

163. TRIGONELLA Linnaeus, Sp. Pl. 2: 776. 1753.

胡卢巴属 hu lu ba shu

Annual or perennial herbs. Stem erect, spreading or prostrate, much branched. Leaves pinnately 3-foliolate; stipules adnate to petiole, conspicuously veined; terminal leaflet usually larger, margin \pm serrulate or incised, lateral veins running out into teeth. Inflorescence axillary, shortly racemose, capitate, subumbellate, or flower solitary; peduncles elongate in fruit. Pedicels short, often less than 5 mm, thickened after flowering; bracts minute; bracteoles absent. Calyx teeth \pm equal. Petals yellow, blue, purple, or white, free from staminal tube; standard obovate or oblong, broad at base, sometimes broadly clawed; wings elliptical; keel obtuse, shorter than wings. Stamens diadelphous or nearly monadelphous; filaments not dilated; anthers uniform. Legume straight, falcate, or arcuate, compressed or terete, tapering at both ends, with reticulate coat. Seeds 1 to many, scabrous, warty or pitted.

About 55 species: mostly in Africa, Asia, Europe, Mediterranean region, and Oceania; eight species (two introduced) in China.

- 1a. Perennial herbs; legume linear-oblong.
 - 2a. Wings shorter than keel.
 - 3a. Corolla 10–12 mm; branches erect, arising from subshrubby base 3. *T. cachemiriana*
 - 3b. Corolla 7–9(–10) mm; branches prostrate to ascending, arising from large woody base 4. *T. pamirica*
 - 2b. Wings longer than keel.
 - 4a. Legume covered with oblique veins; standard suborbicular, equal to wings; leaflet margin sparsely serrate 1. *T. emodi*
 - 4b. Legume covered with crosswise veins; standard long obovate, reflexed, slightly longer than wings; leaflet margin densely biserrate 2. *T. fimbriata*
- 1b. Annual herbs; legume cylindrical or ovoid.
 - 5a. Legume conical or ovoid, more than 2.5 mm wide; plants over 30 cm.
 - 6a. Legume ovoid, 2.5–5 mm; inflorescence long pedunculate, capitate, with 10–25 flowers; petiole 10–40 mm 7. *T. caerulea*
 - 6b. Legume conical, 70–120 mm; inflorescence subsessile, flowers solitary or in pairs; petiole 6–15 mm 8. *T. foenum-graecum*
 - 5b. Legume linear-cylindrical, less than 2 mm wide; plants under 30 cm.
 - 7a. Peduncles as long as leaves or longer, usually over 15 mm 5. *T. cancellata*
 - 7b. Peduncles shorter than leaves, usually under 10 mm 6. *T. arcuata*

1. *Trigonella emodi* Benth in Royle, Ill. Bot. Himal. Mts. 197. 1835.

喜马拉雅胡卢巴 xi ma la ya hu lu ba

Perennial herbs, 20–60(–80) cm. Stem erect or ascending, terete, branching at base, yellow pubescent when young. Leaves 3-foliolate; stipules broadly lanceolate, incised; leaflets broadly obovate, (7–)10–25 \times (4–)7–15 mm, sparsely pilose abaxially, glabrous adaxially, base cuneate, margin sparsely serrate, apex obtuse or truncate, apiculate. Flowers 5–8(–10) in short racemes; peduncle slender and axillary, 1–2 cm, after flowering prolonged to 2–3 cm, straight; bracts minute; pedicels 1.5–2.5 mm. Calyx 3–4 mm; teeth lanceolate, shorter than tube. Corolla yellow, 6–9 mm; standard suborbicular, equal to wings; keel ca. 1/2 length of wings. Ovary as long as style; ovules 8–10. Legume oblong, 14–20 \times 4–5 mm, glabrous, veins prominent, oblique, base rounded, apex acute, with persistent style. Seeds 4–6, brown, ellipsoid, ca. 2.5 \times 1.5 mm, smooth. Fl. and fr. Jun–Sep.

Ravine shores or meadows by woodlands of the Himalayan valleys; 2700–3800 m. Xizang [India, Kashmir, Nepal, Pakistan].

2. *Trigonella fimbriata* Royle ex Benth in Royle, Ill. Bot. Himal. Mts. 197. 1835.

重齿胡卢巴 chong chi hu lu ba

Perennial herbs, 25–30 cm. Stem erect, spreading

branching, subquadrangular, sparsely pilose. Leaves 3-foliolate; stipules ovate-lanceolate, incised, 4–6 mm, pilose; petiole 3–5 mm; leaflets broadly obovate, 6–10(–12) \times 3–6(–8) mm, pilose at least on midrib abaxially, glabrous adaxially, base cuneate, margin irregularly biserrate. Flowers (3–)6–8(–12) in subumbellate heads; peduncle 20–40 mm, pilose, straight; pedicels ca. 2 mm. Calyx ca. 3.5 mm; teeth subulate-lanceolate. Corolla yellow, (5–)6–7 mm. Ovary linear, sparsely pilose; ovules 7–9. Legume elliptic-oblong, 8–10 \times ca. 4 mm, veins crosswise, thin and conspicuous, both ends rounded. Seeds 2–4. Fl. and fr. Jul–Aug.

Ravine shores or meadows by woodlands of the Himalayan valleys; 3800–4300 m. Xizang [India, Kashmir, Nepal].

3. *Trigonella cachemiriana* Cambessèdes in Jacquemont, Voy. Inde 4(Bot.): 36. 1835–1844.

克什米尔胡卢巴 ke shi mi er hu lu ba

Perennial herbs, 20–40 cm. Stems erect, terete, branching from base, leafy. Leaves 3-foliolate; stipules of lower part triangular-lanceolate, 3–5 mm; leaflets obovate, (5–)7–12 \times (4–)6–8 mm, base broadly cuneate, margin serrulate. Flowers (5–)8–10, in subumbellate heads; peduncle slender, 20–35 mm, straight after flowering; pedicels 1–2.5 mm. Calyx 3–4 mm; teeth triangular. Corolla yellow, 10–12 mm; standard suborbicular, equal to keel; wings short and narrow. Ovary linear; ovules 10. Legume oblong, (10–)12–15(–18) \times ca. 4 mm, veins prominent,

oblique, base stipitate, apex rounded. Seeds 2–4, brown, reniform to ovoid, 2.5–3 mm, smooth. Fl. Jun–Aug, fr. Aug–Sep.

Sandy ravines, grasslands in valleys; 2400–3800 m. Xinjiang, Xizang [Afghanistan, India, Kashmir, Pakistan; SW Asia (Iran)].

4. *Trigonella pamirica* Borissova, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 7: 225. 1938.

帕米尔胡卢巴 pa mi er hu lu ba

Melilotoides pamirica (Borissova) Soják; *Melissitus pamiricus* (Borissova) Goloskokov.

Perennial herbs, (15–)30–40(–50) cm, from a woody caudex. Stem procumbent or ascending, terete, branching at base. Leaves 3-foliolate; leaflets obovate, 9–18 × 5–9 mm, glabrate to sparsely pubescent, base cuneate, margin sharply few toothed, apex truncate to broadly rounded, sometimes retuse or apiculate. Flowers (2–)5–8(–10) in umbels; peduncle axillary, longer than subtending leaf; pedicels 2–3 mm, recurving after anthesis. Calyx 4–5(–7) mm; teeth linear-lanceolate, as long as tube. Corolla yellow, 7–9(–10) mm; standard oblong to oblong-ovate, 7–10 × 4–5 mm, longer than keel. Ovary linear; ovules 3–5. Legume oblong-elliptic, (10–)11–13(–16) × (3–)4.5 mm, straight or slightly curved, flattened laterally, glabrous or rarely pubescent, veins prominent, oblique, base broadly cuneate, apex acute, with persistent style. Seeds 3 or 4, smooth. Fl. and fr. May–Sep.

Dry slopes and stony wastelands, middle and upper montane regions; below 4500 m. Xinjiang [C Asia, SW Asia (Iran)].

5. *Trigonella cancellata* Desfontaines, Tabl. École Bot. 3: 218. 1829.

网脉胡卢巴 wang mai hu lu ba

Annual herbs, 10–20(–40) cm. Stems prostrate or ascending, puberulent. Leaves 3-foliolate; stipules linear-lanceolate, dentate at base; leaflets obtriangular or obovate-triangular, (4–)7–10 × 4–7 mm, appressed pubescent abaxially, glabrous adaxially, lateral veins 5–8 pairs, base cuneate, margin dentate in upper 1/2, apex truncate. Flowers 4–7 in umbellate heads; peduncle axillary, 10–18 mm. Calyx 3–4 mm, veins 5, prominent. Corolla yellow, ca. 5 mm; standard ovate-oblong, longer than wings and keel. Ovary linear; ovules numerous. Legume cylindrical, 15–20 × ca. 1.5 mm, 4 or 5 in umbel, curved to semicircular, white pubescent, veins reticulate, beak hooked. Seeds 6–8, brown, oblong, ca. 2.5 × 1 mm, papillose; papillae deep brown. Fl. May–Aug, fr. Jun–Sep.

Alkaline soils on sandy slopes or ravine edges. Xinjiang [Russia (W Siberia); C and SW Asia].

6. *Trigonella arcuata* C. A. Meyer, Verz. Pfl. Casp. Meer. 136. 1831.

弯果胡卢巴 wan guo hu lu ba

Annual herbs, 10–25 cm. Stems prostrate or ascending, terete, branching at base, scattered villous. Leaves 3-foliolate; stipules lanceolate, base subhastate; leaflets obtriangular or obovate, 5–10 × 3–7 mm, scattered villous abaxially, scabrous and glabrous adaxially, lateral veins 5–7 pairs, running out into teeth, parallel, base broadly cuneate, margin dentate above mid-

dle, apex truncate. Flowers 4–6(–8) in umbellate heads; peduncle less than 5 mm, thick, densely villous. Corolla yellow, 4–5 mm. Ovary linear villous; ovules numerous. Legume cylindrical, 15–20 × 1.25–1.5 mm, 4 or 5 in umbel, falcate, scattered villous, veins crosswise reticulate, beak pointed. Seeds 7 or 8, oblong, ca. 2.5 mm, brown warty. Fl. Mar–Jun, fr. May–Jul.

Alkaline soil on ravines or hillsides. Xinjiang [C and SW Asia].

7. *Trigonella caerulea* (Linnaeus) Seringe in Candolle, Prodr. 2: 181. 1825.

蓝胡卢巴 lan hu lu ba

Trifolium caeruleum Linnaeus, Sp. Pl. 2: 764. 1753 [*T. "M. caerulea"*]; *Melilotus caeruleus* (Linnaeus) Desrousseaux.

Annual herbs, 30–60(–80) cm. Stems straight, thick, terete, glabrescent, branched. Leaves pinnately 3-foliolate; stipules subulate-lanceolate; petioles 1–4 cm; leaflets ovate to broadly elliptic, 15–35 × 4–15 mm, sparsely pubescent on midrib abaxially, glabrous adaxially, lateral veins 8–10 pairs, base cuneate or rounded, margin serrate, apex obtuse or acute. Racemes capitate or ovoid, 10–25-flowered; peduncles axillary, ca. 6 cm, straight, glabrous; bracts bristlelike, ca. 1.5 mm; pedicel ca. 1 mm. Calyx ca. 3 mm, membranous, veins 5. Corolla blue, 5–6 mm; standard longest petal, keel shortest. Ovary ovate, glabrous; ovules 5–7. Legume ovoid, 2.5–5 × ca. 2.5 mm, apex tapering and beaked, longer than body. Seeds 1 or 2, brown, broadly ovoid, ca. 2 mm, tuberculate. Fl. Jun–Aug, fr. Jul–Sep.

Cultivated or escaped on wastelands. Gansu, Hebei, Heilongjiang, Liaoning, Nei Mongol, Shaanxi [widely cultivated in Asia and Europe; of cultivated origin].

Trigonella caerulea is apparently nowhere indigenous and was probably derived from *T. procumbens* (Besser) Reichenbach (Ivimey-Cook in Tutin et al., Fl. Eur. 2: 152. 1968).

8. *Trigonella foenum-graecum* Linnaeus, Sp. Pl. 2: 777. 1753.

胡卢巴 hu lu ba

Annual herbs, 30–80 cm. Taproot to 80 cm, fibrous roots lateral. Stem erect, terete, branched. Leaves 3-foliolate; stipules entire, membranous, base adnate to petiole, apex acute; petiole spreading, 6–15 mm; leaflets narrowly obovate, ovate, to oblong-elliptic, terminal equal to laterals, 15–40 × 4–15 mm, sparsely pubescent or glabrescent abaxially, glabrous adaxially, lateral veins 5 or 6 pairs, base cuneate, margin dentate in upper 1/2. Flowers sessile, axillary, solitary or in pairs. Calyx 7–8 mm, villous. Corolla creamy or pale yellow, base violet, 13–18 mm. Ovary puberulent; ovules numerous. Legume long conical, 7–12 × 0.4–0.5 cm, straight or slightly curved, glabrescent, veins longitudinally reticulate, apex with long beak to 2 cm, distal suture thickened. Seeds 10–20, brown, oblong-ovoid, 3–5 × 2–3 mm, surface uneven. Fl. Apr–Jul, fr. Jul–Sep.

Cultivated throughout China, escaped in fields as a semi-wild weed in Gansu, Hebei, Heilongjiang, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang [Himalayan region; SW Asia].

The seeds are used medicinally. The tender leaves and stems are used as vegetables; and the dried stems, leaves, and seeds are used as flavoring for foods and in baking. The dried plant also is used as insect repellent.

