

Prodromus for a revision of *Combretum* (Combretaceae) for Madagascar

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Summary : New combinations are made in the genus *Combretum* for the species that are referred to *Calopyxis* or *Poivrea* in the Flore de Madagascar. New names are proposed and two new species are described.

Résumé : Des combinaisons nouvelles sont proposées pour des espèces qui, dans la Flore de Madagascar, étaient classées dans les genres *Calopyxis* et *Poivrea*. Dans quelques cas il était nécessaire de proposer des noms nouveaux. Deux espèces nouvelles sont décrites.

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In the 1954 Flore de Madagascar treatment of *Combretaceae* only a single species of *Combretum* is accepted : *Combretum humbertii* H. Perrier, while several species are recorded in *Poivrea* and *Calopyxis*. In the meantime *C. humbertii* has been transferred to the genus *Meiostemon*. This does not mean there are no *Combretum* spp. on Madagascar however. The genus *Poivrea* was already widely regarded as a synonym of *Combretum* before the start of this century and the genus *Calopyxis* should be treated the same way for reasons mentioned below. Both former genera are in this work treated as sections of *Combretum*. This makes many new combinations and names necessary, of which an important part is published here.

Work toward a complete revision of *Combretum* of Madagascar has thus far only been finished for the section *Poivrea*, for which a key is provided. The revision of the sections *Calopyxis* and *Chionanthoidae* has not yet been completed because of poor quality of the type material and/or lack of adequate collections. A short description is given for these species in lieu of a key.

Combretum Loefl. subg. **Cacoucia** (Aubl.) Exell & Stace

- *Poivrea* COMMERSON ex THOUARS, Mém. Bot. : Obs. Pl. Iles de France, de Bourbon et de Madagascar 28 (1811). Type : *Poivrea coccinea* (Sonn.) Thouars = *Combretum coccineum* (Sonn.) Lam.
- *Calopyxis* TUL., Ann. Sc. Nat. (Paris) 6 : 86 (1856). Lectotype : *Calopyxis sphaeroides* Tul. (designated by EXELL, Journ. Bot. 69 : 125, 1931) = *Combretum sphaeroides* (Tul.) Jongkind.

NOTE : according to Dr. R. HOOGLAND (pers. comm.) THOUARS's publication of *Poivrea* is probably invalid. If that is indeed the case the first valid publication of the genus is probably by DE CANDOLLE in his *Prodromus* (see under *Combretum coccineum*).

Scales absent. Microscopic (and sometimes macroscopic) stalked glandular hairs always present. Flowers and fruits 4- or 5-merous.

Combretum Loebl. subg. **Cacoucia** (Aubl.) Exell & Stace sect. **Poivrea** (Comm. ex Thouars) G. Don

The Madagascar species with papery winged fruits all belong to this section, and there are no representatives of this section in Madagascar lacking such wings.

KEY TO THE SPECIES OF SECTION *POIVREA*

- 1a. Flowers and fruits 4-merous. Petals hairy outside. *C. villosum*
- 1b. Flowers and fruits 5-merous. Petals hairy or glabrous 2
- 2a. Upper receptacle campanulate to long campanulate. Petals red, glabrous or hairy on the outside near the midrib only *C. coccineum*
- 2b. Upper receptacle campanulate-infundibuliform. Petals white to red, when hairy then hairy all over the outer surface 3
- 3a. Petals glabrous *C. albiflorum*
- 3b. Petals hairy outside *C. violaceum*

Combretum albiflorum (Tul.) Jongkind, *comb. nov.*

- *Poivrea albiflora* TUL., Ann. Sci. Nat. (Paris) 6 : 80 (1856) ; H. PERRIER, Ann. Mus. Col. Marseille 7 : 7 (1953) ; Flore de Madagascar, Combretaceae : 6, fig. I, 1-3 (1954). Lectotype (designated here) : *Boivin* 2687, Madagascar, Diego Suarez Bay, fl., fr. (P).
- *Combretum phaneropetalum* BAK., Journ. Linn. Soc. 25 : 315 (1890). Type : *Baron* 5568, Madagascar, Androna Prov., fl., fr. (holo-, K ; fragm.-, BM ; iso-, P).
- *Poivrea phaneropetala* (BAK.) H. PERRIER, Ann. Mus. Col. Marseille 7 : 7 (1953) ; Flore de Madagascar, Combretaceae : 7 (1954).
- *Combretum whitei* EXELL, Journ. Bot. London 77 : 339 (1939). Type : *White s.n.*, Madagascar, Tulear, 50 m. S. of Ankazoabo, fl. Oct. (holo-, BM ; fragm.-, P).
- *Poivrea phaneropetala* (BAK.) H. PERRIER var. *whitei* (EXELL) H. PERRIER, Ann. Mus. Col. Marseille 7 : 8 (1953) ; Flore de Madagascar, Combretaceae : 7 (1954).

Combretum coccineum (Sonn.) Lam.

- Encycl. 1 (2) : 734, tab. 282, fig. 2 (1785).
- *Cristaria coccinea* SONN., Voy. Ind. orient. 2 : 247, tab. 140 (1782). Type : *Sonnerat in Herb. Commerson* ? , Ile de France, fl., fr. (holo?-, P-LA).

- *Poivrea coccinea* (SONN.) THOUARS, Mél. Bot. : Obs. Pl. Iles de France, de Bourbon et de Madagascar 28 (1811) ; DC., Prod. 3 : 18 (1828) ; TUL., Ann. Sc. Nat. (Paris) 6 : 77 (1856) ; H. PERRIER, Ann. Mus. Col. Marseille 7 : 10 (1953) ; Flore de Madagascar, Combretaceae : 16, fig. III (1954).

NOTE : The whereabouts of the type-material are not certain yet, but the drawing in the original publication leaves no doubt as to which species SONNERAT collected.

Combretum villosum (Tul.) Jongkind, *comb. nov.*

- *Poivrea villosa* TUL., Ann. Sci. Nat. (Paris) 6 : 80 (1856) ; H. PERRIER, Ann. Mus. Col. Marseille 7 : 8 (1953) ; Flore de Madagascar, Combretaceae : 8 (1954). Type : *Bojer s.n.*, Madagascar, near Bombetoka Bay, fl. (holo-, P).
- *Combretum kaudernii* EXELL, Journ. Bot. London 77 : 340 (1939). Type : *Kaudern s.n.*, N.-W. Madagascar, St Marie de Marovoay, fl., fr. Sept. (holo-, S ; fragm.-, BM).
- *Poivrea phaneropetalum* (BAK.) H. PERRIER var. *kaudernii* (EXELL) H. PERRIER, Ann. Mus. Col. Marseille 7 : 8 (1953) ; Flore de Madagascar, Combretaceae : 7 (1954).

Combretum violaceum (Tul.) Jongkind, *comb. nov.*

- *Poivrea violacea* TUL., Ann. Sci. Nat. (Paris) 6 : 79 (1856). Type : *Bojer s.n.*, Madagascar, near Marou-Vorai, fl. (holo-, P ; iso-, K).
- *Poivrea villosa* TUL. var. *violacea* (TUL.) H. PERRIER, Ann. Mus. Col. Marseille 7 : 9 (1953) ; Flore de Madagascar, Combretaceae : 9 (1954).
- *Combretum majungensis* EXELL, Journ. Bot. London 77 : 340 (1939). Type : *Kaudern s.n.*, N.-W. Madagascar, Majunga, fl., fr. Oct. (holo-, S ; fragm.-, BM ; iso-, P).
- *Poivrea phaneropetala* (BAK.) H. PERRIER var. *majungensis* (EXELL) H. PERRIER, Ann. Mus. Col. Marseille 7 : 8 (1953) ; Flore de Madagascar, Combretaceae : 7 (1954).

Combretum Loefl. subg. **Cacoucia** (Aubl.) Exell & Stace sect. **Calopyxis** (Tul.) Jongkind, *sect. nov.*

- *Calopyxis* TUL., Ann. Sci. Nat. (Paris) 6 : 86 (1856). Lectotype : *Calopyxis sphaeroides* Tul. (designated by EXELL, Journ. Bot. 69 : 125, 1931) = *Combretum sphaeroides* (Tul.) Jongkind.

Flowers 5-merous. Inflorescence terminal, pendulous. Petals absent except in *C. grandidieri*. Fruit never with papery wings and often sub-globose.

When in 1980 STACE transferred *Poivrea grandidieri* to *Calopyxis grandidieri* he correctly placed this species with its nearest relatives. However with this species placed in *Calopyxis* the most important character that was separating this genus from the related *Combretum* subg. *Cacoucia* until that moment, the absence of petals, is no longer present in all species. There is in fact little difference between the flowers of *Calopyxis grandidieri* and *Combretum platypterum* (Welw.) Hutch. & Dalz., and this is not sufficient to retain *Calopyxis* as a separate genus.

Nevertheless, this is a group of closely related species endemic to Madagascar that appears to form a monophyletic assemblage, for which a new section is therefore proposed.

Combretum coursianum (H. Perrier) Jongkind, *comb. nov.*

- *Calopyxis coursiana* H. PERRIER, Ann. Mus. Col. Marseille 7 : 20 (1953) ; Flore de Madagascar, Combretaceae : 38, fig. IX, 3-5 (1954), excl. the fruit!. Type : *Perrier 17405*, cult., fl. Nov. (holo-, P).
- *Calopyxis eriantha* auct. non TUL. : H. PERRIER, Flore de Madagascar, Combretaceae : 18, fig. IV, 5 (1954).

Flowers stipitate. Lower receptacle glabrous ; upper receptacle long campanulate, ca. 10×5 mm, hairy only inside near the base, green and red in some places. Petals absent. Fruit globose or globose-ellipsoid, with a distinct stipe, smooth, glabrous.

Combretum eriogynum (H. Perrier) Jongkind, *comb. nov.*

- *Calopyxis eriogyna* H. PERRIER, Ann. Mus. Col. Marseille 7 : 15 (1953) ; Flore de Madagascar, Combretaceae : 27, fig. VI, 2-4 (1954). Type : *Perrier 2275*, Madagascar, middle Bemarivo Bassin, fl. Oct. (holo-, P).

Flowers sessile. Receptacle with long slender middle part ; lower receptacle with long hairs ; upper receptacle almost glabrous. Petals absent. Fruit almost globose, somewhat angular in cross section, glabrous ; stipe ca. 1 mm long.

Combretum evisceratum (H. Perrier) Jongkind, *comb. nov.*

- *Calopyxis eviscerata* H. PERRIER, Ann. Mus. Col. Marseille 7 : 17 (1953) ; Flore de Madagascar, Combretaceae : 30, fig. VII, 4-7 (1954). Type : *Perrier 18756*, Madagascar, Loky Bassin, Mt Ambohipiraka, fl., fr. Oct. (holo-, P).
- *Calopyxis filicifolia* H. PERRIER, Ann. Mus. Col. Marseille 7 : 17 (1953) ; Flore de Madagascar, Combretaceae : 32 (1954). Type : *Perrier 14607*, Madagascar, near Majunga, fl. bud (holo-, P).

Flowers stipitate. Receptacle pink ; upper receptacle inflated. Petals absent. Stamens exserted ca. 5 mm. Style exserted ca. 8 mm. Fruit star-shaped in cross-section, glabrous, stipe up to 1 cm long.

NOTE : The type, and at the time of the first publication the only collection, of *Calopyxis filicifolia* only has flower-buds. This collection is identical to *Capuron SF 178* with mature flowers, which clearly belongs to *C. evisceratum*.

Combretum grandidieri Drake

Bull. Mus. Nat. Hist. Paris, 9 : 42 (1903). Type : *Grandidier s.n.*, Madagascar, from S. Manomby to Maintirano, fl. Febr. (holo-, P).

— *Poivrea grandidieri* (DRAKE) H. PERRIER, Ann. Mus. Col. Marseille 7 : 9, fig. 1 (1953) ; Flore de Madagascar, Combretaceae : 10, fig. II, 7-8 (1954).

— *Calopyxis grandidieri* (DRAKE) CAPURON ex STACE, Bot. J. Linn. Soc. 81 (4) : 329 (1980, publ. 1981).

Flowers stipitate. Receptacle green, yellow, and red, glabrous to hairy ; upper receptacle ca. 2×1 cm. Petals shorter than the calyx lobes, hairy on the outside. Stamens exerted ca. 3 mm. Style exerted ca. 7 mm. Fruit sub-globose to obovoid, round to slightly angular in cross-section, glabrous, always with a distinct stipe up to 2 cm long.

Combretum longicollum Jongkind, *nom. nov.*

— *Calopyxis trichophylla* BAK., Journ. Linn. Soc. 25 : 316 (1890), not *Combretum trichophyllum* Bak. Type : *Baron 5786*, Madagascar, *s.loc.*, fl. (holo-, K).

— *Calopyxis eriantha* TUL. var. *longicolla* H. PERRIER, Ann. Mus. Col. Marseille 7 : 12 (1953) ; Flore de Madagascar, Combretaceae : 20 (1954), *descr. gall. tantum*.

— *Calopyxis eriantha* auct. *non* TUL. : H. PERRIER, Flore de Madagascar, Combretaceae : 18, fig. IV, 4 (1954).

— *Calopyxis malifolia* auct. *non* BAK. : H. PERRIER, Flore de Madagascar, Combretaceae : 28, fig. VI, 5-6 (1954).

Flowers sessile. Receptacle with a long slender middle part ; lower receptacle very hairy ; upper receptacle widely infundibuliform, almost glabrous, inside only the edge of the disc hairy. Fruit sub-globose, velutinous, sessile.

Combretum macrocalyx (Tul.) Jongkind, *comb. nov.*

— *Poivrea macrocalyx* TUL., Ann. Sci. Nat. (Paris) 6 : 81 (1856). Type : *Bernier 209*, Madagascar, near Rigny Bay, fl. (holo-, P).

— *Calopyxis macrocalyx* (TUL.) H. PERRIER, Ann. Mus. Col. Marseille 7 : 12 (1953) ; Flore de Madagascar, Combretaceae : 20, fig. IV, 6-8 (1954).

— *Poivrea bernieriana* TUL., Ann. Sc. Nat. (Paris) 6 : 82 (1856). Type : *Bernier s.n.*, Madagascar, Lanivato Bay, fl. (holo-, P).

— *Calopyxis bernieriana* (TUL.) H. PERRIER, Ann. Mus. Col. Marseille 7 : 12 (1953) ; Flore de Madagascar, Combretaceae : 21, fig. V, 1-2 (1954), *excl. the fruit!*, fig. V, 3.

— *Calopyxis humbertiana* H. PERRIER, Ann. Mus. Col. Marseille 7 : 19 (1953) ; Flore de Madagascar, Combretaceae : 33 (1954). Type : *Humbert 2981* not 2982 !, Madagascar, Ihosy Valley, fl. Oct. (holo-, P).

— *Calopyxis lamiana* H. PERRIER, Ann. Mus. Col. Marseille 7 : 16 (1953) ; Flore de Madagascar, Combretaceae : 29, fig. VII, 1-3 (1954). Type : *Lam & Meeuse 6115*, Madagascar, Marohogo Forest Reserve, near Majunga, fl. Dec. (holo-, P ; iso-, L, WAG).

Flowers sessile or stipitate. Receptacle reddish ; lower receptacle 7-8 mm long including stipe ; upper receptacle 10-20 mm high and 9-12 mm wide, often more or less constricted below the middle. Petals absent. Stamens exserted 10-15 mm. Style exserted ca. 15 mm. Fruit with corky wings, glabrous.

NOTE : In the Flore de Madagascar treatment the material of this species is referred to four separate species, but many collections exhibit a wide range of intermediate characters necessitating their treatment as a single species.

A fruit is depicted on the drawing for *Calopyxis bernieriana* in the Flore, although the description indicates that the fruits are unknown. In any case the fruit in the drawing does not belong to *Combretum macrocalyx*.

Combretum oxygonium (Tul.) Jongkind, *comb. nov.*

- *Calopyxis oxygonia* TUL., Ann. Sci. Nat. (Paris) 6 : 88 (1856) ; H. PERRIER, Ann. Mus. Col. Marseille 7 : 19 (1953) ; Flore de Madagascar, Combretaceae : 34, fig. VIII, 1-3 (1954). Type : *Chapelier s.n.*, Madagascar, near Tamatave, fr. anno 1803 (holo-, P).
- *Calopyxis subclausa* HOCHREUTINER, Annuaire Cons. et Jard. Bot. Genève 6 : 77-79 (1908). Type : *Guillot 26*, Madagascar, near Vatomandry, fl. Oct. (holo-, G ; iso-, K, P).
- *Calopyxis jumellei* H. PERRIER, Ann. Mus. Col. Marseille 7 : 14 (1953) ; Flore de Madagascar, Combretaceae : 24, fig. VI, 1 (1954). Type : *Perrier 6355*, Madagascar, near Antalaha, fl. Nov. (holo-, P).

Flowers stipitate. Receptacle green ; lower receptacle ca. 6 mm long, hairy ; upper receptacle almost cupuliform, ca. 4 mm high and 5 mm wide, nearly glabrous outside, glabrous inside. Petals absent. Stamens not exserted ; filaments ca. 1 mm long. Style ca. 1.5 mm long, never exserted. Fruit almost globular, ca. 12 mm in diameter, with 5 ridges, glabrous ; stipe ca. 1 mm long.

Combretum sphaeroides (Tul.) Jongkind, *comb. nov.*

- *Calopyxis sphaeroides* TUL., Ann. Sci. Nat. (Paris) 6 : 86 (1856) ; H. PERRIER, Ann. Mus. Col. Marseille 7 : 19 (1953) ; Flore de Madagascar, Combretaceae : 34 (1954). Type : *Boivin 667*, Madagascar, Nosy Bé, fl., fr. (holo-, P).

Flowers stipitate. Receptacle greenish sometimes tinged red, almost glabrous ; lower receptacle appressed hairy ; upper receptacle cupuliform, up to 6 × 6 mm, hairy inside, pale green. Petals absent. Stamens exserted up to 2 mm. Style not or hardly exserted. Fruit globose to obovoid, up to 1.3 cm in diameter, glabrous, with a short but distinct stipe up to 2.5 mm long.

Combretum subumbellatum (Bak.) Jongkind, *comb. nov.*

- *Calopyxis subumbellata* BAK., Journ. Linn. Soc. 25 : 316 (1890) ; H. PERRIER, Ann. Mus. Col. Marseille 7 : 19 (1953) ; Flore de Madagascar, Combretaceae : 36, fig. VIII, 4-7 (1954). Type : *Baron 5679*, Madagascar, *s.loc.*, fl. (holo-, K ; fragm.-, P).

- *Calopyxis seyrigii* H. PERRIER, Ann. Mus. Col. Marseille 7 : 15 (1953) ; Flore de Madagascar, Combretaceae : 28 (1954). Lectotype (designated here) : *Seyrig III*, Madagascar, near Ampandrandava, fl. Oct. (P).

Flowers stipitate. Receptacle green tinged purple ; lower receptacle 5-7 mm including stipe, with small glandular hairs ; upper receptacle ca. 7×7 mm, almost glabrous on the outside, with long hairs inside. Petals absent. Stamens hardly to clearly exserted. Style exserted 1-3 mm. Fruit up to 3.5×2 cm, round to elliptic in outline, angular in cross-section and ridged, woody, glabrous ; stipe up to 6 mm long.

Combretum subg. Combretum

Scales present. Flowers and fruits normally 4-merous.

Combretum subg. Combretum sect. Chionanthoidea Engl. & Diels

This is the only section of this subgenus that occurs in Madagascar. Closely related species of the same section are present in E. Africa.

Combretum boinensis Jongkind, *sp. nov.*

Frutex scandens ; folia opposita, lamina elliptica vel obovata ; inflorescentia axillaris ; flores tetrameri, sessiles ; receptaculum extus lepidotum ; receptaculum in superiore parte infundibulare ; petala obovata, margine pilis ciliata ; fructus ignotus.

TYPE : *Perrier 781*, Madagascar, Boina, Firingalava forest, ca. $17^{\circ}36'$ S.- $46^{\circ}55'$ E., fl. Oct. (holo-, P).

- *Poivrea obscurum* var. *boinensis* H. PERRIER, Ann. Mus. Col. Marseille 7 : 10 (1953) ; Flore de Madagascar, Combretaceae : 14 (1954), *descr. gall. tantum*.

Liana. Branchlets pubescent. Leaves opposite ; petiole up to 5 mm long ; blade elliptic to obovate, up to 13×6 cm, coriaceous, with a distinctly cartilagenous margin, more or less ciliate ; 7-11 pairs of main lateral nerves, domatia inconspicuous ; base cordate ; apex acute to short acuminate ; young leaves pubescent on nerves on both sides.

Inflorescences in the axil of the leaves of the same season, capitate, up to 2 cm long, branchlets covered with yellow scales. Flowers sessile. Receptacle covered with yellow scales, with a long stipelike part between the lower and upper receptacle ; upper receptacle infundibuliform. Petals obovate, 1.5 mm long and 1 mm wide, ciliate. Stamens exserted ca. 4 mm ; anthers ca. 0.3 mm long. Style exserted ca. 3 mm, glabrous.

Fruit unknown.

MATERIAL STUDIED. — MADAGASCAR : *Decary* 8158, Ambongo, fl. Sept. (P) ; *Perrier* 781, Firingalava forest, ca. 17°36' S.-46°55' E., fl. Oct. (P), type ; 6468, Antsabefolaka, near Maevatanana, ca. 16°56' S.-46°49' E., fl. (P) ; *Randriamiera?* 8756 RN, Soalala Distr., fl. Dec. (P).

NOTE : Because PERRIER in 1953 and 1954 did not publish his new variety with a latin diagnoses his publication is not valid. For this raison *Combretum boinensis* is published here as a new species and not as a new combination.

***Combretum capuronii* Jongkind, sp. nov.**

Liana magna ; folia opposita, lamina elliptica, glabra ; flores tetrameri, sessiles ; receptaculum extus lepidotum ; receptaculum in superiore parte infundibulare ; petala obovata, glabra ; fructus ignotus.

TYPE : *Capuron* 28351 SF, Madagascar, S. slope of the Maningotry Pass, ca. 24°35' S.-46°45' E., fl. Sept. (holo-, P ; iso-, TEF, WAG).

Large liana. Leaves opposite ; petiole up to 12 mm long ; blade elliptic, up to 11 × 5 cm, glabrous except for the scales, scales impressed, 5-8 main lateral nerves ; base attenuate ; apex acuminate.

Inflorescence paniculate, up to 9 cm long, rachis glabrous except for the scales. Flowers sessile. Receptacle ca. 5 mm high and 2 mm wide, glabrous except for the scales ; upper receptacle infundibuliform. Petals obovate, 1.5 × 1 mm, glabrous. Stamens ; anthers ca. 0.5 mm long.

Fruit unknown.

ECOLOGY : primary rainforest.

MATERIAL STUDIED. — MADAGASCAR : *Capuron* 28351 SF, S. slope of the Maningotry Pass, ca. 24°35' S.-46°45' E., fl. Sept. (P, TEF, WAG), type ; *McWhirter* 220, Manangotry Pass, 60 km N.-W. of Ft. Dauphin, fl. Sept. (K, P).

***Combretum decaryi* Jongkind, nom. nov.**

— *Poivrea obscurum* (TUL.) H. PERRIER var. *occidentalis* H. PERRIER, Ann. Mus. Col. Marseille 7 : 10 (1953) ; Flore de Madagascar, Combretaceae : 13, fig. II, 1-3 ; II, 5 (1954) (not *Combretum occidentale* L.). Lectotype (designated here) : *Decary* 15024, Madagascar, Malaimbandy, fl. (P ; iso-, WAG).

Liana or shrub. Leaves : petiole up to 7 mm long ; blade oblong 11 × 3.5 cm, with few scales ; 6-9 pairs of main lateral nerves ; base cordate ; apex acuminate.

Inflorescence in the axill of a leaf of the same season, up to 5 cm long, all flowers on the second half. Bracts inconspicuous. Flowers sessile. Receptacle glabrous except for the scales or with a few scattered hairs ; lower receptacle with contiguous scales ; upper receptacle infundibuliform. Petals 1.5 × 0.7 mm, glabrous. Stamens exerted ca. 4 mm. Style exerted ca. 4 mm.

Fruit sessile, elliptic in outline, 4 × 1.5 cm, with woody wings, smooth, glabrous.

Combretum meridionalis (H. Perrier) Jongkind, *comb. et stat. nov.*

— *Poivrea obscurum* (TUL.) H. PERRIER var. *meridionalis* H. PERRIER, Ann. Mus. Col. Marseille 7 : 10 (1953) ; Flore de Madagascar, Combretaceae : 14 (1954). Lectotype (designated here) : Perrier 19265, Madagascar, near Ihosy, fl., fr. June (P).

Liana or scrambling shrub up to 4 m high. Branchlets hairy or glabrous. Leaves : petiole up to 5 mm long ; blade long ovate to almost linear, up to 9×3 cm, often with contiguous scales beneath and sometimes hairy on the larger nerves, young ones sometimes also hairy between the nerves ; 10-35 pairs of main lateral nerves, domatia inconspicuous ; base cordate ; apex acute.

Inflorescence in the axill of a leaf of the same season, up to 1.5 cm long, capitate. Bracts inconspicuous. Flowers sessile, protogynous, fragrant. Receptacle glabrous to hairy, closely covered by scales, green ; upper receptacle ca. 3 high and 2.5 mm wide. Petals obovate, ciliate but otherwise glabrous, dull-white to yellow. Stamens exserted ca. 4 mm ; filaments white ; anthers ca. 0.3 mm long, pale yellow. Style exserted ca. 2 mm.

Fruit elliptic in outline, angular in cross-section and sharply ridged to winged, 3×1.5 cm, closely covered by scales otherwise glabrous ; stipe up to 6 mm long ; cotyledons ruminant.

Combretum obscurum Tul.

Ann. Sc. Nat. (Paris) 6 : 83 (1856). Type : *Chapelier s.n.*, Madagascar, near Tamatave, fl. (holo-, P).
— *Poivrea obscurum* (TUL.) H. PERRIER, Ann. Mus. Col. Marseille 7 : 9 (1953) ; Flore de Madagascar, Combretaceae : 12, fig. II, 4 (1954).

Scandent shrub up to 1.5 m high. Leaves ; petiole up to 1 cm long ; blade elliptic, 13×7 cm, coriaceous, with a distinctly cartilagenous margin, glabrous except for the impressed scales ; young ones covered by contiguous scales ; 5-7 pairs of main lateral nerves, no domatia.

Inflorescence in the axill of a leaf of the same season, up to 9 cm long, not capitate. Flowers sessile. Receptacle ca. 7 mm high and 3 mm wide, glabrous except for the abundant scales or also with a few scattered hairs ; lower receptacle covered with contiguous scales ; upper receptacle infundibuliform. Petals obcordate, ca. 2×2 mm, glabrous, yellow-white. Stamens exserted ca. 5 mm ; anthers ca. 0.3 mm long.

Fruit elliptic in outline, angular in cross-section, 2.5×0.8 cm, puberulous and with many scales ; stipitate.

Combretum octagonum (H. Perrier) Jongkind, *comb. et stat. nov.*

— *Poivrea obscurum* (TUL.) H. PERRIER var. *octagona* H. PERRIER, Ann. Mus. Col. Marseille 7 : 10 (1953) ; Flore de Madagascar, Combretaceae : 14, fig. II, 6 (1954). Lectotype (designated here) : Perrier 6374, Madagascar, Ankarafantsika, fr. Sept. (P).

Liana up to 6 m long. Branchlets velutinous. Leaves ; petiole up to 20 mm long ; blade up to 12×5 cm, nervation pronounced beneath, velutinous to almost glabrous beneath and also

beneath with conspicuous scales when not covered by hairs ; base not cordate ; apex rounded to acute, mucronate.

Flowers sessile. Receptacle ca. 5 mm long, hairy ; lower receptacle totally covered by short hairs ; upper receptacle infundibuliform with hairs and scales on the outside. Petals obcordate, glabrous, white. Filaments white ; anthers ca. 0.3 mm long.

Fruit obovate to elliptic in outline, angular in cross-section, ca. 3×1.2 cm, tuberculate, velutinous.

Combretum trichophyllum Baker

Journ. Linn. Soc. 25 : 315 (1890). Type : *Baron 5739*, N.-W. Madagascar, fl. (holo-, K ; fragm.-, P).

Liana. Leaves ; blade elliptic-obovate, up to 9×5.5 cm, young ones covered with long hairs and ciliate along the edge ; 7-10 pairs of main lateral nerves, no domatia ; base cordate ; apex short acuminate.

Flowers sessile. Receptacle very hairy ; lower part upper receptacle infundibuliform, upper part cupuliform. Petals ca. 2×2 mm, glabrous.

Fruit 3×2 cm, angular, with woody wings, with few hairs and many scales, sessile ; young fruit velutinous.

NOTE : This species is certainly not a synonym of *Combretum villosum* of subg. *Cacoucia* (cf. H. PERRIER, 1954, Flore de Madagascar, Combretaceae : 8).

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Jongkind, Carel Christiaan Hugo. 1995. "Prodromus for a revision of Combretum (Combretaceae) for Madagascar." *Bulletin du Muse*

um National d'Histoire Naturelle Section B, Adansonia, botanique, phytochimie 17(3-4), 191–200.

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