

79. **CANAVALIA** Adanson, Fam. Pl. 2: 325, 531. 1763 [*“Canavali”*], nom. cons.

刀豆属 *dao dou shu*

Wu Delin (吴德邻 *Wu Te-lin*); Mats Thulin

Herbs, annual or perennial. Stems twining, prostrate, or suberect. Leaves pinnately 3-foliolate; stipules small, wartlike or inconspicuous; stipels present, deciduous. Racemes axillary; bracts and bracteoles minute, deciduous. Flowers purple-violet, rose, or whitish, solitary or 2–6 clustered at swollen nodes. Calyx campanulate, 2-lipped, upper lip larger, truncate or 2-lobed, lower lip small or minute, entire or 3-toothed. Corolla longer than calyx; petals shortly clawed; standard large, suborbicular, reflexed; wings narrow, falcate, sometimes slightly twisted, free; keel broader than wings, incurved, obtuse or beaked, beak inflexed or spirally twisted, shorter than standard. Stamens monadelphous; anthers uniform. Ovary shortly stipitate, many ovuled; style incurved, beardless. Legumes large, ligulate or linear-oblong to oblong, compressed or slightly turgid, with prominent rib along ventral suture and extra ribs parallel and close to it, dehiscent by twisting of valves. Seeds 10–15, elliptic or oblong; hilum linear.

About 50 species: distributed in tropical and subtropical regions; five species (two introduced) in China.

- 1a. Plants subshrubby, erect or almost so; calyx upper lip subequal to calyx tube; seeds white 1. *C. ensiformis*
- 1b. Plants twining; calyx upper lip shorter than calyx tube; seeds brown or red.
 - 2a. Leaflets with acuminate apex; legumes 20–35 × 3.5–6 cm; seeds ca. 3.5 cm 2. *C. gladiata*
 - 2b. Leaflets with acute, truncate, or rounded apex; legumes 6–12 × 2–4.5 cm; seeds 1.3–1.8 cm.
 - 3a. Upper lobes of calyx with apiculate apex 3. *C. lineata*
 - 3b. Upper lobes of calyx without apiculate apex.
 - 4a. Leaflets with acute or rounded apex, not emarginate; legumes oblong, 7–9 × 3.5–4.5 cm; seeds brown-black, ca. 1.8 cm 4. *C. cathartica*
 - 4b. Leaflets with rounded or truncate apex, often emarginate, rarely acuminate; legumes linear-oblong, 8–12 × 2–2.5 cm; seeds brown, 1.3–1.5 cm 5. *C. rosea*

1. **Canavalia ensiformis** (Linnaeus) Candolle, Prodr. 2: 404. 1825.

直生刀豆 *zhi sheng dao dou*

Dolichos ensiformis Linnaeus, Sp. Pl. 2: 725. 1753.

Herbs, annual, subshrubby, 0.6–1(–2) m, wholly pubescent or glabrescent. Stipules small, deciduous; leaflets thin, ovate or elliptic, 8–18 × 5–8 cm, base cuneate or rounded, apex acute. Racemes solitary, 15–25(–40) cm including peduncle. Flowers 1–5 at nodes of rachis. Calyx ca. 1.5 cm, upper lip truncate, as long as calyx tube, lower lip with deltoid lobes. Corolla purplish or white and purple; standard ca. 2.2 cm in diam., base with 2 semiorbicular, reflexed auricles, claw flat and broad, ca. 5 mm; wings obovate-oblong; keel auriculate and clawed. Legumes thickly leathery, ligulate, 20–30 × 2.5–4 cm, each valve with extra rib ca. 5 mm from sutural rib. Seeds white, elliptic, ca. 3 × 2 cm; hilum not more than 1.5 cm. Fl. May–Jul, fr. Oct.

Cultivated. Guangdong, Hainan, Taiwan [native to Central America and West Indies; widely cultivated in tropical and subtropical regions].

This species is used as a green manure and forage.

2. **Canavalia gladiata** (Jacquin) Candolle, Prodr. 2: 404. 1825.

刀豆 *dao dou*

Dolichos gladiatus Jacquin, Collectanea 2: 276. 1788; *Canavalia ensiformis* (Linnaeus) Candolle var. *gladiata* (Jacquin) Kuntze; *C. gladiolata* Sauer.

Herbs, climbing, several meters tall. Leaflets ovate, 8–20 × 8–12 cm, sparsely whitish or brown pubescent on both surfaces, base rounded or cuneate, apex acuminate. Racemes 10–20-flowered; peduncles 20–25 cm. Flowers 2 or 3 clustered at

each node. Calyx 15–16 mm, slightly pubescent, upper lip rounded, lower lip with 3 acute teeth. Corolla white or pink, 3–3.5 cm; petals clawed and auriculate; standard broadly elliptic, 3–3.5 × ca. 2.5 cm, emarginate; wings and keel oblong, incurved, smaller than standard. Legumes linear-oblong, slightly curved, 20–35 × 3.5–6 cm, thickly leathery, each valve with extra rib ca. 5 mm from sutural rib. Seeds reddish brown, elliptic-oblong, ca. 3.5 × 2 cm; hilum ca. 1.5 cm. Fl. Jul–Sep, fr. Oct.

Widely cultivated in areas S of the Chang Jiang [domesticated in Asia; widely cultivated in the tropics].

Originally cultivated in E Asia and now widely cultivated in the tropics, this plant is not known out of cultivation, except as an escape.

The legumes and seeds are edible. It is also grown as a green manure and forage.

3. **Canavalia lineata** (Thunberg ex Murray) Candolle, Prodr. 2: 404. 1825.

狭刀豆 *xia dao dou*

Dolichos lineatus Thunberg ex Murray, Syst. Veg., ed. 14, 658. 1784.

Herbs, perennial, twining. Leaflets ovate or obovate, 6–14 × 4–10 cm, sparsely pubescent on both surfaces, base truncate or cuneate, apex rounded or cuspidate. Racemes axillary. Calyx ca. 12 mm, pubescent, upper lip broadly 2-lobed and lobes apiculate at apex, lower lip 3-lobed, small, subtruncate. Corolla purplish red; standard broadly ovate, ca. 2.5 cm, emarginate, base with 2 thickenings, auriculate; wings linear-oblong, slightly falcate; keel obovate-oblong. Legumes oblong, compressed, 6–10 × 2.5–3 cm, each valve with extra rib ca. 3 mm from sutural rib. Seeds brown, 2 or 3, ovate, ca. 1.7 × 0.7 cm, blotched. Fl. and fr. Jun–Oct.

Sandy beaches. Fujian, Guangdong, Guangxi, Taiwan, Zhejiang [Cambodia, Indonesia, Japan, Korea, Philippines, Vietnam].

4. *Canavalia cathartica* Thouars, J. Bot. Agric. 1: 81. 1813.

小刀豆 *xiao dao dou*

Canavalia ensiformis (Linnaeus) Candolle var. *turgida* (Graham ex A. Gray) Baker; *C. microcarpa* (Candolle) Piper; *C. turgida* Graham ex A. Gray; *Lablab microcarpus* Candolle.

Herbs, biennial, robust, twining. Stems and branches sparsely pubescent. Leaflets ovate, 6–10 × 4–9 cm, sparsely white pubescent on both surfaces, base broadly cuneate, truncate, or rounded, apex acute or rounded. Racemes with 1–3 flowers at each node of rachis. Calyx ca. 12 mm, pubescent, upper lip with rounded lobes, shorter than tube, lower lip with 3 teeth. Corolla pink or purplish, 2–2.5 cm; standard orbicular, ca. 2 × 2.5 cm, with 2 thickenings near base, clawed, apex emarginate; wings and keel curved, ca. 2 cm. Legumes oblong, 7–9 × 3.5–4.5 cm, turgid, apex rostrate. Seeds brownish black, elliptic, ca. 18 × 12 mm, hard and smooth; hilum 10–14 mm. Fl. and fr. Apr–Oct.

Seashores, riverbanks. Guangdong, Hainan, Taiwan [widely distributed in tropical Asia and some areas of Africa and Australia].

5. *Canavalia rosea* (Swartz) Candolle, Prodr. 2: 404. 1825.

海刀豆 *hai dao dou*

Dolichos roseus Swartz, Prodr. 105. 1788; *Canavalia maritima* Thouars; *C. obcordata* (Roxburgh) Voigt; *C. obtusifolia* (Lamarck) Candolle; *D. maritimus* Aublet; *D. obcordatus* Roxburgh; *D. obtusifolius* Lamarck.

Herbs, robust, twining. Stems sparsely puberulent. Leaflets obovate, ovate, elliptic, or suborbicular, 5–8(–14) × 4.5–6.5(–10) cm, pilose on both surfaces, base cuneate to rounded, apex rounded, truncate, emarginate, or mucronate. Racemes axillary, to 30 cm including peduncle. Flowers 1–3 clustered at each node. Calyx 1–1.2 cm, pubescent, upper lip semiorbicular, 3–4 mm. Corolla purple; standard orbicular, ca. 2.5 cm, apex emarginate; wings falcate, auriculate; keel oblong, curved, auriculate. Legumes linear-oblong, 8–12 × 2–2.5 cm, apex rostrate, each valve with extra rib ca. 3 mm from sutural rib. Seeds brown, elliptic, 13–15 × ca. 10 mm; hilum ca. 10 mm. Fl. Jun–Jul.

Sandy beaches. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Zhejiang [tropical coastal areas].

For the nomenclature of *Canavalia rosea*, see Aymard in Ernstia (8: 19–25. 1998).

