

**STUDIES ON THE TRIBE SACCOPETALEAE (ANNONACEAE) – I  
REVISION OF THE GENUS PLATYMITRA BOERLAGE**

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SUMMARY

In the present revision of *Platymitra* Boerlage two species are recognized, including one new combination.

INTRODUCTION

During progress of my studies on the genus *Alphonsea* Hook. f. & Thomson, it became obvious that one species, *A. arborea* Blanco belongs to the genus *Platymitra* Boerlage of the same tribe Saccopetaleae. This led to a revision of the latter genus which is, together with *Phoencanthus* Alston, one of the smallest genera of the tribe. It now comprises two species confined to the lowland rainforest of Thailand, Java, Sumatra, the Philippines, and probably the Malayan Peninsula. Within the tribe, the genus is easily recognized by its sepals, connate in a small cup, its connivent inner petals, and the relatively large, mostly single carpidium with its hard, thick, woody wall. Relationships were always said to be shared with *Orophea* Blume (Hutchinson, 1923; Sinclair, 1955; Fries, 1959) and *Pseuduvaria* Miq. and according to Sinclair (1955) *Platymitra* links the two tribes Miliuseae Benth. & Hook. f. (= Saccopetaleae Hook. f. & Thomson) and Mitrephoreae Benth. & Hook. f. As already pointed out (Keßler, 1988), this genus is certainly a member of the tribe Saccopetaleae. It shares a number of characters with the other genera of this tribe especially with *Orophea* and *Alphonsea* as shown in table 1 (see next page) and has nothing in common with *Pseuduvaria* as reported by Sinclair except the inner petals being joined above the reproductive organs.

It seems that *Platymitra* is one of the more advanced genera of the Annonaceae. This is indicated by the coherent inner petals, the miliusoid stamens, the carpels (reduced in number), the presence of a middle integument in the seed coat, and probably the big carpidium.

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Table 1. Generic characters of *Platymitra*, *Orophea*, and *Alphonsea*.

	<i>Platymitra</i>	<i>Orophea</i>	<i>Alphonsea</i>
Petals	inner petals connivent, inner and outer petals equal in length	inner petals connivent, inner petals much longer than outer ones	both sets saccate at base, inner and outer petals equal in length
Stamens	20–35, in rows miliusoid	3, 6, 9, 12, in rows miliusoid	20–45, in rows miliusoid
Staminodes	absent	absent or present	absent
Carpel(s)	1–3, hairy	3, 6, 9, 12, hairy or glabrous	1–15, hairy
Ovules	6–10	1, 2 or up to 6	c. 6
Carpidium	sessile, big	sessile or shortly stalked, small	sessile or stalked, medium
Middle integument	present	absent	absent

#### PLATYMITRA

*Platymitra* Boerl., Cat. Pl. Phan. 1 (1899) 33; Sinclair, Gard. Bull. Str. Settl. 14 (1955) 399; Fries in Engl. & Prantl, Nat. Pflanzenfam. ed. 2, 17A II (1959) 130; Hutch., Gen. Fl. Pl. 1 (1964) 104; Keßler in Kubitzki, Fam. & Gen. Vasc. Pl. (in prep.). — Type species: *P. macrocarpa* Boerl.

Trees up to 35 m high, sometimes with small buttresses (Kostermans, in sched.). Leaves glabrescent, shining. Inflorescences mostly ramiflorous, few-flowered or more often very profusely flowering. Peduncles and pedicels hairy, 1 bract 2–3 mm below the calyx, amplexicaul. Buds depressed-globose. Flowers small, up to 6 mm (–1.5 cm, fide Backer & Bakh. f.) long, 1–1.2 cm in diameter. Sepals 3, united in a 3-lobed cup, valvate, rounded, pubescent outside, glabrous within. Petals 6, in two whorls, both valvate, outer ones spreading at anthesis, ovate, densely hairy outside, glabrous within, inner ones not or only little shorter, narrowed towards the base, but not really clawed, cohering in a mitriform cap about the reproductive organs. Stamens 20–35, miliusoid, connective without a prolonged apex. Carpels 1–3, pubescent, stigma sessile, capitate, slightly bilobed, ovules about 10, biseriate. Torus provided with a ring of stiff hairs around the carpels, otherwise glabrous. Only one flower per inflorescence developing into fruiting state. Carpidia 1 or 2, globose, ovoid, or cylindrical up to 7 cm (9 cm fide Merrill) long, up to 5 cm in diameter, sessile, woody wall up to 5 mm thick, many-seeded. Peduncle and pedicel 2–17 cm long, 5–8 mm in diameter, much thicker than the leafy twigs.

Distribution. Two species, in Thailand, Sumatra, Java, and the Philippines.

Notes. A chromosome count of *P. macrocarpa* by Okada & Ueda (1984) revealed  $2n = 18$  chromosomes. Christmann (1987) reports that the seed coat is built

up by the middle integument and after Walker (1971) the pollen grains are solitary, medium-sized, globose, and inaperturate.

#### KEY TO THE SPECIES

- 1a. Leaves with 12–15 pairs of lateral veins; lateral veins at an angle with the midrib of about 50–60 degrees; carpel(s) 1 (or 2); peduncle and pedicel in fruiting stage up to 3 cm long. Philippines . . . . . **1. *P. arborea***
- b. Leaves with 8–10 pairs of lateral veins; lateral veins at an angle with the midrib of about 40–45 degrees; carpels (2 or) 3; peduncle and pedicel in fruiting stage 10–17 cm long. Thailand, Java, Sumatra . . . . . **2. *P. macrocarpa***

#### 1. *Platymitra arborea* (Blanco) Keßler, *comb. nov.* – Fig. 1.

*Macanea arborea* Blanco, Fl. Filip. (1837) 431. — *Alphonsea arborea* (Blanco) Merr., Philipp. J. Sci. 10 (1915) 233; Enum. Philipp. Fl. Pl. (1923) 165. — *Monocarpia blancoi* Fern.-Vill. in Naves & Fern.-Vill., Nov. App. (1880) 6, *nom. illeg.* — *T y p e*: Blanco *s. n.*, Philippines, Cebu and Luzon, Prov. Batangas, fl. Sept. (type in monastery Notre Dame de Guadeloupe, Manila, destr.); *n e o t y p e*: Merrill, *Species Blancoanae* 838 (lecto L; iso A, BM, GH, NY). *Alphonsea philippinensis* Merr., Philipp. Govt. Lab. Publ. 35 (1905) 9. — *T y p e*: Merrill 3075, Philippines, Masbate, Aug. 1903 (holo PNH, destr.; iso B, BM). *Monodora myristica* auct. non Dunal: Blanco, Fl. Filip. ed. 2(1) (1845) 300; ed. 3(2) (1878) 193. *Xylopa spec.* Vidal, Rev. Pl. Vasc. Filip. (1886) 43.

Tree up to 30 m high. Young branchlets glabrous. *Leaves* glabrous, lanceolate, 8–15(–17) by 2–3(–5) cm, subcoriaceous, apex acuminate, base acute, lateral veins 12–15 pairs, with the midrib making an angle of about 50–60°. Petiole c. 8 mm long, c. 2 mm in diam., slightly pubescent. *Inflorescences* 3–10-flowered, in the axils of (fallen) leaves. Peduncle 2–3 mm long, pedicel up to 10 mm long, c. 0.5 mm in diam. *Calyx* 3-lobed, almost united, outer petals ovate, acute, c. 5 by 4 mm, pubescent outside, glabrous within, inner ones somewhat smaller, 2–3 mm wide at the base, keeled. *Stamens* about 30–35, in 3 or 4 rows. *Carpel(s)* 1 (or 2), hirsute, stigma subglobose. *Carpidia* 1 (or 2), cylindrical to ovoid, 7(–9 fide Merrill) cm long, c. 4 mm in diam., peduncle and pedicel then up to 3(–7) cm long, c. 4 mm in diam. *Seeds* 5–9, kidney-shaped, c. 2.5 cm long, c. 2 cm wide, c. 1 cm thick.

*D i s t r i b u t i o n*. Philippines: Luzon, Leyte, Masbate, Panay, Cebu and, according to Merrill, also from Mindoro, Ticao, and Mindanao.

*E c o l o g y*. A lowland species, probably ascending only up to 300 m.

*V e r n a c u l a r n a m e s*. Calai, palo calai, caningag; Luzon, environs of Manila.

*C o l l e c t o r ' s n o t e s*. Bark and fruitlets are recorded to be used for medical purposes. Posts are made of the wood. The pulp enclosing the seeds is sweet. Flower colour ranges from pale orange to yellow.

*N o t e s*. According to Merrill (1918) no type material of Blanco has been traced until now. *Cuming* 947, Panay, Prov. Ilo-ilo, *nom. vern.* Lanutan (PNH, destr., K) was inaccurately reported from Luzon, Ilo-ilo.

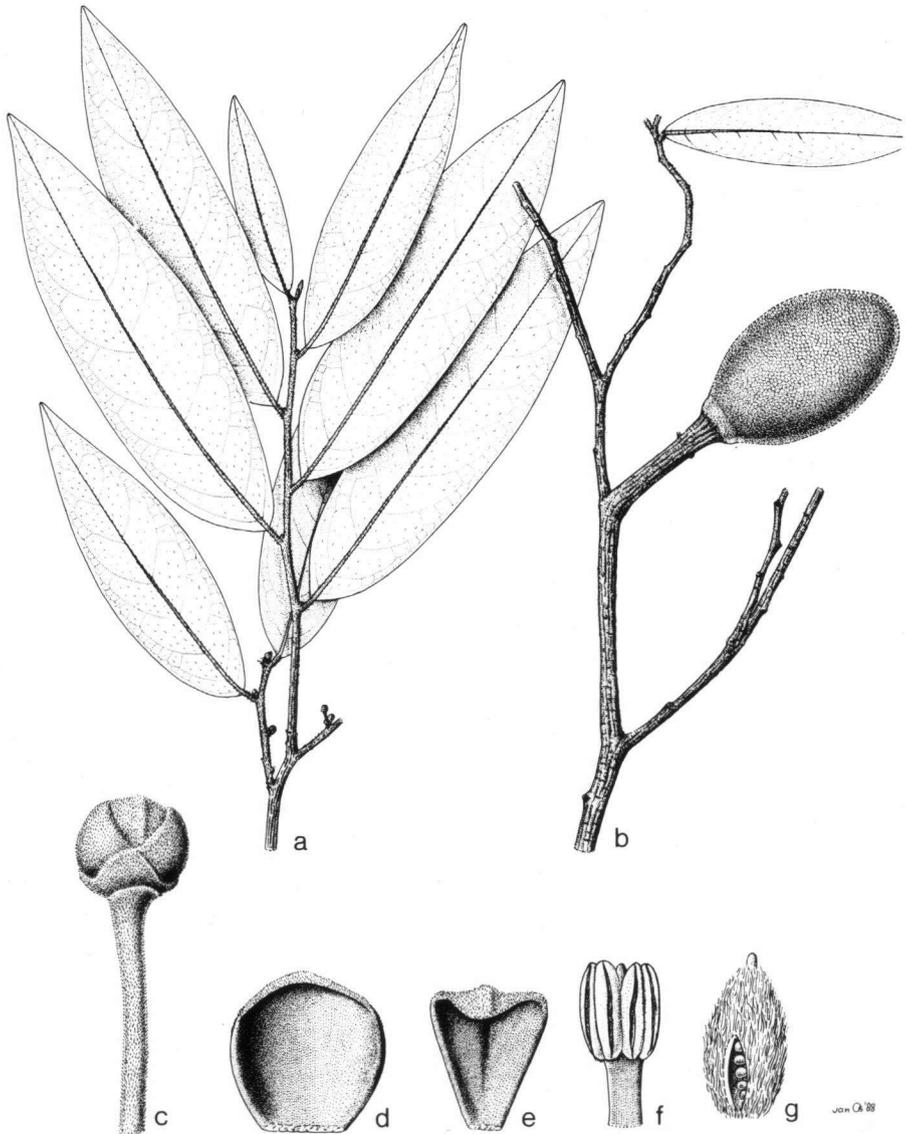


Fig. 1. *Platymitra arborea* (Blanco) Keßler. a. Habit,  $\times 0.5$ ; b. ripe carpidium,  $\times 0.5$ ; c. flower-bud,  $\times 3$ ; d. outer petal, inside view,  $\times 6$ ; e. inner petal, inside view,  $\times 6$ ; f. stamen,  $\times 12.5$ ; g. carpel,  $\times 12.5$  (a & b Curran 10499; c-g Merrill 3075).

## 2. *Platymitra macrocarpa* Boerl.

*Platymitra macrocarpa* Boerl., Cat. Pl. Phan. 1 (Feb.–June 1899) 33; Ic. Bog. 1 (Dec. 1899) 179, t. 62; Sinclair, Gard. Bull. Str. Settl. 14 (1955) 399; Backer & Bakh. f., Fl. Java 1 (1963) 109.

— T y p e: cult. in Hort. Bot. Bog. sub IV-G-53 (holo BO, n.v.; iso K, L).

*Platymitra siamensis* Craib, Kew Bull. (1912) 145; Fl. Siam. Enum. 1 (1925) 54; Sinclair, Gard. Bull. Str. Settl. 14 (1955) 400. — T y p e: *Kerr 2125*, Thailand, Prachinburi, Sriracha, Nawng Kai Ploi, in evergreen jungle, 90 m, 26 Sept. 1911 (holo K; iso BM, E, U); syn. nov.

Tree up to 35 m high, sometimes with small buttresses up to 1.5 m high (Kos-termans, in sched.). *Leaves* glabrous, oblong-lanceolate, 9–11 long, 3–4(–5) cm wide, thinly coriaceous, apex obtusely acuminate or obtuse, base rounded or cuneate, lateral veins 8–10 pairs, making with the midrib an angle of about 40–45°. Petiole c. 5 mm long, c. 3 mm in diam., minutely pubescent. Often very profusely flowering from the axils of fallen leaves. Peduncle c. 5 mm long, pedicel c. 12 mm long, c. 0.5 mm in diam. *Calyx* 3-lobed, c. 3 mm in diam., outer petals ovate, sometimes acute at apex, hairy outside, c. 5 mm long, 4 mm wide, inner ones c. 4 mm long, c. 2 mm wide at base. *Stamens* c. 20–25, clearly stalked already in bud, in 3 rows. *Carpels* (2 or) 3, hirsute, stigma capitate, sometimes slightly bilobed, ovules 6–8. *Carpidia* 1 or 2, globose or ovoid, up to 8 cm long, up to 5 cm in diam., sessile, peduncle and pedicel then up to 17 cm long, 0.6 cm in diam. *Seeds* about 6, kidney-shaped, c. 2.6 cm long, c. 1.8 cm wide, c. 0.8 cm thick. Chromosomes:  $2n = 18$ .

**D i s t r i b u t i o n.** Thailand: southeastern part. Indonesia: Sumatra, West coast, Padang; southern part of West Java, eastwards up to Nusa Kambangan.

**E c o l o g y.** A large tree occurring on limestone from sea-level up to 500 m altitude in humid forests.

**V e r n a c u l a r n a m e s.** Tum sang, ham chang, Thailand: Sriracha; kalak, ki-sigeung, Java.

**C o l l e c t o r ' s n o t e s.** Colour of the flower is said to be greenish white.

**N o t e s.** This species is distributed very locally and seems to be rare. Only Kerr's collections from Thailand and those of Beccari from W. Sumatra bear carpidia. I cannot imagine how Backer & Bakh. f. (1963) have found the flowers 1–1.5 cm long and 1–1.25 cm in diameter. It may be that fresh flowers are a little bit longer, but normally not three times.

Two sheets are annotated as *Platymitra* but cannot be referred to the genus with certainty because they are sterile: *Burgess FRI 19013* (K) from Malaya, Pahang; *Kochummen FRI 2413* (L) from Malaya, Perak. These records would extend the distribution area to the Malayan Peninsula, which is not very surprising because the genus occurs in Thailand and Sumatra as well.

One collection, *Chan FRI 6820* (KEP, L, U), also mentioned by Klucking (1986) under *P. siamensis*, does not belong to this genus, but may probably be a *Kingstonia* fide v. Heusden et v. Setten (pers. comm.).

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## IDENTIFICATION LIST OF COLLECTIONS

- Ahem 2010: 1.  
 Beccari 936: 2  
 Cuming 947: 1 — Curran 10499: 1.  
 Kerr 2125: 2; 9840: 2 — Koorders 582: 2; 9875: 2; 12237: 2; 12345: 2; 12557: 2; 15678: 2;  
 15679: 2; 20292: 2; 24576: 2; 34300: 2 — Kostermans 19274: 2; 19372: 2.  
 Leano PAL-43: 1.  
 Merrill 838: 1; 1988: 1; 2062: 1; 2591: 1; 3075: 1.  
 Okada 3457: 2 — Oro 30859: 1.  
 Ramos 76708: 1 — Rosenbluth 12729: 1.  
 Sinclair 9988: 2 — Sulit 22888: 1.  
 Cult. Hort. Bot. Bogor IV-G-53: 2.