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SAPOTACEAE

L. W. Jessup & P. S. Short

Trees or shrubs, commonly with T-shaped hairs but one arm often reduced; latex usually present, white or yellow. *Leaves* spirally arranged, petiolate, simple, entire; stipules absent or minute. *Flowers* bisexual, actinomorphic, solitary or in small clusters, often axillary or in the nodes of leaf scars. *Calyx* a single whorl of 4–6 free or partly united, imbricate sepals or of 2 whorls, each whorl of 4 free sepals and the outer whorl valvate. *Corolla* gamopetalous, 4–9-lobed, the tube much shorter to exceeding the lobes; lobes divided or simple. *Stamens* 4–8, inserted in the lower half, upper half or top of tube, free or at least partially fused; anthers tetrasporangiate and dithecal, opening by longitudinal slits; staminodes absent or present and often well developed. *Gynoecium* of 1–8 carpels united to form a superior, multilocular ovary; ovules usually 1 per carpel; placentation axile, basi-ventral or ventral; style single; stigma capitate or minutely lobed. *Fruit* a usually fleshy, indehiscent berry. *Seeds* 1–c. 6, often laterally compressed, with a small to very prominent hilum scar, embryo large, endosperm absent or present and sometimes copious.

A pantropical family in which generic circumscription, and to some extent that of the family, is controversial. Cronquist recognised about 70 genera and 800 species but more recently Pennington (2004a, b) recognised 53 genera and c. 1,100 species. In Australia perhaps five genera and c. 40 species. Represented in the N.T. by two genera and four species, all of which occur in the D.R.

The family contains a number of species which produce edible fruit, e.g. Abiu (*Pouteria caimito*), Canistel (*Pouteria campechiana*), Sapodilla (*Manilkara zapota*), Sapote (*Pouteria sapota*) and Star Apple (*Chrysophyllum cainito*). Latex, known as chicle, from the Sapodilla has been used to make chewing gum. The family also contains the Miracle Bush (*Synsepalum dulcificum*) a species occasionally cultivated in the Darwin area and the fruit of which affect the sense of taste, making sour fruit and drink taste sweet.

All species dealt with below produce sap but it should be noted that it may not be visible during the dry season.

Taxonomic references: Cronquist (1981); Pennington (1991, 2004a, b).

- | | | |
|----|---|-----------------|
| 1 | Corolla lobes divided into segments | Mimusops |
| 1: | Corolla lobes undivided | Pouteria |

MIMUSOPS L.

Trees or shrubs. *Leaves* alternate or spirally arranged; stipules caducous. *Sepals* 8, in 2 dissimilar whorls, the outer whorl valvate. *Corolla* with the tube much shorter than the 8 lobes; lobes usually divided into 3 segments, the median segment usually clasping the stamen. *Stamens* 8, inserted at the top of the corolla tube; filaments free or partly fused to the staminodes. *Staminodes* 8, conspicuous, alternating with the stamens. *Ovary* globular to cylindrical, 8-locular, hairy. *Berry* fleshy, with 1–6 seeds. *Seed* laterally compressed, with a small basal or basi-ventral scar; endosperm copious.

A tropical Old World genus of c. 40 species, with only *M. elengi* in Australia.

Taxonomic references: Royen (1952); Pennington (1991).

M. elengi L.

M. parvifolia R. Br.

Tree or shrub to c. 13 m tall; bark dark grey to black, hard, fissured or somewhat tessellated. *Leaves* with slender petioles 10–27 mm long; lamina elliptic or somewhat ovate, 35–140 mm long, 20–60 mm wide, upper surface glossy green, below paler and glabrous or sparsely hairy, base

symmetrical or somewhat asymmetrical, apex commonly abruptly acuminate, sometimes acute or obtuse. *Inflorescence* axillary, flowers solitary, paired or in small clusters, sweetly scented; pedicels 7–20 mm long. *Sepals* 6.5–8 mm long; outer ones lanceolate, 2.1–2.8 mm wide, with red-brown hairs; inners ones narrower and with white hairs. *Corolla* white or cream, 6–8.5 mm long, each

lobe with 3 segments, the middle segment wider than the lateral segments. *Stamens* with anthers *c.* 2.5–3 mm long. *Staminodes* acuminate, white, externally hairy. *Ovary* hairy; style 4–7 mm long. *Berry* broadly ovoid or globular, 12–14 (22) mm diam., initially green and hairy but ripening orange-red or red and becoming glabrous. *Seeds* several, compressed-ellipsoid, 11–14 mm long, 7–9.5 mm wide, 4.5–7 mm thick, smooth, brown. *Flowering*: most months, mainly Oct.–Mar. *Fruiting*: Feb.–July.

Fig. 1 (unvouchered, from cultivated material); Pl. 1 (*Cowie 11808*); Pl. 2 (unvouchered).

A variable species found from tropical India to the Philippines, New Guinea, New Caledonia and

Australia (W.A., N.T., Qld). In the N.T. a common species of vine thickets and closed forest in coastal and near-coastal regions and often on sand. The fruit are edible.

The wild form of this species has flat leaves but there are two cultivated forms in the D.R. which have slightly to obviously longitudinally-folded leaves with undulating margins. One of these forms has non-variegated leaves and is illustrated here (Fig. 1), while the other has variegated leaves. Developed in Darwin, in 2000 the variegated form was registered as the cultivar *M. elengi* 'Street Elegance'.

POUTERIA Aubl.

Trees or shrubs. *Leaves* alternate or opposite (not N.T.); stipules absent. *Sepals* 4–6, free or partly united, imbricate. *Corolla* tube shorter to exceeding the lobes; lobes 4–6, undivided. *Stamens* 4–6, usually inserted in the lower or upper half of the tube; filaments rarely free. *Staminodes* commonly the same number as the corolla lobes, sometimes absent. *Ovary* subconical, 4–6-locular, often densely hairy. *Berry* dry to succulent, 1–several-seeded. *Seed* usually laterally compressed; endosperm usually present.

Following Pennington (1991) the genus contains *c.* 200 species in America, *c.* 120 in Asia, Malesia, Australia and the Pacific, and *c.* five in Africa. He also placed all three of the following species in *Pouteria* sect. *Oligothea* (A. DC.) Baehni. This treatment is followed here but cladistic analyses using molecular sequences and morphological characters (Swenson *et al.* 2007a, b; Triono *et al.* 2007) has led to the suggestion by some workers that each of the species below is generically distinct from the other. If this taxonomy were to be accepted there are nomenclatural problems (Swenson & Morat 2008; Swenson & Tehler 2009) which, until resolved, prevent this happening.

Taxonomic references: Royen (1957); Pennington (1991); Wheeler (1992); Jessup (2001); Swenson *et al.* (2007a, b); Triono *et al.* (2007); Swenson & Morat (2008); Swenson & Tehler (2009).

- | | | |
|----|--|---------------------|
| 1 | Longest pedicels more than 5 mm in length; leaf apices acuminate, the lamina glabrous or with hairs confined to the midrib | P. richardii |
| 1: | Longest pedicels 5 mm or less; leaf apices obtuse to acute, the lamina glabrous to manifestly hairy | 2 |
| 2 | Fruit 17–27 mm diam., with a dense cover of small, red-brown hairs; undersurface of leaf glabrous to manifestly hairy but if hairy the minor veins between the main lateral veins usually obvious without magnification; young shoots not manifestly rusty brown | P. arnhemica |
| 2: | Fruit 10–15 mm diam., purple or black, shiny; undersurface of leaves manifestly hairy and somewhat silky and usually only the main lateral veins readily visible without magnification; young shoots tending to be rusty brown | P. sericea |

P. arnhemica (F. Muell. ex Benth.) Baehni*Planchonella arnhemica* (F. Muell. ex Benth.) P. Royen*Planchonella crocodiliensis* P. Royen*Sideroxylon portus-darwini* O. Schwarz*Planchonella pohlmanniana* auct. non (F. Muell.) Dubard*Pouteria pohlmanniana* auct. non (F. Muell.) Baehni

Shrub or tree to *c.* 10 m tall; bark fissured and corky. *Leaves* alternate and crowded towards the end of the branchlets; petiole 1–6.5 cm long; lamina ovate to widely ovate or narrowly to widely elliptic, 3–17 cm long, (1.5) 3–11.5 cm wide, glabrous to manifestly hairy on both surfaces, concolorous or discolorous, basally usually symmetrical but sometimes asymmetrical, apex obtuse to acute. *Inflorescence* of axillary, 2–11-flowered clusters, minutely hairy; pedicels 1–6 mm long. *Sepals* 5 or 6, ovate to circular, (2.5) 3.5–4 mm long, hairy. *Corolla* cream, to *c.* 4.5 mm long; lobes 5 or 6, oblong, 0.5–2.5 mm long. *Stamens* 5 or 6. *Staminodes* 5 or 6, narrowly oblong or linear. *Berry* broadly ellipsoid, broadly ovoid or subglobose and sometimes slightly angled, 17–30 mm long, 17–28 mm diam., densely covered with small, red-brown hairs. *Seeds* 4 or 5, compressed-subellipsoid, 10–14 mm long, 7–8 mm wide, 4–5 mm thick, shiny, brown. *Flowering* commonly Sept.–Feb. but recorded for most months. *Fruiting* mostly Mar.–Aug. but also other months.

Fig. 1 (*Cowie 7861; Leach 3335*); Pl. 3 (unvouchered).

Australia (W.A., N.T.). In the N.T. it occurs in the Top End where it is a moderately common species in open *Eucalyptus miniata*/*E. tetradonta* woodland.

As open flowers are virtually absent from DNA specimens floral characteristics are largely based on Wheeler (1992).

P. richardii (F. Muell.) Baehni*Planchonella laurifolia* (A. Rich.) Pierre*Pouteria xerocarpa* auct. non (F. Muell. ex Benth.) Baehni

Tree to *c.* 20 m tall; bark dark grey or brown, smooth or slightly fissured. *Leaves* alternate and scattered; petiole 1–2.5 cm long; lamina elliptic to narrowly elliptic or oblanceolate, (4.5) 8–15 (23) cm long, (1.5) 2.5–5 (8) cm wide, apex acuminate or mostly so, glabrous or almost so except for hairs confined to the midrib, discolorous. *Inflorescence* an axillary, (1-) 2–8-flowered cluster, pedicels 4–14 mm long, with whitish hairs or glabrous. *Sepals* 5, ovate, *c.* 2 mm long, hairy, the hairs whitish or pale brown. *Corolla* 2.5–3 mm long, creamy white; lobes 5, *c.* 1–1.5 mm long,

apices truncate. *Stamens* 5, *c.* 2 mm long, attached just above the base of the tube. *Staminodes* 5, oblong, attached just below the sinus. *Ovary* beset with long hairs; style *c.* 2 mm long, glabrous. *Berry* obovoid, 14–20 mm long, *c.* 12 mm diam., glabrous except for scattered long hairs near the base, smooth, initially green but near-mature fruit drying brown (perhaps black when fully mature). *Seeds* 2–4, fusiform, tending to be 3-angled, with 1 or 2 surfaces flat and the remainder rounded, 11–13 mm long, shiny, brown. *Flowering & fruiting* most months.

Fig. 1 (*Dunlop 6489*).

Malesia to Australia (N.T.). A rainforest species with localities in the N.T. including Jim Jim Falls in Kakadu N.P., Tolmer Falls in Litchfield N.P. and sandstone gullies in Nitmiluk N.P.

Commonly viewed as an Australian endemic but the senior author has seen Malesian specimens determined as *Planchonella firma* (Miq.) Dub. var. *microcarpa* (Burck) H.J. Lam which are clearly referable to *P. richardii*.

P. sericea (Aiton) Baehni*Planchonella sericea* (Aiton) Dubard

Shrub or tree to *c.* 15 m tall; bark dark grey to almost black, finely fissured; young foliage rusty brown. *Leaves* alternate; petiole 5–10 mm long; lamina ovate to widely ovate or elliptic, (2) 5–10 (15) cm long, (1.4) 3.5–5 (6.5) cm wide, discolorous, dark green and glabrescent above apart from the midrib, paler and sparsely to densely silky hairy below, apex obtuse or occasionally emarginate. *Inflorescence* of axillary, 3–8-flowered clusters, minutely hairy; pedicels 1–3.5 mm long. *Sepals* 5, ovate, (2.5) 3–4.2 mm long, brown, sericeous. *Corolla* white, cream, pale yellow or greenish, to *c.* 7.5 mm long, slightly constricted below lobes; lobes 5, ovate, 1.5–2 mm long, hairy outside but with narrow, glabrous margins, obtuse. *Stamens* 5, inserted near the apex of the tube, the filaments shorter than the anthers; anthers *c.* 1 mm long. *Staminodes* 5, oblong, about the length of the anther. *Ovary* beset with long hairs; style 3–4.5 (5.5) mm long, glabrous or the lower third hairy. *Berry* sessile, ovoid-ellipsoid, (14) 20–25 mm long, 10–15 mm diam., purple or black, shiny, succulent. *Seeds* 1 (2 or 3), ellipsoid, 14–19 mm long, 10–13 mm diam., smooth, uniformly pale brown or with whitish or pale yellow-brown mottling. *Flowering* most months, mainly Oct.–May. *Fruiting* most months, mainly Apr.–July.

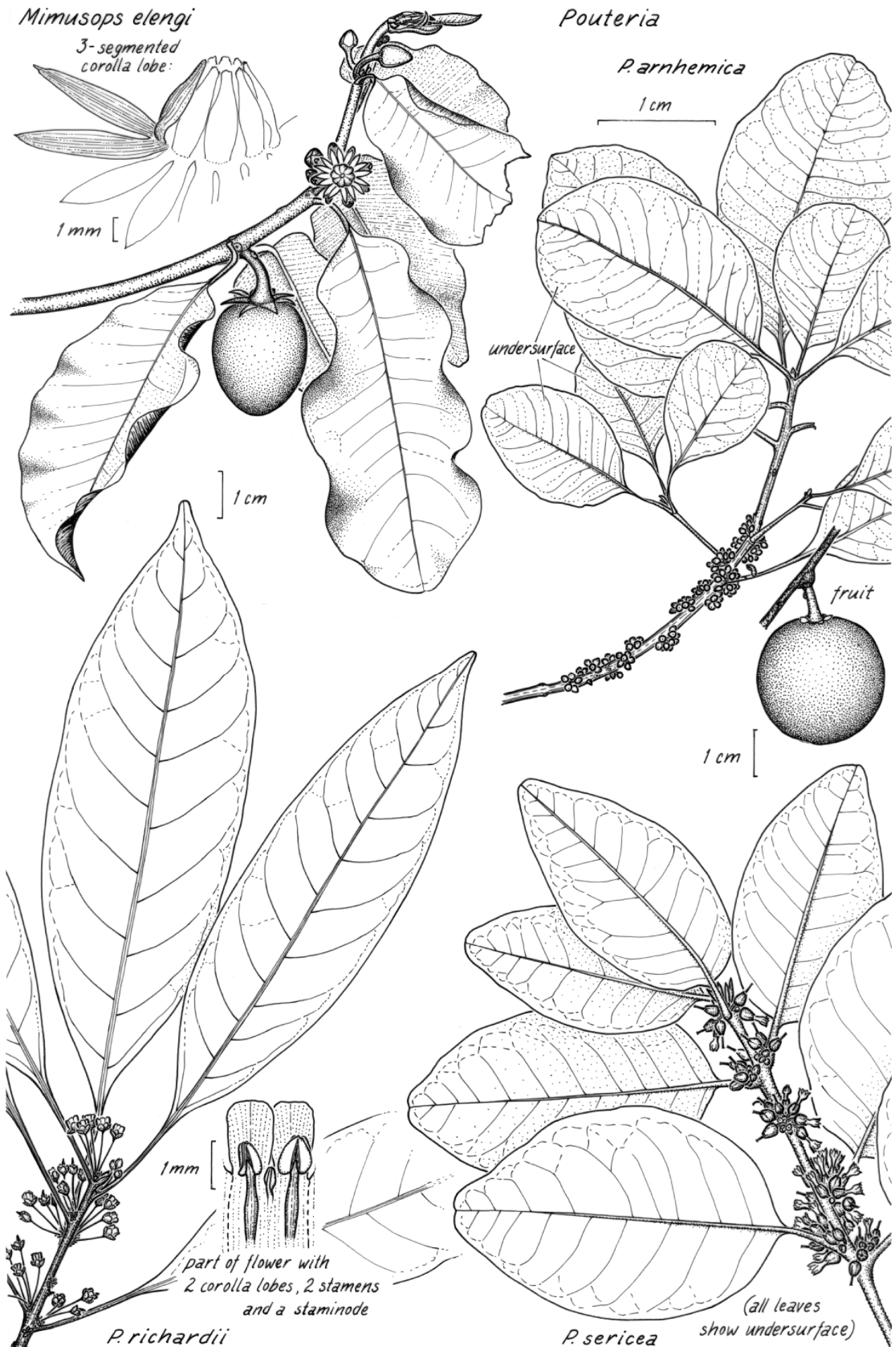


Fig. 1

Fig. 1 (*Maconochie 2561*); Pl. 4–5 (unvouchered).

Endemic to northern Australia (W.A., N.T., Qld) and in the N.T. widespread in the Top End and extending to *c.* 17° S, *e.g.* Wollgorang Station and Nicholson River. Predominantly a species of monsoon forest and vine thickets, including those

on coastal dunes, and occasionally in open forest on sandy soil.

The fruit is edible and the wood of this species is traditionally used to make spear-throwers and axe-handles (Wightman & Andrews 1989).

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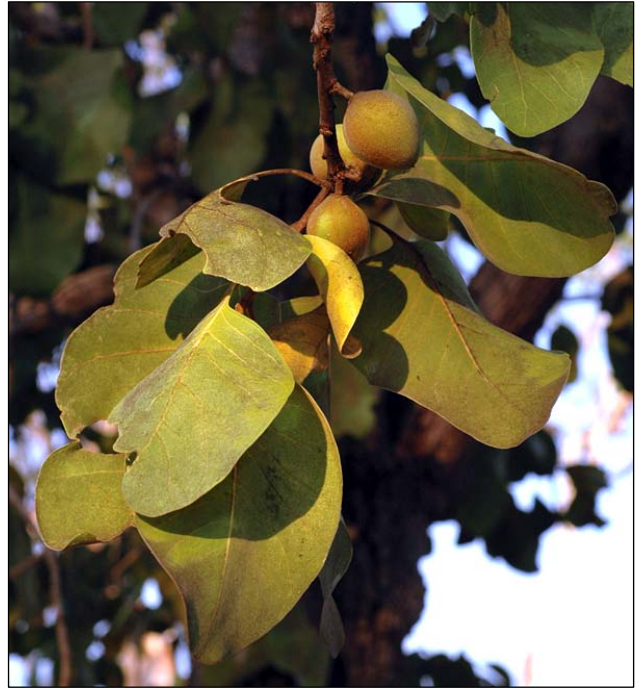
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Pl. 1 *Mimusops elengi* (Photo: I.D. Cowie)



Pl. 2 *Mimusops elengi* (Photo: J. Brock)



Pl. 3 *Pouteria arnhemica* (Photo: B.M. Stuckey)



Pl. 4 *Pouteria sericea* (Photo: N.T. Herbarium)



Pl. 5 *Pouteria sericea* (Photo: B.M. Stuckey)