

# **The Genus *Camellia* (Theaceae) in Malesia**

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### **Abstract**

This is a taxonomic treatment of *Camellia lanceolata* (Bl.) Seem., the only *Camellia* species found in the Malesian region.

### **Introduction**

The genus *Camellia* was described by C. Linnaeus in the first edition of *Genera Plantarum* (1737) in honour of Georg Josef Kamel (or Geogius Josephus Camelus after latinization) (1661–1706), a Moravian Jesuit missionary. It was based on two species then known: *C. japonica* L. and *C. sasanqua* L. Meanwhile, Linnaeus adopted K. Kaempfer's genus *Thea*, which was based on *T. sinensis* L., in the same publication. Owing to their androecial difference, these two genera were allocated under two separate Linnaean 'classes', namely *Camellia* under *Klass Monadelphia*, and *Thea*, under *Klass Polyandria*. Both genera were validated, according to our present nomenclatural rules, in Linnaeus' first edition of *Species Plantarum* (1753).

During the second part of the 18th and the early 19th centuries, as more species of *Camellia* and *Thea* were collected from eastern Asia and subsequently described, the androecial and other differences between *Camellia* and *Thea* became obsolete. R. Sweet finally united them in 1818 and selected *Camellia* as the generic name. This has been almost universally accepted today. For a detailed account of history and discussions, see Cohen Stuart (1918) (in *Bull. Jard. Bot. ser. III*, pp. 232–238) and Sealy (1958) (*Rev. Gen. Camellia*, pp. 1–6 and p. 14).

Among the synonyms of the genus *Camellia*, *Calpandria* (Gr. *calpa* — an urn, *andra* — the male sex) is especially noteworthy. The sole Malesian species, *Camellia lanceolata* (Bl.) Seem., was first described under *Calpandria* by Blume (1825). The filaments of the outer stamens of this plant, as depicted in the original generic name, are united to form a narrow fleshy tube. For this reason, it was regarded by Blume as allied to *Carapa* of the *Meliaceae*. *Calpandria* was reduced to a section of *Thea* by Pierre (1887), and to a section of *Camellia* by Cohen Stuart (1916). The latter view is generally followed by Melchior (1925), Sealy (1958), Chang (1981), and many others. Section *Calpandria*, according to Sealy, contains two known species, one, *C. lanceolata* in Malesia, and another *C. connata* Craib, in northern Thailand.

In Sealy's revision of *Camellia*, 82 species (plus a number of doubtful and im-



perfectly known ones) are elaborately described and accurately illustrated. They are classified under 12 sections. Later, another monographic study of *Camellia* was carried out by Chang (1981), who enumerated a total of 196 species, distributed in 4 subgenera and 19 sections.

## Taxonomic Treatment

### *Camellia* Linnaeus

*Camellia* L. Gen. Pl. ed. 5 (1754) 311, et Sp. Pl. (1753) 698; Sweet, Hort. Suburb. Lond. (1818) 157; Benth. in B. & H. Gen. Pl. 1 (1862) 187; Coh.-Stuart, Med. Proefst. Thee 40 (1916), et Bull. Jard. Bot. Btzig. ser. 3, 1 (1919) 193; Melch. in E. & P. Nat. Pfl.-Fam. ed. 2, 21 (1925) 129; Sealy, Rev. Gen. *Camellia* (1958) 14; Chang, Bull. Sun Yatsen Univ. (Nat. Sc.) 1 (1981) 1.

*Thea* L. Gen. Pl. ed. 5 (1754) 232, et Sp. Pl. (1753) 515; Szyszyl. in E. & P. Nat. Pfl.-Fam. 3, 6 (1889) 183.

*Calpandria* Bl. Bijdr. 1 (1825) 178; Nakai, J. Jap. Bot. 16 (1940) 666.

Shrubs or small trees, rarely large trees, evergreen. Leaves alternate, spirally arranged, serrate, mostly coriaceous. Flowers bisexual, terminal and axillary, solitary or 2–3 in a cluster, pedunculate or sessile. Bracteoles 1 or 2 or more, distinguishable or indistinguishable from the sepals. Sepals mostly 4–6. Petals 4–6 (–8), often more or less united below. Stamens numerous, in several rows, briefly or highly connate at the base and often adnate to the corolla, rarely free (in *C. lanceolata*); anthers versatile. Ovary generally 3- or 5-loculate; ovules 3–4 (4–8 in *C. lanceolata*) in each locule; styles 3–5, fused to varying extent proximally, rarely totally free. Capsule woody, dehiscing loculicidally along a persistent columella and usually remaining attached to it at the base. Seeds usually 1 or 2 (3–8 in *C. lanceolata*) in each locule, generally globose or partly wedge-shaped, or irregularly shaped by mutual pressure; testa crustaceous or woody; exalbuminous; embryo straight, with 2 large, often hemispheric cotyledons.

Over 100 species distributed from Nepal, E. India, Burma, N. Thailand, Indo-China to S. China and S. Japan and to Malesia. A great majority of species is concentrated in S. and S.W. China and Indo-China. Only one species, *C. lanceolata*, is found in western Malesia, from Sumatra, Java, Borneo to the Philippines and Sulawesi. In addition, two East Asiatic species, namely, *C. sinensis* (L.) OK., from S. China, and *C. japonica* from S. China and Japan, are introduced and planted at higher elevations in Malesia. The former species is cultivated in plantations in Java, the Malay Peninsula, Luzon and elsewhere, and the latter is occasionally planted as an ornamental.

### *Camellia lanceolata* (Bl.) Seem.

*Camellia lanceolata* (Bl.) Seem., Trans. Linn. Soc. Lond. 22 (1859) 345; F.-Vill., Nov. App. (1880) 19; K. & V., Bijdr. 3 (1896) 303; Coh.-Stuart. Med. Proefst. Thee 15 (1916) 120, f.10, 11, Bull. Jard. Bot. Btzig. ser. 3, 1 (1919) 238, 281, f.12, 13; Sealy, Rev. Gen. *Camellia* (1958) 141, f.66; Back. & Bakh. f., Fl. Jav. 1 (1963) 319; H.T. Chang, J. Sun-Yatsen U. (Nat. Sci.) 1 (1981) 108.

*Calpandria lanceolata* Bl., Bijdr. 1 (1825) 178; Korth. Kruidk. (1839) 148, t.331; Miq., Fl. Ind. Bat. 2 (1857) 492.

*Calpandria quiscosaura* Korth., Kruidk (1840) 149, t.31; Miq. Fl. Ind. Bat. 2 (1857) 493.

*Salceda montana* Blanco, Fl. Filip. ed. 2, (1845) 374, ed. 3, 2 (1879) 327.

*Camellia quiscosaura* (Korth.) Seem., Trans. Linn. Soc. Lond. 22 (1859) 345.

*Pyrenaria* sp. Vidal, Rev. Pl. Vasc. Filip. (1886) 57.



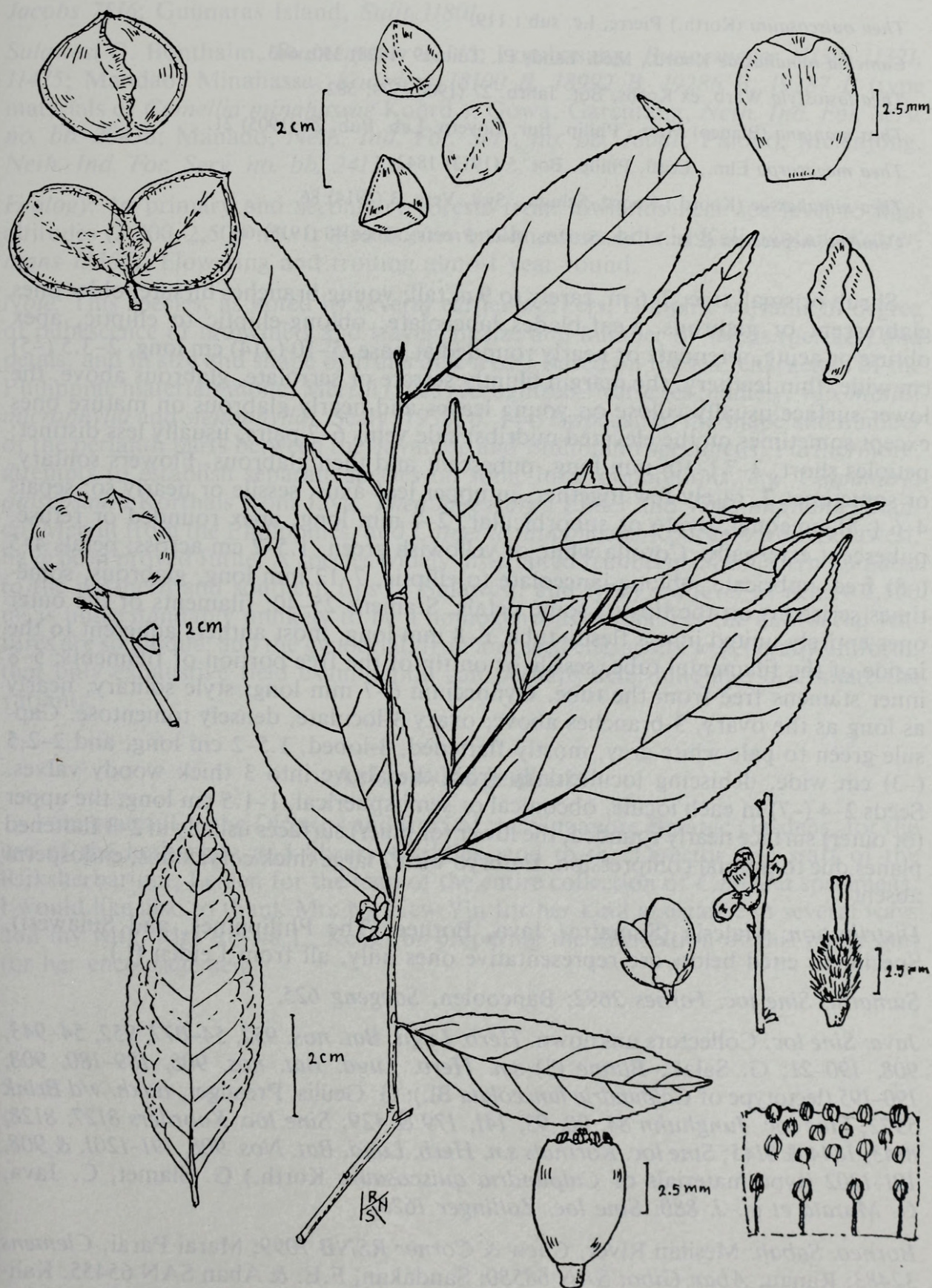


Fig. 1. *Camellia lanceolata* (Bl.) Seem. Java, Herb. Lugd. Bat. No. 918, 190-21 (habit), Junghuhn 10 (flower bud and floral parts), Murata et al. 880 (dehiscent fruit and seeds); Sumatra, Soegen 625 (indehiscent fruit).



*Thea lanceolata* (Bl.) Pierre, Fl. Coch. 2 (1887) sub t.119; Merri. En. Philip. 3 (1923) 69 (incl. vars. *mollis*, *microphylla* and *stenophylla*).

*Thea quiscosaura* (Korth.) Pierre, l.c. sub t.119.

*Camellia minahassae* Koord., Med. Lands Pl. Tuin 19 (1898) 350, 643.

*Thea lasiostyla* Warb. ex Kochs, Bot. Jahrb. 27 (1900) 579, 582.

*Thea montana* (Blanco) Merr., Philip. Bur. Govern. Lab. Pub. 27 (1905) 21.

*Thea megacarpa* Elm., Leaf. Philip. Bot. 5 (1913) 1842.

*Thea minahassae* (Koord.) Koord.-Schum., Syst. Verz. 3 (1914) 86.

*Camellia megacarpa* (Elm.) Coh.-Stuart, Med. Proefst. Thee 40 (1916) 68.

Shrub or small tree, 3–6 m, rarely to 9 m tall; young branches hirsute, older ones glabrescent or glabrous. Leaf-blades lanceolate, oblong-elliptic to elliptic, apex obtuse or acute, attenuate or nearly rounded at base, 5–10 (–14) cm long, 2–3.5 (–5) cm wide, thin leathery, the margin bluntly serrate or serrulate, glabrous above, the lower surface usually villose on young leaves and nearly glabrous on mature ones except sometimes on the elevated midribs; side veins 6–7 pairs, usually less distinct; petioles short, 3–7 (–10) mm long, pubescent and then glabrous. Flowers solitary, or sometimes 2, rarely few together, in upper leaf-axils, sessile or nearly so; sepals 4–6 (–8), unequal, ovate or suborbicular, 2–7 mm long, apex rounded or retuse, pubescent externally. Corolla white or yellowish green, 1.5–2 cm across; petals 4–5 (–8) free, imbricate, oblong-lanceolate to elliptic, 7–12 mm long, glabrous, sometimes sericeous on the tips of some petals. Stamens 25–40; filaments of the outer ones entirely united into a fleshy tube, 6–8 mm long, most anthers adherent to the inside of the filamental tube, sessile or on tip of the free portion of filaments; 5–8 inner stamens free from the tube. Gynoecium 6–7 mm long; style solitary, nearly as long as the ovary, 3-branches above; ovary 3-loculate, densely tomentose. Capsule green to pale white grey, mostly flattened, 3-lobed, 1.5–2 cm long, and 2–2.5 (–3) cm wide, dehiscing loculicidally from the above into 3 thick woody valves. Seeds 2–4 (–7) in each locule, obconical or semi-spherical, 1–1.5 cm long, the upper (or outer) surface nearly rounded, the lower (or inner) surfaces usually in 2–3 flattened planes due to mutual compression. Embryo with 2 large thick cotyledons; endosperm absent.

*Distribution:* Malesia (Sumatra, Java, Borneo, The Philippines, and Sulawesi). Specimens cited below are representative ones only, all from Leiden (L).

*Sumatra:* *Sine loc.* Forbes 2692; Bancoolen, Soegeng 625.

*Java:* *Sine loc.* Collectors unknown. *Herb. Lugd. Bat. nos.* 952, 54–077, 952, 54–943, 908, 190–21; G. Salak, *Blume* (?) s.n. *Herb. Lugd. Bat. nos.* 908, 189–180, 908, 190–195 (lectotype of *Calpandria lanceolata* Bl.); G. Geulis, Preanger, *Bakh. v/d Brink* 5972; *Sine loc.* Junghuhn 84, 90, 93, 141, 179 & 429; *Sine loc.* Koorders 8127, 8128, 8143, 1844 & 8145; *Sine loc.* Korthals s.n. *Herb. Lugd. Bat. Nos.* 908, 191–1201, & 908, 191–1202 (type materials of *Calpandria quiscosaura* Korth.) G. Slamet, C. Java, *G. Murata et al. J.* 880; *Sine loc.* Zollinger 1623.

*Borneo. Sabah:* Mesilau River, Chew & Corner RSNB 7099; Marai Parai, Clemens 32483; Ranau, Aban Gibot SAN 68580; Sandakan, F.E. & Aban SAN 65455. Kalimantan, N. of Balikpapan, Kostermans 4274; Mt. Medadem, Sangkulirang Dist. Kostermans 13386.

*The Philippines:* Dist. of Lepanto, Luzon, Curran 10952; Bayninau, Mt. Prov. Luzon, Conklin & Buwaya 80654; Mt. Pico de Loro Ilols Prov., Luzon, Edano 17346,



17946; Baguio, Benquet, Luzon, *Elmer* 8349, 14282; Puerto Princesa (Mt. Pulgar), Palawan, *Elmer* 12822 (iso-type of *Thea megacarpa* Elm.); Mt. Tabayoc, Luzon, *Jacobs* 7516; Guimaras Island, *Sulit* 11801.

Sulawesi G. Bonthaim, *Bunnemeyer* 12145; Lombasang, *Bunnemeyer* 11130, 11321, 11475; Mandao, Minahassa, *Koorders* 18100 B, 18992 B, 19286 B, 19287 B (type materials of *Camellia minahassae* Koord.); Gowa, Garentang, *Neth. Ind. For. Serv. no. bb.* 20438; Manado, *Neth. Ind. For. Serv. no. bb.* 18081; Palopo, Melenjong, *Neth. Ind. For. Serv. no. bb.* 24132.

*Ecology:* In primary and secondary forests from lowlands near sea level to high altitudes (2,000–2,500 m). It also occurs on limestone hills in Kalimantan (*Kostermans* 13386). Flowering and fruiting almost year round.

*Note:* This species, as noted by several earlier workers, is highly variable in degree of pubescence of branchlets and leaves, in size and number of sepals (perules) and petals, and in size and shape of fruits and seeds. Based on the leaf characters of the Philippine materials alone, Merrill (1923) recognized 3 varieties (namely, var. *mollis*, *microphylla* and *stenophylla*). Sealy (1958, p. 144) emphasized the shape and number of the perianth parts between the Javanese and Philippino specimens. Furthermore, attempts to establish separate species on some local populations, e.g. *Calpandria quiscosaura* Korthals from Java, *Thea megacarpa* Elmer and *Thea montana* (Blanco) Merrill from the Philippines, and *Camellia minahassae* Koorders from Sulawesi, have been proved futile. A species widely distributed from central southern Sumatra to the northern and southern tips of Sulawesi, and from sea level to nearly 2,500 m, is understandably unlikely to be a homogeneous taxon. Yet the androecial features are so unique, and the gynoecial, fruit and seed characters so generally uniform, that only exhaustive field examination can perhaps determine and discriminate the variants.

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