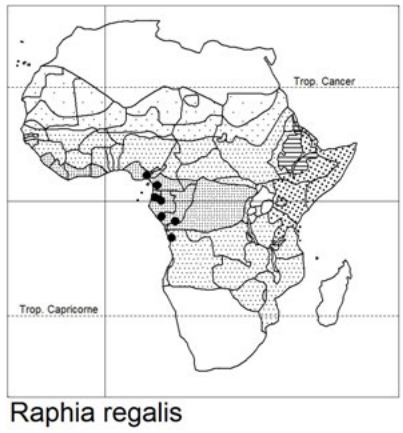
This species is widely distributed from Senegal to Cameroon (Tuley, 1995; Lesowski, 2009).

Raphia sudanica is frequently found in in-land savannahs, mostly associated to small streams and gallery forest; it normally grows at low elevations.

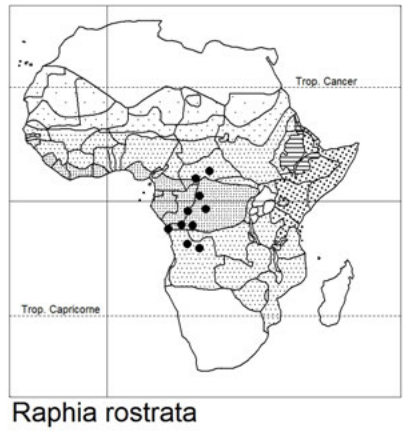
This palm is the only member of Section Obclavatae, as defined by Otedoh (1982), which is characterized by the presence of a distinct, solid maize-cob shape of the secondary branch inflorescence.



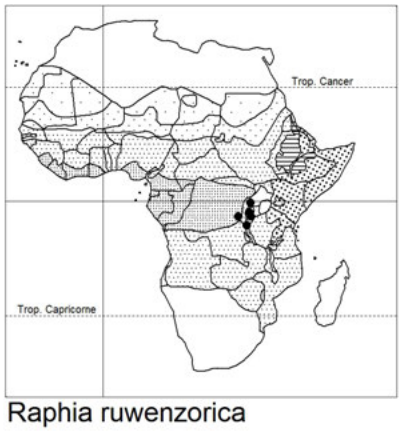
Raphia palma-pinus



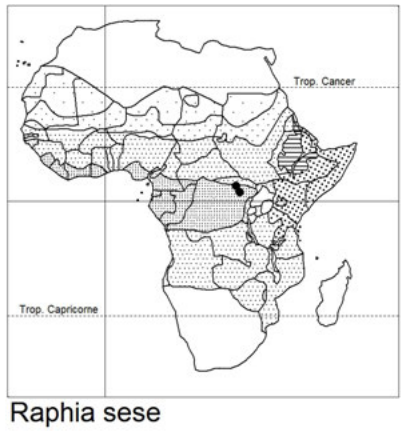
Raphia regalis



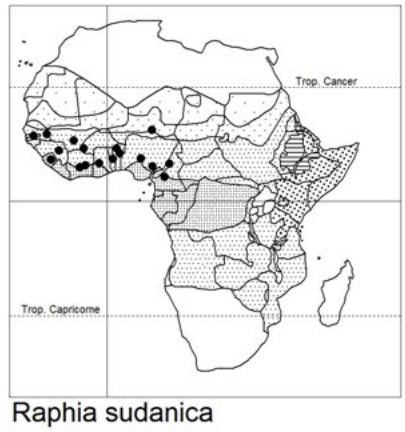
Raphia rostrata



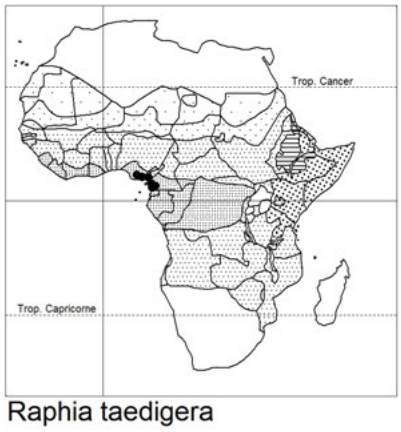
Raphia ruwenzorica



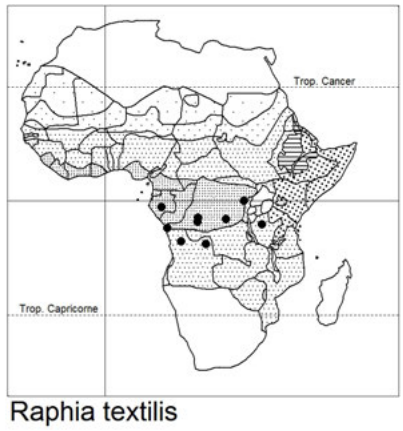
Raphia sese



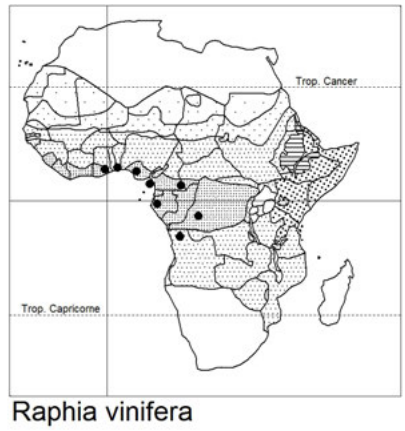
Raphia sudanica



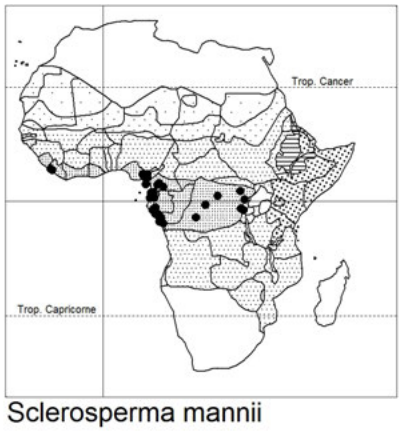
Raphia taedigera



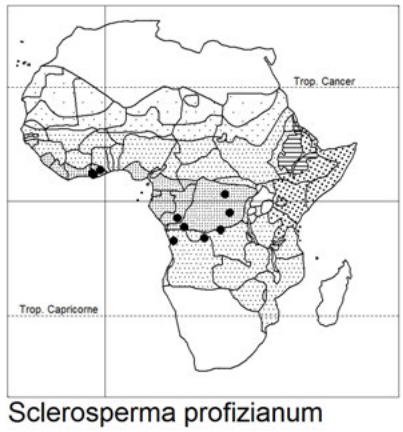
Raphia textilis



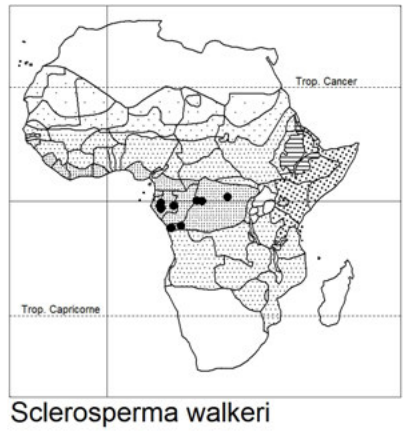
Raphia vinifera



Sclerosperma mannii



Sclerosperma profizianum



Sclerosperma walkeri

RAPHIA SUDANICA

This is an important palm for local populations. The stems, petioles and leaves are used for house construction (Arbonier, 2009). The leaflets are used for the elaboration of mats and brooms (Ouattara & al., 2013). Palm wine is apparently extracted from this palm in some West African countries. The uses of this palm in West tropical Africa were described by Burkill (1997, also separately treated as *R. humilis* A. Chev.).

R. taedigera (Mart.) Mart., Hist. Nat. Palm. 3: 217 (1838); J. Nig. Inst. Oil Palm Res. 6: 161 (1982); Palm. Afr. 79 (1995).

syn.: *Metroxylon taedigerum* (Mart.) Spreng.; *R. aulacolepis* Burret; *R. nicaraguensis* Oerst.; *R. vinifera* var. *nicaraguensis* (Oerst.) Drude; *R. vinifera* var. *taedigera* (Mart.) Drude; *Sagus taedigera* Mart.

Tall, clustered palm; stem erect, to 10-12 m tall; leaves 10-18 m long, erect when young and arching when mature; leaflets 120-180 on each side of rachis; fruits tending to be shortly oblong, 4.5-8 cm long and 2.5-4.5 cm in diameter, covered by yellowish-tan to orange-brown scales.

Raphia taedigera has been reported in Nigeria and Cameroon, although according to Tuley (1995) it could also occur anywhere near the coast and the nearby off-shore island between the Niger and Congo deltas. The presence and distribution of this species in eastern South America (coastal Brazil) and southern Central America have been documented by Henderson & al. (1995).

This palm grows in freshwater coastal swamps, commonly estuarine, behind the mangrove belt; it apparently tolerates to grow in brackish water conditions.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp. Tuley (1995) pointed out that this palm, at least based on the study of African collections, may be probably better considered as a variety of the closely related *Raphia vinifera*.

R. textilis Welw., Apont.: 584 (1858 publ. 1859); J. Nig. Inst. Oil Palm Res. 6: 150 (1982); Palm. Afr. 81 (1995); Strelitzia 22: 173 (2008).

syn.: *Metroxylon textile* Welw.; *R. pseudotextilis* Burret; *R. welwitschii* H. Wendl.

Small to moderate, solitary palm; stem erect, to 3-10 m tall; leaves to 7 m long, leaflets to 160 on each side of rachis; fruits turbinate to cylindrical, 6-7 cm long and 4-5 cm in diameter, covered by dark reddish-brown scales.

The presence of 4-6, pendulous primary branches and a main inflorescence axis 0.5-1.6 m long is shared between this species and the other three species of Section Moniliformes, Subsection Moniliformes *(R. gentiliana, R. matombe, R. ruwenzorica),* as defined by Otedoh (1982).

This species is widely distributed from southward Gabon across the lower Congo Basin to Angola (Otedoh, 1982; Tuley, 1995; Baker, 2008).

Ecological data on this species is relatively scant but it appears to be a riparian species that requires high rainfall regimes and there are suggestions that it is associated with plant communities at altitudes from 500 to 1000 m.

This remains an imperfectly known taxon that requires further study.

The species has traditionally been used as a source of raffia fibers, reputed to be extremely resistant.

RAPHIA

R. vinifera P. Beauv., Fl. Oware 1: 77 (1806); Fl. W. Trop. Afr., ed. 2 3(1): 162 (1968); J. Nig. Inst. Oil Palm Res. 6: 161 (1982); Palm. Afr. 81 (1995); Bases Doc. Fl. Guinea Equat.: 377 (1999); Fl. anal. Bénin: 61 (2006); Strelitzia 22: 173 (2008). – Icon: J. Nig. Inst. Oil Palm Res. 6: 177 (1982); Palm. Afr. 165-167, 174, 175 (1995).

syn.: *Metroxylon viniferum* (P. Beauv.) Spreng.; *R. diasticha* Burret; *R. vinifera* var. *nigerica* Otedoh; *Sagus raphia* Poir. (nom. illeg.); *S. vinifera* (P. Beauv.) Pers.

Small, clustering or much rarely solitary palm; stem erect, to 1.5-5 m tall; leaves extremely long, to 20 m, leaflets to 130-180 on each side of rachis; fruits oblong to near cylindrical, 5-9.5 cm long and 3-4.5 cm in diameter, covered by yellowish-brown to orange-brown scales.

Raphia vinifera is widely distributed in the West African coastal belt, eastward from the climatic break of the Accra plains in Ghana, probably as far as the Congo Delta (Otedoh, 1982; Tuley, 1995). Its presence in Angolas was indicated by Baker (2008).

This species is reported to grow in fresh water riparian vegetation and swamps; it may also exhibit some degree of salt tolerance.

This palm belongs to the large Section *Raphia*, characterized by petioles and leaf rachis of high quality and very durable thatch and with exception of *R. africana* generally not good for wine production. The fruits in this Section are usually thick and have an oil-rich edible mesocarp.

This palm is widely use as a source of raffia fibers and the long petioles used for house construction. The bitter seeds are toxics and reputed to have properties of stupefying fish (Burkill, 1985; Fafioye & al., 2005). For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

SCLEROSPERMA / *3*

The genus *Sclerosperma* is represented by three species and consists of pleonanthic, monoecious palms, acaulescent or with very short stems; leaves irregularly pinnate or entire-bifid, conspicuously ascending; inflorescences interfoliar, solitary, spicate, often covered by a fibrous peduncular bract, bearing male and female flowers.

The genus *Sclerosperma* occurs from western Liberia to the tributary of the Congo River, as far east as the border region with Rwanda and southeast into Kasai Orientale in the Democratic Republic of Congo. The distribution of this genus in West Africa is quite disjunct with populations in Liberia, sowthwest Ghana and on both sides of the Nigeria-Cameroon border. A recent visit of the Tai National Park (southwest Ivory Coast) could not confirm the presence of this interesting palm.

Most species grow in the understory and are particularly adapted to low and wet swampy areas. In Ghana it is observed also in logged forest or as remnant in cocoa plantations where it grows in full sun conditions. *Sclerosperma* is present from sea level to 1400 m.

BAKER, W. J. (2008). Palmae. *In:* Plants of Angola (E. FIGEREIDO & G. F. SMITH, eds.). *Strelitzia* 22: 172-173.

DRANSFIELD, J., N. W. UHL, W. J. BAKER, M. M. HARLEY & C. E. LEWIS (2008). *Genera Palmarum. The evolution and classification of Palms*. Kew Publishing. Royal Botanic Gardens, Kew. 732 pp.

VAN VALKENBURG, J., T. SUNDERLAND, L. NGOK BANAK & Y. ISSEMBÉ (2007). Sclerosperma and Podococcus in Gabon. *Palms* 51: 77-83.

VAN VALKENBURG, J. L. C. H., T. C. H. SUNDERLAND & T. L. P. COUVREUR (2008). A revision of the genus Sclerosperma (Arecaceae). *Kew Bull.* 63: 75-86.

SCLEROSPERMA

Sclerosperma mannii H. Wendl., Trans. Linn. Soc. London 24: 427 (1864); Fl. W. Trop. Afr., ed. 2 3(1): 161 (1968); Scripta Bot. Belg. 4: 108 (1993); Palm. Afr. 93 (1995); Bases Doc. Fl. Guinea Equat.: 377 (1999); Check-list Pl. Vasc. Gabon: 321 (2006); Woody Pl. W. Afr. Forest: 868 (2006); Kew Bull. 63: 77 (2008); Strelitzia 22: 173 (2008). – Icon.: Palm. Afr. 94, 95, 186 (1995); Kew Bull. 63: 79 (2008)

syn.: *Sclerosperma dubium* Becc.

Short or acaulescent, clustering palm; stem when present very short; leaves segmented, very large, ascending; leaflets 8-17 (-24), subopposite to alternate; fruits globose, 2.5-3 cm long and 2.2.-2.9 cm in diameter.

Sclerosperma mannii has a disjunct distribution with a population in Liberia and from southeast Nigeria southward to Congo and as far east as the border area of Congo and Rwanda. The species has been also reported on the island of Bioko (Fernando Pó) in Equatorial Guinea but no specimens have been apparently found in order to confirm its presence there. Its presence in Angola was indicated by Baker (2008).

This species grows in lowland evergreen forest, ranging from forest just behind the mangrove swamp forest, though seasonally flooded forest, to valley bottom forest at higher elevations, persisting in secondary growth; it is present from 0 to 1400 m.

The leaves are reported to be used for thatching and the endosperm of young fruits is locally consumed. For a comprehensive description of the uses of this palm in West tropical Africa see Burkill (1997).

S. profizianum Valk. & Sunderl., Kew Bull. 63: 82 (2008). – Icon.: Palm. Afr. 185 (1995); Kew Bull. 63: 81 (2008).

syn.: none reported in the literature.

Short or acaulescent, clustering palm; stem when present 1-2 m long; leaves entire, very large, ascending; fruits globose to obovoid, 3-3.5 cm long and 3-3.5 cm in diameter.

Sclerosperma profizianum has a disjunct distribution with a population in southwest Ghana (Ankasa Natural Reserve) and the other population in the larger tributary of the Congo River. The species is possibly also in Nigeria but no voucher specimen has been found in order to confirm its presence there. A recent visit to the forest of Tanoé (south border between Ivory Coast and Ghana) in order to find this species was unsuccessful.

This species is found on relatively dry patches in swampy areas, in valley bottom forest, in forest that is often waterlogged or along streams. In Ghana it was also found as remnant in cocoa plantations where it grows in full sun conditions. *S. profizianum* is restricted to lowland regions.

The leaves are frequently used for thatching (Van Valkenburg & al., 2008).

S. walkeri A. Chev., Rev. Bot. Appl. Agric. Trop. 11: 237 (1931); Check-list Pl. Vasc. Gabon: 321 (2006); Kew Bull. 63(1): 84 (2008). – Icon.: Kew Bull. 63: 79 (2008).

syn.: none reported in the literature.

Short or acaulescent palm; stem when present very short; leaves segmented, very large, ascending; leaflets (20-) 25-40, subopposite to alternate; fruits globose, 4-5 cm long and 3-3.5 cm in diameter.

Sclerosperma walkeri grows in the interior of Gabon and along the reaches of the Congo River.

SCLEROSPERMA WALKERI

This species is found in lowland evergreen rainforest, ranging from swamp forest, periodically flooded forest to lower slopes on *terra firma*, persisting in secondary growth; it is present between 300 and 400 m.

The leaves are frequently used for thatch throughout the range of distribution of the species and locally used also for matting and construction of walls (Van Valkenburg & al., 2008).

NOMINA NUDA AND TAXA WITH UNCERTAIN TAXONOMICAL IDENTITY:

The following taxa require further taxonomic study as they were not validly published or their attribution to an already existing species has not been possible:

Elaeis ubanghensis A. Chev. (nom. nud.), uncertain taxonomical identification.

Hyphaene benguelensis var. *plagiocarpa* (Dammer) Furtado, uncertain taxonomical identification.

Sclerosperma mabondo De Wild. (nom. nud.), uncertain taxonomical identification cited by Tuley (1995, p. 96).

Oncocalamus djodu De Wild. This taxon requires further taxonomic study as it is treated as provisionally accepted by (Govaerts & Dransfield, 2005) but not included in the treatment of Sunderland (2012).

CULTIVATED TAXA:

Palms are becoming increasingly important as ornamental plants in tropical Africa. Several publications (e.g. Dransfield, 1986, 2010; Aké Assi, 2002) and our own observations in West African countries (e.g. Ivory Coast, Ghana) show that at least 60 species, most of them of Asian origin, are cultivated in public and private gardens, as well as in the campus of several universities. It is highly predictable that this number will increase in the next years, including additional representatives of genera such as *Adonidia*, *Caryota*, *Cyrtostachys*, *Dypsis*, *Howea*, *Hyophorbe, Livistona, Pritchardia*, *Ptychosperma*, *Syagrus* and *Washingtonia.*

SYNONYMS:

Ancistrophyllum acutiflorum Becc. ≡ **Laccosperma acutiflorum**

laeve (G. Mann & H. Wendl.) Drude ≡ **Laccosperma laeve**

laurentii De Wild. = **Laccosperma secundiflorum**

majus Burret = **Laccosperma secundiflorum**

opacum (Drude) Drude ≡ **Laccosperma opacum**

robustum Burret ≡ **Laccosperma robustum**

secundiflorum (P. Beauv.) G. Mann & H. Wendl. ≡ **Laccosperma secundiflorum**

Areca passalacquae Kunth (name attributed to a fossil) = **Medemia argun**

Borassus aethiopum var. *bagamojense* Becc. = **Borassus aethiopum**

var. *domesticus* A. Chev. = **Borassus akeassii**

var. *senegalense* Becc. = **Borassus aethiopum**

deleb Becc. = **Borassus aethiopum**

flabellifer var. *aethiopum* (Mart.) Warb. ≡ **Borassus aethiopum**

sambiranensis Jum. & H. Perrier = **Borassus aethiopum**

Calamus africanus Rollisson (nom. superfl.) ≡ **Eremospatha hookeri**

CALAMUS

akimensis Becc. = **Calamus deerratus**
barteri Drude = **Calamus deerratus**
cabrae De Wild. & T. Durand ≡ **Eremospatha cabrae**
cuspidatus G. Mann & H. Wendl. ≡ **Eremospatha cuspidata**
falabensis Becc. = **Calamus deerratus**
heudelotii Becc. & Drude = **Calamus deerratus**
hookeri G. Mann & H. Wendl. ≡ **Eremospatha hookeri**
laevis G. Mann & H. Wendl. ≡ **Laccosperma laeve**
laurentii De Wild. = **Calamus deerratus**
leprieurii Becc. = **Calamus deerratus**
macrocarpus G. Mann & H. Wendl. (nom. illeg.) ≡ **Eremospatha macrocarpa**
mannii H. Wendl. ≡ **Oncocalamus mannii**
niger J. Braun & K. Schum. (nom. illeg.) = **Oncocalamus mannii**
opacus G. Mann & H. Wendl. (nom. illeg.) ≡ **Laccosperma opacum**
perrottetii Becc. = **Calamus deerratus**
schweinfurthii Becc. = **Calamus deerratus**
secundiflorus P. Beauv. ≡ **Laccosperma secundiflorum**

Calappa nucifera (L.) Kuntze ≡ **Cocos nucifera**

Chamaeriphes benguelensis (Welw. ex H. Wendl.) Kuntze = **Hyphaene petersiana**
compressa (H. Wendl.) Kuntze ≡ **Hyphaene compressa**
coriacea (Gaertn.) Kuntze ≡ **Hyphaene coriacea**
crinita (Gaertn.) Kuntze = **Hyphaene thebaica**
guineensis (Schumach. & Thonn.) Kuntze ≡ **Hyphaene guineensis**
macrosperma (H. Wendl.) Kuntze ≡ **Hyphaene macrosperma**
shatan (Bojer ex Dammer) Kuntze = **Hyphaene coriacea**
thebaica (L.) Kuntze = **Hyphaene thebaica**
turbinata (H. Wendl.) Kuntze = **Hyphaene coriacea**
ventricosa (J. Kirk) Kuntze = **Hyphaene petersiana**

Cocos indica Royle = **Cocos nucifera**
mamillaris Blanco = **Cocos nucifera**
nana Griff. = **Cocos nucifera**
nucifera var. *angustifolia* Hassk. = **Cocos nucifera**
var. *aurea* auct. = **Cocos nucifera**
var. *javanica* G. V. Narayana = **Cocos nucifera**
var. *microcarpa* Hassk. ex F. W. T. Hunger (nom. superfl.) = **Cocos nucifera**
var. *nana* (Griff.) G.V. Narayana = **Cocos nucifera**
var. *pumila* Hassk. = **Cocos nucifera**
var. *rubescens* Hassk. = **Cocos nucifera**
var. *spicata* K. C. Jacob = **Cocos nucifera**
var. *synphyllica* Becc. = **Cocos nucifera**
nypa Lour. = **Nypa fruticans**

Corypha africana Lour. = **Hyphaene coriacea**
thebaica L. ≡ **Hyphaene thebaica**

Cucifera thebaica (L.) Delile ≡ **Hyphaene thebaica**

Diplothemium henryanum F. Br. = **Cocos nucifera**

Douma thebaica (L.) Poir. ≡ **Hyphaene thebaica**

ELAEIS

Elaeis dybowskii Hua = **Elaeis guineensis**
guineensis f. *androgyna* A. Chev. = **Elaeis guineensis**
f. *caryolitica* Becc. = **Elaeis guineensis**
f. *dioica* A. Chev. = **Elaeis guineensis**
f. *dura* Becc. = **Elaeis guineensis**
f. *fatua* Becc. = **Elaeis guineensis**
f. *ramosa* A. Chev. = **Elaeis guineensis**
f. *semidura* Becc. = **Elaeis guineensis**
f. *tenera* Becc. = **Elaeis guineensis**
subsp. *nigrescens* A. Chev. (nom. inval.) ≡ **Elaeis guineensis**
subsp. *virescens* A. Chev. = **Elaeis guineensis**
var. *albescens* Becc. = **Elaeis guineensis**
var. *angulosa* Becc. = **Elaeis guineensis**
var. *ceredia* A. Chev. = **Elaeis guineensis**
var. *compressa* Becc. = **Elaeis guineensis**
var. *gracilinux* A. Chev. = **Elaeis guineensis**
var. *idolatrica* A. Chev. = **Elaeis guineensis**
var. *intermedia* A. Chev. = **Elaeis guineensis**
var. *leucocarpa* Becc. = **Elaeis guineensis**
var. *macrocarpa* A. Chev. = **Elaeis guineensis**
var. *macrocarya* Becc. = **Elaeis guineensis**
var. *macrophylla* A. Chev. = **Elaeis guineensis**
var. *macrosperma* Welw. = **Elaeis guineensis**
var. *madagascariensis* Jum. & H. Perrier = **Elaeis guineensis**
var. *microsperma* Welw. = **Elaeis guineensis**
var. *pisifera* A. Chev. = **Elaeis guineensis**
var. *repanda* A. Chev. = **Elaeis guineensis**
var. *rostrata* Becc. = **Elaeis guineensis**
var. *sempernigra* A. Chev. = **Elaeis guineensis**
var. *spectabilis* A. Chev. = **Elaeis guineensis**
macrophylla A. Chev. (nom. nud.) = **Elaeis guineensis**
madagascariensis (Jum. & H. Perrier) Becc. = **Elaeis guineensis**
melanococca Gaertn. = **Elaeis guineensis**
nigrescens (A. Chev.) Prain (nom. inval.) ≡ **Elaeis guineensis**
ubanghensis A. Chev. (nom. nud.) = **uncertain taxonomical identification**
virescens (A. Chev.) Prain = **Elaeis guineensis**

Eremospatha deerrata (G. Mann & H. Wendl.) T. Durand & Schinz ≡ **Calamus deerratus**
korthalsiifolia Becc. = **Eremospatha wendlandiana**
rhomboidea Burret = **Eremospatha cabrae**
sapinii De Wild. = **Eremospatha macrocarpa**
suborbicularis Burret = **Eremospatha cabrae**

Fulchironia senegalensis Lesch. = **Phoenix reclinata**

Hyphaene argun Mart. ≡ **Medemia argun**
aurantiaca Dammer = **Hyphaene petersiana**
baikieana Furtado = **Hyphaene thebaica**
baronii Becc. = **Hyphaene coriacea**
beccariana Furtado = **Hyphaene coriacea**

HYPHAENE

benadirensis Becc. = **Hyphaene compressa**
benguelensis Welw. ex H. Wendl. = **Hyphaene petersiana**
var. *plagiocarpa* (Dammer) Furtado = **uncertain taxonomical identification**
var. *ventricosa* (J. Kirk) Furtado = **Hyphaene petersiana**
bussei Dammer = **Hyphaene petersiana**
carinensis Chiov. ≡ **Livistona carinensis**
coriacea var. *minor* Drude = **Hyphaene coriacea**
crinita Gaertn. = **Hyphaene thebaica**
cuciphera Pers. = **Hyphaene thebaica**
dahomeensis Becc. = **Hyphaene thebaica**
dankaliensis Becc. = **Hyphaene thebaica**
depressa Becc. = **Hyphaene guineensis**
doreyi Furtado = **Hyphaene guineensis**
goetzei Dammer = **Hyphaene petersiana**
gossweileri Furtado = **Hyphaene guineensis**
hildebrandtii Becc. = **Hyphaene coriacea**
incoje Furtado = **Hyphaene compressa**
kilvaensis (Becc.) Furtado = **Hyphaene compressa**
luandensis Gossw. (nom. nud.) = **Hyphaene guineensis**
mangoides Becc. = **Hyphaene compressa**
mateba Becc. = **Hyphaene guineensis**
megacarpa Furtado = **Hyphaene compressa**
migiurtina Chiov. = **Hyphaene reptans**
multiformis Becc. = **Hyphaene compressa**
subsp. *ambigua* Becc. = **Hyphaene compressa**
subsp. *compressa* (H. Wendl.) Becc. ≡ **Hyphaene compressa**
subsp. *deformis* Becc. = **Hyphaene compressa**
subsp. *diminuta* Becc. = **Hyphaene compressa**
subsp. *gibbosa* Becc. = **Hyphaene compressa**
subsp. *intermedia* Becc. = **Hyphaene compressa**
subsp. *kilvaensis* Becc. = **Hyphaene compressa**
subsp. *macrocarpa* Becc. = **Hyphaene compressa**
subsp. *mahengensis* Becc. = **Hyphaene compressa**
subsp. *manca* Becc. = **Hyphaene compressa**
subsp. *morogorensis* Becc. = **Hyphaene compressa**
subsp. *moshiensis* Becc. = **Hyphaene compressa**
subsp. *nasuta* Becc. = **Hyphaene compressa**
subsp. *obconica* Becc. = **Hyphaene compressa**
subsp. *obesa* Becc. = **Hyphaene compressa**
subsp. *odorata* Becc. = **Hyphaene compressa**
subsp. *panganensis* Becc. = **Hyphaene compressa**
subsp. *plagiosperma* Becc. = **Hyphaene compressa**
subsp. *rovumensis* Becc. = **Hyphaene compressa**
subsp. *semiplaena* Becc. = **Hyphaene compressa**
subsp. *stenosperma* Becc. = **Hyphaene compressa**
subsp. *subglobosa* Becc. = **Hyphaene compressa**
subsp. *tangatensis* Becc. = **Hyphaene compressa**
subsp. *trigibba* Becc. = **Hyphaene compressa**
subvar. *lindiensis* Becc. = **Hyphaene compressa**
natalensis Kuntze = **Hyphaene coriacea**

HYPHAENE

nephrocarpa Becc. = **Hyphaene guineensis**
nodularia Becc. = **Hyphaene thebaica**
oblonga Becc. = **Hyphaene coriacea**
obovata Furtado = **Hyphaene petersiana**
occidentalis Becc. = **Hyphaene thebaica**
ovata Furtado = **Hyphaene petersiana**
parvula Becc. = **Hyphaene coriacea**
pileata Becc. = **Hyphaene coriacea**
plagiocarpa Dammer = **Hyphaene petersiana**
pleuropoda Becc. = **Hyphaene coriacea**
pyrifera Becc. = **Hyphaene coriacea**
var. *arenicola* Becc. = **Hyphaene coriacea**
var. *gosciaensis* (Becc.) Becc. = **Hyphaene coriacea**
var. *margaritensis* Becc. = **Hyphaene coriacea**
santoana Furtado = **Hyphaene thebaica**
semiplaena (Becc.) Furtado = **Hyphaene compressa**
shatan Bojer ex Dammer = **Hyphaene coriacea**
sinaitica Furtado = **Hyphaene thebaica**
spaerulifera Becc. = **Hyphaene coriacea**
var. *gosciaensis* Becc. = **Hyphaene coriacea**
tetragonoides Furtado = **Hyphaene coriacea**
togoensis Dammer ex Becc. = **Hyphaene thebaica**
tuleyana Furtado = **Hyphaene thebaica**
turbinata H. Wendl. = **Hyphaene coriacea**
var. *ansata* Becc. = **Hyphaene coriacea**
ventricosa J.Kirk = **Hyphaene petersiana**
subsp. *ambolandensis* Becc. = **Hyphaene petersiana**
subsp. *anisopleura* Becc. = **Hyphaene petersiana**
subsp. *aurantiaca* (Dammer) Becc. = **Hyphaene petersiana**
subsp. *benguelensis* (Welw. ex H. Wendl.) Becc. = **Hyphaene petersiana**
subsp. *bussei* (Dammer) Becc. = **Hyphaene petersiana**
subsp. *goetzei* (Dammer) Becc. = **Hyphaene petersiana**
subsp. *petersiana* (Klotzsch ex Mart.) Becc. ≡ **Hyphaene petersiana**
subsp. *plagiocarpa* (Dammer) Becc. = **Hyphaene petersiana**
subsp. *russisiensis* Becc. = **Hyphaene petersiana**
subsp. *useguhensis* Becc. = **Hyphaene petersiana**
welwitschii Furtado = **Hyphaene guineensis**
wendlandii Dammer = **Hyphaene coriacea**
Laccosperma laurentii (De Wild.) J. Dransf. = **Laccosperma secundiflorum**
majus (Burret) J. Dransf. = **Laccosperma secundiflorum**
Medemia abiadensis H. Wendl. = **Medemia argun**
Metroxylon ruffia (Jacq.) Spreng. = **Raphia farinifera**
taedigerum (Mart.) Spreng. ≡ **Raphia taedigera**
textile Welw. = **Raphia textilis**
viniferum (P. Beauv.) Spreng. ≡ **Raphia vinifera**
Neoancistrophyllum acutiflorum (Becc.) Rauschert ≡ **Laccosperma acutiflorum**

NEOANCISTROPHYLLUM

laeve (G. Mann & H. Wendl.) Rauschert ex J. Dransf. ≡ **Laccosperma laeve**
laurentii (De Wild.) Rauschert = **Laccosperma secundiflorum**
majus (Burret) Rauschert = **Laccosperma secundiflorum**
opacum (Drude) Rauschert ex J. Dransf. ≡ **Laccosperma opacum**
robustum (Burret) Rauschert ≡ **Laccosperma robustum**
secundiflorum (P. Beauv.) Rauschert ≡ **Laccosperma secundiflorum**

Nipa arborescens Wurmb ex H. Wendl. = **Nypa fruticans**
fruticans (Wurmb) Thunb. ≡ **Nypa fruticans**
litoralis Blanco = **Nypa fruticans**

Nypa fruticans var. *neameana* F. M. Bailey = **Nypa fruticans**

Oncocalamus acanthocnemis Drude = **Oncocalamus mannii**
djodu De Wild. = see comments on nomina nuda and taxa with uncert. tax. ident.
phaeobalanus Burret = **Oncocalamus mannii**

Palma cocos Mill. (nom. superfl.) ≡ **Cocos nucifera**
oleosa Mill. = **Elaeis guineensis**
thebaica (L.) Jacq. ≡ **Hyphaene thebaica**

Palmijuncus deerratus (G. Mann & H. Wendl.) Kuntze ≡ **Calamus deerratus**
opacus (Drude) Kuntze ≡ **Laccosperma opacum**

Phoenix abyssinica Drude = **Phoenix reclinata**
arabica Burret = **Phoenix caespitosa**
atlantidis A. Chev. (nom. nud.) = **Phoenix atlantica**
baoulensis A. Chev. = **Phoenix reclinata**
comorensis Becc. = **Phoenix reclinata**
djalonensis A. Chev. = **Phoenix reclinata**
dybowskii A. Chev. = **Phoenix reclinata**
equinoxialis Bojer = **Phoenix reclinata**
leonensis Lodd. ex Kunth = **Phoenix reclinata**
reclinata var. *comorensis* (Becc.) Jum. & H. Perrier = *Phoenix reclinata*
var. *madagascariensis* Becc. = **Phoenix reclinata**
var. *somalensis* Becc. = **Phoenix reclinata**
spinosa Schumach. & Thonn. = **Phoenix reclinata**

Raphia angolensis Rendle in W.P.Hiern = **Raphia hookeri**
aulacolepis Burret = **Raphia taedigera**
bandamensis A. Chev. = **Raphia sudanica**
diasticha Burret = **Raphia vinifera**
dolichocarpa Burret = **Raphia monbuttorum**
gaertneri G. Mann & H. Wendl. = **Raphia palma-pinus**
gentiliana var. *gilletii* De Wild. = **Raphia gentiliana**
gigantea A. Chev. = **Raphia hookeri**
gilletii (De Wild.) Becc. = **Raphia gentiliana**
gossweileri Burret = **Raphia matombe**
gracilis Becc. = **Raphia palma-pinus**
heberostris Becc. = **Raphia sudanica**
hookeri var. *planifoliola* Otedoh = **Raphia hookeri**
var. *rubrifolia* Otedoh = **Raphia hookeri**
humilis A. Chev. = **Raphia sudanica**
insignis Burret = **Raphia regalis**

RAPHIA

kirkii Engl. ex Becc. = **Raphia farinifera**
var. *grandis* Engl. ex Becc. = **Raphia farinifera**
kirkii var. *longicarpa* Engl. ex Becc. = **Raphia farinifera**
longirostris Becc. = **Raphia hookeri**
lyciosa Comm. ex Kunth = **Raphia farinifera**
macrocarpa Burret = **Raphia matombe**
maxima Pechuël-Loesche = **Raphia hookeri**
monbuttorum var. *macrocarpa* Robyns & Tournay ≡ **Raphia ruwenzorica**
mortehanii De Wild. ≡ **Raphia monbuttorum** var. **mortehanii**
nicaraguensis Oerst. = **Raphia taedigera**
pedunculata P. Beauv. = **Raphia farinifera**
polymita Comm. ex Kunth = **Raphia farinifera**
pseudotextilis Burret = **Raphia textilis**
pycnosticha Burret = **Raphia monbuttorum**
ruffia (Jacq.) Mart. = **Raphia farinifera**
sankuruensis De Wild. = **Raphia gentiliana**
sassandrensis A. Chev. = **Raphia hookeri**
tamatavensis Sadeb. = **Raphia farinifera**
vinifera var. *nicaraguensis* (Oerst.) Drude = **Raphia taedigera**
var. *nigerica* Otedoh = **Raphia vinifera**
var. *taedigera* (Mart.) Drude ≡ **Raphia taedigera**
welwitschii H. Wendl. = **Raphia textilis**
wendlandii Becc. = **Raphia mannii**

Sagus farinifera Gaertn. ≡ **Raphia farinifera**
hookeri (G. Mann & H. Wendl.) Rollisson ≡ **Raphia hookeri**
palma-pinus Gaertn. ≡ **Raphia palma-pinus**
pedunculata (P. Beauv.) Poir. = **Raphia farinifera**
raphia Poir. (nom. illeg.) ≡ **Raphia vinifera**
ruffia Jacq. = **Raphia farinifera**
taedigera Mart. ≡ **Raphia taedigera**
vinifera (P. Beauv.) Pers. ≡ **Raphia vinifera**

Sclerosperma dubium Becc. = **Sclerosperma mannii**
mabondo De Wild. (nom. nud.) = **uncertain taxonomical identification**

Wissmannia carinensis (Chiov.) Burret ≡ **Livistona carinensis**

INDEX TO FAMILIES AND GENERA

This Index only gives reference to current names of families and genera used in the text (not on the maps which are in turn placed as closely as possible to the matching descriptions). Synonyms are sometimes cited (printed in *italics*).

However, many synonyms, but perhaps not all, families and genera figure in the Cumulative Index "Enumération des plantes à fleurs d'Afrique tropicale" present at the end of the forth volume (1997 : pp. 678-712). Readers are invited to consult that index.

ACIDANTHERA 122
ACROSPIRA 19
ACYNTHA 213
ADENOTHECA 63
AFRORHAPHIDOPHORA 256
AFROTHISMIA 184
AGLAONEMA 256
ALBUCA 63
ALETRIS 71, 213
ALOCASIA 256
ALOCASIOPHYLLUM 256
ALOE 213
AMAURIELLA 256
AMORPHOPHALLUS 257
ANCHOMANES 266
ANCISTROPHYLLUM 351
ANDROCYMBIUM 110
ANISANTHUS 122
ANOMATHECA 122
ANTHERICACEAE 19
ANTHERICUM 19
ANTHOLYZA 122
ANUBIAS 268
ARACEAE 255
ARECA 351
ARECACEAE 326
ARISAEMA 270
ARISTEA 122
ARODENDRON 272
ARODES 272
ARUM 272
ASPHODELUS 25, 71
BABIANA 125
BARBACENIA 203
BARNARDIA 71
BASILAEA 71
BOBARTIA 125
BOOPHONE 213
BORASSUS 326, 351
BORDEREA 169
BOTRYOSICYOS 169
BOWIEA 71
BRACHYSPATHA 272
BRUNIERA 299
BULBINE 72, 108
BULBINELLA 72
BULBOCODIUM 113
BURMANNIA 187
BURMANNIACEAE 184
CAESIA 25
CALADIUM 272
CALAMUS 328, 351
CALAPPA 352
CALLA 272
CALLOPSIS 274
CAMPTORRHIZA 113
CAMPYLANDRA 25
CAMPYLOSIPHON 188
CERCESTIS 274
CHAITAEA 183
CHAMAERIPHES 352
CHARYBDIS 72
CHASMANTHE 125
CHLOROPHYTUM 25
CLINOSTYLIS 113
COCOS 329
COLCHICACEAE 110
COLCHICUM 113
COLOCASIA 277
CONVALLARIA 213
CORDYLINE 62
CORYNOPHALLUS 277
CORYPHA 352
CROCANTHUS 125
CROCOSMIA 125
CUCIFERA 352
CULCASIA 277
CURCULIGO 191
CURTONUS 126
CYANASTRUM 119
CYRTOSPERMA 284
DASYSTACHYS 62
DEBESIA 62
DENHAMIA 284
DESMESIA 284
DESMOGYMNOSIPHON 188
DICTYOSTEGA 188
DIEFFENBACHIA 284
DIERAMA 126
DIETES 128
DIOSCOREA 169
DIOSCOREACEAE 168
DIPCADI 72
DIPLOTHEMIUM 352

DITINNA 284
DOCHAFA 284
DORTANIA 129
DOUMA 352
DRACAENA 213
DRACAENACEAE 212
DRACO 227
DRIMIA 77
DRIMIOPSIS 84
DUTHIEA 86
EBERTIA 86
EICHHORNIA 252
ELAEIS 330, 352
ELEUTHERINE 129
EPIPREMNUM 284
ERATOBOTRYS 86
EREMOSPATHA 330, 352
ERIOSPERMACEAE..... 104
ERIOSPERMUM 104
ERYTHRONIUM 86
ERYTHROSTICTUS 113
EUCOMIS 86
EUGONE 113
FERRARIA 129
FREESIA 130
FRITILLARIA 87
FULCHIRONIA 352
FUSIFILUM 87
GALTONIA 87
GEISSORHIZA 132
GETHYLLIS 191
GLADIOLUS 132
GLORIOSA 113
GONATOPUS 285
GUEINZIA 285
GYMNOSIPHON 188
GYNANDRIRIS 153
HANSALIA 285
HARTWEGIA 62
HELMIA 183
HELONIAS 115
HESPERANTHA 154
HETERANTHERA 253
HETEROLOBIUM 285
HETEROSTIGMA 325
HOLLIA 62
HOMOGLOSSUM 154
HORKELIA 299
HYACINTHACEAE 63
HYACINTHUS 87
HYDROPHACE 299
HYDROSME 286
HYMENOSTIGMA 154
HYPHAENE 333, 352
HYPOXIDACEAE 190
HYPOXIS 191
IDOTHEA 87
IDOTHEARIA 87
INDURGIA 88
IPHIGENIA 115
IPHIGENIOPSIS 116
IRIDACEAE 120
IRIDOPSIS 154
IRIS 154
IXIA 155
JAIMENOSTIA 286
JUNCACEAE 308
JUNCOIDES 308
JUNCUS 309
KABUYEA 120
KEITIA 155
KERNERA 254
LACCOSPERMA 337, 352
LACHENALIA 88
LANDOLTIA 300
LAPEIROUSIA 155
LASIMORPHA 286
LEDEBOURIA 88
LEDURGIA 94
LEMNA 300
LEMNACEAE 299
LENTICULA 302
LENTICULARIA 302
LEONTICE 183
LEPTOSOMUS 254
LILIAGO 62
LINDNERIA 94
LITANTHUS 94
LITTONIA 116
LIVISTONA 338
LOMATOPHYLLUM 227
LUZULA 314
MEDEMIA 339, 353
MELANTHIUM 94, 118
MERENDERA 118
MERISTOSTIGMA 158
MERWILLA 94
METHONICA 118
METROXYLON 353
MICROCULCAS 286
MOLINERIA 203
MONOCHORIA 254
MONSTERA 286
MONTBRETIA 158
MORAEA 158
NEMAMPSIS 227
NEOANCISTROPHYLLUM 353
NEPHTHYTIS 286
NIPA/NYPA 339, 354
OENOSTACHYS 164
OLIGOGYNIUM 288
ONCOCALAMUS 340, 354

OPHIOBOSTRYX 94
ORNITHOGALUM 94
ORNITHOGLOSSUM 118
OVIEDA 164
OXYGYNE 190
PALLASTEMA 96
PALMA 354
PALMAE 326
PALMIJUNCUS 354
PANDANACEAE 316
PANDANUS 316
PETAMENES 164
PHALANGIUM 62
PHILODENDRON 289
PHOENIX 342, 354
PHRYNIUM 227
PIAROPUS 255
PISTIA 289
PLEOMELE 227
PODOCOCCUS 343
POLYNOME 183
PONTEDERIA 255
PONTEDERIACEAE 252
PSEUDOGALTONIA 96
PSEUDOHYDROSME 289
PSEUDOWOLFFIA 302
PSILOSIPHON 164
PTYCHOMERIA 190
PYTHONIUM 290
RADINOSIPHON 164
RAPHIA 343, 354
REMUSATIA 290
RHAPHIDOPHORA 290
RHEKTOPHYLLUM 291
RICHARDIA 291
ROMULEA 165
RUSCACEAE 109
RUSCUS 109
SAGUS 354
SALMIA 228
SANDERSONIA 118
SANSEVERINIA 228
SANSEVIERIA 228
SAUROMATUM 291
SAVANNOSIPHON 166
SCHIZOBASIS 97
SCHIZOBASOPSIS 97
SCHIZOCARPHUS 97
SCHIZOSTYLIS 166
SCHNIZLEINIA 203
SCHOENLANDIA 120
SCHOLLERA 255
SCHOLLEROPSIS 255
SCILLA 98
SCLEROSPERMA 350, 354
SEKANAMA 101
SMILACACEAE 109
SMILACINA 252
SMILAX 109
SPHAEROSPORA 166
SPIRODELA 303
STAUROGETON 303
STELLARIOIDES 101
STREPSIPHYLLA 102
STYLOCHAETON 291
TACCA 183
TACCACEAE 183
TECOPHILAEACEAE 119
TELMATOPHACE 304
TENAGEIA 316
TESTUDINARIA 183
THISMIA 190
THISMIACEAE 184
THURANTHOS 102
TOMOXIS 102
TRICHARIS 102
TRITONIA 166
TYPHA 306
TYPHACEAE 306
TYPHONIUM 297
TYPHONODORUM 297
URGINAVIA 102
URGINEA 102
UROPETALON 104
UROPHYLLUM 104
VELLOZIA 203
VELLOZIACEAE 203
VELTHEIMIA 104, 252
VERDICKIA 63, 104
VIEUSSEUXIA 166
WALLERIA 120
WATSONIA 166
WISSMANNIA 354
WOLFFIA 304
WOLFFIELLA 305
WOLFFIOPSIS 305
WURMBEA 118
XANTHOSOMA 298
XEROPHYTA 204
XIPHION 168
YUCCA 252
ZAMIOCULCAS 298
ZANTEDESCHIA 298
ZUCCAGNIA 104
ZYGANTHERA 299
ZYGOTRITONIA 168

CONSERVATOIRE
& JARDIN BOTANIQUES
VILLE DE GENÈVE

ISBN 978-2-8277-0127-8