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NAME CHANGES FOR MALESIAN SPECIES OF CHIONANTHUS (OLEACEAE)

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SUMMARY

New combinations under *Chionanthus* L. are made for *Linociera beccarii, L. brassii, L. clementis, L. gigas, L. hahlii, L. kajewskii, L. nitida, L. remotinervia, L. riparia, L. rupicola, L. salicifolia, L. sessiliflora* and *L. stenura. Linociera cumingiana* is synonymous with *C. ramiflorus, L. novoguineensis* and *L. ovalis* with *C. rupicolus, L. papuasica* with *C. sessiliflorus* and *L. pubipaniculata* with *C. mala-elengi* subsp. *terniflorus. Linociera macrophylla* sensu Whitmore proves to be *C. hahlii.*

Key words: Malesia, *Chionanthus*, Oleaceae.

INTRODUCTION

The reduction of *Linociera* Sw. to *Chionanthus* L. (Stearn, 1976) necessitates name changes to be made for species described in *Linociera*. In addition, as the family has been studied on a geographical rather than country basis, several species prove to be synonyms. In some cases, notably for a Vidal type and two Ledermann types, neotypes have had to be chosen because the holotype is no longer extant and isotypes have not been located.

1. Chionanthus beccarii (Stapf) Kiew, *comb. nov.*

Linociera beccarii Stapf, Kew Bull. (1915) 115. — Type: *Beccari PS 826* (holo K; iso L), Sumatra, Padang, Ayer Mancior.

Distribution — Malesia: Sumatra (G. Leuser, G. Sagu, Padang and Asahan).

Note — Apparently a rather rare tree, it is known only from the northern half of Sumatra where it grows in mountain forest between 360 and 1200 m. Its large fruit is unique among Malesian *Chionanthus* in being flattened laterally as well as being ridged. Its strongly flattened twigs, long petioles, narrowly obovate leaves with an acute apex, and rotund foliaceous bracts combine to make it a distinctive species.

2. Chionanthus brassii (Kobuski) Kiew, *comb. nov.*

Linociera brassii Kobuski, J. Arnold Arbor. 21 (1940) 333. — Type: *Brass 11234* (holo A; iso BM, L, LAE), New Guinea, Lake Habbema.

Distribution — Malesia: Papua New Guinea (Eastern Highlands, Morobe and Central Provinces).

Notes — It has been most commonly collected from the highlands above 1000 m but also occasionally from the lowlands at 500 m.

In its narrowly elliptic leaf, *C. brassii* most closely resembles *C. salicifolius* except that its leaves are broader (2.8–3.8 cm as opposed to 0.7–1.7 cm in *C. salicifolius*) and its racemes tend to be shorter, the flowers more crowded and the pedicels are also shorter.

3. Chionanthus clementis (Quisumb. & Merr.) Kiew, *comb. nov.*

Linociera clementis Quisumb. & Merr., Philipp. J. Sci. 37 (1928) 189. — Type: *Clemens 16785* (holo UC).

This is a remarkable species of *Chionanthus* as it resembles *Ligustrum stenophyllum* in its willow-like leaves and terminal inflorescences. This latter is a very unusual character for *Chionanthus*. There is no doubt that it is a true species of *Chionanthus* as it has typical flowers with a corolla with a very short tube and narrow induplicate lobes, sessile anthers and a very short style.

Both *L. stenophyllum* and *C. clementis* are endemic to the Philippines and were collected from Mt Moises, Isabela Province, where Clemens recorded that *C. clementis* is a stream shore shrub, which suggests that these two species may owe their similarity to both being rheophytes.

4. Chionanthus gigas (Lingelsh.) Kiew, *comb. nov.*

Linociera gigas Lingelsh., Bot. Jahrb. 61 (1927) 14; Kobuski, J. Arnold Arbor. 21 (1940) 335. — Type: *Schlechter 18039* (B†; holo L; iso A, BM, K, US), New Guinea: Madang, Finisterre Mts.

Distribution — Malesia, endemic to New Guinea.

Notes — *Chionanthus gigas* is well-characterised by its large coriaceous leaves, its condensed inflorescences of sessile flowers with long corolla lobes, and large unridged fruits. It is an extremely rare species. At present it is known from three collections, the type, one from Ossima, W Sepik (*Streimann & Kairo NGF 39225*) and another from Lake Kutubu, S Highlands (*Katik LAE 70780*).

Among New Guinea species, *C. sessiliflorus* is similar in its condensed inflorescences with sessile flowers but the two species can be separated on leaf size (the lamina of *C. gigas* ranges from 21–50 cm long, that of *C. sessiliflorus* is usually 12–18 cm long with a range of 6–26 cm) and fruit shape (ovoid and unridged in *C. gigas*, ellipsoid and ridged in *C. sessiliflorus*).

5. Chionanthus hahlii (Rech.) Kiew, *comb. nov.*

Linociera hahlii Rech., Feddes Rep. 11 (1912) 185; Bot. Zool. Ergeb. Wiss. Forsch.; Reise Samoa (1913) 589 & t. 27; Lingelsh., Bot. Jahrb. 61 (1927) 13; Sleumer, Notizbl. Bot. Gart. Berl. 13 (1936) 258; Whitmore, Guide Forests Brit. Solomon Is. (1966) 188; Foreman, Checklist Vasc. Pl. Bougainville (1971) 52. — Type: *Rechinger 4913* (W), Bougainville.
Linociera macrophylla auct. non Wall.: Whitmore, l.c. 188.

Distribution — Samoa, Solomon Is. and Malesia: Papua New Guinea [Bismarck Archipelago (New Britain)].

Notes — Although common in the Solomon Is. as far west as Bougainville, only a single collection is known from Malesia (New Britain, *Frodin NGF 26249*).

This species is readily recognised by its white twigs, large leaves, by its raceme with well-spaced opposed flowers and its unridged ellipsoid fruits.

6. Chionanthus kajewskii (Sleumer) Kiew, *comb. nov.*

Linociera kajewskii Sleumer, Notizbl. Bot. Gart. Berl. 13 (1936) 258. — Type: *Kajewski 2159* (B†; holo L; iso A, BRI, SING), Bougainville.

Distribution — Solomon Islands.

Note — This species is included because recent collections from New Britain have extended the range of *C. hahlii* into Malesia and it is likely that *C. kajewskii*, which is common in Bougainville in rain forest at 1500 m, will also be discovered in Malesia.

7. Chionanthus mala-elengi (Dennst.) P.S. Green subsp. **terniflorus** (Wall. ex G. Don) P.S. Green., Kew Bull. 51 (1996) 767.

Linociera pubipaniculata Merr., Papers Mich. Acad. Sci. 19 (1934) 187. — Type: *Rahmat si Toroes* 777 (holo UC), Sumatra (Karoland).

Distribution — India, Burma, Thailand, Laos, Vietnam and Cambodia. In Malesia: NE Sumatra (Brastagi, Caroe, Lake Tawar, Lan-Rakit Medan and Petjeren Karoland).

Habitat — Open areas on lake shore, rocky land and from a ravine.

Notes — Among Malesian *Chionanthus* species, it is unique in its flower, which has a sparsely tomentose ovary and a corolla where the pairs of lobes are not divided almost to the base but instead are joined for about a third of the length of the corolla, and its calyx, which is densely grey tomentose. In addition, the inflorescence is unusual as the flowers form tight clusters at the tips of the inflorescence branches.

Green (1996) recognises three subspecies. The Sumatran taxon most resembles subsp. *terniflorus* in its large leaves (11–18 cm long) with 8–10 pairs of lateral veins and an acuminate apex, longer inflorescences (3.5–6 cm long). However, the difference in corolla length, 4–6 mm in subsp. *mala-elengi* and 6–8 mm in subsp. *terniflorus*, that Green gives in his key as one of the characters to distinguish the subspecies is not supported by examination of specimens. As Kerr (1939) had already noted, the corolla on a single collection can show considerable variation, e.g., *Parkinson 6114*, where on different inflorescences corolla length ranges from 2–5 mm. In the Thai population in general for subsp. *terniflorus*, the range of corolla length is 3–9 mm; for Sumatran specimens it is 5–6 mm long.

8. Chionanthus nitidus (Merr.) Kiew, *comb. nov.*

Linociera nitida Merr., Philipp. J. Sci., Bot. 10 (1915) 339. — Type: *Reillo BS 15406* (holo US; iso BM, K), Philippines, Basilan.

Note — Although known only from the type specimen, there is no doubt that it is a distinct species being unique in possessing white twigs, shiny leaves that dry chestnut brown beneath, and in its short inflorescences.

9. Chionanthus ramiflorus Roxb., Hort. Beng. (1814); Fl. Ind. 1 (1820) 106.

Linociera cumingiana Vidal, Phan. Cuming. Philipp. (1885) 185; Rev. Pl. Vasc. Filip. (1886) 180; Merr., Philipp. J. Sci. 1, Suppl. (1906) 115; Philipp. J. Sci., Bot. 3 (1908) 427; Elmer, Leafl. Philipp. Bot. 5 (1913) 1651. — *Mayepea cumingiana* (Vidal) Merr., Govt. Lab. Publ. (Philipp.) 6 (1904) 11. — Type: *Cuming 972*, Philippines (W).

Distribution — India, Burma, Thailand, Indochina and Taiwan, throughout Malesia to Australia (Queensland) and the Solomon Islands.

Notes — This is the most common and widespread of all *Chionanthus* species in Malesia, frequently collected from coastal and riverine vegetation as well as from lowland secondary forest. It is occasionally collected at altitudes of up to 2200 m. It is not surprising then that it shows considerable variation throughout its range. In leaf size, while almost all plants fall within the range of 9–15 cm long and 4–7 cm wide, occasional plants with exceptionally large leaves (up to 29 by 10.5 cm) have been collected from Papua New Guinea, while plants with small leaves (6.5 by 2 cm) are rather common from the Philippines.

It is these small-leaved Philippine specimens that have been called *L. cumingiana*. Their leaves also have a more pronouncedly acuminate apex and some plants have short, less branched inflorescences 1–2 cm long compared with the usual much branched one 3–13 cm long. However, there is no consistent correlation between leaf size and inflorescence length so that this taxon cannot be maintained as distinct from the general population of *C. ramiflorus*. There is insufficient field data to be able to determine whether the production of smaller leaves and shorter inflorescences is a response to edaphic factors or to higher altitudes (some specimens were collected above 1000 m altitude).

10. Chionanthus remotinervius (Merr.) Kiew, *comb. nov.*

Linociera remotinervia Merr., Philipp. J. Sci., Bot. 13 (1918) 324. — Type: *Fénix BS 29933* (holo US; iso BM, K, L), Philippines, Pangasinan Prov., Mt. San Isidro.

Notes — This is a most unusual species of *Chionanthus* because its exceptionally coriaceous leaves with veins that are obscure on both surfaces and the grey-green colour on drying remarkably resemble those of *Olea* species. However, it has characteristic flowers and fruits of *Chionanthus*.

After an interval of 75 years, the species was recollected but from the Palanan area in NE Luzon [*Ridsdale, Baquiran et al. ISU 434* (L), *438* (L)], a considerable disjunction in geographic distribution. C. Ridsdale (pers. comm.) drew my attention to the possibility that this was due to the species being confined to areas with ultramafic soil. The gnarled habit with congested internodes and the extremely coriaceous leaves are features often seen in plants that grow on ultramafic soils.

11. Chionanthus riparius (Lingelsh.) Kiew, *comb. nov.*

Linociera riparia Lingelsh., Bot. Jahrb. 61 (1927) 12. — Neotype: *Schram BW 7937* (holo L; iso A, LAE).

Distribution — Malesia: New Guinea, W Irian (Vogelkop), Papua New Guinea (Morobe and Milne Bay).

Notes — This is a most distinctive species on account of its large, oblong leaves that dry chestnut brown, its shortly stalked panicle with crowded flowers and large fruits, leaving no doubt regarding the identity of this species.

Although the inflorescence is paniculate, as only one or two fruits mature, the thickened infructescence appears unbranched and may therefore be mistaken for a raceme. None of the collections has fully ripe fruits so it is not possible to know

whether the apiculate fruit apex will expand and become rounded (as it does in other *Chionanthus*).

The original type specimen (*Ledermann 8794*) was destroyed at Berlin. The neotype has been chosen as it most conforms with the type description.

12. Chionanthus rupicolus (Lingelsh.) Kiew, *comb. nov.*

Linociera rupicola Lingelsh., Bot. Jahrb. 61 (1927) 9; Nova Guinea 14 (1927) 330, t. 37; Kobuski, J. Arnold Arbor. 21 (1940) 333. — Type: *Lam 1912* ('*192*', holo L; iso BO, K), New Guinea, Irian Jaya, Mt. Doorman.

Linociera novoguineensis Lingelsh., Bot. Jahrb. 61 (1927) 9. — Type: *Schlechter 18198* (holo B†; A, BM, K). New Guinea, Finisterre Range.

Linociera ramiflora (Roxb.) Wall. var. *coriacea* Lingelsh., Nova Guinea 14 (1927) 329. — *Linociera ovalis* Knobl., Notizbl. 11 (1934) 1029. — Type: *Gjellerup 704* (BO, L), New Guinea, Hollandia.

Distribution — Malesia: Celebes, Moluccas (Morotai and Obi), New Guinea.

Notes — The geographic distribution of this species is centred on New Guinea, where it has frequently been collected from submontane forest above 1000 m up to mossy forest at 2500 m, including swamps and disturbed forest. There are also several collections from the lowlands, either from riverbanks or sea shore. In some places it is reported as common e.g., in submontane forest on Morotai (*Kostermans 1252*), on riverbanks in Morobe (*Rau 567*), on limestone in New Ireland (*Coode & Sands NGF 46102*) and Vogelkop (*Versteegh BW 7442*), or is even dominant e.g., in the lowlands on Japen Is. (*Iwanggin BW 10031*) and on Obi Is. (*de Vogel 4269*).

Apart from the widespread *C. ramiflorus* with fruits that are described as sweetish and very juicy flesh that are said to be eaten by birds, this is the only other Malesian species for which there is reference to fruit dispersal. Field notes on specimen *Pullen 5991* record that the fruits are "said to be eaten by birds."

The species shows some variation in leaf size. Some collections from the lowlands have unusually large leaves, 17–18.5 by 6.5–7.5 cm. These match those of Lingelsheim's *L. ramiflora* var. *coriacea*, which belongs to *C. rupicolus* because of its coriaceous leaves and narrowly linear corolla lobes. [Var. *coriacea* was subsequently raised to specific level by Knoblauch (1934) and renamed as there already existed a *L. coriacea* Vidal from the Philippines.] Both these names therefore become synonymous with *C. rupicolus*.

Plants that grow on limestone (e.g., in Vogelkop or New Ireland) or on the shore of Lake Matona, Celebes, have particularly narrow leaves, 8 by 2.3 to 13 by 4 cm. However, in no other character do either of these extreme forms differ from more average specimens.

Chionanthus rupicolus is a well-defined species with coriaceous leaves with the veins very finely impressed above and with large globose axillary buds. These characters make it easy to identify sterile specimens.

Linociera novoguineensis is the same as *C. rupicolus* as neither of the differences in Lingelsheim's descriptions of the two species – leaf texture (subcoriaceous in *L. novoguineensis*, coriaceous in *L. rupicola*) and sexuality of the flowers (hermaphrodite in *L. novoguineensis*, unisexual in *L. rupicola*) – is a reliable taxonomic character. Leaf texture varies with habitat, particularly for a species that has great altitudinal amplitude. However, there is no clear relationship in this species, i.e., leaves of specimens from higher altitudes are not more coriaceous. *Chionanthus rupicolus* is a

polygamous species. Lingelsheim's description of flowers of *L. rupicola* include that of the male flower, however, that for the female flower does not describe the corolla to which the stamens are attached indicating that the description is of immature fruit.

13. **Chionanthus salicifolius** (Lingelsh.) Kiew, *comb. nov.*

Linociera salicifolia Lingelsh., Bot. Jahrb. 61 (1927) 12. — Neotype: *Carr 11569* (holo L; iso BM, LAE), New Guinea, Kanosia.

Distribution — Malesia: New Guinea, W Irian (Jayapura), Papua New Guinea (Kanosia, W Sepik and E Sepik).

Notes — Duplicates of Lingelsheim's type (*Ledermann s.n.*) have not been located. However, there is no doubt as to the identity of this species as no other Malesian *Chionanthus* has such narrow, willow-like leaves (7–11 cm long and 0.7–1.7 cm wide). The three recent collections all conform to Lingelsheim's description except that he records the leaf as larger (10–15 cm long by 1.5–3 cm wide) and the inflorescence as longer (2–3 cm long). Inflorescences of recent collections range from 0.5 to 1.5 cm long.

Van Steenis (1981: 330) lists this species. Field notes record it as a small tree 2.3 m tall from banks and islands in the river (*Carr 11569*, and there is debris caught among the fruits of this specimen) or is a small leaning tree 8–10 m tall from beside the river (*Kerenga & Lelean LAE 73966*). The third specimen (*Sinke 15*) is from forest near river and is reported as 16 m tall and 90 cm in diameter and as used for firewood. It does not therefore appear to be an obligate rheophyte.

14. **Chionanthus sessiliflorus** (Hemsl.) Kiew, *comb. nov.*

Linociera sessiliflora Hemsl., Ann. Bot. 5 (1891) 504; Lingelsh., Bot. Jahrb. 61 (1926) 13; Nova Guinea 14 (1927) 330; Kobuski, J. Arnold Arbor. 21 (1940) 335; K. Schum. & Lauterb., Fl. Schutzgeb. Südsee (1900) 497; Whitmore, Guide Forests Brit. Solomon Is. (1966) 188. — Type: *Comins 130* (holo K), Solomon Is., San Christobal.

Linociera pallida K. Schum. in K. Schum. & Lauterb., Fl. Schutzgeb. Südsee (1900) 497: Gilg, Nova Guinea 8 (1910) 409. — Type: *Rodatz & Klink 35* (B†), NE New Guinea.

Linociera papuasica Lingelsh., Bot. Jahrb. 61 (1927) 14; Nova Guinea 14 (1927) 330, t. 38 — Syntypes: *Gjellerup 226* (B†, L), New Guinea, Irian Jaya; *Lederman 9446, 9833* (B†, L), New Guinea, Papua New Guinea, Sepik.

Notes — This species is common in New Guinea and is readily recognised by its large ridged fruits. Von Lingelsheim (1927) reduced *L. pallida* to this species. (This is not the same as Merrill's *Mayepea pallida*, which name he changed to *Linociera philippinensis* and which in fact is a species of *Olea*.)

Von Lingelsheim distinguished a new species, *L. papuasica*, from *C. sessiliflorus* by its much larger, subcordate leaves, larger flowers and less massive fruit. However, the leaf size and shape and corolla length of the specimens he cites all fall within the range of variation of the widespread *C. sessiliflorus*. In addition, it is common for *Chionanthus* species to begin flowering at 2 m (*L. papuasica* is recorded as a shrub 1.5–2 m tall) but eventually to grow to a medium-sized tree. The smaller fruit is probably due to its being immature as he reported it as whitish-green, otherwise in drying ridged and brown to reddish-violet it is typical of *C. sessiliflorus*. Thus *L. papuasica* cannot be maintained as a species distinct from *C. sessiliflorus*.

15. Chionanthus stenurus (Merr.) Kiew, *comb. nov.*

Linociera stenura Merr., J. Arnold Arbor. 35 (1954) 151. — Type: *Kjellberg 2120* (holo S; iso BO, L), Celebes: Waraoe Malili.

Distribution — Malesia: Celebes, endemic to Malili area.

Note — This is a rare species apparently with a very restricted distribution. Recent collections suggest that it is confined to limestone outcrops. Its stenurous, slightly shiny leaves with obscure veins and short petioles make it a distinctive species.

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The numbers refer to the number of the species where each name can be found. New combinations are in **bold**, accepted names in roman, and synonyms are in *italics*.