

***Barthlottia*, a new monotypic genus of Scrophulariaceae-Manuleae from Madagascar**

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Summary: The new monotypic genus *Barthlottia* from Madagascar is described. It is related to the Southern African *Manuleopsis* in the tribe Manuleae, but differs in the size and colour of the corolla, the insertion of the stamens and the capitate stigma. This is the first record of a member of the Manuleae for Madagascar.

Résumé : Le nouveau genre monotypique *Barthlottia*, de Madagascar, est décrit. Il est proche du genre sud-africain *Manuleopsis* de la tribu des Manuleae, dont il diffère par les dimensions et la couleur de la corolle, l'insertion des étamines et le stigmate capité. C'est la première mention de cette tribu pour Madagascar.

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Madagascar is famous for its endemic species and harbours a flora which is quite different from the adjacent continental Africa. Seven families of flowering plants are restricted to the island: Didymelaceae, Didiereaceae, Diegodendraceae, Sarcolaenaceae, Sphaerosepalaceae, Geosiridaceae, Humbertiaceae (RAUH 1973), the two latter families now included into the Iridaceae and the Convolvulaceae. The percentage of endemic genera is much higher and has been estimated to be near 20% (RAUH 1973). The Scrophulariaceae have been neglected and only 3 genera (*Allocalyx*, now a synonym of *Bacopa*, *Bryodes* and *Hydrotriche*) are listed as endemics in recent treatments (LEROY 1978; TAKHTAJAN 1986). New studies on the family have changed this picture and show that the Scrophulariaceae of Madagascar are much more diverse. They consist of 28 indigenous genera with 72 species (FISCHER 1995). Among them, 7 genera are endemic: *Ranopisoa* Leroy (1 sp.), *Hydrotriche* Zucc. (4 spp.), *Pseudomelasma* E. Fischer (1 sp.), *Tetraspidium* Baker (1 sp.), *Rhaphispermum* Benth. (1 sp.), *Radamaea* Benth. (5 spp.) and *Leucosalpa* Scott-Elliot (3 spp.). At the species level 40 taxa are endemic to Madagascar and 1 to the Comoro Islands. Eight genera with 9 species are introduced and thus a total number of 36 genera and 81 species is recorded for Madagascar and the Comores. However, new discoveries are still being made and we may expect that there are many more endemics to be found in remote areas.

During the preparation of the account of Scrophulariaceae for the "Flore de Madagascar et des Comores", I came across some sheets of a remarkable shrub with large red flowers, which did not

fit into any known genus. The synthecous anthers clearly placed it into the subfamily Scrophularioideae. In the Muséum national d'Histoire naturelle in Paris, some notes of H. HUMBERT were found, where he considered the plant to be a new genus near *Phygelius*. Unfortunately, he did not propose a name nor published a description. Close examination by the present author revealed that the affinities to *Phygelius* are only superficial and that there is a strong relation to the tribe Manuleae, especially the monotypic Southern African genus *Manuleopsis* (HILLIARD 1994). Our plant differs from it, however, in many respects, and therefore. I have chosen to describe it as a new genus.

BARTHLOTTIA E. Fischer, **gen. nov.**

Affinis e tribu Manulearum Manuleopsis, sed corolla campanulata intus glabra, staminibus basi tubus corollae insertis, stigmatibus capitatis et pedicellis in fructu reflexis, valde differt. Ab omnibus generibus ceteris ex affinitate Manulearum magnitudine et colore corollae distinctum.

TYPE. — *Barthlottia madagascariensis* E. Fischer

This new genus is monotypic at present.

Barthlottia madagascariensis E. Fischer, **sp. nov.** — Fig. 1, 2.

Frutex sarmentosus parum ramosus (ca. 2 m altus), radicibus valde tuberosis, ramis quadrangularibus angulis costulatis valde prominentibus, praeter ramulos inflorescentiae glabris. Folia opposita, decussata, internodiis 2-5 cm segregata, petiolata, petiolo 2-5 cm longo decurrentio limbo anguste alato, ad basim valde dilatato et latius alato, limbo elliptico-lanceolato e media longitudine ad basim cuneatum et ad apicem anguste acutum, aequaliter attenuato, 7-18 cm longo, 3-6 cm lato, nervis supra impressis, subtus prominentibus, secundariis ca. 8 utroque latere, obliquis, reticulo tertiariorum laxo, parum distincto, anastomosantibus inter se, glandulis impressis punctato. Inflorescentiae cymulis saepius unifloribus in thyrsos terminales dispositis compositae, pedunculi et pedicelli pilis glanduliferis minutissimis hirti. Calyx ut pedicellus minute hirtus-glandulosus, late campanulatus, ca. 8 mm longus, sepala 3.5 mm lata, parte indivisa brevi, 2-3 mm longa, post anthesim leviter accrescens, lobis paulum inaequalibus, obovatis, apice breviter acuminato, haud carinatis, nervo medio vix distincto, nervulis reticulatis. Corolla longe tubulosa, campanulata, tubo 38-45 mm longo, in quarto inferiore ca. 6 mm in diam., superius dilatato, 12 mm diam. attinente, lobis late ovatis, 10-12 × 12 mm, crassa, extus purpurea, tubo intus pallide carneo, lineolis purpureis striato. Stamina ad basim corollae inserta, filamentis 35-38 mm longis, antheris synthecibus, 4.5 mm longis. Ovarium obconicum, apice acuminato, stylus filiformis, 23 mm longus, stigma capitatum.

TYPE. — *Humbert 20513*, Madagascar, vallée du Mandrare, affluent de la Manampanihy (Sud-Est), montagne au S de Tanandava, forêt ombrophile sur argile latéritique et granite, rochers, 550 m, 11-16 mars 1947 (holo-, P).

MATERIAL STUDIED. — MADAGASCAR: *Guillaumet 3861*, bord oriental des chaînes W Manantenina, sur un rocher au bord de l'eau, 100 m, juil. 1971 (P); *Humbert 20513*, type (P); *Réserves Naturelles: RN 6602 Rakotoson*, RN XI, Naniliha, Distr. Fort Dauphin, 28 juil. 1954 (P).

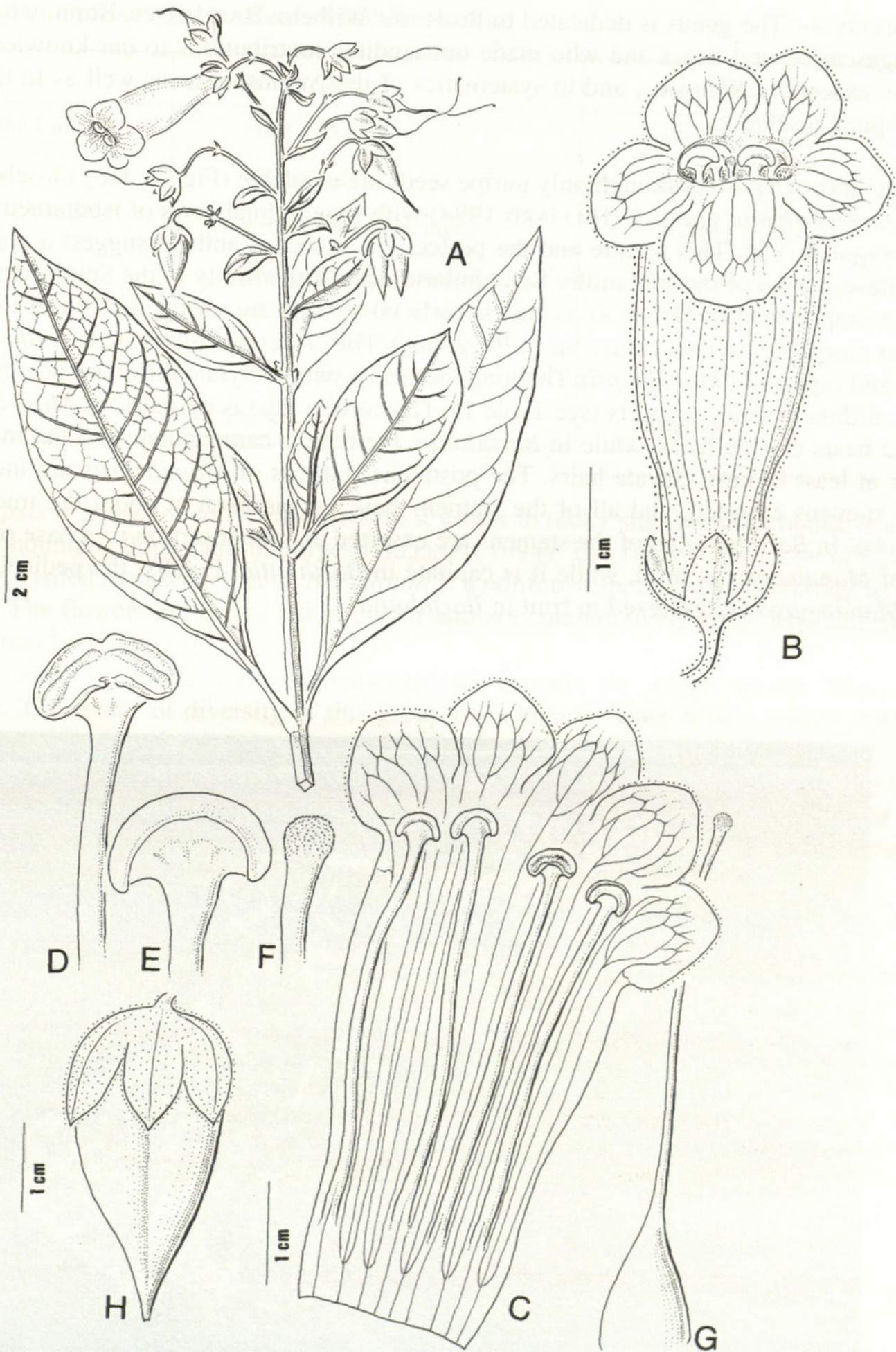


Fig. 1. — *Barthlottia madagascariensis* E. Fischer: A, habit; B, flower; C, corolla dissection; D, E, stamens; F, stigma; G, pistil; H, fruit. All from *Humbert 20513*.

ETYMOLOGY. — The genus is dedicated to Professor Wilhelm BARTHLOTT, Bonn, who has visited Madagascar several times and who made outstanding contributions to our knowledge of the Cactaceae, especially *Rhipsalis*, and to systematics of the Angiosperms as well as to the vegetation of tropical inselbergs.

GENERIC AFFINITIES. — Although only unripe seeds are available (Fig. 2), they closely resemble those of *Jamesbrittenia* group A (HILLIARD 1994) with longitudinal rows of isodiametric tetragonal to hexagonal cells. This feature and the perfectly synthealous anthers suggest a placement in the Manuleae, a tribe of the subfamily Scrophularioideae. The affinity to the South African genus *Phygellus*, emphasized by HUMBERT, is only superficial as there are strong differences in seed-type and anther morphology (not synthealous in *Phygellus*). The closest affinities are to *Antherothamnus* N.E. Br. and especially *Manuleopsis* Thellung, both also with a thyrsic inflorescence. *Barthlottia*, however, differs in many respects (see Table 1). The corolla tube is cylindric in *Manuleopsis* and the inside bears clavate hairs, while in *Barthlottia*, the tube is campanulate and the inside \pm glabrous, or at least lacking clavate hairs. The posticous stamens of *Manuleopsis* are included, the anticous stamens exserted, and all of the stamens have an insertion at about the middle of the corolla tube. In *Barthlottia* all of the stamens are exserted and the insertion is at base of tube. The stigma of *Manuleopsis* is bifid, while it is capitate in *Barthlottia*. Finally, the pedicel is erect in fruit in *Manuleopsis* and reflexed in fruit in *Barthlottia*.

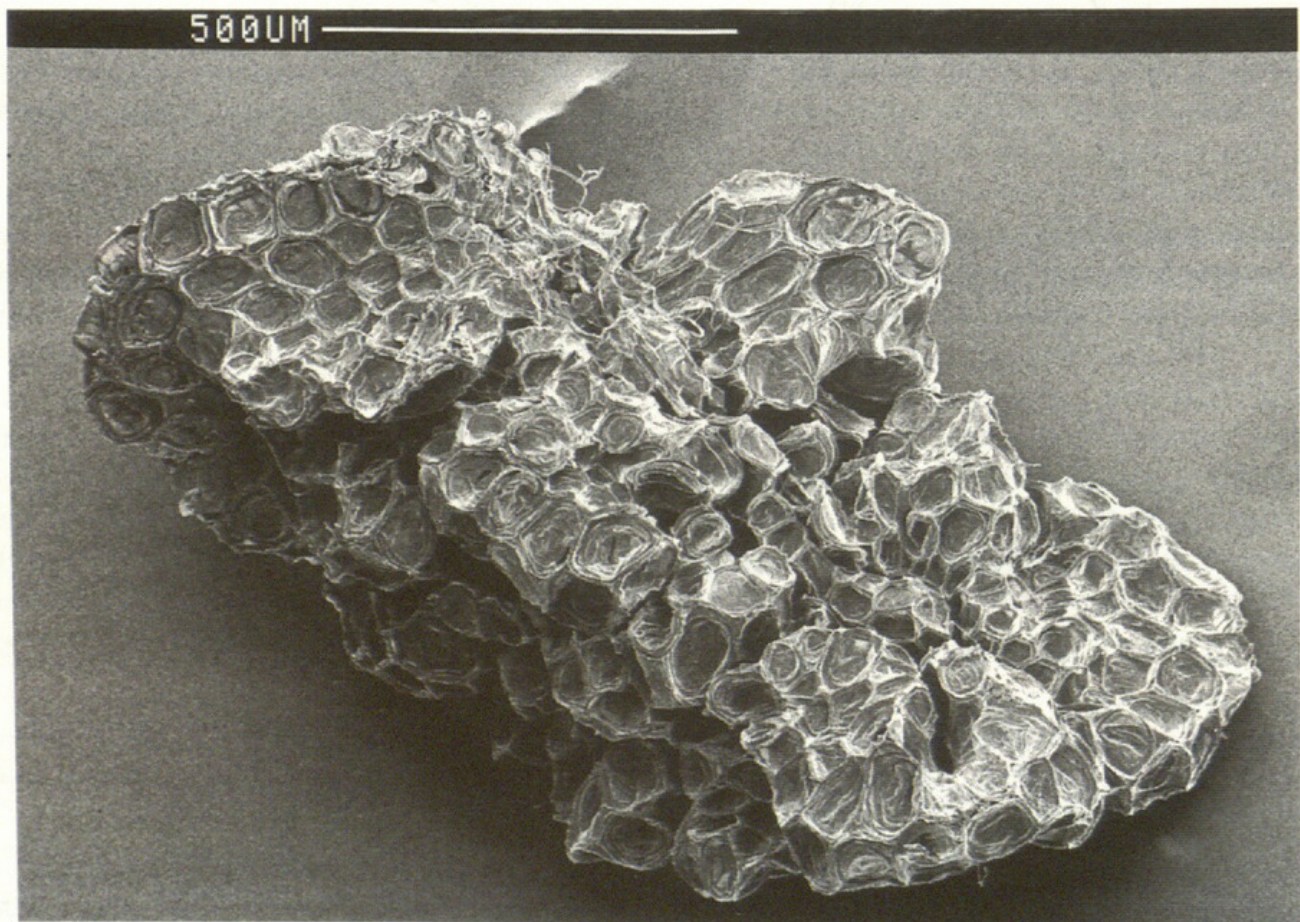


Fig. 2. — Seed of *Barthlottia madagascariensis* (from Humbert 20513).

TABLEAU 1 : Comparison of *Manuleopsis* and *Barthlottia*.

	<i>Manuleopsis</i>	<i>Barthlottia</i>
Pedicle of the fruit	erect in fruit	reflexed in fruit
Corolla tube	cylindrical	campanulate
Corolla	with clavate hairs inside	inside \pm glabrous
Stamens	posticous ones included, anticous ones exerted, all inserted near the middle of the corolla	all exerted, inserted at the base of the corolla
Stigma	bifid	capitate

Manuleopsis is restricted to Namibia, where it grows in rocky sites between boulders and rock fissures on mountain slopes and in gorges (HILLIARD 1994). The flowers are white in colour and are probably visited by insects (bees). *Barthlottia* is a rainforest species, also preferring to grow in rocky sites. The flowers are bright red in colour and are comparatively large. This indicates that they are visited by birds.

The discovery of *Barthlottia madagascariensis* extends the range of the Manuleae to Madagascar. The center of diversity of this group is undoubtedly South Africa, where most of the genera and species are endemic (HILLIARD 1994). Only a few extend to Tropical Africa, the Canary islands (*Camptoloma canariense*), Somalia and Socotra (*Camptoloma lyperiiflorum*) and to India (*Jamesbrittenia dissecta*). Floristic relationships between Southern Africa and Madagascar are not surprising, however, as species like *Walafrida paniculata* (Scrophulariaceae-Selagineae) and genera like *Pachypodium* occur in both regions.

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REFERENCES

- FISCHER E. 1995. — Revision of the Lindernieae (Scrophulariaceae) in Madagascar. 1. The genera *Lindernia* All. and *Crepidorhopalon* E. Fischer. *Bull. Mus. natl. Hist. nat.*, Paris, 4^e ser., 17, section B, *Adansonia*: 227-257.

- HILLIARD O. 1994. — *The Manuleae. A Tribe of Scrophulariaceae*. Edinburgh University Press.
- LEROY J. F. 1978. — Composition, origin and affinities of the Madagascar vascular flora. *Ann. Missouri Bot. Gard.* 65: 535-589.
- RAUH W. 1973. — Über die Zonierung und Differenzierung der Vegetation Madagaskars. *Trop. subtrop. Pflanzenwelt* 1: 1-146.
- TAKHTAJAN A. 1986. — *Floristic Regions of the World*. University of California Press.



Fischer, E . 1996. "Barthlottia, a new monotypic genus of
Scrophulariaceae-Manuleae from Madagascar." *Bulletin du
Muse*

um National d'Histoire Naturelle Section B, Adansonia, botanique, phytochimie
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