

22. Tribe SESBANIEAE

田菁族 tian jing zu

Sun Hang (孙航); Bruce Bartholomew

Herbs, shrubs, or rarely trees, deciduous. Stipules small, caducous. Leaves paripinnate; petiole and rachis often adaxially grooved; stipels small or absent; leaflets numerous, petiolulate; leaflet blades with entire margin. Racemes axillary at apical part of branches; bracts and bracteoles subulate, caducous. Pedicel slender. Calyx broadly campanulate; teeth 5, subequal, rarely nearly 2-labiate. Corolla yellow or with spots, rarely white, red, or dark purple, exerted from calyx, glabrous; standard broad, with 2 calluses on claw; wings falcate-oblong, auriculate; keel curved, abaxial margin connate, auriculate, claw longer than standard claw. Stamens diadelphous (9+1); anthers homomorphic, dorsifixed, 2-loculed, longitudinally dehiscent, often glabrous. Ovary linear, many ovuled, stipitate; style slender and curved; stigma small, capitate, terminal. Legume often long, linear, and terete, many seeded, trabeculate between seeds, dehiscent at maturity, base with a carpopodium, apex beaked. Seeds terete; hilum rounded.

One genus and ca. 60 species: tropical, subtropical, and warm-temperate regions of Africa, America, Asia, and Australia; four species (three or four introduced) in China.

135. SESBANIA Scopoli, *Intr. Hist. Nat.* 308. 1777, nom. cons.

田菁属 tian jing shu

Agati Adanson; *Resupinaria* Rafinesque; *Sesban* Adanson.

Morphological characters and geographic distribution are the same as those of the tribe.

Sesbania javanica Miquel, reported from Taiwan in FRPS (40: 234. 1994), is based on a misidentification of *S. cannabina* (see T. C. Huang & H. Ohashi, *Fl. Taiwan*, ed. 2, 3: 362. 1993).

- 1a. Trees; leaflet blades 8–16 mm wide; flowers 7–10 cm, falcately curved in bud; legume 7–8 mm wide 4. *S. grandiflora*
1b. Herbs, annual or perennial and suffrutescent; leaflet blades 2–4(–7) mm wide; flowers usually less than 2 cm, not or only slightly falcately curved in bud; legume 2.5–4 mm wide.
2a. Leaves 20–40-foliolate; leaf rachis 4–10 cm, internodes often less than 3 cm, node often gibbous; corolla standard 1.1–1.3 cm 3. *S. sesban*
2b. Leaves 40–80-foliolate; leaf rachis 13–30 cm, internodes often more than 3 cm, node not gibbous; corolla standard 0.9–1 cm.
3a. Branchlets, leaf rachises, and flower rachises without prickles; leaflet blades adaxially ± villous when young, glabrescent; standard wider than long 1. *S. cannabina*
3b. Branchlets, leaf rachises, and flower rachises with ± projected prickles; leaflet blades usually glabrous; standard longer than wide 2. *S. bispinosa*

1. *Sesbania cannabina* (Retzius) Poiret, *Encycl.* 7: 130. 1806.

田菁 tian jing

Aeschynomene cannabina Retzius, *Observ. Bot.* 5: 26: 1789.

Herbs, annual, 3–3.5 m tall. Stems green or sometimes brown, smooth, with inconspicuous light greenish stripes, slightly glaucous, basally with many adventitious roots; young branches sparsely appressed villous, glabrescent, with white mucilage when broken. Stipules lanceolate, caducous. Leaves 40–60(–80)-foliolate; rachis 15–25 cm, sparsely appressed villous when young, glabrescent, adaxially grooved; petiolules ca. 1 mm, with sparsely appressed trichomes; stipels subulate, subequal to petiolules or shorter, persistent; leaflet blades opposite or subopposite, linear-oblong, 8–20(–40) × 2.5–4(–7) mm, smaller at both ends of rachis than in middle, both surfaces with appressed purplish glands but abaxially denser, abaxially sparsely appressed villous when young but glabrescent, adaxially glabrous, both ends asymmetric, base rounded, apex blunt to truncate and mucronate. Racemes 3–10 cm, 2–6-flowered, lax; peduncle slender, pendulous, sparsely appressed villous; bract linear-lanceolate, caducous. Pedicel slender, pendulous,

sparsely appressed villous; bracteoles 2, caducous. Calyx obliquely campanulate, 3–4 mm, glabrous; teeth triangular, with 1–3 appendages between each, inner margin white slender pilose, apex acute. Corolla yellow; standard lamina transversely ovate to suborbicular, 9–10 mm, with a ca. 2 mm claw, base subrounded and with a small pyriform callus, apex retuse to rounded; wings obovate-oblong, ± as long as standard, ca. 3.5 mm wide, with transverse corrugation, base shortly auriculate, middle with dark grayish brown spots; keel broadly triangular-ovate, shorter than wings, as long as wide, with a ca. 4.5 mm claw, apex obtuse. Anthers ovate to oblong. Pistil glabrous; stigma capitate. Legume long terete, slightly curved, 12–22 cm × 2.5–3.5 mm, dehiscent, outside with dark brown stripes, trabeculate between seeds, carpopodium ca. 5 mm, apex acute and with a 5–7(–10) mm beak. Seeds 20–35 per legume, greenish brown, terete, ca. 4 × 2–3 mm, glossy; hilum rounded, slightly oblique to one end. Fl. and fr. Jul–Dec. *2n* = 24.

Cultivated and sometimes naturalized in open wastelands and paddy field margins. Anhui, Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Nei Mongol, Shandong, Shanxi, Taiwan, Yunnan, Zhejiang [probably native to Australia and SW Pacific islands].

This species is widely cultivated for fibers and often naturalized in Africa, Asia, Australia, Indian Ocean Islands, and Pacific islands.

2. *Sesbania bispinosa* (Jacquin) W. Wight, U.S.D.A. Bur. Pl. Industr. Bull. 137: 15. 1909.

刺田菁 *ci tian jing*

Aeschynomene bispinosa Jacquin, Icon. Pl. Rar. 3: 13. 1792.

Herbs, perennial, suffrutescent, 1–3 m tall. Branches terete, slightly with greenish white striations, often with small sparse flattened prickles. Stipules linear-lanceolate, ca. 7 × 1 mm, caducous, glabrous, apex acuminate. Leaves 40–80-foliolate; rachis 13–30 cm, abaxially with sparse prickles, adaxially grooved; stipels acerose, slender; leaflet blades linear-oblong, 10–16 × 2–3 mm, both surfaces with dense appressed purplish brown glands and glabrous, abaxially grayish green, adaxially green, base rounded, apex obtuse and with a mucro. Racemes 5–10 cm, 2–6-flowered; peduncle often with prickles; bracts linear-lanceolate, ca. 3 mm, caducous, with sparse appressed trichomes. Flowers 0.9–1.2 cm. Pedicel 6–8 mm, slender; bracteoles 2, ovate-lanceolate, caducous, glabrous. Calyx campanulate, ca. 4 mm, glabrous; teeth 5, shortly triangular. Corolla yellow; standard subovate, ca. 1 cm, longer than wide, outside with reddish brown dots, with a triangular callus, base tapering into a claw, apex retuse; wings oblong, with long claw, auriculate at one side; keel long obovate, with a dentiform auricle at base. Stamens 0.9–1.2 cm; anthers obovoid, outer side brown. Pistil linear, as long as stamens; style slender; stigma capitate. Legume dark brown, terete, straight to slightly falcate, 15–22 cm × ca. 3 mm, trabeculate, slightly constricted and with a ca. 5 mm separation between seeds, apical beak 1–1.2 cm. Seeds numerous per legume, subterete, ca. 3 × 2 mm; hilum rounded. Fl. and fr. Aug–Dec. $2n = 12, 13, 14$.

Moist places on mountain slopes and roadsides; below ca. 2000 m. Chongqing, Guangdong, Guangxi, Hainan, SW Sichuan, Yunnan [Bangladesh, Cambodia, India, Indonesia, Kashmir, Malaysia, Myanmar, Pakistan, Sri Lanka, Thailand, Vietnam; Africa, Indian Ocean islands, Madagascar, Pacific Ocean islands].

The original distribution is uncertain, as this species is probably naturalized rather than native in some parts of its current distribution.

3. *Sesbania sesban* (Linnaeus) Merrill, Philipp. J. Sci., C, 7: 235. 1912.

印度田菁 *yin du tian jing*

Herbs, perennial, suffrutescent, 2–4 m tall. Branches pubescent, glabrescent, internodes often 0.5–2.5 cm, nodes conspicuously gibbous. Stipules triangular-lanceolate, 3–4 mm, caducous, pubescent. Leaves 20–40-foliolate; petiole and rachis appressed pubescent, more so at petiole base; rachis 4–10 cm; petiolules appressed pubescent; stipels acerose; leaflet blades oblong to linear, 1.3–2.5 cm × 3–4(–6) mm, both surfaces with purplish black glands, abaxially sparsely appressed pubescent when young but glabrescent, adaxially glabrous or glabrescent, midvein evident on both surfaces, base obliquely rounded, apex rounded to retuse and mucronate. Racemes 4–10-flowered; peduncle 8–10 cm, slender, pubescent, glabrescent; bracts linear-lanceolate, caducous, abaxially sparsely appressed pubescent.

Pedicel ca. 8 mm, slender, pubescent when young; bracteoles smaller than bracts, caducous. Calyx campanulate; teeth shortly triangular, inside appressed pubescent to glabrescent. Corolla yellow or calyx and standard purplish black and wings and keel partly purplish black or red; standard transversely elliptic, 1.1–1.3 cm, wider than long, with a 4–5 mm claw, with a S-shaped callus ca. 2 mm, basally decurrent to lamina, widened in middle, and distinct and acuminate to obtuse at apex, base subcordate, apex emarginate; wings oblong, 1–1.2 cm, with a curved ca. 4 mm claw, base inconspicuously auriculate, apex rounded; keel nearly semicircular, 6–8 × 5–7 mm, lamina base narrower than apex and with a triangular short auricle, claw ± as long as calyx. Stamen tube 8–10 mm; anthers ellipsoid. Ovary glabrous; style ca. 5 mm, glabrous; stigma globose. Legume contorted when young but straight or slightly curved at maturity, subterete, 15–23(–30) cm × 3–4 mm, ca. 5 mm between transverse septa, base often with a marcescent calyx, apex beaked. Seeds 20–40 per legume, subterete, 3–4 × ca. 2 mm, slightly compressed; hilum rounded and concave. $2n = 12, 24$.

Cultivated and sometimes naturalized in wastelands, roadsides, riversides, mountain slopes, streamsides; below 300–1300 m. Guangdong, Hainan, Taiwan, Yunnan [origin uncertain; cultivated throughout the tropics].

- 1a. Corolla yellow; corolla standard callus acuminate at apex 3a. var. *sesban*
 1b. Calyx and standard purplish black, wings and keel partly purplish black or red; corolla standard callus blunt at apex 3b. var. *bicolor*

3a. *Sesbania sesban* var. *sesban*

印度田菁(原变种) *yin du tian jing* (yuan bian zhong)

Aeschynomene sesban Linnaeus, Sp. Pl. 2: 714. 1753.

Corolla yellow; corolla standard callus acuminate at apex.

Cultivated and sometimes naturalized in wastelands, roadsides, and riversides; below ca. 300 m. Guangdong, Hainan, Taiwan [Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Pakistan, Thailand, Vietnam; SW Asia, N Australia].

This taxon is probably native to tropical Asia, but its original natural distribution is uncertain due to it being widely naturalized in disturbed habitats.

3b. *Sesbania sesban* var. *bicolor* (Wight & Arnott) F. W. Andrews, Fl. Pl. Sudan 2: 232. 1952.

元江田菁 *yuan jiang tian jing*

Sesbania aegyptiaca Poiret var. *bicolor* Wight & Arnott, Prodr. Fl. Ind. Orient. 214. 1834.

Calyx and standard purplish black, wings and keel partly purplish black or red; corolla standard callus blunt at apex.

Mountain slopes, roadsides, streamsides; 300–1300 m. Naturalized in Yunnan [probably native to India].

4. *Sesbania grandiflora* (Linnaeus) Persoon, Syn. Pl. 2: 316. 1807.

大花田菁 *da hua tian jing*

Robinia grandiflora Linnaeus, Sp. Pl. 2: 722. 1753; *Resupinaria grandiflora* (Linnaeus) Rafinesque.

Trees, 4–10 m tall, d.b.h. to 25 cm. Branches terete, leaf scars and stipule scars conspicuous. Stipules obliquely lanceolate, to 8 mm, caducous. Leaves 20–40 cm, 20–60-foliolate; rachis terete, densely appressed pubescent when young, glabrescent; petiolules 1–2 mm; stipels acerose; leaflet blades oblong, 2–5 × 0.8–1.6 cm, smaller at both ends of rachis than in middle, both surfaces with or without dense appressed purplish brown glands and appressed villous but glabrescent, secondary veins 7 or 8 on each side of midvein but inconspicuous, base rounded to broadly cuneate, apex obtuse to retuse and with a mucro. Racemes 4–7 cm, pendulous, 2–4-flowered; bract and bracteoles ovate to ovate-lanceolate, 7–10 mm, caducous, both surfaces appressed pubescent. Flowers 7–10 cm, conspicuously falcately curved in bud. Pedicel 1–2 cm, densely appressed pilose. Calyx green, campanulate, 1.8–2.9 × 1.5–2 cm, sometimes with dots, often sub-bilabiate to subtruncate with adaxial 2 teeth connate, outside glabrous except for teeth apex, inside with appressed hairs. Corolla white, pink, or rosy; standard oblong-obovate to broadly ovate, 5–7.5 × 3.5–5 cm, reflexed at anthesis, callus ab-

sent, claw ca. 1.6 cm, base subcordate, apex retuse; wings falcately long ovate, asymmetric, ca. 5 × 2 cm, claw ca. 2 cm, apex obtuse; keel curved, ca. 5 cm, claw ca. 2 cm, limbs with basal abaxial edges connate, apical 1/4–1/3 free, apex obtuse. Stamens ca. 9 mm; anthers linear, 4–5 mm, dorsifixed. Pistil linear, ca. 8 cm, compressed, falcately curved, glabrous; ovary stipitate; stigma slightly turgid. Legume linear, slightly curved, nodding, 20–60 cm × 7–8 mm, ca. 8 mm thick, dehiscent, carpodium ca. 5 cm, suture angulate at maturity, apex tapering into a 3–4 cm beak. Seeds reddish brown, ellipsoid to subreniform, ca. 6 × 3–4 mm, slightly compressed, turgid, slightly glossy; hilum rounded, retuse. Fl. and fr. Sep–Apr. $2n = 24$.

Cultivated in Fujian, Guangdong, Guangxi, Hainan, Taiwan, and Yunnan [probably native to Indonesia and Malaysia].

This species is cultivated throughout the tropics. The flowers are large and beautiful, and the species is grown as an ornamental. The young leaves and flowers are edible, and the bark is used medicinally.