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VOLUME 1

P.S. Short & I.D. Cowie (eds)



PLUMBAGINACEAE

P.S. Short & G.M. Wightman

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PLUMBAGINACEAE

P.S. Short & G.M. Wightman

Herbs or shrubs. *Leaves* alternate, simple, entire; stipules usually absent. *Flowers* bisexual, actinomorphic, arranged in bracteate cymes, panicles or racemes. *Calyx* of 5 sepals which are connate into a tube which is often manifestly ribbed. *Petals* 5, free or connate, contorted in bud. *Stamens* 5, opposite the petals; filaments free or adnate to the corolla tube; anthers tetrasporangiate and dithecal, dehiscing by longitudinal slits. *Gynoecium* of 5 carpels forming a superior, compound, unilocular ovary with 5 free styles or a single, 5-branched style; ovule solitary, basal. *Fruit* partly or entirely enclosed by the calyx, commonly an achene, sometimes a capsule. *Seed* 1, with a large, straight embryo, with or without endosperm.

Cosmopolitan family with as few as 10 and up to 27 genera and to *c.* 1,000 species, depending on the authority consulted. In Australia three genera, with *Aegialitis* and *Plumbago* in the N.T., including the D.R

Taxonomic references: Steenis (1949); Cronquist (1981); Kubitzki (1993); Tebbitt (2004); Mabberley (2008).

- | | | |
|----|---|-------------------|
| 1 | Mangrove; leaves coriaceous; petals white | Aegialitis |
| 1: | Non-mangrove; leaves not coriaceous; petals white or blue | Plumbago |

AEGIALITIS R. Br.

Simple-stemmed *shrub*. *Leaves* glabrous, coriaceous, caducous, gland-dotted; petiole winged, stem-clasping and leaving annular scars when leaves fall. *Flowers* in terminal racemes, each flower subtended by a bract and 2 bracteoles. *Calyx* tubular, 5-ribbed; lobes short, erect. *Petals* basally connate and forming a short tube with long, spreading lobes. *Stamens* inserted at the apex of the corolla tube. *Ovary* cylindrical, 5-angled. *Styles* 5, free; stigmas capitate. *Fruit* a cylindrical capsule, the calyx persisting at the base.

Ditypic genus found in south-east Asia, Australia and New Guinea; only *A. annulata* in Australia. Both species are mangroves but unlike many mangroves these species lack pneumatophores.

Taxonomic reference: Wightman (2006).

A. annulata R. Br.

Slender *shrub* to 1.5 (3) m tall; stem bases often distinctly swollen; cryptoviviparous. *Leaves* with the winged petiole to *c.* 5.5 cm long; lamina elliptic to widely elliptic, ovate to widely ovate or somewhat trullate to widely trullate, 3–8.5 cm long, 2–7 cm wide, the entire leaf slightly folded along its length, surfaces with longitudinal depressions and salt glands, the veins many and parallel. *Flowers* shortly pedicellate; bract sheathing, 5–8 mm long and enclosing the bracteoles; bracteoles 4.5–5.5 mm long. *Calyx* tube 6–8 mm long, ribs smooth; lobes *c.* 0.5 mm long. *Corolla* tube barely formed to *c.* 2 mm long, the lobes to *c.* 8 mm long, white. *Stamens* with white filaments; anthers 1.5–2 mm long, purplish. *Styles* white. *Capsules* falcate, to 50 mm long, *c.* 2 mm diam., dull crimson at maturity. *Flowering*: Sept.–Nov. *Fruiting*: Jan.–Mar. **Club Mangrove.**

Fig. 1 (*Short* 5373; *Wells*, D12297); Pl. 1–2 (unvouchered).

Eastern Indonesia (Moluccas and Lesser Sunda Islands), northern Australia (W.A., N.T., Qld) and New Guinea. Widespread along the coastline of the N.T. and usually found on the seaward edge of mangrove communities, colonising mud and even almost bare rock. It is commonly associated with *Avicennia marina* and *Sonneratia alba*.

Native bees have been observed visiting flowers in the early morning and appear to be major pollinators of this species.

Saenger (1982) described the fruit as an indehiscent nut and used the term cryptoviviparous to describe embryo enlargement within the fruit without rupturing the pericarp. The presence of spongy, air-filled tissue in the swollen mesocarp of the fruit aids buoyancy and thus enhances water-borne dispersal.

*Aegialitis annulata**Plumbago zeylanica*

Fig. 1

Various groups of Aboriginal people use the leaves as toy whistles, and sometimes children liken the leaves to imaginary stingrays which they may spear (Levitt 1981; Smith & Wightman

1990; Yunupingu *et al.* 1995; Blake *et al.* 1997; Puruntatameri *et al.* 2001). Djambarrpuynngu people have noted that this species indicates a good place to fish for Barramundi (Galpagalpa 1984).

PLUMBAGO L.

Perennial *herbs* or shrubs. *Leaves* not coriaceous, persistent; petiole stem-clasping. *Flowers* in terminal racemes or spikes, each flower subtended by a bract and 2 bracteoles. *Calyx* tubular, 5-ribbed, often with stalked or sessile glands on the outer surface; lobes short, erect. *Petals* connate and forming a funnel-shaped tube with spreading lobes. *Stamens* free or adhering to the corolla. *Ovary* cylindrical. *Style* 1, short, 5-branched. *Fruit* a 5-valved capsule included in the persistent calyx.

Genus of perhaps 24 species found in temperate and tropical regions of the world, with only *P. zeylanica* in Australia.

Taxonomic references: Steenis (1949); Wagner *et al.* (1990); Mabberley (2008).

***P. zeylanica* L.**

Erect to sprawling *shrub* to *c.* 1 m tall; stems ribbed, glabrous. *Leaves* glabrous; petioles 3–30 mm long, winged and somewhat stem-clasping at the base; lamina ovate or elliptic, 10–90 mm long, 6–60 mm wide, may be discolorous, apex acute to acuminate. *Racemes* 7.5–25 cm long, with

yellow, sessile or barely stalked glands on the main axis; flowers subsessile or on petioles to *c.* 1 mm long; bracts ovate, 3.7–6.5 mm long, 1.5–2.2 mm wide, apex acuminate, surface with sessile or barely stalked glands; bracteoles elliptic, 2.8–3.5 mm long, 0.8–1.1 mm wide, apex long-acuminate, surface with scattered glands. *Calyx tube*

8.5–14 mm long, outer surface with numerous, stiff, stalked glandular hairs 0.5–1.5 mm long; lobes 0.6–1.1 mm long. *Corolla* white; tube 19–26 mm long; lobes 4–9 mm long, each with a shortly acuminate apex. *Anthers* c. 1.5 mm long. *Ovary* and style glabrous. *Capsule* straw-coloured, 7.5–8 mm long. *Seed* red-brown, filling the capsule. *Flowering*: mostly Feb.–June. *Fruiting*: c. Mar.–Aug.

Fig. 1 (unvouchered); Pl. 3 (unvouchered).

Found in the Old World tropics and the Hawaiian Islands (Australia: W.A., N.T., Qld, N.S.W.).

Widespread in the Top End and also growing in southern N.T. In the D.R. localities include Beatrice Hill, Humpty Doo and Point Stuart. Commonly a species of coastal and inland vine thickets and growing on both limestone and sandstone.

The glandular calyx makes the species well adapted to dispersal on the feathers of migratory birds (e.g. Wagner *et al.* 1990).

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Pl. 1 *Aegialitis annulata* (Photos: G.M. Wightman)



Pl. 2 *Aegialitis annulata* (Photo: B.M. Stuckey)



Pl. 3 *Plumbago zeylanica* (Photo: D.E. Bisa)