

53. MITRAGYNA Korthals, *Observ. Naucl. Indic.* 19. 1839, nom. cons., not *Mitragyne* R. Brown (1810).

帽蕊木属 mao rui mu shu

Chen Tao (陈涛); Charlotte M. Taylor

Paradina Pierre ex Pitard; *Stephegyne* Korthals.

Trees, unarmed; buds flattened, with stipules erect and pressed together. Raphides absent. Leaves opposite, sometimes with domatia; stipules caducous, interpetiolar, generally ovate to obovate, sometimes keeled, entire, often well developed. Inflorescences terminal on main stems and axillary branches and often accompanied by reduced, petaloid, and/or bracteate leaves, capitate with globose heads in fascicles, cymes, umbels, or thyrses, sessile to shortly pedunculate, bracteate; bracteoles spatulate to obpyramidal. Flowers sessile, bisexual, monomorphic. Calyx limb truncate to 5-lobed. Corolla cream to yellow-green, funnellform or narrowly salverform, inside glabrous to variously pubescent; lobes 5, valvate in bud. Stamens 5, inserted near corolla throat, exserted or included; filaments short; anthers basifixed, partially to fully exserted. Ovary 2-celled, ovules numerous in each cell on fleshy, pendulous, axile placentas attached in upper third of septum; stigma clavate to mitriform (i.e., upside-down cupular), exserted. Fruit capsular, obovoid to ellipsoid, septicidally then loculicidally dehiscent, cartilaginous to woody, with calyx limb persistent or deciduous; seeds numerous, small, somewhat flattened, fusiform to lanceolate, shortly winged at both ends with basal wing sometimes bifid or notched.

About seven species: one species in Africa, six species in Asia and Malesia; three species in China.

Ridsdale reviewed this genus in detail (*Blumea* 24: 46–68. 1978) and excluded the African species. H. H. Hsue and H. Wu (in *FRPS* 71(1): 245. 1999) reported only *Mitragyna rotundifolia* from China; Ridsdale (loc. cit.: 65) reported only *M. diversifolia* from China; and Wu (*Acta Phytotax. Sin.* 6: 293. 1957) reported a third species, *M. hirsuta*, in a report that has been overlooked. Several other species of *Mitragyna* are found widely in Thailand and Myanmar, as well as cultivated for lumber, and should be expected in China (in particular, see comments under *M. diversifolia*). The leaves of *M. speciosa* (Korthals) Haviland are the source of kratom and used for tea, chewing, smoking, and as medicine in Thailand and Malaysia; the main active ingredient here is the alkaloid mitragynine, known only from this species and said to be stimulating at low doses but narcotic at high doses.

- 1a. Calyx limb deeply lobed, with lobes 1.5–2.5 mm, spatulate to oblanceolate, usually quite evident on fruit 2. *M. hirsuta*
- 1b. Calyx limb subtruncate or lobed for up to 1/2, with lobes up to 1 mm, triangular, deciduous or at least hardly evident on fruit.
 - 2a. Branch leaves 6–14 × 3–9 cm, with secondary veins strongly ascending (i.e., departing midrib at 55°–75°); corolla tube ca. 3 mm, lobes ca. 2.5 mm 1. *M. diversifolia*
 - 2b. Branch leaves 9–25 × 6–20 cm, with secondary veins spreading (i.e., departing midrib at 35°–60°); corolla tube 2–3 mm, lobes 4–5 mm 3. *M. rotundifolia*

1. *Mitragyna diversifolia* (Wallich ex G. Don) Haviland, *J. Linn. Soc., Bot.* 33: 71. 1897.

异叶帽蕊木 yi ye mao rui mu

Nauclea diversifolia Wallich ex G. Don, *Gen. Hist.* 3: 467. 1834; *Stephegyne diversifolia* (Wallich ex G. Don) J. D. Hooker.

Trees, perhaps deciduous, to 15 m tall; branches angled becoming terete, pilosulous to glabrescent. Petiole 5–15 mm, glabrous, puberulent, or pilosulous; leaf blade drying papery, ovate-oblong to elliptic-ovate, 6–14 × 3–9 cm, adaxially glabrous, abaxially sparsely to densely pilosulous or tomentulose, base rounded to cordulate, apex obtuse to shortly acuminate; secondary veins 8 or 9 pairs, strongly ascending, sometimes with pilosulous domatia in abaxial axils; stipules elliptic-oblong to ovate, ca. 2.5 cm, strigillose to glabrous, abaxially weakly to strongly keeled and pilosulous, apex obtuse to rounded. Inflorescence densely pilosulous or strigillose to glabrescent; peduncles 1–3 mm (i.e., portion above articulation of subtending leaves but not including entire growth of branch); flowering heads 3 to numerous, 8–10 mm in diam. across calyces, 13–20 mm in diam. across corollas; bracteoles linear-spatulate, ca. 3

mm, glabrous to sparsely ciliolate. Calyx glabrous; ovary portion obconic, ca. 1.5 mm; limb ca. 1.5 mm, subtruncate to lobed for up to ca. 1/2; lobes triangular, obtuse. Corolla yellowish white, outside glabrous, inside densely pilosulous in throat and on lobes; tube ca. 3 mm; lobes triangular, ca. 2.5 mm, acute. Fruiting heads 8–10 mm in diam. Capsules 3–4 mm, with persistent calyx limb markedly thickened; seeds 1–2 mm. Fl. [Feb, Jul, Aug], fr. [Jan, Mar, Dec].

Forests; [300–400 m]. Yunnan [Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

This species seems to be similar to and at least sometimes confused with the commonly collected *Mitragyna parvifolia* (Roxburgh) Korthals; these species differ at least in their corollas, with the tube 5–6 mm and substantially longer than the lobes ca. 2 mm in *M. parvifolia*, vs. the tube ca. 3 mm and less than twice as long as the lobes ca. 2.5 mm in *M. diversifolia*. Ridsdale (*Blumea* 24: 63–65. 1978) reported a difference in the distribution of these, with *M. parvifolia* primarily found in India and Sri Lanka and *M. diversifolia* to the north and east of this, including China. Puff et al. (*Rubiaceae of Thailand*, 46. 2005) noted that in Thailand *M. diversifolia* is most often found in deciduous vegetation and is common in secondary vegetation, in particular in edges along fields.

2. *Mitragyna hirsuta* Haviland, J. Linn. Soc., Bot. 33: 72. 1897.

毛帽蕊木 mao mao rui mu

Paradina hirsuta (Haviland) Pitard.

Trees, deciduous, to 20 m tall; branches angled to terete, densely pilosulous to glabrescent. Petiole 5–30 mm, glabrous to densely pilosulous; leaf blade drying stiffly papery, suborbicular to broadly elliptic or ovate, 8–18(–30) × 2–12(–20) cm, adaxially glabrous, abaxially sparsely to densely pilosulous or rarely glabrescent, base broadly obtuse to cordulate, apex rounded to acute; secondary veins 6–12 pairs, spreading, sometimes with pilosulous domatia in abaxial axils; stipules elliptic-oblong to ovate, 10–20 × 8–15 mm, pilosulous and weakly keeled, apex obtuse to rounded. Inflorescences densely puberulent to pilosulous; flowering heads sessile, 7 to numerous, 10–12 mm in diam. across calyces, 20–25 mm in diam. across corollas; bracteoles linear-spatulate, 2.5–3.5 mm, glabrous to sparsely pubescent and/or ciliolate. Calyx glabrous; ovary portion obconic, 1.2–2 mm; limb deeply lobed; lobes oblanceolate to spatulate, 1.5–2.5 mm, entire to ciliolate. Corolla yellow, outside glabrous, inside densely hairy; tube 5–6 mm; lobes narrowly elliptic, 2–2.5 mm, acute. Fruiting heads 15–20 mm in diam. Capsules 5–8 mm, weakly ridged; seeds ca. 1 mm. Fl. [Jun–Jul, Dec], fr. [Apr, Dec].

Forests; [100–1500 m]. Yunnan [Cambodia, Laos, Myanmar, Thailand, Vietnam].

This species was illustrated by Ridsdale (Blumea 24: 60, f. 6. 1978).

3. *Mitragyna rotundifolia* (Roxburgh) Kuntze, Revis. Gen. Pl. 1: 289. 1891.

帽蕊木 mao rui mu

Nauclea rotundifolia Roxburgh, Fl. Ind. 2: 124. 1824; *Mitragyna brunonis* (Wallich ex G. Don) Craib; *N. brunonis* Wallich ex G. Don.

Trees, perhaps deciduous, to 30 m tall; branches angled to subterete, glabrous to glabrescent. Petiole 15–60 mm, glabrous to densely pilosulous; leaf blade drying papery, suborbicular to broadly elliptic or ovate, 9–25 × 6–20 cm (to 75 cm on seedlings and sprouts), adaxially glabrous to puberulent, abaxially sparsely to densely pilosulous or tomentulose, base rounded to cordate, apex rounded to obtuse; secondary veins 5–7 pairs, spreading, sometimes with pilosulous domatia in abaxial axils; stipules elliptic-oblong to ovate, 13–50 × 5–30 mm, pilosulous, keeled, apex obtuse to rounded. Inflorescences densely puberulent to pilosulous; peduncles 1–3 mm (i.e., portion above articulation of subtending leaves but not including internode below node bearing inflorescence); flowering heads 1–5, 7–10 mm in diam. across calyces, 15–20 mm in diam. across corollas; bracteoles linear-spatulate, 1–1.5 mm, glabrous or sparsely pubescent. Calyx glabrous; ovary portion 1.5–3 mm; limb ca. 0.5 mm, subtruncate to lobed for ca. 1/2; lobes triangular, obtuse. Corolla yellowish white, outside glabrous, densely hairy inside; tube 2–3 mm; lobes narrowly oblanceolate, 4–5 mm, acute. Fruiting heads 10–16 mm in diam. Capsules 3–5 mm, weakly ridged, with persistent calyx thickened; seeds ca. 1 mm. Fl.

[Aug–Nov], fr. Sep, Dec.

Dense forests; ca. 1000 m. S Yunnan [Bangladesh, India, Laos, Myanmar, Thailand].

This species was illustrated by Ridsdale (Blumea 24: 66, f. 8. 1978). Puff et al. (Rubiaceae of Thailand, 46. 2005) noted that in Thailand this species is most often found in deciduous vegetation and is common in secondary vegetation.

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