

Notes on the *Rhodocolea racemosa* (Lam.) H. Perrier (Bignoniaceae) species complex

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Abstract

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The authors review the *Rhodocolea racemosa* (Lam.) H. Perrier complex (*Bignoniaceae*), with its numerous varieties and taxonomic forms, many of which were never validly published due to lack of Latin diagnoses, and its confused synonymy. The authors discuss the typification of the validly published taxa included within the species by Perrier de la Bâthie and recognise three of these as species distinct from *Rhodocolea racemosa* s.s., providing the necessary new combinations. Information on the identity of the taxa that lack validly published names is also provided.

Résumé

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Les auteurs examinent le complexe de *Rhodocolea racemosa* (Lam.) H. Perrier (*Bignoniaceae*), avec ses nombreuses variétés et formes taxonomiques, dont beaucoup n'ont jamais été publiées valablement faute de diagnose latine, et sa synonymie confuse. Les auteurs discutent de la typification des taxa valablement publiés faisant partie de l'espèce de Perrier de la Bâthie et reconnaissent trois d'entre elles comme des espèces distinctes de *Rhodocolea racemosa* s.s., en fournissant les nouvelles combinaisons nécessaires. Des informations sur l'identité des taxons qui manquent de noms valablement publiés sont également fournies.

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Introduction

As part of our ongoing revision of the *Bignoniaceae* of Madagascar in the context of the Catalogue of the Vascular Plants of Madagascar project (MADAGASCAR CATALOGUE, 2015), we have reviewed the currently accepted species of the genus *Rhodocolea* Baill. In the course of this work, and in the light of the material currently available to us, we reached the conclusion that the circumscription of *Rhodocolea racemosa* (Lam.) H. Perrier was highly unsatisfactory. In this note we present the initial results of this part of our study as a step towards a complete taxonomic revision of the genus.

The two earliest names for members of the *R. racemosa* species complex were published by LAMARCK (1785) as *Bignonia racemosa* Lam. and *B. compressa* Lam. Lamarck's diagnoses of the two species were quite similar, but emphasized the characteristics that were the basis for their two names, i.e. the simple lax racemes of *B. racemosa* and the flattened nodes of *B. compressa*. Later, on transfer of these species to the genus *Colea* Bojer ex Meisn., BAILLON (1889) noted the similar inflorescence structure of the two species as well as that of a third species, *Colea decora* Bojer (sensu SEEMANN, 1862), and united them all as *C. racemosa* (Lam.) Baill. SCHUMANN (1895) recognized all three species and made the new combination *C. compressa* (Lam.) K. Schum., although his reasons were not stated and he was not followed by subsequent authors.

Later, in his revision of the *Bignoniaceae* of Madagascar and subsequent Flora treatment, PERRIER DE LA BÂTHIE (1938a, 1938b) transferred *C. racemosa* (Lam.) Baill. to the formerly monospecific genus *Rhodocolea* Baill. He adopted an even broader species circumscription than Baillon for this species, including as synonyms not only the species mentioned above, but also six other species that had been described by various authors in the genus *Colea*. In order to accommodate the considerable diversity that was thus included in *Rhodocolea racemosa*, PERRIER DE LA BÂTHIE (1938a, 1938b) divided this species complex into no less than eight varieties, with the typical variety further subdivided into six taxonomic forms. Perrier de la Bâthie also transferred other species from *Colea* to *Rhodocolea* and published a new species in the genus (*R. linearis* H. Perrier), bringing the total number of species recognised in *Rhodocolea* to five.

A considerable volume of additional herbarium material of *Rhodocolea* has become available since Perrier de la Bâthie's study, and seven additional species have been described during this period: one by CAPURON (1970), two by ZJHRA (2006) and four by CALLMANDER & PHILLIPSON (2011). This brings the total number of species currently recognised to 12 (see MADAGASCAR CATALOGUE, 2015). Ongoing molecular work suggests that the genus represents a distinct and coherent entity (CALLMANDER et al., in press.) and most of the species are well-circumscribed, ecogeographically-coherent entities. However, after a thorough examination of the herbarium material now available for the

genus (about five times as many collections as were available to Perrier de la Bâthie) the existing treatment of the *R. racemosa* complex has proved to be highly unsatisfactory. Many specimens cannot be placed unambiguously within any of Perrier de la Bâthie's infraspecific taxa, and some of these appeared to be artificial constructs that lack coherence. We have undertaken a full review of the taxonomy of this group aiming to develop a workable treatment, and have concluded that a number of well-delimited eco-geographically coherent entities can be recognized within the species complex that merit recognition at species level, some of which already have validly published names. Among these are the two original species published by LAMARCK (1785), which were placed in synonymy by most subsequent authors, but which we believe represent distinct species of *Rhodocolea*.

In this Note we discuss Perrier de la Bâthie's infraspecific classification of *R. racemosa* and the typification of the relevant published taxa. We present a revised circumscription for *R. racemosa* and new combinations for the three other validly published entities within the complex that merit recognition as distinct species, as well as providing observations on all four of these species. Additional information, including lists of included specimens, distribution maps and links to images are available for each species in the MADAGASCAR CATALOGUE (2015). During the course of the study it became clear that a number of new taxa and taxa lacking validly published names can also be recognised within the complex. This work is ongoing, and we intend to describe them formally in a subsequent article, and provide a new identification key to the species of the genus as a whole.

Typification of *Bignonia compressa* and *B. racemosa*

Bignonia compressa and *B. racemosa* were published simultaneously on the same page of the first volume of Lamarck's *Encyclopédie Méthodique, Botanique* (LAMARCK, 1785). *Bignonia racemosa* was provided with a brief Latin diagnosis, with the note: "*β Eadem foliolis ovato-lanceolatis, numero-floribus*" (LAMARCK, 1785: 424). This was followed by a detailed description in French and the statement about the material on which the species was based. It is clear that Lamarck saw two separate specimens, which he regarded as variants of the same species. However, since no name of any kind was provided for the variants, they do not have any nomenclatural standing, and the two specimens should be regarded as syntypes. He referred to the species having been discovered by Philibert Commerson (1727-1773) in Madagascar, and although there are no corresponding specimens in Lamarck's herbarium in Paris (P-LAM), there are two such specimens in Jussieu's herbarium (P-JUSS), to which Lamarck had access. One of them [P00680416] (Fig. 1) corresponds to Lamarck's *β* variant, bearing ovate-lanceolate rather than the ovate leaflets of the other specimen [P00680417] (Fig. 2), suggesting



Fig. 1. – Lectotype of *Rhodocolea racemosa* (Lam.) H. Perrier at P-JUSS, cat. n°4988 [P00680416].
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Fig. 2. – Syntype of *Rhodocolea racemosa* (Lam.) H. Perrier at P-JUSS, cat. n°4988 [P00680417].
[© Muséum national d'Histoire naturelle, Paris]

that these were indeed the two specimens seen by Lamarck. Commerson visited Madagascar in 1770, where he collected plant specimens mainly (or perhaps exclusively) around the town of Fort Dauphin (DORR, 1997). The type material can be equated with the large volume of collections now available from low-mid elevations in the south-east of Madagascar, which we regard as distinct from other components of the *Rhodocolea racemosa* complex from further north along the coast or at higher elevation. The minor differences between the two type specimens is easily encompassed in the variation that we have seen in the material we have studied and which we include in the species. PERRIER DE LA BÂTHIE (1938a) cited the Commerson type specimen bearing ovate-lanceolate leaflets (corresponding to Lamarck's β variant) as belonging to *R. racemosa* f. *poivreii* (Baill.) H. Perrier, thereby excluding it from the typical form. The other type specimen, that possesses ovate leaflets, must therefore be included in the typical variety and the typical form according to the rules of nomenclature, but the specimen was not cited anywhere in the treatment by Perrier de la Bâthie. We assume that Perrier de la Bâthie's intention was to lectotypify *R. racemosa* on this specimen. However, although we regard Perrier de la Bâthie to have misinterpreted the identity of *R. racemosa* f. *poivreii* (Baill.) H. Perrier (this is discussed further below) we nevertheless agree with Perrier's implicit choice of lectotype for *R. racemosa* as the more morphologically representative specimen, and we formally establish the lectotypification below. Duplicates of both specimens are also present in the general collection in Paris.

The typification of *Bignonia compressa* is straightforward. As stated explicitly by Lamarck, the species is based on a collection in the Jussieu herbarium, collected by Pierre Poivre (1719–1786), and the corresponding specimen is present at P-JUSS [P00680415] (Fig. 3). The specimen is labelled as part of Poivre's herbarium of the Indes ("herb. de lindes"), although Lamarck cited specifically India ("Inde") as the origin of the species. The specimen also bears the vernacular name "Sevarantou" which too was cited by Lamarck. According to DORR (1997), Poivre collected in Madagascar (around Fort Dauphin and on the east coast near Foulpointe), on other islands of the western Indian Ocean and also extensively in the East Indes (notably in the present day Indonesia, Philippines and Indochina) and we believe the association of the specimen with the Indes was simply a labelling error. BAILLON (1889) strangely did not mention the aberrant locality information, when he placed Lamarck's two species in synonymy. The specimen represents a species of *Rhodocolea* that is widespread and common along much of the eastern coast of Madagascar at low elevation, but absent from the south-east and the north-east. It has generally been identified as *R. racemosa*, but we exclude it from this species and provide the new combination *R. compressa* (Lam.) Phillipson & Callm. in this article.

Perrier de la Bâthie's varieties and taxonomic forms of *Rhodocolea racemosa*

Rhodocolea racemosa var. *bernieriana* H. Perrier [nom. inval.], *R. racemosa* var. *gerrardiana* H. Perrier [nom. inval.] and *R. racemosa* var. *humblotiana* (Baill.) H. Perrier (\equiv *Colea humblotiana* Baill.) represent plants that have considerably larger very robust leaves than others within the *R. racemosa* complex, generally with many more and much larger leaflets. The inflorescences of all three varieties bear many relatively large flowers on strongly compressed axes, and a strong tendency for cauliflory, which sets them apart from all the other varieties. They differ from each other only in the extent to which the inflorescence is contracted, with the flowers sometimes tending to be grouped in fascicles of up to seven flowers in the most extreme case. Material now available blurs the distinction between the varieties, but it is clearly distinct from other members of the species complex. We recognise a distinct species, for which we provide below the new combination *R. humblotiana* (Baill.) Phillipson & Callm.

Rhodocolea racemosa var. *pilosula* H. Perrier [nom. inval.] and *R. racemosa* var. *decaryana* H. Perrier [nom. inval.] differ from all of the other infraspecific entities recognised in the complex by Perrier de la Bâthie in having conspicuous indument on the young growth and inflorescences. Both taxa are each based on a single collection, and unlike the majority of other material within the *R. racemosa* complex these collection originated from mountainous areas in the east of the country rather than the eastern coastal zone, and appear to represent two distinct entities. Today, additional material is available of pubescent *Rhodocolea* from higher elevations, and we can confidently exclude this material from *R. racemosa*. No validly published name exists for these plants.

Two of the three remaining non-typical varieties recognised by Perrier de la Bâthie, *R. racemosa* var. *cloiseliana* H. Perrier [nom. inval.] and *R. racemosa* var. *delphiniana* H. Perrier [nom. inval.] both originate from the south-east of Madagascar near the town of Fort Dauphin (Taolagnaro), and each was based on a single collection. They appear to differ from each other by only minor variations in the average size of the leaflets and the floral parts, but agree in terms of their rather denser inflorescences with numerous somewhat fasciculate flowers and slight pubescence of the calyx. This character combination sets these plants apart from any other published taxon, and we believe they represent a new species.

PERRIER DE LA BÂTHIE (1938b) provided the following statement about the delimitation of the typical variety remarking: "Variété groupant toutes les formes de l'espèce, cauliflores ou non, à grappes allongées et peu denses et à ovaire non recouvert d'un enduit grisâtre". He described six taxonomic forms within *R. racemosa* var. *racemosa* (his *R. racemosa* var. *typica*), three of which were based on existing validly published names: *R. racemosa* f. *chapelierii*



Fig. 3. – Holotype of *Rhodocolea compressa* (Lam.) Phillipson & Callm. at P-JUSS cat. n°4995 [P00680415].
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(DC.) H. Perrier, *R. racemosa* f. *nitida* (DC.) H. Perrier and *R. racemosa* f. *poivre* (Baill.) H. Perrier. The other three forms were newly described and are not validly published, each lacking the necessary Latin diagnosis or description. In his treatment, Perrier de la Bâthie did not include any mention of the typical (autonymic) taxonomic form and did not describe its circumscription, but nevertheless it must exist, and include at least the type of the species in order to comply with the International Code of Nomenclature (McNEILL et al., 2012) since he accepted and formally described non-typical forms. As mentioned above, Perrier de la Bâthie excluded one of the type specimens of *Bignonia racemosa*, and by inference the other type must be included in *Rhodocolea racemosa* f. *racemosa*. Similarly, since it is not cited under any other variety or form, the type of *Bignonia compressa* was presumably also included within Perrier de la Bâthie's concept of *Rhodocolea racemosa* f. *racemosa*, thus he considered *Bignonia compressa* and *B. racemosa* to be synonymous even at the level of taxonomic form. We suppose that this is a legacy from BAILLON (1889) having initially synonymized the two species. As indicated above, we regard these entities as belonging to two distinct species.

Two of Perrier de la Bâthie's accepted and validly published forms, *Rhodocolea racemosa* f. *chapelieri* (≡ *Colea chapelieri* DC. and known only from the type) and *R. racemosa* f. *nitida* (≡ *Colea nitida* DC. and including *C. decora* Bojer sensu Seem.) differ only very slightly and we believe they can be accommodated within *Rhodocolea compressa*. A single element included by Perrier de la Bâthie in *R. racemosa* f. *nitida* is an exception to this, the type of *Colea parviflora* Baker (*Baron 3099*). This specimen differs from *Rhodocolea compressa* by its rather dense contracted inflorescence of rather small flowers, and although the collection locality, "Central Madagascar" is imprecise, the collection presumably did not originate from the eastern coast at low elevation, the characteristic habitat of *R. compressa*. On its own, this might have been explained as an individual aberrant collection and an erroneous locality record, but recent collections from Betampona Reserve and from near Moramanga appear to be a good match for this species. There are no other species in which this material can be accommodated comfortably, so we therefore establish the combination *R. parviflora* (Baker) Phillipson & Callm. for this taxon.

The third taxonomic form, *R. racemosa* f. *poivre* (Baill.) H. Perrier contains diverse elements. In addition to the type of the basionym (*Colea poivre* Baill.), Perrier de la Bâthie included also: the excluded syntype of *Rhodocolea racemosa* - the Commerson collection discussed above, two specimens from relatively high elevations in east-central Madagascar as well as a collection from north-east Madagascar. After examination of the protologue and the type specimen of *Colea poivre*, we conclude that Perrier de la Bâthie was mistaken in

including this species within the *Rhodocolea racemosa* complex. BAILLON (1889) himself indicated that his new species was very close to *Colea involucrata* Bojer ex DC. (now *Rhodocolea involucrata* (Bojer ex DC.) H. Perrier) which does not belong to the *R. racemosa* group, and, although the type specimen is in poor condition, we concur with Baillon about its relationship, and in the light of the material now available, we even go so far as to regard it as no more than a synonym of *R. involucrata*. The specimens from east-central and north-east Madagascar included in *R. racemosa* f. *poivre* Perrier de la Bâthie belong to an undescribed species.

Of the three remaining taxonomic forms recognised by Perrier de la Bâthie that were not validly published, *R. racemosa* f. *microphylla* H. Perrier [nom. inval.] can be accommodated within *R. racemosa* s.s., while the other two: *R. racemosa* f. *arborea* H. Perrier [nom. inval.] and *R. racemosa* f. *cauliflora* [nom. inval.], represent elements of undescribed species.

Systematics

Rhodocolea compressa (Lam.) Phillipson & Callm., **comb. nova.**

≡ *Bignonia compressa* Lam., Encyl. 1: 424. 1783.

≡ *Colea compressa* (Lam.) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. IV(3b): 248. 1895.

Typus: MADAGASCAR: *sine loc.*, s.d., *Poivre s.n.* (holo-: P-JUSS, cat. n°4995 [P00680415]!).

= *Colea chapelieri* DC., Prodr. 9: 242. 1845. ≡ *Rhodocolea racemosa* f. *chapelieri* (DC.) H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 26. 1938. **Typus:** MADAGASCAR: *sine loc.*, s.d., *Chapelier s.n.* (holo-: P [P00647482]!; iso-: P [P00647483]!).

= *Colea nitida* DC., Prodr. 9: 242. 1845. ≡ *Rhodocolea racemosa* f. *nitida* (DC.) H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 25. 1938. **Typus:** MADAGASCAR. **Prov. Toamasina:** *sine loc.* s.d., *du Petit-Thouars s.n.* (holo-: P [P00647479]!).

Observations. – *Rhodocolea compressa* is distinguished by its leaves bearing (3) 5- 9 obovate coriaceous leaflets, which are gradually attenuate at the base, and with the terminal leaflet barely larger than the lateral ones. The leaflets often have revolute margins and a rather glossy upper surface, they are very variable in size depending on the vigor of the specimen collected, but are rarely more than 8 cm long. The inflorescences are mostly borne on the young growth, but are sometimes cauliflorous, they are long (often > 15 cm long), but rather lax, the nodes are often somewhat geniculate, and the leafy bracts are usually conspicuous and persistent. The flowers have a calyx typically ca. 4-5 mm long, with shallow rounded lobes, and the corolla is usually white or pale pink, sometimes suffused with a

deeper pink on the lobes, and with yellow nectar guides in the throat. *Rhodocolea compressa* occurs at low elevation along the eastern seaboard of Madagascar from near Farafangana in the south to the Masoala Peninsula in the north, it is a common species that appears to survive in degraded areas as well as occurring in littoral forest.

Material of *Rhodocolea compressa* has been referred in the past to *Colea decora* Bojer, and the authorship of the latter name has been attributed variously to Wenceslas Bojer himself, Augustin Pyramus de Candolle (DC.) and Berthold Seemann (Seem.). The name has been cited as a synonym of *Rhodocolea racemosa* and also as a synonym of *Ophiocolea floribunda* (Bojer) H. Perrier. *Colea decora* is a validly published name for a species from the highlands of Madagascar, that is closely related to *Ophiocolea floribunda* (= *Colea floribunda* Bojer). Bojer's publication of the name included only minimal descriptive information - it was grouped with three other species of *Colea* as having "Feuilles verticillées, accompagnées de grandes stipules. Fleurs placées sur la tige.", and for each species the habit and the flower colour was noted, as well as information about the known habitat (BOJER, 1837). *Colea decora* was described as "Arbrisseau. Fleurs blanches." which was adequate to differentiate it from the two other species in the group. The known type material includes specimens at K and P [P00648528] (Bojer s.n.). De Candolle accepted Bojer's species, but introduced the suggestion that it might be the same as *Bignonia compressa* Lam. (CANDOLLE, 1845). This was no doubt influenced by the existence of specimens of the latter species collected by Bojer, including a sheet at G which eventually became annotated (erroneously) as the holotype of *Colea decora* (Bojer s.n. [G00133785]). SEEMANN (1862) subsequently provided a description under *C. decora* which relates to *Rhodocolea compressa* and not to Bojer's *Colea decora*. He also cited both Bojer's original publication of the name and de Candolle's treatment of the species and specimens of *Rhodocolea compressa*, it is clear therefore that Seemann merely misinterpreted Bojer's plant, evidently he did not see the type of *Colea decora*.

***Rhodocolea humblotiana* (Baill.) Phillipson & Callm., comb. nova.**

≡ *Colea humblotiana* Baill. in Bull. Mens. Soc. Linn. Paris 1: 687. 1889.

≡ *Rhodocolea racemosa* var. *humblotiana* (Baill.) H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 27. 1938.

Typus: MADAGASCAR. Prov. Toamasina: Lac Nosibé, s.d., *Humblot 191* (holo-: P [P00647473]!; iso-: [P00647474]!).

= *Colea aberrans* Baill. in Bull. Mens. Soc. Linn. Paris 1: 687. 1889. **Typus:** MADAGASCAR [wrongly labeled from Timor]: *sine loc.*, s.d., *Poivre s.n.* (holo-: P [P00647486]!).

– *Rhodocolea racemosa* var. *bernierana* H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 27. 1938 [nom. inval.].

– *Rhodocolea racemosa* var. *gerrardiana* H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 27. 1938 [nom. inval.].

Observations. – *Rhodocolea humblotiana* differs from all other elements included in *R. racemosa* by Perrier de la Bâthie by its much larger leaves: > 30 cm long including the terminal leaflet (vs < 20 cm) and > 20 cm wide (vs < 15 cm) and proportionately larger leaflets, its generally condensed, mostly cauliflorous inflorescences (vs. lax, and mostly borne among the leaves, at least in the case of the taxa included in this article) and its large flowers. The corolla has a broadly funnel-shaped tube which is a distinctive colour outside, shading from a brown-red at the base, and in bud, through orange and eventually yellow at the mouth. Inside the throat the tube is yellow, with red nectar guides. The corolla lobes are white. *Rhodocolea humblotiana* occurs at low elevations along the coastline of Toamasina Province from near Brickaville in the south to near Maroantsetra. Note that the type locality of the species: Lac Nosibé, is a locality on the east coast of Madagascar near Foulpointe, and should not be confused with the island of Nosy-be, the type locality of *Colea purpurascens* (see below), off the north-west coast.

Rhodocolea racemosa var. *gerrardiana* was based on a single specimen collected by William Gerrard, who went to Madagascar in 1865, and only visited the east coast near Toamasina (Tamatave) (DORR, 1997). Gerrard's collection undoubtedly represents *R. humblotiana*. Curiously, although Perrier de la Bâthie originally identified the specimen at K in 1936 as *R. racemosa* var. *humblotiana*, he then separated it as a distinct variety in his published treatment (PERRIER DE LA BÂTHIE 1938a, 1938b). He wrongly stated the plant to have been collected at Fort Dauphin.

We include in this species certain material that was described as *Colea hispidissima* Seem. The species was based on a Boivin specimen from Ile Ste Marie, and consists of a mixture of leaf material of *Rhodocolea humblotiana* and flowers of a species of *Vitex* L. (*Lamiaceae*). We have lectotypified *Colea hispidissima* on the flowering material (PHILLIPSON & CALLMANDER, 2013). Similarly, vegetative material of another Boivin specimen from Ile Ste Marie of *Rhodocolea humblotiana* is a syntype of *Colea purpurescens* Seem. In this case too we have selected other material which bears flowers and leaves as the lectotype for this species in the same article.

***Rhodocolea parviflora* (Baker) Phillipson & Callm, comb. nova.**

≡ *Colea parviflora* Baker in J. Linn. Soc., Bot. 21: 428. 1885.

Typus: MADAGASCAR: Central Madagascar, s.d., *Baron 3099* (holo-: K [K001042024]!; iso-: [P00647481]!).

Observations. – *Rhodocolea parviflora* is distinguished by its rather fine leafy branches, bearing leaves frequently with as few as 3 relatively thin-textured elliptic leaflets, with the terminal leaflet much larger than the lateral ones, rounded at the base and shortly attenuate at the apex, or with 5–7 leaflets. Young growth is finely but sparsely pubescent in some specimens. The inflorescences are borne at the apex of the branches, they are frequently branched to form a dense panicle, with the flowers tending to be borne in clusters. The flowers are rather small, the calyx ca. 3 mm long and acutely lobed, the corolla ca. 20 mm long, apparently predominantly pink. The species was originally described from “Central Madagascar”, but we now include material from the Moramanga region at ca. 900 m elevation, and from Betampona Reserve at mid-elevation.

Rhodocolea racemosa (Lam.) H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 24. 1938.

≡ *Bignonia racemosa* Lam., Encycl. 1: 424. 1785.

≡ *Colea racemosa* (Lam.) Baill. in Bull. Mens. Soc. Linn. Paris 1: 685. 1889.

Lectotypus (here designated): **MADAGASCAR:** *sine loc.*, s.d., *Commerson s.n.* (P-JUSS, cat. n°4988 [P00680416]!; isolecto-: G [G00341646]!, P [P00647477]!). **Syntypus:** **MADAGASCAR:** *sine loc.*, s.d., *Commerson s.n.* (P-JUSS, cat. n°4988 [P00680417]!; isosyn-: P [P00647476, P00647478]!).

– *Rhodocolea racemosa* f. *microphylla* H. Perrier in Ann. Mus. Colon. Marseille ser. 5, 6: 27. 1938 [nom. inval.].

Observations. – *Rhodocolea racemosa* is characterised by fine leafy branches, but bearing leaves with a rather variable number of leaflets from (3–)5–11, the leaflets are small (the terminal usually < 6 mm long), ovate to ovate-lanceolate, or elliptic, relatively thin-textured, and generally tapered at both ends. The inflorescences are borne mostly on the young growth, rarely cauliflorous, the axes are fine and not markedly flattened, and the flowers tend to be rather regularly spaced giving a racemose appearance. The corolla is variously described as deep pink, reddish or purple, with various markings in the throat. The species occurs at low to mid elevation on various substrates in the Fort Dauphin area in south-east Madagascar, including in littoral forest on sand.

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