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A synopsis of the native Combretaceae in the Malay Peninsula

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Abstract. A synopsis of the native species of Combretaceae in the Malay Peninsula (Peninsular Thailand, Peninsular Malaysia and Singapore) is presented. A total of 29 species in four genera (*Combretum*, *Getonia*, *Lumnitzera* and *Terminalia*) are recognised. Keys to genera and species are included with synonymy and typification. In total 63 lectotypifications, three second-step lectotypifications and 11 neotypifications are proposed in the paper.

Keywords: *Calycopteris*, *Combretum*, *Getonia*, *Lumnitzera*, *Quisqualis*, *Terminalia*.

INTRODUCTION

The Combretaceae include about 500 species of predominantly trees and scandent shrubs found across most of the equatorial belt (Stace 2007). The family is well defined and its circumscription and higher-level classification is uncontroversial. It is numerically dominated by two large genera *Combretum* and *Terminalia* which together make up about 97% of the extant species (Stace 2010). Combretaceae species are found in tropical rain forests, dry forests, savanna woodlands, savannas, littoral and mangrove vegetation. They are less common in montane forests.

In South-East Asia the family is a member of the native flora and its species are encountered in the lowlands. For the Malay Peninsula, the taxonomy of the family was covered by Ridley (1922) and Exell (1954). Since then there have been revisions of *Combretum* and *Terminalia* in Thailand (Nanakorn 1985, 1986), and of the arborescent taxa in Peninsular Malaysia (Kochummen 1972).

Recent activity in Combretaceae systematics has largely concerned generic circumscription and the general trend has been for the subsumation of small genera into the big two (*Combretum* and *Terminalia*). This can be epitomised by a comparison between the system proposed by Exell and Stace (1966) that recognised 20 genera and a recent summary (Byng 2014) where this number had dropped to 10. These changes are less evident in South-East

Asia where the only major change is the inclusion of *Quisqualis* in *Combretum* (Maurin et al. 2020).

The purpose of this study is to provide a taxonomic overview of the family as represented in the native flora of the Malay Peninsula including keys to genera and species, a nomenclatural synopsis and details of typification. The Malay Peninsula is taken here to include Peninsular Thailand, Peninsular Malaysia and Singapore. The research was conducted with reference to the collections in herbarium of the Royal Botanic Gardens Kew (K), some specimens on loan from SING, visits to BM and access to various internet databases (e.g. JSTOR Global Plants) and virtual herbaria (e.g. Berlin, Geneva, Paris).

KEY TO GENERA OF COMBRETACEAE IN THE
MALAY PENINSULA

1. Mangrove trees with reddish twigs, fleshy leaves with a gland on the abaxial surface just below the apical notch; flowers and fruits bearing a pair of bracteoles adnate to the hypanthium *Lumnitzera*

Trees and scandent shrubs of seashores and inland forests, not true mangroves, twigs green or brown, not notably reddish, leaves chartaceous to coriaceous, not fleshy, lacking an apical gland; flowers and fruits without adnate bracteoles..... 2

2. Scandent shrubs (except *C. quadrangulare*); flowers petalous..... *Combretum*

Erect trees and treelets; flowers apetalous 3

3. Sepals accrescent in fruit..... *Getonia*

Sepals not persisting in fruit..... *Terminalia*

1. *Combretum* Loefl., Iter Hispan. 308. 1758, **nom. cons.**

Type: *Combretum fruticosum* (Loefl.) Stuntz

(=) *Aetia* Adans., Fam. Pl. 2: 84, 513. 1763, **nom. illegit. superfl.**

(=) *Grislea* L., Sp. Pl. 1: 348. 1753, **nom. rejic.**
Type: *Grislea secunda* L.

(=) *Quisqualis* L., Sp. Pl. (ed. 2) 1: 556. 1762. – *Udani* Adans., Fam. Pl. 2: (22). 1763, **nom. illegit., superfl.** – *Combretum* sect. *Quisqualis* (L.) Stace, Fl. Neotrop. Monogr. 107: 159. 2010.
Type: *Quisqualis indica* L.

(=) *Kleinia* Crantz, Inst. Rei Herb. 2: 488. 1766, **nom. illegit., non Kleinia** Mill. (1754), **nec Kleinia** Jacq. (1760).
Type: *Kleinia quadricolor* Crantz.

(=) *Cacoucia* Aubl., Hist. Pl. Guiane 1: 450, pl. 179. 1775. – *Hambergera* Scop., Introd. (1777) 106. 1777, **nom. illegit. superfl.** – *Schousboea* Willd., Sp. Pl. 2: 578. 1799, **nom. illegit. superfl.** – *Combretum* subgenus *Cacoucia* (Aubl.) Exell & Stace, Bol. Soc. Brot., Sér. 2, 40: 10. 1966.
Type: *Cacoucia coccinea* Aubl.

(=) *Cristaria* Sonn., Voy. Ind. Orient. 2: 247. 1782, **nom. rejic.** – *Poivrea* Comm. ex DC., Prodr. 3: 17. 1828, **nom. illegit. superfl.** – *Combretum* sect. *Poivrea* G. Don, Gen. Hist. 2: 665. 1832.
Type: *Cristaria coccinea* Sonn.

(=) *Sphalanthus* Jack, Malayan Misc. 2(7): 55. 1822. – *Quisqualis* sect. *Sphalanthus* (Jack) Exell, J. Bot. 69: 121. 1931.
Type: *Sphalanthus confertus* Jack.

(=) *Gonocarpus* Ham., Prodr. Pl. Ind. Occid. 39. 1825, **nom. illegit., non Gonocarpus** Thunb. (1783).
Type: *Gonocarpus jacquinii* Ham., **nom. illegit. superfl.**

(=) *Forsgardia* Vell., Fl. Flumin. 4: 152, t. 13. 1829.
Type: *Forsgardia laevis* Vell.

(=) *Chrysostachys* Pohl, Pl. Bras. Icon. Descr. 2: 66, t. 143. 1830.
Type: *Chrysostachys ovatifolia* Pohl.

(=) *Sheadendron* G. Bertol., Mem. Reale Accad. Sci. Ist. Bologna 2: 574. 1850.
Type: *Sheadendron butyrosum* G. Bertol.

(=) *Calopyxis* Tul., Ann. Sci. Nat., Bot., sér. 4, 6: 86. 1856. – *Combretum* sect. *Calopyxis* (Tul.) Jongkind, Bull. Mus. Natl. Hist. Nat., B, Adansonia Sér. 4, 17(3-4): 193. 1995.
Type: *Calopyxis sphaeroides* Tul. (lectotype selected by Stace (2010: 60).

(=) *Embryogonia* Blume, Mus. Bot. 2: 122. 1856.
Type: *Embryogonia acuminata* (Roxb.) Blume (lectotype selected by Stace (2010: 60).

(=) *Bureava* Baill., Adansonia 1: 71. 1860. 71, **nom. rejic.**
Type: *Bureava crotonoides* Baill.

(=) *Thiloa* Eichler, Flora 49: 149. 1866. – *Combretum* sect. *Thiloa* (Eichler) Stace, Fl. Ecuador 81: 13. 2007.

Type: *Thiloa glaucocarpa* (Mart.) Eichler (lectotype selected by Stace, Fl. Ecuador 81: 11. 2007).

(=) *Campylogyne* Welw. ex Hemsl., Hooker's Icon. Pl. 26: t. 2550. 1889. – *Quisqualis* sect. *Campylogyne* (Welw. ex Hemsl.) Exell, J. Bot. 69: 120. 1931.

Type: *Campylogyne exannulata* (O.Hoffm.) Hemsl.

(=) *Campylochiton* Welw. ex Hiern, Cat. Afr. Pl. 2: 353. 1901.

Type: *Campylochiton platypterus* (Welw.) Hiern.

(=) *Meiostemon* Exell & Stace, Bol. Soc. Brot., sér. 2, 40: 18. 1966.

Type: *Meiostemon tetrandrus* (Exell) Exell & Stace

Notes

The lectotypifications of *Calopyxis* and *Thiloa* were first proposed by Exell (1931) but the choices were clearly mechanical, so the later designations by Stace (2007, 2010) are accepted here.

Key to *Combretum* taxa

1. Floral bracts persisting to anthesis and beyond; upper hypanthium tubular; petals becoming pink or red 2
 Floral bracts generally dropping before anthesis; upper hypanthium salveriform to infundibuliform; petals white or green 5
2. Upper hypanthium 5-8 cm long 1.5 *C. indicum*
 Upper hypanthium 1-2 cm long 3
3. Sepals recurved at anthesis, with filiform tips 1-2 mm long 1.4 *C. densiflorum*
 Sepals not recurved at anthesis, filiform tips to 1 mm long. 4
4. Leaves with tertiary venation visible adaxially; floral bracts to 2 mm long with 1 central longitudinal nerve
 1.6 *C. langkawiense*
 Leaves with tertiary venation obscure adaxially; floral bracts 1 cm long or more with at least 5 longitudinal nerves 1.2 *C. caudatum*
5. Indumentum including glandular hairs but not scales; flowers 5-merous; fruits with 5 wings or 5 longitudinal ridges (except *C. nigrescens* which has 4-merous flowers and 4-winged fruits) 6
 Indumentum including scales but not glandular hairs; flowers 4-merous; fruits with 4 wings or 4 longitudinal ridges 8

6. Flowers 5-merous; fruits with 5 wings or 5 longitudinal ridges 7
 Flowers 4-merous; fruits with 4 wings or 4 longitudinal ridges 1.8 *C. nigrescens*
7. Leaves opposite with hairy domatia in axils of lateral nerves below; fruits with 5 wings 1.12 *C. roxburghii*
 Leaves often ternate without domatia; fruits with 5 longitudinal ridges 1.15 *C. trifoliatum*
8. Trees, young twigs sharply 4-angled. 1.11 *C. quadrangulare*
 Climbers or scandent shrubs, young twigs more or less terete 9
9. Lower lamina with a dense covering of predominantly whitish scales, tertiary venation obscure 10
 Lower lamina with scales absent or with sparse covering of predominantly reddish scales, tertiary venation visible ... 11
10. Inflorescences subcapitate
 1.10a *C. punctatum* var. *punctatum*
 Inflorescences elongate
 1.10b *C. punctatum* var. *squamosum*
11. Petals inconspicuous, to 1.5 mm long; fruits with 4 longitudinal blunt-topped ridges 1.1 *C. acuminatum*
 Petals conspicuous at anthesis, more than 1.5 mm long; fruits with 4 distinct wings or if with longitudinal ridges then ridges sharp-edged (*C. tetralophum*) 12
12. Sepals 1.5 mm or longer and petals exceeding length of sepals; fruit with 4 longitudinal sharp-edged ridges
 1.14 *C. tetralophum*
 Sepals to 1 mm long, or if longer then petals shorter than sepals; fruits with 4 papery wings 13
13. Inflorescences capitate (also detectable as knobbly ends to infructescences 3-4 mm long) 1.13 *C. sundaicum*
 Inflorescences elongate 14
14. Flowers and inflorescence rhachis densely pale erect hairy; fruits sparsely hairy, scales absent 1.7 *C. latifolium*
 Flowers and inflorescence rhachis densely scaly; fruits glabrous but with scales present 15
15. Twigs drying reddish brown; leaves with red-brown scales conspicuous on lower lamina; flowers generally more than 4 mm long; fruits generally more than 3 cm across
 1.3 *C. chinense*
 Twigs drying whitish; leaves without conspicuous red-brown scales on lower lamina; flowers generally less than 4 mm long; fruits to 2.5 cm across 1.9 *C. porterianum*

1.1 *Combretum acuminatum* Roxb., Fl. Ind. 2: 228. 1832

Type: [unpublished illustration] Icones Roxburghianae 2225 (K, lectotype selected by du Puy and Telford (1993: 245).

(=) *Embryogonia acuminata* (Roxb.) Blume, Mus. Bot. 2: 123. 1856.

(=) *Combretum costatum* Roxb., Fl. Ind. 2: 227. 1832.

Type: [unpublished illustration] Icones Roxburghianae 2478 (2476 on drawing) (lectotype CAL, selected by Gangopadhyay and Chakrabarty (1997: 299).

(=) *Combretum neurophyllum* Miq., Fl. Ned. Ind. 1(1): 608. 1856.

Type: Java, Tjitjiringin, *J. Hasskarl s.n.* (L barcode L0844403, lectotype designated here).

(=) *Combretum sarcopterum* Thwaites, Enum. Pl. Zeyl. 415. 1864.

Type: Sri Lanka, Reigam Corle, *Thwaites CP 3715* (CAL, lectotype selected by Gangopadhyay and Chakrabarty (1997: 299).

(=) *Combretum stenopetalum* Van Heurck & Müll.Arg., Observ. Bot. Descript. Pl. Nov. Herb. Van Heurckiani 2: 225. 1871.

Type: W. Griffith (syntypes BR, G).

(=) *Combretum vanheurckii* Müll.Arg., Observ. Bot. Descript. Pl. Nov. Herb. Van Heurckiani 2: 227. 1871.

Type: *W. Griffith 725* (G barcode G00177909, lectotype selected by Gangopadhyay and Chakrabarty (1997: 299); isolectotype BR).

(=) *Terminalia borneensis* Ridl., Bull. Misc. Inform. Kew 1938: 283. 1938, *nom. illegit.*, non *T. borneensis* Slooten (1919). Type: Borneo, Bangarmassing, *J. Motley 380* (K barcode K000786585, lectotype designated here).

Notes

Nanakorn (1986: 196) referred to a specimen in G-DC from the distribution of the East India Company Herbarium under number 4014D as type of *Combretum acuminatum* Roxb. Some error crept in here – Nanakorn's proposed type is a specimen of *Anogeissus acuminata* (Roxb. ex DC.) Wall. ex Guillem. & Perr. rather than *Combretum*, and is certainly not original material for Roxburgh's name in *Combretum*. Therefore, the later typification by du Puy and Telford to a Roxburgh drawing is accepted here.

1.2 *Combretum caudatum* (Craib) O.Maurin & Boatw., Phytotaxa 451: 232. 2020

Bas.: *Quisqualis caudata* Craib, Bull. Misc. Inform. Kew 1930: 164. 1930.

Type: Thailand, Ranawng, Kao Pawta, Chongdong, 21 January 1929, *A.F.G. Kerr 16797* (K barcode K000786136, lectotype selected by Maurin et al. (2020: 232); isolectotypes ABD, BK barcode BK257801, BM barcode BM000947035).

Notes

Maurin et al. (2010) included this species in their analysis that showed it to be sister to the other 'Quisqualis' species sampled and to be part of a subclade of *Combretum* subgenus *Cacoucia*.

1.3 *Combretum chinense* Roxb. ex G.Don, Trans. Linn. Soc. 15: 417, 432-433. 1827

Type: Calcutta Botanical Garden, *W. Roxburgh s.n.* (G barcode G00177910, lectotype selected by Nanakorn (1986: 174).

(=) *Combretum chinense* Roxb., Fl. Ind. 2: 230. 1832, as 'chinensis', *nom. illegit.*, non *C. chinense* Roxb. ex G.Don (1827).

Type: India, Calcutta Botanical Garden, *W. Roxburgh s.n.* (G barcode G00177910, lectotype selected by Nanakorn (1986: 174).

(=) *Combretum chinense* Roxb. var. *pubescens* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 339. 1897.

Type: Peninsular Malaysia, Perak, Sungai Ryah, October 1880, *Dr King's Collector 889* (K barcode K001129737, lectotype designated here).

(=) *Combretum annulatum* Craib, Bull. Misc. Inform. Kew 1929: 113. 1929.

Type: Thailand, Chumpawn, Ta Ngaw, 17 January 1917, *A.F.G. Kerr 11488* (K barcode K000786590, lectotype selected by Gangopadhyay and Chakrabarty 1997: 314; isolectotypes ABD, BK barcode BK257787, BM barcode BM000947049, TCD barcode TCD0015621).

(=) *Combretum annulatum* Craib var. *orbiculare* Craib, Fl. Siam. Enum. 1(4): 614. 1931.

Type: Thailand, Puket, Ranawng, Kampuam, 29 January 1929, *A.F.G. Kerr 16881* (K (2 sheets) barcodes K000786589, K001129727, lectotype designated here; isolectotypes ABD, BM barcode BM000947050).

Notes

There has been considerable confusion about the name *Combretum chinense*. It was first published by William Roxburgh in his *Hortus Bengalensis* (Roxburgh 1814) but was a nomen nudum in the absence of any description or reference to a published description. As with many Roxburgh names, it was first validated by another author before it appeared with a description in one of the publications of Roxburgh's works after his death. George Don described *Combretum chinense* Roxb. in 1827 (Don 1827), before Roxburgh's own description was finally published in 1832 (Roxburgh 1832). Don referred to a Roxburgh specimen in the herbarium of A.B. Lambert. There is a relevant Roxburgh specimen now in G that appears to be annotated by Lambert. Exell (1954) argued that this was not Don's type as it did not match all the details in Don's description. He therefore treated *C. chinense* Roxb. ex G.Don as a confused name and referred the Malesian material to *Combretum yunnanense* Exell. Nanakorn (1985) disagreed, and effectively lectotypified both the Don and Roxburgh names to the G specimen. I find that the Malay Peninsula material is a reasonable match to the Roxburgh lectotype (image available online) and therefore employ *C. chinense* Roxb. ex G.Don for the specimens.

1.4 *Combretum densiflorum* (Wall. ex Planch.) I.M.Turner, Phytotaxa 451: 232. 2020

Bas.: *Quisqualis densiflora* Wall. ex Planch., Fl. Serres 6: 348. 1851.

Type: Peninsular Malaysia, Penang, G. Porter s.n. [EIC 4011] (K-W barcode K001117910, lectotype selected by Maurin et al., 2020: 232; isolectotypes BR barcode BR0000005639281, GZU barcode GZU000273166, K barcode K000786138, M barcode M0146742, P (×3) barcodes P01901448, P01901447, P01901446, PH barcode PH00023582

(=) *Sphalanthus confertus* Jack, Malayan Misc. 2(7): 55–56. 1822. – *Quisqualis conferta* (Jack) Exell, J. Bot. 69: 122. 1931.

Type: W. Jack s.n. (G barcode G00446750, lectotype selected by Exell (1931: 122).

Notes

The oldest name for this species is *Sphalanthus confertus* Jack, but *Combretum confertum* (Benth.) M.A.Lawson, the accepted name of an African species, blocks the transfer of Jack's name to *Combretum*.

1.5 *Combretum indicum* (L.) DeFilipps, Useful Pl. Dominica 277. 1998

Bas. *Quisqualis indica* L., Sp. Pl., ed. 2. 1: 556. 1762.

Type: [published illustration] “*Quis qualis*” in Rumphius, Herb. Amboin. 5: t. 38. 1747 (lectotype selected by Merrill (1917: 390).

(=) *Kleinia quadricolor* Crantz, Inst. Rei Herb. 2: 488. 1766.

Type: [published illustration] “*Quis qualis*” in Rumphius, Herb. Amboin. 5: t. 38. 1747 (lectotype selected by Maurin et al. (2020: 233).

(=) *Quisqualis glabra* Burm.f., Fl. Ind.: 104, t. 28, f. 2. 1768.

Type: Java, 1758, Anon. s.n. (G-PREL barcode G00805923, lectotype selected by Maurin et al. (2020: 233).

(=) *Quisqualis pubescens* Burm.f., Fl. Ind.: 104. 1768.

Type: [published illustration] “*Quis qualis*” in Rumphius, Herb. Amboin. 5: t. 38. 1747 (lectotype selected by Merrill (1917: 390).

(=) *Quisqualis ebracteata* P.Beauv., Fl. Oware 1: 56, 57, t. 35. 1806.

Type: Oware or Bénin, Palisot de Beauvois s.n. (G barcode G00446747 [2 sheets], lectotype selected by Maurin et al. (2020: 233).

(=) *Quisqualis obovata* Schumach. & Thonn., Beskr. Guin. Pl. 218-219. 1827.

Type: Guinea, P. Thonning 315 (C barcode C10004457, lectotype selected by Hepper (1976: 40).

(=) *Quisqualis indica* Lour., Fl. Cochinchin. 274. 1790, *nom. illegit.*, non *Q. indica* L. (1762).

– *Quisqualis loureiroi* G.Don, Gen. Hist. 2: 667. 1832, as ‘Loureiri’.

Type: J. de Loureiro s.n. (BM barcode BM000947033, lectotype selected at the first step by Exell 1931: 124, and at the second step by Maurin et al. (2020: 233).

(=) *Quisqualis villosa* Roxb., Fl. Ind. 2: 426. 1832. – *Quisqualis indica* var. *villosa* (Roxb.) Kurz, Forest Fl. Burma 1: 467. 1877.

Type: India, W. Roxburgh s.n. (BR barcode BR000000583537, lectotype selected by Maurin et al. (2020: 233).

(=) *Quisqualis sinensis* Lindl., Edwards's Bot. Reg. 30: t. 15. 1844.

Type: [published illustration] 'Quisqualis sinensis' in Lindley, Edwards's Bot. Reg. 30: t. 15. 1844 (lectotype selected by Maurin et al. (2020: 233).

(=) *Quisqualis spinosa* Blanco, Fl. Filip., ed. 2: 254, 1845.

Type: Philippines, Palawan, Taytay, 9 May 1913, *Merrill: Species Blanconae No. 582* (US barcode US00623716, neotype selected by Maurin et al. (2020: 233); isoneotypes BM, K).

(=) *Quisqualis longiflora* C.Presl, Epimel. Bot. 216. 1851.

Type: Martaban Helfer (not traced).

(=) *Quisqualis grandiflora* Miq., J. Bot. Neerl. 1: 119. 1861.

Type: China austr., *R. Krone 146* (U barcode U.1217341, lectotype selected by Maurin et al. (2020: 233).

(=) *Quisqualis indica* var. *oxypetala* Kurz, Forest Fl. Burma 1: 467. 1877.

Type: Burma, Ava, Kakhien Hills (not traced).

1.6 *Combretum langkawiense* O.Maurin & Christenh., Phytotaxa 451: 233. 2020

Replaced synonym: *Quisqualis densiflora* var. *parvifolia* Ridl., Fl. Malay Penins. 1: 711. 1922.

Type: Peninsular Malaysia, Langkawi, Dayang Bunting, November 1916, *H.C. Robinson 6198* (K barcode K000786137, lectotype selected by Maurin et al. (2020: 233); isolectotype BM barcode BM000947036 (fragment ex K).

(=) *Quisqualis parvifolia* (Ridl.) Exell, J. Bot. 69: 123. 1931.

1.7 *Combretum latifolium* Blume, Bijdr. (13): 641. 1826

Type: *C.L. Blume s.n.* (NY barcode NY00245959, lectotype designated at the first step by Gangopadhyay and Chakrabarty (1997: 311), and at the second step here).

(=) *Embryogonia latifolia* (Blume) Blume, Mus. Bot. 2: 122. 1856.

(=) *Combretum extensum* Roxb. ex G.Don, Trans. Linn. Soc. 15: 422. 1827.

Type: India orientalis, *W. Roxburgh s.n.* (G barcode G00446751, lectotype designated here).

(=) *Combretum extensum* Roxb., Fl. Ind. 2: 229. 1832, nom. illegit., non *C. extensum* Roxb. ex G.Don (1827).

Type: [unpublished illustration] *Icones Roxburghianae* No. 1830 (K, lectotype designated here).

(=) *Combretum macrophyllum* Roxb., Fl. Ind. 2: 231. 1832.

Type: not traced.

(=) *Combretum rotundifolium* Roxb., Fl. Ind. 2: 226-227. 1832, nom. illegit., non *C. rotundifolium* Rich. (1792). – *Combretum cyclophyllum* Steud., Nomencl. Bot., ed. 2, 1: 400. 1840.

Type: *W. Roxburgh s.n.* (BM barcode BM01382528, lectotype designated here).

(=) *Combretum wightianum* Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient. 316. 1834.

Type: EIC 4007 (CAL, lectotype selected by Gangopadhyay and Chakrabarty (1997: 299).

(=) *Combretum formosum* Griff., Not. Pl. Asiat. 4: 682. 1854, nom. illegit., non *C. formosum* G.Don (1827).

Type: Burma, Mergue, in sylvis Kulweng, Dec 1834 (not traced).

(=) *Combretum horsfieldii* Miq., Fl. Ned. Ind. 1(1): 609. 1856.

Type: Java, *Horsfield s.n.* (holotype K barcode K0011297290).

(=) *Combretum latifolium* var. *ellipticum* Miq., Fl. Ned. Ind. 1(1): 609. 1856, as 'elliptica'.

Type: Java, *Horsfield s.n.* (holotype K barcode K001129730).

(=) *Combretum leucanthum* Van Heurck & Müll.Arg., Observ. Bot. Descript. Pl. Nov. Herb. Van Heurckiani 2: 240. 1871.

Type: Ceylon, *Thwaites C.P. 1601* (syntypes BR, G).

(=) *Combretum platyphyllum* Van Heurck & Müll.Arg., Observ. Bot. Descript. Pl. Nov. Herb. Van Heurckiani 2: 242. 1871.

Type: EIC 3995 (lectotype G, selected by Gangopadhyay and Chakrabarty (1997: 299).

Notes

In the protologue for *Combretum latifolium* Blume gave the locality 'in sylvis montosis Salak'. I have failed to locate any Blume specimens that mention Mt Salak, so follow Gangopadhyay and Chakrabarty (1997: 311)

who selected unlocalised Blume material in NY as the type. As there are actually two specimens present in NY, a second-stage lectotypification is made here. Gangopadhyay and Chakrabarty (1997: 311) designated a Horsfield specimen in CAL as lectotype for *C. horsfieldii*, but the set of Horsfield specimens seen by Miquel when working on *Flora van Nederlandsch Indië* are in Kew and the single specimen present is therefore the holotype of Miquel's name.

1.8 *Combretum nigrescens* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 340. 1897

Type: Peninsular Malaysia, Perak, October 1882, *Dr King's Collector 3469* (K barcode K000786600, lectotype designated here; isolectotype BM).

(=) *Combretum kunstleri* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 340. 1897. – *Combretum nigrescens* var. *kunstleri* (King) Ridl., Fl. Malay. Penins. 1: 710. 1922.

Type: Peninsular Malaysia, Perak, Larut, October 1884, *Dr King's Collector 6664* (K barcode K000786597, lectotype designated here; isolectotype BM).

(=) *Combretum scortechinii* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 341. 1897.

Type: Peninsular Malaysia, Perak, Goping, April 1885, *Fr. B. Scortechini 1942* (K barcode K000786602, lectotype designated here).

(=) *Combretum glandulosum* Slooten, Bijdr. Combret. Flacourt. Ned.-Ind. 39. 1919, *nom. illegit.*, non *C. glandulosum* F.Hoffm. (1889). – *Combretum adenophorum* Slooten, Bull. Jard. Bot. Buitenzorg, sér. 3, 6: 56. 1924.

Type: Sumatra, 1880 *H. Forbes 3100* (L barcode L.2500736, lectotype designated here; isolectotypes BM barcode BM000947044, L barcode L.2500737).

(=) *Combretum elmeri* Merr., Univ. Calif. Publ. Bot. 15: 214. 1929.

Type: Borneo, British North Borneo [Sabah], Elphinstone Province, Tawao [Tawau], October 1922-March 1923, *A.D.E. Elmer 21440* (UC barcode UC290634, lectotype designated here; isolectotypes A barcode A00068596, BISH barcode BISH1001094, BM(2 sheets), BR barcode BR0000005629534, C barcode C10009529, CAS barcode CAS0033025, F barcode F0054644F, GH barcode GH00068595, HBG barcode HBG514719, K barcode K000786582, L barcode L0009752, M barcode M0146601, MO barcode MO-176152, MSC barcode MSC0091506, NY barcode NY00245957, PH barcode PH00006505, S

sheet no. S09-25745, SINGx2 barcode SING0055423, U barcode U0226823, US(2 sheets) barcodes US00810961 US00810960, Z barcode Z-000002869).

(=) *Combretum elmeri* Merr. var. *glabrescens* Merr., Univ. Calif. Publ. Bot. 15: 215. 1929.

Type: Borneo, British North Borneo [Sabah], Elphinstone Province, Tawao [Tawau], October 1922-March 1923, *A.D.E. Elmer 21561* (UC barcode UC290635, lectotype designated here; isolectotypes A barcode A00068598, BISH barcode BISH1001095, BR barcode BR0000005629206, C barcode C10009531, CAS barcode CAS0032976, GH barcode GH00068597, HBG barcode HBG514718, K barcode K000786581, L barcode L0009753, M barcode M0146600, MICH barcode MICH1192150, MIN barcode MIN1002830, NY barcode NY00245958, S sheet no. S09-25747, SING barcode SING0055422, U barcode U0226815, US barcode US00117555, Z barcode Z-000002870).

(=) *Combretum kunstleri* var. *rectinerve* Craib, Fl. Siam. Enum. 1: 617. 1931.

Type: Thailand, Pattani, Bukit, *A.F.G. Kerr 7126* (K barcode K000786588, lectotype designated here; isolectotypes ABD, BK barcode BK257790, BM barcode BM000947045).

1.9 *Combretum porterianum* (C.B.Clarke) Wall. ex Craib., Fl. Siam. Enum. 1(4): 618. 1931

Bas.: *Combretum chinense* var. *porterianum* C.B.Clarke in J.D.Hooker, Fl. Brit. India 2: 457. 1878.

(=) *Combretum wallichii* DC. var. *porterianum* (C.B.Clarke) M.Gangop. & Chakrab., J. Econ. Taxon. Bot. 17: 681. 1993.

Type: EIC 4000 (CAL, lectotype selected by Gangopadhyay and Chakrabarty 1997: 324; isolectotypes K barcode K000786603, K-W barcode K001117875, M M0146610).

1.10 *Combretum punctatum* Blume, Bijdr. 640. 1826

Type: Java, G. Parang, *C.L. Blume s.n.* (L barcode L0844301, lectotype designated here).

Notes

In the protologue, Blume referred to '*in montosis Parang, et ad pedem montium Salak, Tjerimai etc.*' Gangopadhyay and Chakrabarty (1997) designated a Blume

specimen in NY as the lectotype, but it is not annotated with any of the locations mentioned by Blume. There are specimens with these localities stated in L. Therefore, a lectotype is here designated from one of the specimens in L to supersede the designation of Gangopadhyay and Chakrabarty.

1.10a *Combretum punctatum* var. *punctatum*

1.10b *Combretum punctatum* var. *squamosum* (Roxb. ex G. Don) M. Gangop. & Chakrab., J. Econ. Taxon. Bot. 17: 680. 1993

Bas.: *Combretum squamosum* Roxb. ex G. Don, Trans. Linn. Soc. 15: 419, 438. 1827.

Type: Roxburgh in herb. Linn. Soc. (not traced).

(=) *Poivrea squamosa* (Roxb. ex G. Don) Walp., Repert. Bot. Syst. 2: 64. 1843.

(=) *Combretum punctatum* subsp. *squamosum* (Roxb. ex G. Don) Exell, Fl. Males. ser. 1 4: 539. 1954.

(=) *Combretum squamosum* Roxb., Fl. Ind. 2: 231. 1832, *nom. illegit.*, non *C. squamosum* Roxb. ex G. Don.

(=) *Combretum distillatorium* Blanco, Fl. Filip. 295. 1837. Type: Philippines, Luzon, Bulacan, Maon River, *Merrill: Species Blancoanae 847* [M. Ramos leg.] (US barcode US00623715, neotype designated here; isoneotype BM).

(=) *Combretum lepidotum* C. Presl, Abh. Königl. Böhm. Ges. Wiss., ser. 5, 3: 572. 1845

Type: ?Burma, *J.W. Helfer 116* (PR sheet no. 615825, lectotype designated here).

(=) *Combretum squamosum* var. *luzonicum* C. Presl, Abh. Königl. Böhm. Ges. Wiss., ser. 5, 6: 576. 1851.

Type: Philippines, *H. Cuming 1122* (syntype BM).

(=) *Combretum squamosum* var. *aureum* C. B. Clarke in Hooker, Fl. Brit. Ind. 2: 456. 1878.

Type: Burma, Prome Hills, 1827, *N. Wallich 252* [EIC 3988[A] p.p.] (K barcode K0011178381, lectotype designated at the first step by Gangopadhyay and Chakrabarty (1997: 314) and at the second step here).

(=) *Combretum foliatum* Craib, Bull. Misc. Inform. Kew 1930: 163. 1930.

Type: Thailand, Puket, Pang-nga, Nop Pring, 25 February 1929, *A.F.G. Kerr 17239* (K (2 sheets) barcodes

K000786592, K000786593, lectotype designated here; isolectotypes BK barcode BK257797, BM barcode BM000947046).

(=) *Combretum squamosum* var. *dissitum* Craib, Flor. Siam. Enumerat. 1: 620. 1931.

Type: Thailand, Maharat, Lampang, Me Tia, 28 April 1923, *Winit 860* (K barcode K001129728, lectotype designated here).

Notes

I prefer to recognise the infraspecific taxa of *Combretum punctatum* at the rank of variety following Gangopadhyay and Chakrabarty (1997) and Chen and Turland (2007), rather than subspecies (Exell 1954).

1.11 *Combretum quadrangulare* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 43(3): 188. 1874

Type: Burma, Tenasserim, *Helfer s.n.* [Kew distrib. no. 2181] (lectotype CAL, selected by Gangopadhyay and Chakrabarty (1997: 317)).

(=) *Combretum quadrangulare* var. *lanceolatum* Gagnep., Fl. Gen. 2: 746. 1920.

Type: Cambodia, Prèy-kdey, Kg Speu, 25 April 1909, *Magnen et al. s.n.* [Châtillon leg.] (P barcode P05046162, lectotype designated here).

1.12 *Combretum roxburghii* Spreng., Syst. Veg. 2: 231. 1825

Replaced synonym: *Combretum decandrum* Roxb., Pl. Coromandel 1: 43, t. 59. 1796, *nom. illegit.*, non *C. decandrum* Jacq. (1760).

Type: *W. Roxburgh s.n.* [EIC 4009[A]] (K-W barcode K001117895, lectotype designated here).

(=) *Poivrea roxburghii* (Spreng.) DC., Prodr. 3: 18. 1828.

(=) *Pentaptera roxburghii* (Spreng.) Tul., Ann. Sci. Nat., Sér. 4 6: 84. 1856.

(=) *Combretum klossii* Ridl., J. Fed. Malay States Mus. 10: 90. 1920.

Type: Thailand, Koh Pipidon [Ko Phi Phi Don], *C.B. Kloss 6556* (K barcode K000786591, lectotype designated here; isolectotype SING barcode SING0055423).

Notes

Roxburgh's name was an illegitimate later homonym when it was published. Gangopadhyay and Chakrabarty (1997) took up *Combretum album* Pers. as the correct name. This appears in parentheses after *C. decandrum* in Persoon's *Synopsis plantarum* (Persoon 1805). The nature of Persoon's parenthetical names is controversial. In the Preface (p. ix), Persoon wrote 'E contrario in parenthesi nomen quasi secundarium passim addidi, quo idea plantae forte distinctior concipi possit.' It is difficult to equate Persoon's 'quasi-secondary' names with replacement or alternative names as currently employed, so *Combretum album* Pers. is not considered validly published. *Combretum roxburghii* is therefore the earliest replacement name for *C. decandrum* Roxb.

1.13 *Combretum sundaicum* Miq., Fl. Ned. Ind., Eerste Bijv. 327. 1861

Type: Sumatra, prov. Lampung, Tiga-nennin, *HB 4330* (U barcode U0001193, lectotype designated here).

(=) *Combretum oliviforme* A.C.Chao, Acta Phytotax. Sin. 7: 244. 1958, 'olivaeforme'.

Type: China, Hainan, Bak Sa, 23 July 1936, S.K. Lau 27571 (holotype IBSC barcode IBSC0004026; isotypes A barcode A00244267, IBK barcode IBK00127780, NAS barcode NAS00047141, PE barcode PE00994471).

(=) *Combretum oliviforme* A.C.Chao var. *yaxianense* Y.R.Ling, Acta Phytotax. Sin. 19: 388. 1981.

Type: China, Hainan, [Ya Xian], 11 August 1933, C. Wang 33616 (holotype IBSC barcode IBSC0004027; isotype A barcode A00068593).

1.14 *Combretum tetralophum* C.B.Clarke in Hooker, Fl. Brit. India 2: 454. 1878

Type: Peninsular Malaysia, Malacca, 1845, *W. Griffith s.n.* (K barcode K000786605, lectotype selected by Lecompte (1969: 49).

(=) *Combretum tetragonocarpum* var. *tetralophum* (C.B.Clarke) M.Gangop. & Chakrab., J. Econ. Taxon. Bot. 17: 697. 1993.

(=) *Combretum wrayi* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 339. 1897.

Type: Peninsular Malaysia, Perak, Matang, July 1888, *L. Wray 2504* (K barcode K000786607, lectotype designated here; isolectotype BM barcode BM000947040).

1.15 *Combretum trifoliatum* Vent., Choix Pl. t. 58. 1808

Type: Java, *La Haye s.n.* (G barcode G00177911, lectotype selected by Lecompte (1969: 40).

(=) *Cacoucia trifoliata* (Vent.) DC., Prodr. 3: 22. 1828.

(=) *Combretum lucidum* Blume, Bijdr. Fl. Ned. Ind. 641. 1826. – *Cacoucia lucida* (Blume) Hassk., Flora 27: 607. 1844. – *Embryogonia lucida* (Blume) Blume, Mus. Bot. Lugd.-Bat. 2: 122. 1856.

Type: Java, Pamanoekang, *C.L. Blume 1543* (L barcode L0844262, lectotype designated here).

(=) *Terminalia lancifolia* Griff., Not. Pl. Asiat. 4: 685. 1854.

Type: Moulmein ad marginem sylvarum (not traced).

2. *Getonia* Roxb., Pl. Coromandel 1: 61, t. 87. 1798.

Type: *Getonia floribunda* Roxb.

(=) *Calycopteris* Poir., Encycl., Suppl. 2: 41. 1811, *nom. illegit. superfl.*

Notes

Chen and Turland (2007: 315) explained why *Calycopteris* Lam. was not validly published and hence *Getonia* is the correct name for the genus.

2.1 *Getonia floribunda* Roxb., Pl. Coromandel 1: 61, t. 87. 1798

Type: [published illustration] Roxburgh, Pl. Coromandel 1: t. 87. 1798 (lectotype designated here).

(=) *Calycopteris floribunda* (Roxb.) Lam. ex Poir., Encycl. Suppl. 2: 41. 1811.

(=) *Getonia nitida* Roth, Nov. Pl. Sp. 217. 1821. – *Getonia nutans* Roxb. ex DC., Prodr. 3: 15. 1828, *nom. illegit. superfl.* – *Calycopteris nutans* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46(2): 59. 1877, *nom. illegit. superfl.*

Type: *B. Heyne s.n.* [EIC 4013A] (K-W barcode K001117915, neotype designated here, excluding material on sheet annotated 'c' in pencil).

(=) *Getonia nutans* var. *brachystachya* DC., Prodr. 3: 15. 1828.

Type: ex herb. Thibaud (holotype G-DC IDC800 475/24).

(=) *Getonia nutans* Roxb., Fl. Ind. 2: 428. 1832, *nom. illegit.*, non *G. nutans* Roxb. ex DC. (1828)

Type: *W. Roxburgh s.n.* [EIC 4012[A]] (K-W barcode K001117911, lectotype designated here excluding material labelled 'B' in pencil on the sheet).

(=) *Calycopteris nutans* Kurz var. *roxburghii* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46(2): 59. 1877.

Type: not traced.

(=) *Calycopteris nutans* Kurz var. *glabriuscula* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 46(2): 59. 1877.

Type: not traced.

Notes

Gangopadhyay and Chakrabarty (1997: 296) referred to both the published plate (t. 87) and the unpublished drawing as the type of *Getonia floribunda*. As both elements are original material, the typification is not effective. A new lectotypification to the published plate is therefore made here. There are some Roxburgh specimens extant, but as this name was published early in Roxburgh's career, it is difficult to be certain that collections were made before the publication date as Roxburgh very rarely provided dates (or much other information) on his specimens.

3. *Lumnitzera* Willd., Neue Schriften Ges. Naturf. Freunde Berlin 4: 186–187. 1803

Type: *Lumnitzera racemosa* Willd.

(=) *Pyrrhanthus* Jack, Malayan Misc. 2(7): 57. 1822.

Type: *Pyrrhanthus littoreus* Jack

(=) *Problastes* Reinw., Syll. Pl. Nov. 2: 10. 1825 ['1828'].

Type: *Problastes cuneifolia* Reinw.

(=) *Pokornya* Montrouz., Mem. Acad. Lyon 10: 201. 1860.

Type: *Pokornya ettingshausenii* Montrouz.

Key to *Lumnitzera* species

1. Inflorescences terminal, flowers pedicellate, petals red; stamens at least $\times 2$ as long as erect petals..... 3.1 *L. littorea*

Inflorescences axillary; flowers more or less sessile, petals white, stamens scarcely exceeding length of erect petals.....
..... 3.2. *L. racemosa*

3.1 *Lumnitzera littorea* (Jack) Voigt, Hort. Suburb. Calcutt. 39. 1845

Bas.: *Pyrrhanthus littoreus* Jack, Malayan Misc. 2(7): 57. 1822.

Type: Sumatra, *W. Jack s.n.* (E barcode E00273921, lectotype designated here).

(=) *Lumnitzera coccinea* Wight & Arn., Prodr. Fl. Ind. Orient. 316. 1834, *nom. illegit. superfl.*

(=) *Bruguiera littorea* (Jack) Steud., Nomencl. Bot., ed. 2, 1: 231. 1840.

(=) *Laguncularia coccinea* Gaudich., Voy. Uranie, Bot. (2): 68. 1826.

Type: Marianas, *C. Gaudichaud-Beaupré s.n.* (P barcode P01901322, lectotype designated here).

(=) *Laguncularia purpurea* Gaudich., Voy. Uranie, Bot. (12): 481. 1830. – *Lumnitzera purpurea* (Gaudich.) C.Presl, Repert. Bot. Syst. 1: 155. 1833.

Type: Marianas, *C. Gaudichaud-Beaupré s.n.* (P barcode P01901322, lectotype designated here).

(=) *Lumnitzera pedicellata* C.Presl, Reliq. Haenk. 2: 23. 1830. – *Laguncularia haenkei* Endl., Ann. Wiener Mus. Naturgesch. 1: 180. 1836, *nom. illegit. superfl.* – *Laguncularia pedicellata* (C.Presl) Steud., Nomencl. Bot., ed. 2, 2: 5. 1840.

Type: Marianas, *T.P.X. Haenke s.n.* (PRC barcode PRC450418 lectotype designated here; isolectotypes HAL barcode HAL118786, LE barcode LE00016815, PR sheet nos. 25245a, 25245b).

(=) *Petaloma coccineum* Blanco, Fl. Filip. 345. 1837, as 'coccinea'.

Type: Philippines, Luzon, Tayabas Province, Mt Kinatikan, 6 April 1913, *Merrill: Species Blancoanae No. 521* [L. Escritor leg.] (US barcode US 00623717, neotype designated here; isoneotypes BM, K barcode K001129749).

(=) *Lumnitzera pentandra* Griff., Not. Pl. Asiat. 4: 684. 1854. Icon. Pl. As. T. 644A 1854

Type: Mergue, Inter Rhizophora, Madamacca, Sept 1834, Griffith (not traced).

Notes

Gangopadhyay and Chakrabarty (1997: 326) selected a specimen from K-W under number 4018A (K001117945) as lectotype of *Pyrrhanthus littoreus* Jack. However, this specimen was collected by Wallich from

Pulau Dinding in 1822. It seems very unlikely Jack saw the specimen, but the typification would stand as a neotypification. However, there is a Jack specimen clearly labelled in E. This is here designated as lectotype to supersede the earlier designation.

Laguncularia coccinea Gaudich. was first validated in part 2 of the *Voyage ... l'Uranie* rather than part 11 as generally cited: “une combrétacée du genre *Laguncularia* (*L. coccinea*), planche 104, et qui est le kada-kandel de Rheed. Mal. 6, planche 37, à fleurs rouge-ponceau très-vif, désigné ici sous le nom de guia-guia.” The Rheede element actually refers to the white-flowered *Lumnitzera racemosa*, but Gaudichaud-Beaupré's mention of “very bright poppy-red flowers” seems sufficient to distinguish the species as this is a highly distinctive character. There also seems to have been confusion over the chosen epithet with *L. purpurea* being used in part 12, though apparently referring to the same taxon. These two names are lectotypified to the same specimen from Guam here.

3.2 *Lumnitzera racemosa* Willd., Neue Schriften Ges. Naturf. Freunde Berlin 4: 187. 1803

Type: India, J.G. Klein s.n. (B-W barcode B-W08141-010, lectotype selected by Wickens (1973: 93); isolectotype DNA (fragment).

(=) *Funckia karakandel* Dennst., Schlüssel Hortus Malab. 32. 1818.

Type: [published illustration] Rheede, Hort. Malab. 6: t. 37. 1685 (lectotype selected by Gangopadhyay and Chakrabarty (1997: 326).

(=) *Problastes cuneifolia* Reinw., Syll. Pl. Nov. 2: 10. 1828.

Type: [published illustration] Rheede, Hort. Malab. 6: t. 37. 1685 (lectotype selected by Gangopadhyay and Chakrabarty (1997: 329).

(=) *Bruguiera madagascariensis* DC., Prodr. 3: 28. 1828.

Type: [published illustration] Rheede, Hort. Malab. 6: t. 37. 1685 (lectotype selected by Gangopadhyay and Chakrabarty (1997: 326).

(=) *Petaloma alternifolium* Roxb., Fl. Ind. 2: 373. 1832, as ‘alternifolia’.

Type: [published illustration] Rheede, Hort. Malab. 6: t. 37. 1685 (lectotype selected by Gangopadhyay and Chakrabarty (1997: 329).

(=) *Petaloma album* Blanco, Fl. Filip. 344. 1837, as alba.

Type: Philippines, Luzon, Province of Rizal, Maricaban,

March 1914, Merrill: *Species Blancoanae* No. 303 (US barcode US00623718, neotype designated here; isoneotypes BM, K barcode K001129748).

(=) *Pokornya ettingshausenii* Montrouz., Mem. Acad. Lyon 10: 201. 1860, ‘Ettingshauseni’.

Type: Ile d'Art, Montrouzier (not traced).

(=) *Lumnitzera edulis* Blume ex Laness., Pl. Util. Col. Franç.: 256. 1886.

Type: New Caledonia, Marais de Gatope, 1861-1867, E. Vieillard 2571 (K barcode K001129747, lectotype designated here).

(=) *Lumnitzera racemosa* var. *pubescens* Koord. & Valet., Meded. Lands Planten. 61: 33, 34. 1903

Type: Java, Ins. Karimon, Koorders (not traced).

4.1 *Terminalia* L., Syst. Nat. (ed. 12) 2: 665, 674. 1767, nom. cons.

Type: *Terminalia catappa* L.

(=) *Buceras* P.Browne, Civ. Nat. Hist. Jamaica 221. 1756, nom. rejic.

Type: *Bucida buceras* L.

(=) *Bucida* L., Syst. Nat. (ed. 10) 2: 1025, 1368. 1759, nom. cons. (against *Buceras* P.Browne) and nom. rejic. (against *Terminalia* L.).

Type: *Bucida buceras* L.

(=) *Adamaram* Adans., Fam. Pl. 2: 445. 1763, nom. rejic.

Type: *Terminalia catappa* L. (neotype selected by Exell (1931: 125).

(=) *Myrobalanifera* Houtt., Nat. Hist. 2(2): 485, t. 10, f. 2. 1774.

Type: *Myrobalanifera citrina* Houtt.

(=) *Pamea* Aubl., Hist. Pl. Guiane 946, t. 359. 1775, nom. rejic. (against *Buchenavia* Eichler).

Type: *Pamea guianensis* Aubl.

(=) *Tanibouca* Aubl., Hist. Pl. Guiane 448. 1775.

Type: *Tanibouca guianensis* Aubl.

(=) *Kniphofia* Scop., Intr. Hist. Nat.: 327. 1777, nom. rejic. (against *Kniphofia* Moench).

Type: *Terminalia catappa* L. (neotype designated here).

(=) *Chuncoa* Pav. in Juss., Gen. Pl. 76. 1789. – *Gimbernata* Ruiz & Pav., Fl. Peruv. Prodr. 138, t. 36. 1794, *nom. illegit. superfl.*

Type: *Chuncoa amazonia* J.F. Gmel.

(=) *Badamia* Gaertn., Fruct. Sem. Pl. 2: 90. 1790.

Type: *Badamia commersonii* Gaertn.

(=) *Myrobalanus* Gaertn., Fruct. Sem. Pl. 2: 90. 1790. – *Terminalia* section *Myrobalanus* (Gaertn.) DC., Prodr. 3: 12. 1828.

Type: *Myrobalanus bellirica* Gaertn. (lectotype selected by Pfeiffer (1874: 394).

(=) *Catappa* Gaertn., Fruct. Sem. Pl. 2: 206. 1791. – *Terminalia* sect. *Catappa* (Gaertn.) DC., Prodr. 3: 10. 1828.

Type: *Catappa benzoin* Gaertn.

(=) *Hudsonia* A. Rob. ex Lunan, Hort. Jamaic. 2: 310. 1814, *nom. illegit.*, non *Hudsonia* L. (1767).

Type: *Hudsonia arborea* A. Rob. ex Lunan.

(=) *Fatraea* Juss., Dict. Sc. Nat. 16: 206. 1820.

Type: *Fatraea buxifolia* Juss.

(=) *Ramatuela* Kunth, Nov. Gen. Sp. 7: 253, t. 656. 1825. – *Terminalia* sect. *Ramatuela* (Kunth) Alwan & Stace, Ann. Missouri Bot. Gard. 76(4): 1126. 1989, 'Ramatuela'.

Type: *Ramatuela argentea* Kunth

(=) *Conocarpus* sect. *Anogeissus* DC., Prodr. 3: 16. 1828. – *Anogeissus* (DC.) Wall. ex Guill. & al., Flor. Seneg. Tent. 1: 279. 1832.

Type: *Conocarpus acuminatus* Roxb. ex DC.

(=) *Pentaptera* Roxb. ex DC., Prodr. 3: 14. 1828.

Type: *Pentaptera arjuna* Roxb. ex DC. (lectotype designated here).

(=) *Vicentia* Allemão, Pl. Novas Brasil cum tab. 1844.

Type: *Vicentia acuminata* Allemão

(=) *Chicharronia* A. Rich., Hist. Phys. Cuba, Pl. Vasc. 529, t. 43. 1845. – *Terminalia* sect. *Chicharronia* (A. Rich.) Alwan & Stace, Fl. Neotrop. Monogr. 107: 187. 2010.

Type: *Chicharronia intermedia* A. Rich.

(=) *Buchenavia* Eichler, Flora 49(11): 164. 1866, *nom. cons.*

Type: *Bucida capitata* Vahl (lectotype selected by Stace (2007: 41).

(=) *Pteleopsis* Engl., Abh. Königl. Akad. Wiss. Berlin 1894: 25. 1894.

Type: *Pteleopsis variifolia* Engl.

(=) *Finetia* Gagnep., Notul. Syst. (Paris) 3: 278. 1916.

Type: *Finetia rivularis* Gagnep.

(=) *Terminaliopsis* Danguy in Lecomte et al., Madag. Bois Analamaz. 110. 1922; Bull. Mus. Natl. Hist. Nat. 29(1): 108. 1923.

Type: *Terminaliopsis tetrandrus* Danguy

Key to *Terminalia* species

1. Leaves spirally arranged, clustered at swollen ends of twigs 2
Leaves generally opposite to subopposite, not clustered at twig ends, twig ends not notably swollen 8
2. Leaves generally exceeding 10 cm wide; petiole to 12 mm long 4.3 *T. catappa*
Leaves rarely exceeding 10 cm wide; petiole more than 12 mm long 3
3. Leaves with apex obtuse to acuminate 4
Leaves with apex rounded to emarginate 7
4. Leaves with venation distinctly raised above in dry leaves; fruits without wings, densely velvety pubescent 4.1 *T. bellirica*
Leaves with venation more or less flush to sunken above in dry leaves; fruits winged or if not winged then glabrous to tomentose, but not densely velvety pubescent 5
5. Petioles not exceeding 2.5 cm long; fruits fleshy without wings 4.6 *T. foetidissima*
Petioles generally more than 2.5 cm long; fruits dry with 2 wings 6
6. Leaves glaucous below; fruits densely hairy with wings about as wide as long 4.7 *T. glaucifolia*
Leaves not glaucous below; fruits sparsely hairy with wings distinctly wider than long 4.2 *T. calamansanai*
7. Leaves glaucous below; petioles 3 cm long or more; fruits winged 4.10 *T. subspatulata*
Leaves not glaucous below; petioles to 2.5 cm long; fruits not winged 4.9 *T. phellocarpa*
8. Inflorescences axillary spikes; fruits generally with 2 wings 4.8 *T. mucronata*
Inflorescences panicles, fruits with 0 or 3 wings 9

9. Leaves with pair of glands on lamina margin near base rather than on petiole; fruits with three wings4.11 *T. triptera*

Leaves with pair of glands generally visible on petiole rather than lamina; fruits without wings 10

10. Leaves to 6 cm wide, glabrous; fruits ellipsoid to fusiform apex beaked, endocarp with 5-angled sides.....4.5 *T. citrina*

Leaves generally more than 6 cm wide, hairy below; fruits globose to ovoid, apex rounded, not beaked, endocarp more or less round in cross section, not 5-angled.....4.4 *T. chebula*

4.1 *Terminalia bellirica* (Gaertn.) Roxb., Pl. Coromandel 2: 54, t. 198. 1805, as 'bellerica'

Bas.: *Myrobalanus bellirica* Gaertn., Fruct. Sem. Pl. 2: 90, t. 97, f. 2. 1790.

Type: [published illustration] Gaertner, Fruct. Sem. Pl. 2: t. 97, f. 2. 1790 (lectotype selected by Wickens (1990: 7).

(=) *Terminalia myrobalana* B. Heyne ex Roth, Nov. Pl. Sp. 378. 1821, *nom. illegit. superfl.*

(=) *Myrobalanus taria* Buch.-Ham., Trans Linn. Soc. London 17: 159. 1835 [1837]. – *Terminalia taria* Buch.-Ham., Trans Linn. Soc. London 17: 159. 1835 [1837].

Type: India, Mysore, *F. Buchanan-Hamilton s.n.* (BM, lectotype designated here).

(=) *Myrobalanus tania* Buch.-Ham. ex Kostel., Allg. Med.-Pharm. Fl. 4: 1497. 1835.

Type: [published illustration] 'Tani', Rheede, Hort. Malab. 4: t. 10. 1683 (lectotype designated here).

(=) *Terminalia punctata* Roth, Nov. Pl. Sp.: 381. 1821.

Type: *J.P. Rottler s.n.* (K barcode K000786123, neotype designated here).

(=) *Terminalia attenuata* Edgew., Trans. Linn. Soc. London 20: 46. 1846.

Type: India, Himalaya, altit. 4000 ped., near Jugutgurh, *M.P. Edgeworth 6* (K barcode K000786121, lectotype designated here).

(=) *Terminalia gella* Dalzell, Hooker's J. Bot. Kew Gard. Misc. 3: 227. 1851, as *Gella*.

Type: *Crescit rar in Concano australiore* (not traced).

(=) *Terminalia laurinooides* Teijsm. & Binnend. in Miquel, Fl. Ned. Ind. 1: 600. 1856. – *Terminalia bellirica* var.

laurinooides (Teijsm. & Binnend.) C.B. Clarke in Hooker, Fl. Brit. India 2: 445. 1878. – *Myrobalanus laurinooides* (Teijsm. & Binnend.) Kuntze, Revis. Gen. Pl. 1: 237. 1891. Type: Java, *J.E. Teijsmann s.n.* (L barcode L0843169, lectotype designated here).

4.2 *Terminalia calamansanai* (Blanco) Rolfe, J. Linn. Soc., Bot. 21: 310. 1884

Bas.: *Gimbernatia calamansanai* Blanco, Fl. Filip., ed. 2 266. 1845.

Type: Philippines, Mindanao, Butuan Subprovince, October 1913, *D.P. Miranda For. Bur. 20781* [Merrill: Species Blancoanae No. 605 p.p. (fruiting material only)] (US barcode US00623709, neotype designated here excluding flowering material mounted on the same sheet).

(=) *Pentaptera pyrifolia* C. Presl, Epimel. Bot. 215. 1851. – *Terminalia pyrifolia* (C. Presl) Kurz, Prelim. Rep. For. Veg. Pegu App. A: lix. 1875.

Type: Moulmein, *J.W. Helfer* (not traced).

(=) *Terminalia papilio* Hance, J. Bot. 15: 333. 1877.

Type: Vietnam, Ins. Phu Kok, *L. Pierre s.n.* [Herb. Hance 19745] (BM, lectotype designated here).

(=) *Terminalia bialata* var. *cuneifolia* C.B. Clarke in Hook. f., Fl. Brit. India 2: 449. 1878.

Type: Burma, Ava, 22 October [1826], *N. Wallich 315* [EIC 3972, p.p.] (K-W barcode K001117791, lectotype designated here).

(=) *Terminalia blancoi* Merr., Philipp. J. Sci., C 4: 645. 1909.

Type: Philippines, Luzon, Province of Rizal, February 1904, *Decades of Philippine Forest Flora No. 2* [Ahern's Collector leg.] (NY barcode NY00245999, lectotype designated here; isolectotype US barcode US00117589).

(=) *Terminalia calamansanai* var. *platypteris* Merr., Philipp. J. Sci., C 4: 646. 1909.

Type: Philippines, Luzon, Province of Zambales, Mar 1904, *W.M. Maule For. Bur. 371* (NY barcode NY00246001, lectotype designated here; isolectotype US barcode US00117606).

(=) *Terminalia calamansanai* var. *acuminata* Merr., Philipp. J. Sci., C 4: 646. 1909.

Type: Philippines, Luzon, Prov. Principe, Baler, August-October 1903, *E.D. Merrill 1067* (NY barcode

NY00246000, lectotype designated here; isolectotype US barcode US00117607).

(=) *Terminalia oryzetorum* Craib, Bull. Misc. Inform. Kew 1928: 69. 1928.

Type: Thailand, Mûang Pichit, 25 March 1922, A.F.G. Kerr 5671 (K barcode K000786200, lectotype designated here; isolectotypes ABD, BM barcode BM000947099, NY barcode NY00245995, P barcode P02286610).

(=) *Terminalia latialata* C.T.White, J. Arnold Arbor. 10: 249. 1929.

Type: Papua New Guinea, Lower Vailala River, 15 March 1926, L.J. Brass 1147 (A barcode A00068656, lectotype designated here; isolectotypes BM barcode BM000947096, BRI, K).

4.3 *Terminalia catappa* L., Mant. Pl. 1: 128. 1767

Type: *Anon. s.n.* (lectotype LINN 1221.1, selected by Byrnes 1977: 38).

(=) *Juglans catappa* (L.) Lour., Fl. Cochinch. 2: 703. 1790.

(=) *Myrobalanus catappa* (L.) Kuntze, Revis. Gen. Pl. 1: 237. 1891.

(=) *Buceras catappa* (L.) Hitchc., Rep. (Annual) Missouri Bot. Gard. 4: 85. 1893.

(=) *Phytolacca javanica* Osbeck, Dagb. Ostind. Resa 276. 1757.

Type: Java, Pulau Panaitan, west of Tg. Parat, 3 October 1951, J. van Borssum Waalkes 818 (K (2 sheets) barcode K001129735, K001129736, neotype designated here; isolectotype L L0843090).

(=) *Terminalia moluccana* Lam., Encycl. 1: 349. 1783.

Type: [published illustration] Rumph., Herb. Amboin. 1: t. 68. 1741 (lectotype selected by Merrill (1917: 390).

(=) *Terminalia subcordata* Humb. & Bonpl. ex Willd., Sp. Pl., ed. 4, 4(2): 968. 1806. – *Terminalia catappa* var. *subcordata* (Humb. & Bonpl. ex Willd.) DC., Prodr. 3: 11. 1828.

Type: Cuba, Havana, F.W.H.A. Humboldt & A. Bonpland 1329 (B-W barcode B-W18940000, lectotype designated here; isolectotype P-Bonpl. barcode P00679491).

(=) *Terminalia intermedia* Bertero ex Spreng., Syst. Veg. 2: 359. 1825.

Type: Guadeloupe, 1816-1818, C.G. Bertero s.n. (TO).

(=) *Terminalia latifolia* Blanco, Fl. Filip. 376. 1837, nom. illegit., non *T. latifolia* Sw. (1788).

Type: Philippines, Luzon, Pangasinan Prov., Umingan, May 1914, Merrill: *Species Blancoanae* No. 197 (US barcode US00689474, neotype designated here).

(=) *Terminalia paraensis* Mart., Flora 24 Beibl. 2: 24. 1841.

Type: Brazil, Pará, in sylvis Prov. Paraensis, C.F.P. Martius s.n. (M sheet no. M-0146722, lectotype designated here; possible isolectotype M sheet no. M-0146723).

(=) *Terminalia catappa* var. *chlorocarpa* Hassk., Tijdschr. Natuurl. Gesch. Physiol. 10: 145. 1843.

Type: non designatus.

(=) *Terminalia catappa* var. *macrocarpa* Hassk., Tijdschr. Natuurl. Gesch. Physiol. 10: 145. 1843.

Type: [published illustration] Rumph., Herb. Amboin. 1: t. 68. 1741 (lectotype designated here).

(=) *Terminalia catappa* var. *rhodocarpa* Hassk., Tijdschr. Natuurl. Gesch. Physiol. 10: 145. 1843.

Type: non designatus.

(=) *Terminalia rubrigemmis* Tul., Ann. Sci. Nat., Bot. sér. 4, 6: 102. 1856.

Type: Madagascar (not traced).

(=) *Terminalia catappa* var. *pubescens* Kurz, For. Fl. Brit. Burma 1: 454. 1877.

Type: Andamans, W.S. Kurz (not traced).

(=) *Terminalia burmanica* King ex Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 73(5): 204. 1904.

Type: Burma, Sajein, August 1891, Abdul Huk s.n. (lectotype CAL accession no. 163973-4, selected by Gangopadhyay and Chakrabarty (1997: 343).

Notes

Phytolacca javanica Osbeck is the oldest name available for this well-known seashore species but its transfer to *Terminalia* is blocked by *T. javanica* Miq. Osbeck encountered the species on Nieu Eyland (New Island), now called Pulau Peucang, just off the South-West tip of Java. In the absence of any original material, a specimen collected from Pulau Panaitan quite nearby in the Sunda Straits, is here designated as neotype for Osbeck's name.

A name often cited in synonymy of *T. catappa* is *Badamia commersonii* Gaertn. However, the original figure and description, which refer to the fruit and seed alone, do not match *T. catappa*. The fruit is reported as oblong ellipsoidal with a slight obtuse beak and an

endocarp with six pronounced longitudinal ridges. It is based on a Commerson collection from Madagascar. The Tübingen herbarium has some material labelled *Badamia commersonii* from Gaertner's herbarium which consists of fruits of *T. catappa* that certainly differ from the original description and figure. I am inclined to follow Tulasne (1856: 92) who considered that *Badamia commersonii* was a species similar to *Terminalia exsculpta*.

Gangopadhyay and Chakrabarty (1997: 343) designated two plates from Rheede's *Hortus Malabaricus* as lectotype of *Badamia commersonii* Gaertn., but as Gaertner did not cite Rheede, this cannot represent original material. In order to encourage further work on clarifying the true identity of the Gaertner species, below I designate the Gaertner figure as lectotype of *Badamia commersonii*.

Poiret published *Myrobalanus terminalia*, apparently entirely based on a figure in Lamarck's *Tableau Encyclopédique*. This figure is clearly a reworking of Gaertner's *Badamia* illustration, but as neither Poiret nor Lamarck referred to Gaertner or his name, Poiret's name has to be considered as nomenclaturally independent.

(=) *Badamia commersonii* Gaertn., Fruct. 2: 90, t. 97 f. 1(a-g). 1790, as 'Commersoni'.

Type: [published illustration] "Badamia Comersoni", Gaertner, Fruct. 2: t. 97 f. 1(a-g). 1790 (lectotype designated here).

(=) *Terminalia badamia* DC., Prodr. 3: 12. 1828, *nom. illegit. superfl.*

(=) *Myrobalanus terminalia* Poir. in Lamarck, Encycl., Suppl. 3: 707. 1814, as *Mirobolanus*.

Type: [published illustration] Lamarck, Tabl. Encycl. 2, 5(1): Pl. 849 f. 2. 1799 (lectotype designated here).

4.4 *Terminalia chebula* Retz., Observ. Bot. 5: 31. 1788

Type: *J.G. Koenig s.n.* (lectotype LD acc. no. 1638155, selected by Fischer (1932: 57).

(=) *Myrobalanus chebula* (Retz.) Gaertn., Fruct. Sem. Pl. 2: 91. 1790.

(=) *Buceras chebula* (Retz.) A.Lyons, Pl. Nam.: 71. 1900.

(=) *Myrobalanifera citrina* Houtt., Handl. Pl.-Kruiddk. 2: 486, t. 10 f. 2. 1774.

Type: [published illustration] Houttuyn., Handl. Pl.-Kruiddk. 2: t. 10, f. 2. 1774 (lectotype selected by Turner (2014: 11).

(=) *Terminalia reticulata* B.Heyne ex Roth, Nov. Pl. Sp.: 381. 1821.

Type: India, Cannanore, February 1852, *R. Wight s.n.* [Peninsula Indiae Orientalis No. 1012] (K barcode K001129738, neotype designated here).

(=) *Terminalia aruta* Buch.-Ham. ex G.Don, Gen. Hist. 2: 659. 1832.

Type: Buchanan-Hamilton in herb. Lambert (not traced).

(=) *Terminalia gangetica* Roxb., Fl. Ind. 2: 437. 1832. – *Myrobalanus gangetica* (Roxb.) Kostel., Allg. Med.-Pharm. Fl. 4: 1497. 1835.

Type: not traced.

(=) *Terminalia tomentella* Kurz, J. As. Soc. Bengal 42: 80. 1873. – *Terminalia chebula* var. *tomentella* (Kurz) C.B. Clarke in Hooker, Fl. Brit. Ind. 2: 446. 1878. – *Myrobalanus tomentella* (Kurz) Kuntze, Revis. Gen. Pl. 1: 237. 1891.

Type: Burma, Kurz (not traced).

(=) *Terminalia glandulipetiolata* De Wild., Pl. Bequaert. 4(3): 344. 1928.

Type: Congo Belge, Eala, 29 December 1920, *A.A.P.J.G. Corbisier-Baland 1630* (BR barcode BR00000887320, lectotype designated here; isolectotypes BR barcode BR00000887353, BR00000887386, S acc. no. S09-25894).

4.5 *Terminalia citrina* (Gaertn.) Roxb. in Fleming, Asiatic Res. 11: 183. 1810

Bas.: *Myrobalanus citrina* Gaertn., Fruct. Sem. Pl. 2: 91, t. 97, f. 2n-s. 1790.

Type Cons.: Bangladesh, Mymensingh District, Gabtulli, 8 July 1872, *C.B. Clarke 17257* (K K000608176).

(=) *Terminalia chebula* Retz. var. *citrina* (Gaertn.) Gagnep., Fl. Gen. Indo-Chine 2: 753. 1920.

(=) *Bucida comintana* Blanco, Fl. Filip. 856. 1837. – *Terminalia comintana* (Blanco) Merr., Philipp. J. Sci., C 4: 300. 1909.

Type: Philippines, Luzon, Batangas Prov., Mt Macolot, 5 Feb 1915, *E.D. Merrill: Species Blancoanae 780* [*M. Ramos leg.*] (US barcode US00623713, neotype designated here; isoneotype BM).

(=) *Embryogonia arborea* Teijsm. & Binnend., J. Bot. Neerl. 1: 365. 1861. – *Combretum arboreum* (Teijsm. & Binnend.) Miq., Ann. Mus. Bot. 4: 115. 1868. – *Terminalia teysmannii* Koord. & Valetton, Meded. Lands Plan-

tentuin 61: 20. 1902, *nom. illegit. superfl.* – *Terminalia arborea* (Teijsm. & Binnend.) Koord., Exkursionsfl. Java 2: 671. 1912.
Type: Java (not traced).

(=) *Terminalia citrina* var. *malayana* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 45: 130. 1876.
Type: India, Ins. Nicobar, *Expedition Novara 75* [leg. A. Jelinek 132] (W sheet no. W 0080071, lectotype designated here).

(=) *Terminalia manii* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 329. 1897.
Type: Nicobars, *Dr King's Collector 485* (CAL, lectotype selected by Gangopadhyay and Chakrabarty (1997: 348); isolectotypes BM, K barcode K001129734).

(=) *Terminalia multiflora* Merr., Govt. Lab. Publ. Philipp. 27: 34. 1904.
Type: Philippines, Luzon, Province of Rizal, Bosoboso, July 1903, *E.D. Merrill 2796* (K barcode K000786176, lectotype designated here; isolectotypes NY barcode NY00246011, US barcode US00117611).

(=) *Terminalia curtisii* Ridl., Bull. Misc. Inform. 1931: 449. 1931.
Type: Peninsular Malaysia, Penang, Waterfall, June 1896, *C. Curtis 3207* (K barcode K000786161, lectotype designated here; isolectotypes K barcode K000786160, SING barcode SING0055417).

4.6 *Terminalia foetidissima* Griff., Not. Pl. Asiat. 4: 685. 1854

Type: Burma, Mergui, March 1835, *W. Griffith s.n.* (syn-type CAL).

(=) *Myrobalanus foetidissima* (Griff.) Kuntze, Revis. Gen. Pl. 1: 237. 1891.

(=) *Terminalia sumatrana* Miq., Fl. Ned. Ind., Eerste Bijv. 326. 1861.
Type: Sumatra, Palembang, Toeboean, Ogan oeloe, *H.B. 3814* [J.E. Teijsmann leg.] (U barcode U0001196, lectotype designated here; isolectotype L barcode L.2493804).

(=) *Terminalia oocarpa* Merr., Publ. Bur. Sci. Gov. Lab. 17: 32. 1904, as *ovocarpa*.
Type: Philippines, Luzon, Province of Bataan, Lamao River, November 1903, *P.T. Barnes For. Bur. 67* (K barcode K000786170, lectotype designated here).

(=) *Terminalia ellipsoidea* Merr.

Type: Philippines, Mindoro, Pinamalayan, May 1903, *E.D. Merrill 2148* (K barcode K000786172, lectotype designated here; isolectotype US barcode US00117598).

(=) *Terminalia borneensis* Sloot., Bijdr. Combret. Flacourt. Ned.-Ind. 14. 1919.

Type: Borneo, O. *Beccari P.B. 2593* (K barcode K000786182, lectotype designated here; isolectotype FI-B).

4.7 *Terminalia glaucifolia* Craib, Bull. Misc. Inform. Kew 1928(2): 68. 1928

Type: Thailand, Doi Sootep, 20 August 1910, *A.F.G. Kerr 1328* (BK, lectotype selected by Nanakorn 1985, p. 81; isolectotypes ABD, BM, K barcode K000786198, P).

4.8 *Terminalia mucronata* Craib & Hutch., Bull. Misc. Inform. Kew 1909(9): 358. 1909

Type: Thailand, Chiangmai, Doi Sootep, 11 April 1909, *A.F.G. Kerr 593* (K (4 sheets) barcodes K000786194, K000786194, K000786195, K000786196, lectotype designated here; isolectotypes BM barcode BM000947102, L barcode L0009802, P barcode P02286601, TCD barcode TCD0016741).

(=) *Terminalia corticosa* Pierre ex Craib & Hutch., Bull. Misc. Inform. Kew 1909(9): 358. 1909.

Type: Vietnam, Baria, montibus Dinh, March 1862, *L. Pierre 203* (P barcode P02286603, lectotype designated here).

(=) *Terminalia thorelii* Gagnep., Not. Syst. 3: 287. 1916.

Type: Cambodia, Ubon, January anno. 1866-1868, *C. Thorel 2824* (P barcode P02286602, lectotype designated here).

(=) *Parinari euadenia* Kosterm., Bot. Tidsskr. 67: 321. 1973.

Type: Thailand, Chiangmai, Doi Sutep, 15 October 1958, *T. Sorensen et al. 5687* (holotype C C10017914).

Notes

The name *Terminalia corticosa* first appeared in Lanessan (1886: 315). The descriptive content of the account is slight – a size range of the tree and colour of the wood. This has been considered insufficient to validate the name (Gagnepain 1916: 215, Lecompte 1969:

88). Craib and Hutchinson described *Terminalia mucronata* in 1909. As well as a fairly detailed description, they included a diagnosis comparing *Terminalia mucronata* and *T. corticosa*. This effectively validated *T. corticosa* because the description of *T. mucronata* was sufficient to validate that name. It is not clear on what Craib and Hutchinson based their concept of *T. corticosa* as I have not found any flowering specimens in K or BM that they are likely to have seen. Possibly they visited Paris or had material on loan. In order to maintain continuity, I designate the specimen chosen by Lecompte (1969) as lectotype of *T. corticosa* Pierre ex Craib & Hutch. As Lecompte did not cite Craib and Hutchinson's publication, I here establish *T. mucronata* Craib & Hutch. as having priority over *T. corticosa* Pierre ex Craib & Hutch.

For *Terminalia thorelii*, the collection number 2823 was cited in the protologue. I have not traced this number and presume it was an error for 2824.

4.9 *Terminalia phellocarpa* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 330. 1897

Type: Singapore, Bukit Mandai, 1892, *H.N. Ridley* 3835 (K barcode K000786153, lectotype designated here).

4.10 *Terminalia subspathulata* King, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 332. 1897

Type: Peninsular Malaysia, Perak, Kinta, Gopeng, July 1883, *Dr King's Collector* 4529 (K barcode K000786156, lectotype designated here; isolectotypes BM, SING (×2) barcodes SING0055425, SING0055427).

4.11 *Terminalia triptera* Stapf, Bull. Misc. Inform. Kew 1895: 103. 1895

Type: Peninsular Malaysia, Langkawi, September 1890, *C. Curtis* 1684 (lectotype K barcode K000786162, lectotype designated here; isolectotype SING barcode SING0055430).

(=) *Terminalia nigrovenulosa* Pierre ex Gagnep., Not. Syst. 3: 285. 1914.

Type: Vietnam, ad pedes montis Mu Xoai, October 1866, *L. Pierre* 5011 (P barcode P02286589, lectotype selected by Lecompte (1969: 92).

(=) *Terminalia nigrovenulosa* Pierre ex Gagnep. var. *gracilior* Gagnep., Fl. Gen. Indo-Chine 2: 756. 1920

Type: Vietnam, Delta du Mê-Không, 1875-1877, *J.H.A.J. Harmand s.n.* (P barcode P04716917, lectotype designated here; isolectotypes K barcode K001129732, P barcodes P04716912, P04717014).

(=) *Terminalia obliqua* Craib, Bull. Misc. Inform. Kew 1912: 153. 1912.

Type: Thailand, Sriracha, Nawng Kaw, 19 September 1911, *A.F.G. Kerr* 2073 (K barcode K000786152, lectotype designated here; isolectotypes BM barcode BM000947100, E barcode E00284575, K barcode K001129733, TCD barcode TCD0016766).

(=) *Terminalia tripteroides* Craib, Bull. Misc. Inform. Kew 1912: 152. 1912.

Type: Thailand, Meh Ping, Muang Hawt, 6 September 1911, *A.F.G. Kerr* 2010A (K barcode K000786151, lectotype designated here; isolectotypes BM, E barcode E00284577, K no barcode, L barcode L0009816, TCD barcode TCD0016755).

(=) *Terminalia hainanensis* Exell, Sunyatsenia 2: 1. 1934.

Type: China, Hainan, [Gnai Yuen,] 5 Jul 1933, *F.C. How* 70938 (BM barcode BM000947030, lectotype designated here; isolectotypes A barcodes A00068634, A00068635, B barcode B 10 0272120, IBK barcode IBK00190688, K barcode K000786127, NAS barcode NAS00047726, NY barcode NY00245994, P barcode P02286590, PE barcode PE00994592, US barcode US00117594).

Notes

An entry for *Terminalia inguovenulosa* Pierre is found in Lanessan (1886: 315), but as the only description presented is a vague size of the tree, the name is not validly published. Gagnepain (1916) indicated that Lanessan's name was a nomen nudum and that it was an error for *Terminalia nigrovenulosa*. Gagnepain effectively validated *T. nigrovenulosa* by providing a diagnosis comparing it with *Terminalia oliveri* Brandis. *Terminalia triptera* Stapf has priority over *T. nigrovenulosa* Pierre ex Gagnep. and is here accepted as the correct name for the species.

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