

## THREE NEW MALESIAN SPECIES OF MALLOTUS SECTION HANCEA (EUPHORBIACEAE)

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### SUMMARY

Of the family Euphorbiaceae three new species of *Mallotus* Lour. [section *Hancea* (Seem.) Pax & K. Hoffm.] from Malesia are described and illustrated. *Mallotus cordatifolius* and *M. wenzelianus* from the Philippines, and *M. grandistipularis* from Central Sumatra, Indonesia.

**Key words:** Euphorbiaceae, *Mallotus*, *Hancea*, Malesia, Philippines, Sumatra.

### INTRODUCTION

*Mallotus* section *Hancea* as circumscribed by Pax & Hoffmann (1914) and Airy Shaw (1966, 1968, 1969, 1972a, 1972b, 1975, 1980a, 1980b, 1981) is readily recognisable by its strongly unequal opposite leaves. The small leaf is either narrowly triangular or cordate and never has the same shape as the opposite leaf. It is alternating with the large leaf on the subsequent nodes, which gives the species in this section an alternate leafed appearance at first glance. The inflorescences are always placed in the axil of the small leaves. The three new species described here are all characterised by these traits and are therefore placed in the section *Hancea*.

*Mallotus cordatifolius* is the most striking and easy to recognise because of the deeply cordate base and very short petiole of the large leaf, and the long simple hairs on all parts, including the upper leaf surface of the large leaf. *Mallotus grandistipularis* can be recognised by its very large ovate to obovate stipules and dense, simple indumentum of the twigs, petioles, and lower leaf surface of the large leaf. *Mallotus wenzelianus* is characterised by elliptic leaves with a cuneate base and marginal glands, persistent long narrowly triangular stipules and a dense short simple indumentum of the twigs, stipules, and petioles.

#### 1. *Mallotus cordatifolius* Slik, *spec. nov.* — Fig. 1

Arbor parva, petioli breves (c. 5 mm), lamina cordata, partium omnium indumentum pilis longis aequaliter dispositis. — Typus: PNH 117545 (*Gutierrez et al.*) (L. holo), Philippines, Samar Island, Mt Sohoton, logged-over forest, April 1970.

Small tree up to 7 m high, dbh up to 8 cm, dioecious, indumentum consisting of simple hairs only. Branches densely covered with yellowish short to long hairs, glabrescent, nodes swollen. Leaves simple, opposite, unequal, one of each pair narrowly triangular, alternating on subsequent nodes with normal leaf. Stipules persistent, narrowly triangular to linear 7–10 by 1–1.1 mm, outside densely covered with

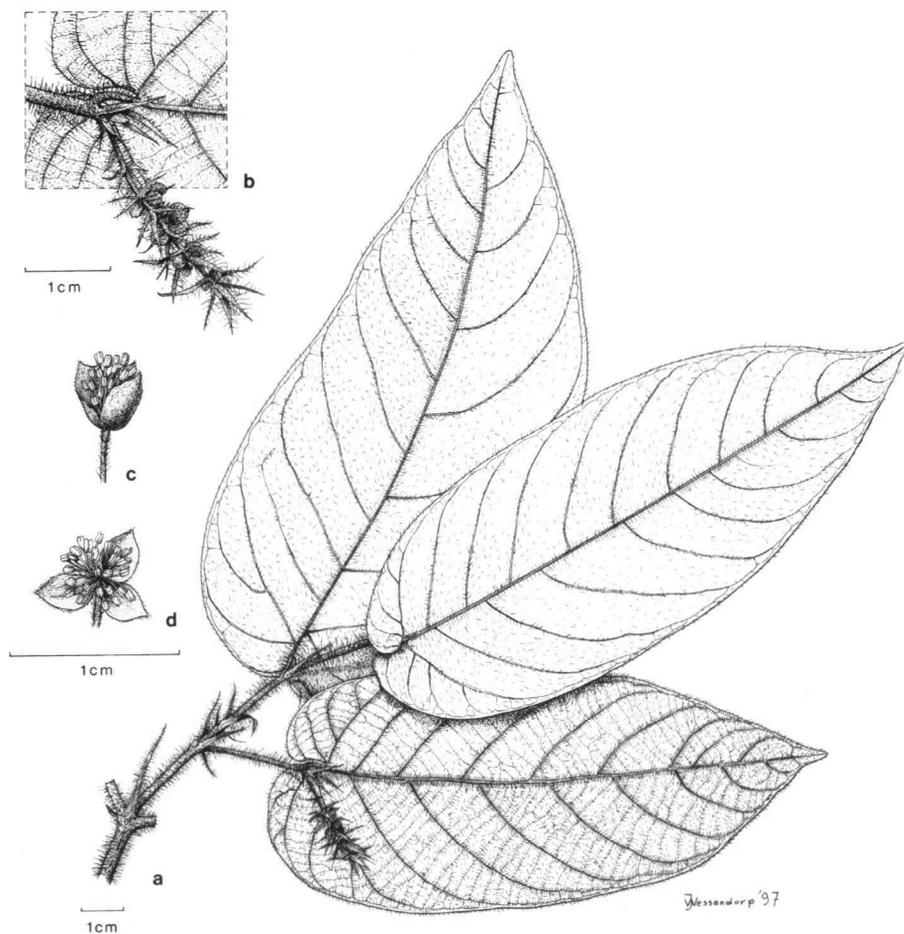


Fig. 1. *Mallotus cordatifolius* Slik. a. Habit; b. detail of leaf base and inflorescence attachment; c & d. detail of staminate flower (a–d: PNH (Gutierrez et al.) 117545; L).

short to long hairs, inside densely covered with short hairs, margin entire, apex acute. *Large leaves*: petiole 5–7 by c. 1 mm, densely covered with short to long hairs; blade ovate, 6.5–16.5 by 3.4–8.5 cm, index 2.1–2.5, chartaceous, base deeply cordate, slightly oblique, margin irregularly wavy, apex acute to acuminate; upper surface smooth, evenly covered with long hairs and small granular brownish dots over whole surface; lower surface smooth, evenly covered with long hairs, domatia along basal part of midrib; venation basally palmate to pinnate along midrib, flat above with slightly raised midrib, nerves 9–12 per side along midrib, ending parallel to margin, veins scalariform to reticulate, veinlets reticulate. *Small leaves*: petiole absent; blade (narrowly) triangular, 2–2.5 by c. 0.5 mm, margin entire, apex acute (to rounded when older), densely covered with short to long hairs on the outside, inside densely covered with short hairs. *Staminate inflorescences* in axil of reduced leaves, racemes, up to 3.5 cm long, at base c. 0.8 mm thick, solitary, densely covered with short hairs, up to

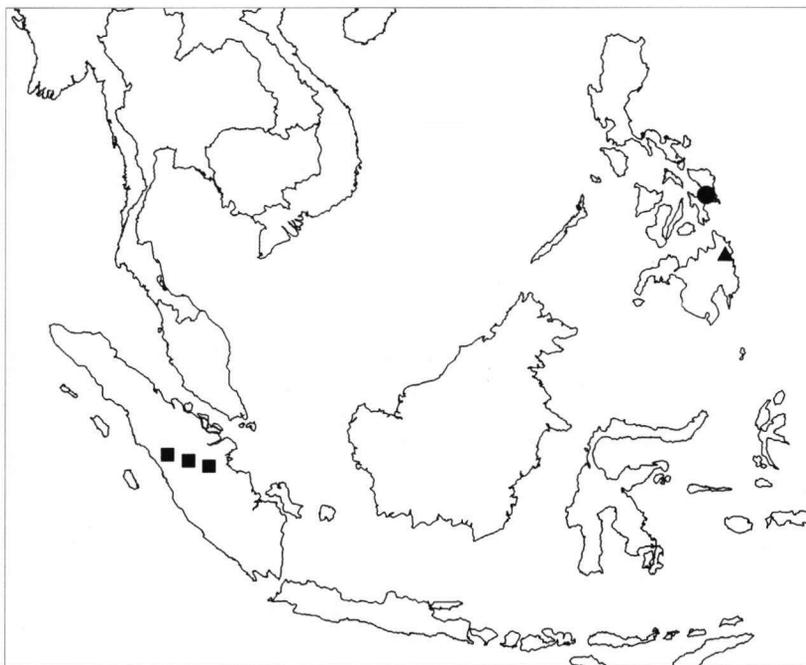
31 nodes per inflorescence, flowers alternating on nodes. *Bracts* persistent, narrowly triangular, 4.3–5 by c. 0.7 mm, patent, densely covered with short to long hairs, inside densely covered with short hairs, margin entire, apex acute. *Buds* round with acuminate tip, densely covered with short hairs. *Flowers* 4.5–5 mm diam., actinomorphic, red coloured. *Pedicels* 3.5–4.5 mm long, densely covered with short hairs. *Sepals* persistent (to caducous, then complete calyx breaking off at the base when stamens grow out), 3, ovate, 3–3.8 by 1.8–2 mm, densely covered with short hairs on the outside, inside glabrous, margin irregular, apex acuminate. *Petals* absent. *Stamens* c. 100, filaments up to 4 mm long, glabrous. *Anthers* c. 0.5 by 0.5 mm, basifixed. *Theca* 2, parallel, separated by a granulate connective, opening extrorse, lengthwise, glabrous. *Pistillate inflorescences* unknown.

*Distribution* — Only known from the type specimen, collected on Mt Sohoton, Samar Island, Philippines (Map 1).

*Habitat* — Found in disturbed, logged-over forest.

## 2. *Mallotus grandistipularis* Slik, *spec. nov.* — Fig. 2

Arbor parva. Ramuli petioli laminae pagina inferior indumento denso pilis simplicibus. Stipulae semi-persistentes grandes ovatae ad obovatae 8–22 mm longae 2.3–9 mm latae venatione parallela visibili. — *Typus*: Burley, Turkirin *et al.* 2021 (L. holo), Indonesia, Sumatra, Tigapulu Mts, Riau Prov., 5 km W of Talanglakat on Rengat-Jambi road, Bukit Karampal area, around Sesirih base camp, 100 m alt., 27 Nov. 1988.



Map 1. Distribution of *Mallotus cordatifolius* Slik (●), *M. grandistipularis* Slik (■), and *M. wenzelianus* Slik (▲).

Small tree, up to 15 m high, dbh up to 15 cm, clear bole up to 10 m, dioecious, indumentum consisting of simple hairs only; outer bark smooth, thin; inner bark thin, c. 1 mm, ochre coloured; sapwood ochre coloured. *Branches* round with hoop marks, smooth, pustular, lenticellate, densely covered with yellowish hairs, glabrescent, glands tubular to clavate, few to numerous, orange-red, nodes swollen. *Leaves* simple, oppo-

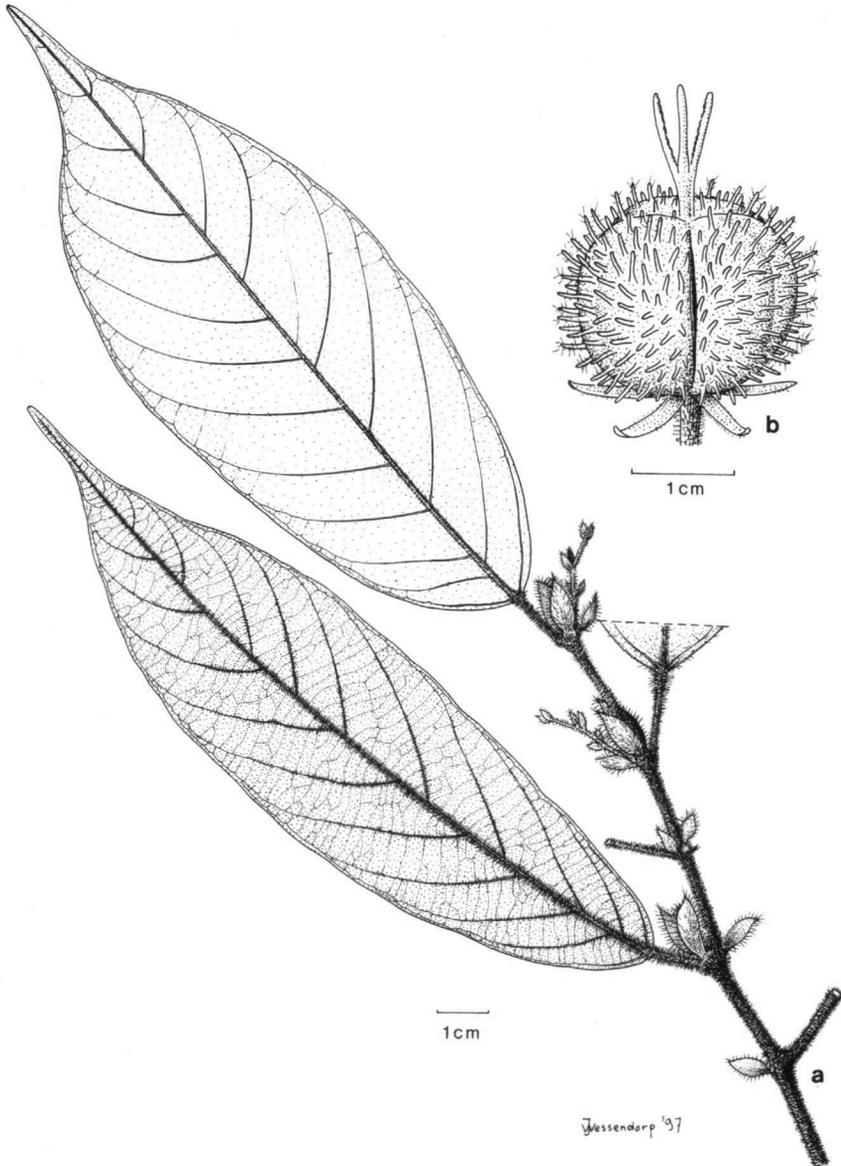


Fig. 2. *Mallotus grandistipularis* Slik. a. Habit; b. detail of fruit (reconstructed from separate parts) (a: Burley, Turkirin et al. 2021; A; b: Meijer 4201; L).

site, unequal, one of each pair narrowly triangular, alternating with normal leaf on subsequent nodes. *Stipules* semi-persistent, large, ovate to obovate, 8–22 by 2.3–9 mm, in- and outside thinly to densely hairy, margin irregular wavy to entire, with long hairs, glands tubular to clavate, few to numerous, apex acute (to acuminate or rounded), venation visible, parallel. *Large leaves*: petiole 9–45 by 1.5–2 mm, basally and especially apically pulvinate, smooth to pustular, densely covered with hairs, glands tubular to clavate, few to numerous; blade ovate to elliptical to obovate, 13.5–30.5 by 4–9.3 cm, index 2.9–4, leathery, symmetric to slightly asymmetric, base obtuse to rounded, margin entire to slightly wavy, apically sometimes slightly dentate, apex acuminate to cuspidate; upper surface smooth, mostly glabrous, with few hairs on midrib and nerves, often covered with numerous white punctate glands; lower surface smooth, thinly to densely hairy, glands tubular to clavate to punctate, inconspicuous, numerous; venation pinnate, flat above except for slightly raised midrib, nerves 10–13(–15) per side, ending parallel to margin, veins scalariform to reticulate, veinlets reticulate. *Small leaves*: petiole absent; blade obovate, 4–10 by 1.8–3.5 mm, margin entire to wavy, apex acute, hairy, especially along margin, glands tubular to clavate, numerous. *Staminate inflorescences* unknown. *Pistillate inflorescences* in axil of reduced leaves, racemes, up to 10 cm long, basally c. 1.8 mm thick, solitary, densely covered with hairs, glands tubular to clavate, few to numerous, up to 9 nodes per inflorescence, flowers alternating on nodes. *Bracts* persistent, ovate to obovate, 3–4 by 1.3–1.4 mm, few to densely covered with hairs, glands tubular to clavate, numerous on the outside, margin entire to irregular, apex acute. *Flowers* actinomorphic; bracteoles absent; pedicel 5–6 mm long, densely covered with hairs, glands tubular to clavate, numerous. *Sepals* persistent, 4–5(–6), ovate to narrowly triangular, 5.5–6 by c. 1.1 mm, recurved or not, few to densely covered with hairs, glands tubular to clavate on the outside, margin entire, apex acute. *Petals* absent. *Ovary* 3-locular, densely covered with hairs, echinate, spines 2–2.5 mm long, densely covered with hairs, apically with long hairs, spines ending in a gland. *Ovules* axillary, 1 per locule. *Style* persistent, c. 1.8 mm long, apically splitting into 3 lineate plumose stigmas, densely covered with hairs. *Stigmas* c. 9.5 mm long, densely granulate-papillated on the inside, lightly to densely covered with short to long hairs on the outside. *Fruits* 3-lobed, echinate, dehiscent capsules, green-red coloured, densely covered with short to long hairs, loculicidal, septicidal; carpel inside glabrous to covered with few hairs, glands punctate, absent to numerous. *Column* 3-lobed, c. 7.5 mm high, apically c. 3.8 mm wide, in the middle c. 1 mm thick. *Seeds* round, 4.5–5 by 3.5–4.5 by 4–5 mm, glossy, dark coloured, light area apically (and basally) of scar, the latter elliptic, 1–1.2 by 0.5–1 mm.

Distribution — Indonesia, Central Sumatra (3 collections) (Map 1).

Habitat — Found on loamy soil in lowland Dipterocarp forest on hilly terrain at 100–500 m altitude.

Vernacular name — Sumatra: tapih boreh.

### 3. *Mallotus wenzelianus* Slik, *spec. nov.* — Fig. 3

Arbor parva. Folia elliptica basi cuneata margine 9–15 glandulis. Stipulae persistentes anguste triangulares 11–20 mm longae 1.4–2.2 mm latae. Indumentum densum pilis brevibus in ramulis stipulis petiolesque. — Typus: *Wenzel 2697* (G hol.; UC, A iso), Philippines, Mindanao, Surigao Prov., Jubud, 150 m alt., in forest, 29 May 1927.



Fig. 3. *Mallotus wenzelianus* Slik. a. Habit; b. detail of inflorescence with pistillate flowers (a: Wenzel 2718; NY; b: *ibid.*; A).

Small tree up to 6.7 m high, dbh up to 15 cm, dioecious, indumentum consisting of simple hairs only. *Branches* smooth, pustular, densely covered with whitish hairs, glabrescent, glands clavate, few to numerous, reddish-orange, nodes swollen. *Leaves* simple, opposite, unequal, one of each pair narrowly triangular, alternating with normal leaf on subsequent nodes. *Stipules* persistent in upper leaves, narrowly triangular, 11–20 by 1.4–2.2 mm, outside densely covered with hairs, inside less so, glands clavate, few to numerous, especially on the outside, margin entire, apex acute. *Large leaves*: petiole 10–22 by 1.5–2 mm, basally and apically pulvinate, pustular, densely

covered with hairs, glands clavate, few to numerous; blade elliptic (to ovate), 15.2–27.1 by 4.2–9.9 cm, index 2.6–3.7, chartaceous, symmetric to asymmetric, base cuneate, margin slightly serrate, marginal glands 9–15 per side, apex cuspidate; upper surface smooth, almost glabrous except for the thinly to densely hairy midrib and nerves, few hairs on surface, glands punctate, numerous; lower surface smooth, evenly covered with hairs on midrib and nerves, glands punctate, numerous; venation pinnate, flat above except for raised midrib, nerves 9–12 per side, veins scalariform, veinlets reticulate. *Small leaves*: petiole absent; blade narrowly triangular, 3.5–12 by c. 1 mm, densely covered with hairs, less densely so on the inside, glands clavate. *Staminate inflorescences* unknown. *Pistillate inflorescences* in axil of reduced leaves, racemes, up to 11 cm long, basally c. 1 mm thick, solitary, densely covered with hairs, glands clavate, up to 6 nodes per inflorescence, flowers alternating on nodes. *Bracts* persistent, narrowly triangular, 5–11 by 0.6–1.3 mm, densely covered with hairs on the outside, inside glabrous to few hairs, glands clavate, few to numerous, margin entire, incurved, apex acute. *Flowers* actinomorphic. *Pedicels* 1.5–6 mm long, densely covered with hairs, glands clavate, few. *Sepals* persistent, 4 or 5, narrowly triangular, 8–12 by 0.9–1 mm, densely covered with hairs, inside glabrous, glands clavate, present on the outside, margin entire, apex acute. *Bracteoles* absent to rarely present, lineate, c. 3.3 by 0.2 mm, densely covered with hairs, glands clavate, few, margin entire, incurved, apex acute. *Petals* absent. *Ovary* 3-locular, densely covered with hairs, glands clavate, echinate, spines 2–4 mm long, evenly covered with hairs, apically some longer hairs. *Ovules* axillary, 1 per locule. *Style* persistent, c. 1 mm long, apically splitting into 3 lineate, plumose stigmas, densely covered with hairs. *Stigmas* up to 22 mm long, densely granulate-papillate on the inside, densely covered with hairs on the outside. *Fruits* 3-lobed, echinate, dehiscent capsules, densely covered with short hairs, glands clavate, few, loculicidal, septicidal, carpel inside hairy.

Distribution — Philippines (Surigao Prov.; 2 collections) (Map 1).

Habitat — Found in forest at 150 m altitude.

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#### INDEX OF COLLECTIONS

*Mallotus*: 1 = *M. cordatifolius*; 2 = *M. grandistipularis*; 3 = *M. wenzelianus*.

Burley, Tukirin et al. 2021: 2. — Maradjo 286: 2 — Meijer 4201: 2 — PNH (Gutierrez et al.) 117545: 1 — Wenzel 2697, 2718: 3.