

***Pycnarrhena* (Menispermaceae), a new generic record for the native flora of Singapore**

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ABSTRACT. A collection made from Nee Soon Swamp Forest in 2005 is confirmed as a specimen of *Pycnarrhena fasciculata* (Miers) Diels (Menispermaceae). This represents the first record of the genus *Pycnarrhena* for the native flora of Singapore.

Keywords. Nee Soon, new record, *Pycnarrhena fasciculata*

Introduction

The recently revised checklist for the flora of Singapore (Lindsay et al., 2022) lists 12 species of Menispermaceae, with 11 of these considered native, each from a separate genus. The species are all woody climbers, with separate male and female plants.

A specimen collected from Nee Soon Swamp Forest in 2005 (Fig. 1, 2) was originally identified as *Paracroton pendulus* (Hassk.) Miq. However, Dr Hans-Joachim Esser, a Euphorbiaceae specialist, rejected this determination and excluded it from the Euphorbiaceae altogether. We confirm here that this specimen belongs to the Menispermaceae genus *Pycnarrhena*, which has not previously been recorded from Singapore.

Pycnarrhena, as currently recognised (Forman, 1972, 1986), consists of some 10 species occurring from India and southern China to Australia. The species are all dioecious woody climbers, notable in the family for having leaves with a distinct midrib and pinnately arranged lateral nerves rather than three to five or more palmately arranged main nerves arising from the leaf base.

The genus was last revised by Forman (1972). Forman noted that his revision was tentative due to the inadequacy of the material available to him. While more specimens have subsequently been collected, the genus remains poorly known and under-collected.

The specimen collected from Nee Soon, *Saat et al. SING 2005-39*, is a good match vegetatively to material from Peninsular Malaysia determined by Forman as *Pycnarrhena lucida* (Teijsm. & Binn.) Miq. The four stamens and two plus two arrangement of inner sepals of the Nee Soon plant (just discernible in Fig. 2) is exactly as described by Miers (1871) when publishing *Antitaxis fasciculata* Miers from a William Griffith collection from Malacca (Fig. 3).



Fig. 1. Flowering branch of *Pycnarrhena fasciculata* (Miers) Diels in Nee Soon Swamp Forest showing the male inflorescences which consist of fascicles of single-flowered peduncles arising from the stems. (Photo: D. Liew)



Fig. 2. Male flowers of *Pycnarrhena fasciculata* (Miers) Diels photographed in Nee Soon Swamp Forest. The petal-like structures are two pairs of inner sepals; the petals are too small to see in the photograph. (Photo: D. Liew)

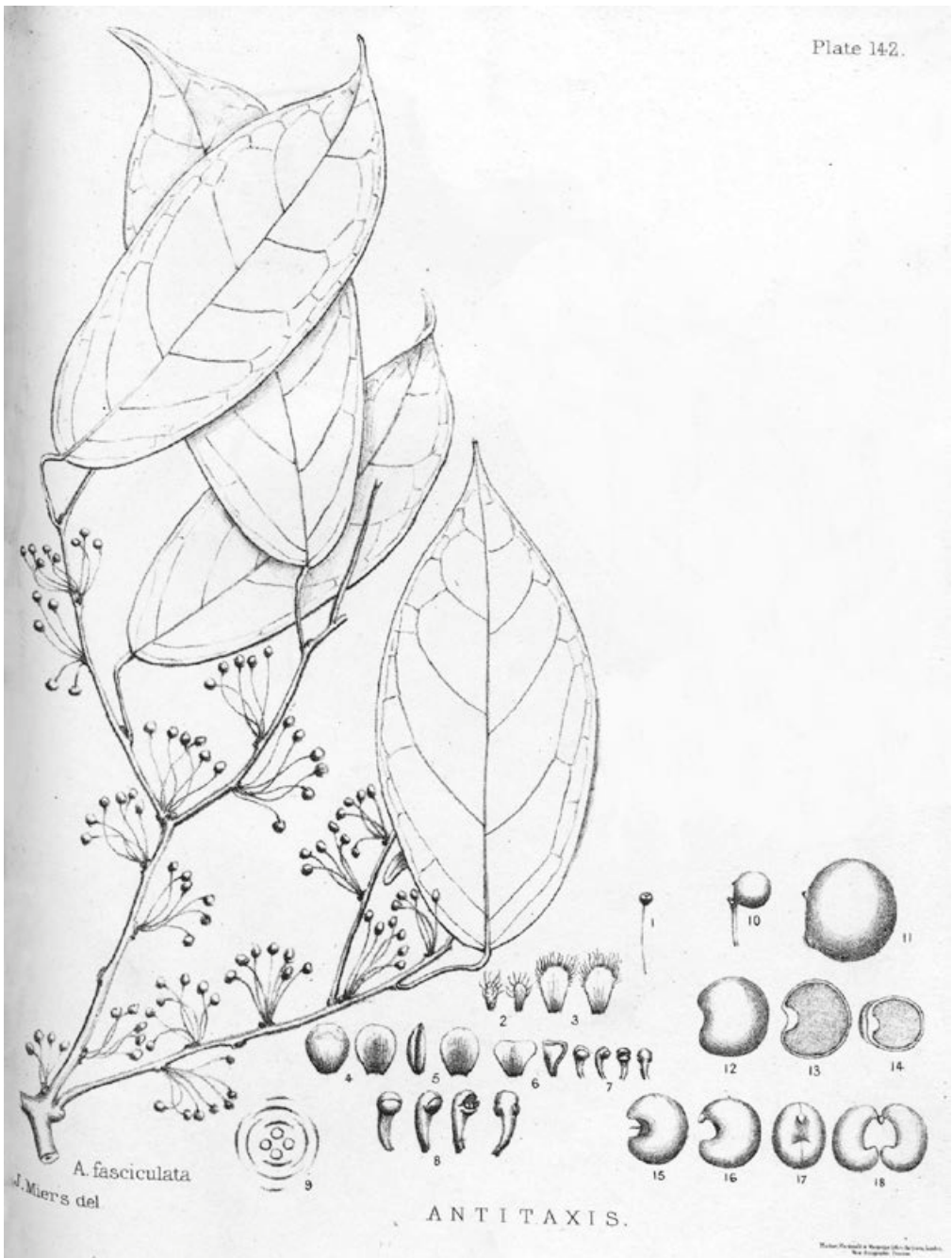


Fig. 3. The plate of *Pycnarrhena fasciculata* (Miers) Diels (as *Antitaxis fasciculata* Miers) from Miers (1871).

Taxonomic treatment

Pycnarrhena Miers ex Hook.f. & Thomson, Fl. Ind. 206 (1855), nom. cons. prop. – TYPE: *Pycnarrhena pleniflora* Miers ex Hook.f. & Thomson.

Antitaxis Miers, Ann. Mag. Nat. Hist., ser. 2, 7: 37 (1851), nom. rej. prop. – TYPE: *Antitaxis fasciculata* Miers (= *Pycnarrhena fasciculata* (Miers) Diels).

Gabila Baill., Adansonia 10: 155 (1871). – TYPE: *Gabila longifolia* (Decne. ex Miq.) Baill. (= *Pycnarrhena longifolia* (Decne ex Miq.) Becc.).

Telotia Pierre, Bull. Mens. Soc. Linn. Paris 1: 754 (1888). – TYPE: *Telotia nodiflora* Pierre (combination in *Pycnarrhena* not made).

Pridania Gagnep., Bull. Soc. Bot. France 85: 170 (1938). – TYPE: *Pridania petelotii* Gagnep. (= *Pycnarrhena poilanei* (Gagnep.) Forman).

Woody climbers, twigs with prominent dish-like leaf scars. **Leaves** simple, entire; lamina ovate to elliptic, not peltate, penninerved, generally with lateral nerves looping within margin; petioles distinctly swollen at both ends and often bent in these positions. **Inflorescences** axillary or ramiflorous, frequently cymose, but sometimes fascicles of 1–few-flowered peduncles. **Male flowers:** sepals 6–15, generally in whorls of 3, rarely 2-merous, outer whorls smallest, inner sepals concave; petals 0–5, typically small and obovate; stamens 4–18, at least basally connate. **Female flowers** as in ♂, carpels 3–6, stigmas recurved. **Fruits** mostly globose or subglobose, endocarp thin-walled, chartaceous to cartilaginous; seeds with albumen absent, cotyledons relatively large.

Distribution. As recognised by Forman (1972, 1986), *Pycnarrhena* consists of some 10 species occurring from India and southern China to Australia. The species mostly occur in lowland forests across the region.

Pycnarrhena fasciculata (Miers) Diels in Engler, Pflanzenr., IV, 94: 50 (1910). – *Antitaxis fasciculata* Miers, Contr. Bot. 3: 356, t. 142 (1871). – TYPE: [Peninsular Malaysia], Malacca, s.d., *W. Griffith s.n.* (lectotype K [K000644555], designated by Forman, Kew Bull. 26: 408 (1972); possible isoelectotypes B [B 10 0294333, in part, single leaf in packet mounted on lower part of sheet labelled ‘Original’ by Diels], BM [BM000554103], K [K000644556]). (Fig. 1–3)

Woody climber or scandent shrub. **Old stems** irregularly knobby from leaf bases and old inflorescence/infructescence bases; **younger stems** faintly longitudinally striate, drying pale grey-brown, variably covered with short erect but often upwardly curved, brown hairs, with raised ridges at point of leaf insertion that leave dish-like scars after

abscission, with brown hairs in dense tufts tapering upwards in leaf axils. **Leaves** not peltate; lamina chartaceous to subcoriaceous, narrowly elliptic to narrowly oblanceolate, 12–17.5 × 4–5 cm, base cuneate, apex acuminate with acumen finely pointed, drying grey-brown, shiny above, with midrib below light brown, lower epidermis often with abundant, minute red-brown dots, glabrous except for scattered hairs along midrib near base below, midrib flush to slightly sunken above in dry leaves, higher orders of venation slightly raised above, midrib raised below, lateral nerves slightly raised, 6–10 pairs, looping distinctly well within margin, tertiary and higher orders of venation reticulate and dense; petiole 16–25 mm long, swollen at both ends, but particularly obvious distally where the final 4–5 mm is c. 2 mm wide compared to the central portion under 1 mm wide in dry material, all sparsely to densely short hairy. **Male inflorescences** of multi-flowered fascicles in axils of current or fallen leaves; flowers with peduncles to 8 mm long, generally straight, erect to decumbent, drying less than 0.1 mm wide, drying brown and shiny, minutely longitudinally striate sometimes with a tiny ciliate bracteole about midlength; outer sepals 4, obovate, c. 0.6 × 0.3 mm, with brown hairs outside, inner sepals 2 pairs of 2, distichously arranged, rotund to obovate, c. 1.2 × 1.3 mm, apex rounded, concave, thicker centrally, glabrous; petals 2, broadly ovate, 0.5–0.6 × 0.6–0.8 mm, apex rounded; stamens 4, basally connate, c. 0.5 mm long, filament c. 0.1 mm long, anthers 4-lobed, dehiscing by a lateral dorsal slit. **Female inflorescences** and flowers unknown. **Infructescences** with peduncles 6–10 mm long, c. 1 mm diam. at narrowest, drupes mostly solitary at maturity, drying subglobose, c. 15 mm diam., shiny bright red-brown, surface smooth, glabrous, style scar faint, lateral; endocarp reniform, wall membranous, condyle small and ventral; seed reniform, shaped like a cashew nut, with 2 large, curved cotyledons.

Distribution. Peninsular Malaysia and Singapore.

Specimens examined. SINGAPORE: **Nee Soon:** Nee Soon Freshwater Swamp Forest, along Nee Soon Stream, 8 Mar 2005, *Saat et al.* SING 2005-39 (SING [SING0158589]). PENINSULAR MALAYSIA: **Perak:** Gopeng, Kinta, Jul 1883, *King's Collector 4668*, (K); U.B. [Ulu Bubong], Jan 1886, *King's Collector 10200* (K, L [L.1751505]); Ulu Bubong, Jul 1886, *King's Collector 10423* (K, P [P02376912]). **Malacca:** *Griffith s.n.* (K [K000644555, K000644556]).

Notes. Forman (1972) lumped several *Pycnarrhena* species with fascicles of single-flowered peduncles into *Pycnarrhena lucida*, but we prefer to follow Miers (1871) and Diels (1910) and keep *Pycnarrhena fasciculata* (Miers) Diels as a separate species for the material from Peninsular Malaysia and Singapore. *Pycnarrhena lucida* s.s. is from Java (Backer & Bakhuizen van den Brink, 1963), and differs from *P. fasciculata* in having three flowers per peduncle (vs one), male flowers with three inner sepals (vs two plus two), three petals (vs two) and nine stamens (vs four).

The Nee Soon specimen is important, not only as the voucher for an unrecorded genus in the native flora, but also it appears to be the only extant flowering specimen of *Pycnarrhena fasciculata*, the type material having lost all of its flowers.

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