

**162. MEDICAGO** Linnaeus, Sp. Pl. 2: 778. 1753, nom. cons.

苜蓿属 mu xu shu

Annual or perennial herbs, rarely shrubs. Leaves pinnately 3-foliolate; stipules adnate to petiole at base; leaflets denticulate, lateral veins running out into teeth. Racemes axillary, flowers crowded into heads; bracts small and caducous. Calyx 5-toothed, subequal. Petals free from staminal tube; standard oblong to obovate, usually reflexed; wings and keel with hooked appendages involved in explosive tripping mechanism for pollination. Stamens diadelphous; filaments not dilated, apical portion of staminal column arched; anthers uniform. Ovary sessile or shortly stipitate; ovules numerous; style subulate; stigma subcapitate, oblique. Legume compressed, coiled, curved, or straight, surface reticulate, sometimes armed with spines. Seed small, reniform, smooth or rough.

About 85 species: Africa, C and SW Asia, Europe, Mediterranean region; 15 species (one endemic, six introduced) in China.

- 1a. Legume spirally coiled.
  - 2a. Perennial herbs or shrubs; legume spineless.
    - 3a. Shrubs ..... 9. *M. arborea*
    - 3b. Herbs.
      - 4a. Legume tightly coiled in 2–4(–6) spirals, center solid or nearly so; corolla variable in color, white, deep blue, to dark purple ..... 7. *M. sativa*
      - 4b. Legume loosely coiled in 1–1.5 spirals, center hollow; corolla yellow to brownish purple ..... 8. *M. ×varia*
  - 2b. Annual or biennial herbs; legume with spines or tubercles.
    - 5a. Leaflets obviously hairy; legume globose, less than 4.5 mm in diam.
      - 6a. Petiole shorter than peduncle, stipule entire or obscurely serrate, leaflets densely hairy; inflorescence 2–10-flowered ..... 10. *M. minima*
      - 6b. Petiole longer than peduncle, stipule small, incised, leaflets sparsely pilose; inflorescence 1- or 2-flowered ..... 11. *M. praecox*
    - 5b. Leaflets glabrous or glabrescent; legume discoid, 4–10 mm in diam.
      - 7a. Petiole not more than 2 × as long as peduncle, stipule lacinate or lacerate, leaflets without dark blotch ..... 12. *M. polymorpha*
      - 7b. Petiole 2–5 × as long as peduncle, stipule triangular, incised to lacinate, leaflets with a dark central blotch ..... 13. *M. arabica*
- 1b. Legume not spirally coiled.
  - 8a. Legume less than 3 mm ..... 1. *M. lupulina*
  - 8b. Legume more than 8 mm.
    - 9a. Legume falcate or linear, straight or curved to arcuate, less than 3 mm wide.
      - 10a. Plants perennial; flowers in crowded pedunculate racemes ..... 6. *M. falcata*
      - 10b. Plants annual; flowers solitary to few in sessile to shortly stalked clusters.
        - 11a. Flowers 1 or 2(or 3), 6–8 mm, sessile; legume more than 40 mm ..... 14. *M. monantha*
        - 11b. Flowers 2–5, 4–5 mm, shortly pedunculate; legume less than 30 mm ..... 15. *M. orthoceras*
    - 9b. Legume oblong to semilunar, more than 4 mm wide.
      - 12a. Plants densely pubescent; flowers yellow, ca. 5 mm ..... 5. *M. edgeworthii*
      - 12b. Plants glabrous or slightly puberulent; flowers yellow with scarlet spot, more than 6 mm.
        - 13a. Legume 5–9 mm wide; stems glabrous; leaflets rather larger ..... 2. *M. platycarpus*
        - 13b. Legume less than 6 mm wide; stems ± puberulent; leaflets rather smaller.
          - 14a. Flowers 4 or 5 in a scattered thyrs; leaflets ovate to orbicular; stipules hastate ..... 3. *M. archiducis-nicolaii*
          - 14b. Flowers (4–)6–9(–15) in dense fascicles; leaflets cuneate-linear to oblanceolate; stipules lanceolate ..... 4. *M. ruthenica*

**1. *Medicago lupulina*** Linnaeus, Sp. Pl. 2: 779. 1753.

天蓝苜蓿 tian lan mu xu

Annual or short-lived perennial herbs, 15–60 cm, glabrescent to pubescent, sometimes glandular. Stems decumbent, prostrate or ascending, much branched. Stipules ovate-lanceolate, to 10 mm, entire or toothed, base rounded or hastate, apex acuminate; petiole 1–2 cm; leaflets elliptic, ovate, or obovate, 5–20 × 4–6 mm, papery, pubescent, lateral veins to 10 pairs, base cuneate, margin distally obscurely serrate, apex truncate or retuse, apiculate. Flowers 10–20 in small heads; peduncles slen-

der, straight, longer than subtending leaves, glabrate to densely appressed pubescent; bracts bristlelike, minute; pedicel less than 1 mm. Calyx ca. 2 mm, glabrate to densely hairy. Corolla yellow, 2–2.2 mm; standard suborbicular, apex retuse, longer than wings and keel. Ovary broadly ovate; ovule 1. Legume reniform, ca. 3 × 2 mm, sculptured with concentric arcuate veins, sparsely hairy, black when ripe. Seed 1, brown, ovoid, smooth. Fl. Apr–Sep, fr. Jun–Oct.

Stream banks, roadsides, waste fields, woodland margins. Throughout China [Asia, Europe].

2. **Medicago platycarpus** (Linnaeus) Trautvetter, Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 8: 271. 1841.

阔荚苜蓿 kuo jia mu xu

*Trigonella platycarpus* Linnaeus, Sp. Pl. 2: 776. 1753; *Melilotoides platycarpus* (Linnaeus) Soják; *Melissitus platycarpus* (Linnaeus) Goloskokov; *Trigonella karkarensis* Semenov ex Vassilczenko; *Turukhania platycarpus* (Linnaeus) Vassilczenko.

Perennial herbs, (25-)40-80(-100) cm. Stems erect, quadrangular, base often purplish, glabrous or puberulent. Stipules broadly triangular-lanceolate, 5-8 mm, shallowly serrate, base subhastate; petiole slender, 2.5-3.5(-5) cm, shorter above; leaflets broadly ovate, orbicular, to broadly elliptic, (15-)20-30 × (8-)15-25 mm, papery, sparsely hairy or glabrescent abaxially, glabrous adaxially, lateral veins ca. 10 pairs, inconspicuous, base rounded to broadly cuneate, margin irregularly dentate, apex rounded or truncate. Flowers (4 or)5-8(-15) in umbels; peduncle shorter than or equal to subtending leaf, slender; bracts minute, ovate, apiculate, ca. 1 mm; pedicels 3-5 mm. Corolla yellow with purple stripes, bluish when dry, (7-)9-12(-14) mm; standard oblong-spatulate, slightly constricted at middle. Ovary linear; ovules 12-14. Legume oblong-falcate to semilunar, (10-)12-18(-24) × 5-9 mm, flat, veins crosswise long reticulate, black when ripe, dorsal suture straight, apex rounded, shortly beaked. Seeds (5-)8-12, brown, broadly ovoid, ca. 3 × 2 mm, smooth to rugose. Fl. Jun-Jul, fr. Jul-Aug.

Ravines, meadows by margins of coniferous forests; 1200-2000 m. Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia].

3. **Medicago archiducis-nicolaii** Širjaev, Bull. Misc. Inform. Kew 1928: 270. 1928 ["*archiducis-nicolaii*"].

青海苜蓿 qing hai mu xu

*Kamiella archiducis-nicolaii* (Širjaev) Vassilczenko; *Melilotoides archiducis-nicolaii* (Širjaev) Yakovlev.

Perennial herbs, 8-20 cm. Stems prostrate or ascending, slender, ridged, much branched, sparsely hairy. Stipules hastate, 4-7(-10) mm, veins obvious, margin dentate, apex narrowly triangular; petiole 4-12 mm; leaflets broadly ovate to orbicular, 6-18 × 6-12 mm, papery, puberulent abaxially, glabrescent adaxially, lateral veins 6-10 pairs, base rounded, margin obscurely irregularly denticulate, apex truncate or retuse, apical leaflet and petiolule longest. Flowers 4 or 5, scattered in axillary umbels; peduncle slightly longer than subtending leaf; bracts ca. 1 mm; pedicels slender, 2-5(-7) mm. Corolla yellow-orange, with central mauve spot, 7-9(-10) mm; standard obovate-elliptic, retuse. Ovary linear, glabrous; ovules 7-9(-13). Legume oblong-semilunar, 10-15(-18) × 4-6 mm, flat, veins crosswise reticulate, black when ripe, apex shortly beaked. Seeds 5-7, brown, broadly ovoid, ca. 2.5 × 1.5 mm, smooth. Fl. Jun-Aug, fr. Jul-Sep.

• Alpine slopes, valleys, grasslands; (2500-)3000-4000 m. Gansu, Ningxia, Qinghai, Shaanxi, Sichuan, NE Xizang.

4. **Medicago ruthenica** (Linnaeus) Trautvetter, Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 8: 271. 1841.

花苜蓿 hua mu xu

*Trigonella ruthenica* Linnaeus, Sp. Pl. 2: 776. 1753; *Medicago liaosiensis* (P. Y. Fu & Y. A. Chen) X. Y. Zhu & Y. F. Du; *M. ruthenica* var. *inschanica* (H. C. Fu & Y. Q. Jiang) X. Y. Zhu; *Melilotoides ruthenica* (Linnaeus) Soják; *M. ruthenica* var. *inschanica* (H. C. Fu & Y. Q. Jiang) H. C. Fu & Y. Q. Jiang; *M. ruthenica* var. *liaosiensis* (P. Y. Fu & Y. A. Chen) H. C. Fu & Y. Q. Jiang; *Melissitus liaosiensis* (P. Y. Fu & Y. A. Chen) Yakovlev; *M. ruthenicus* (Linnaeus) Peschkova; *M. ruthenicus* var. *inschanicus* (H. C. Fu & Y. Q. Jiang) H. C. Fu & Y. Q. Jiang; *M. ruthenicus* var. *liaosiensis* (P. Y. Fu & Y. A. Chen) H. C. Fu & Y. Q. Jiang; *Pocockia liaosiensis* P. Y. Fu & Y. A. Chen; *P. ruthenica* (Linnaeus) Boissier; *P. ruthenica* var. *inschanica* H. C. Fu & Y. Q. Jiang.

Perennial herbs, 20-70(-100) cm. Stems erect or ascending, branched at base, quadrangular. Stipules lanceolate, cuspidate, veins obvious, base rounded, auriculate, with 1-3 shallow denticles, apex slightly curved; petiole 2-7(-12) mm; leaflets varied in shape with different habitats, oblong, oblanceolate, cuneate, linear, and oblong-ovate, (6-)10-15(-25) × (1.5-)3-7(-12) mm, terminal largest, lateral veins 8-18 pairs, prominent on both surfaces, base cuneate, broadly cuneate, to rounded, margin entire below, slightly to irregularly serrulate in upper 3/4, apex truncate, obtuse, or retuse. Flowers (4-)6-9(-15) in umbels, sometimes to 2 cm; peduncles straight, usually longer than subtending leaf; bracts 1-2 mm; pedicels 1.5-4 mm. Corolla yellow-brown, with scarlet to purple stripes in center, (5-)6-9 mm; standard oblong-obovate, obcordate, or spatulate; wings oblong; keel shortest, ovate. Ovary linear; ovules 4-8. Legume oblong or oblong-ovate, 8-15(-20) × 3.5-5(-7) mm, flat, veins inclined transversely, black when ripe, base tapering and slightly curved, stipitate, apex obtuse, apiculate. Seeds 2-6, brown, elliptic-ovoid, ca. 2 × 1.5 mm, smooth. Fl. Jun-Sep, fr. Aug-Oct.

Sandy soil of stream banks, slopes, grasslands. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan [Mongolia, Russia (Far East, Siberia)].

5. **Medicago edgeworthii** Širjaev, Oesterr. Bot. Z. 87: 123. 1938.

毛荚苜蓿 mao jia mu xu

*Trigonella pubescens* Edgeworth ex Baker in J. D. Hooker, Fl. Brit. India 2: 88. 1876; *Medicago pubescens* (Edgeworth ex Baker) Širjaev (1928), not Candolle (1813); *Melilotoides pubescens* (Edgeworth ex Baker) Yakovlev.

Perennial herbs, 30-40 cm. Stems erect or ascending, branched at base, terete, densely hairy. Stipules ovate-lanceolate, 5-8(-10) mm, base rounded to hastate, margin entire, apex acuminate; petiole 2-6 mm; leaflets obovate to long obovate, (6-)10(-15) × (4-)7(-10) mm, scattered pubescent on both surfaces, especially dense on midrib abaxially, lateral veins 8-13 pairs, straightly running to teeth, base broadly cuneate, margin serrulate in upper 1/2, apex rounded, abruptly shortly acuminate. Flowers (1 or)2 or 3(-6) scattered in axillary heads; peduncles slightly longer than leaves; bracts ca. 1.5 mm; pedicels less than 2 mm. Corolla yellow, ca. 5 mm. Ovary oblong,

densely tomentose; ovules 12–14. Legume oblong, 12–16 × 4–5 mm, flat, densely appressed pubescent, veins close, transverse, base rounded, sessile, apex acute, shortly beaked, sutures obvious. Seeds 10–12, dark brown, ovate-elliptic, ca. 2 × 1 mm, smooth. Fl. Jun–Aug, fr. Jul–Sep.

Grasslands, open fields, roadsides; 2500–3500 m. Qinghai, Sichuan, Xizang, Yunnan [Afghanistan, India, Pakistan].

**6. *Medicago falcata*** Linnaeus, Sp. Pl. 2: 779. 1753.

野苜蓿 *ye mu xu*

Perennial herbs, (20–)40–100(–120) cm. Stems erect or ascending, terete, branchy. Stipules lanceolate to linear-lanceolate, base hastate, apex acuminate; leaflets obovate to linear, (5–)8–15(–20) × (1–)2–5(–10) mm, pubescent abaxially, glabrous or appressed puberulent adaxially, margin serrulate in apical 1/4 or margin 2- or 3-serrate, lateral veins 5–15 pairs, base cuneate, apex rounded, obtuse, or acute, mucronate. Racemes 10–20(–40) mm, with 6–20(–25) flowers, crowded; peduncles axillary, straight, equal to or slightly longer than leaves; bracts ca. 1 mm; pedicels 2–3 mm. Corolla yellow, 6–9(–11) mm; standard long obovate. Ovary linear; ovules 2–5. Legume falcate or straight, (8–)10–15 × 2.5–3.5(–4) mm, appressed puberulent, veins oblique and thin. Seeds 2–4, brown, ovate-elliptic, ca. 2 × 1.5 mm. Fl. Jun–Aug, fr. Jul–Sep.

Grassy places, slopes, ravines, dry sandy fields. Gansu, Hebei, Jilin, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Xinjiang, Xizang [Asia, Europe].

- 1a. Stems ascending, appressed puberulent; leaflets obovate to linear-oblongate, margin serrulate in apical 1/4, apex obtuse, mucronulate, glabrous adaxially, appressed puberulent abaxially, lateral veins 12–15 pairs; legume falcate ..... 6a. subsp. *falcata*
- 1b. Stems erect, densely yellow tomentose; leaflets linear, margin 2- or 3-serrate, sparsely appressed puberulent adaxially, densely tomentose abaxially, lateral veins 5–7 pairs; legume straight ..... 6b. subsp. *romanica*

**6a. *Medicago falcata* subsp. *falcata***

野苜蓿(原亚种) *ye mu xu (yuan ya zhong)*

*Medicago sativa* Linnaeus subsp. *falcata* (Linnaeus) Arcangeli.

Stems ascending, appressed puberulent. Leaflets obovate to linear-oblongate, appressed puberulent abaxially, glabrous adaxially, lateral veins 12–15 pairs, margin serrulate in apical 1/4, apex obtuse, mucronulate. Legume falcate.

Grassy places, slopes, ravines, dry sandy fields. Gansu, Hebei, Jilin, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Xinjiang, Xizang [Asia, Europe].

**6b. *Medicago falcata* subsp. *romanica*** (Prodan) O. Schwartz & Klinkowski, Verh. Bot. Vereins Prov. Brandenburg 74: 182. 1933.

草原苜蓿 *cao yuan mu xu*

*Medicago romanica* Prodan, Fl. Român. 1: 617. 1923; *M. falcata* var. *romanica* (Prodan) Hayek.

Stems erect, densely yellow tomentose. Leaflets linear, densely tomentose abaxially, sparsely appressed pubescent adaxially, lateral veins 5–7 pairs, margins 2- or 3-serrate. Legume straight.

Dry grasslands, slopes. Xinjiang [Russia (W Siberia); C Asia, E Europe].

**7. *Medicago sativa*** Linnaeus, Sp. Pl. 2: 778. 1753.

紫苜蓿 *zi mu xu*

*Medicago afghanica* Vassilczenko; *M. alaschanica* Vassilczenko; *M. asiatica* Sinskaya subsp. *sinensis* Sinskaya; *M. beipinensis* Vassilczenko; *M. pekinensis* Vassilczenko; *M. rivularis* Vassilczenko; *M. roborovskii* Vassilczenko; *M. sativa* var. *tibetana* Alefeld; *M. tibetana* (Alefeld) Vassilczenko.

Perennial herbs, 30–100 cm. Stems erect, ascending, rarely prostrate, quadrangular, glabrous or puberulent, much branched. Stipules ovate-lanceolate, base entire or with 1 or 2 denticles, apex acute; leaflets long ovate, obovate, to linear-ovate, (5–)10–25(–40) × 3–10 mm, papery, appressed pubescent abaxially, glabrous adaxially, lateral veins 8–10 pairs, base tapering, margin serrulate in upper 1/3, apex rounded, mucronate with a denticle from midrib. Heads or racemes with 5–30 flowers, 1–2.5 cm; peduncles straight, longer than leaves; bracts equal to pedicels, ca. 2 mm. Corolla variable in color, white, deep blue, to dark purple; standard oblong, retuse. Ovary linear; ovules numerous. Legume tightly coiled in 2–4(–6) spirals, 5–9 mm in diam., center solid or nearly so, brown when ripe, veins thin and inconspicuous. Seeds 10–20, yellow or brown, ovoid, 1–2.5 mm, smooth. Fl. May–Jul, fr. Jun–Oct.

Cultivated throughout China, often escaped to roadsides, fields, grasslands, and stream banks [native to N and SW Asia, probably also S Europe; now cosmopolitan].

**8. *Medicago* ×*varia*** Martyn, Fl. Rust. 3: t. 87. 1793.

杂交苜蓿 *za jiao mu xu*

*Medicago sativa* Linnaeus subsp. *varia* (Martyn) Arcangeli.

Perennial herbs, 60–80(–120) cm. Stems erect, prostrate, or ascending, quadrangular, much branched. Stipules lanceolate, base obscurely dentate, apex acuminate; leaflets oblong-ovate to elliptic, 10–20(–25) × (3–)5–10 mm, papery, sparsely appressed puberulent abaxially, glabrous adaxially, lateral veins 8 pairs, base rounded or broadly cuneate, margin shallowly serrate in upper 1/2. Flowers 8–15 in capitate racemes, crowded, becoming more widely spaced after anthesis; peduncles straight, longer than leaves; bracts shorter than pedicels. Corolla yellow, yellow-brown, to brownish purple, 9–10(–11) mm; standard oblong-ovate, usually with darker stripes, retuse. Ovules 6–8. Legume loosely coiled in (0.5–)1–1.5(–2) spirals, (4–)7–9(–12) mm in diam., center hollow, veins inconspicuous. Seeds 3–6, brown, ovoid. Fl. Jun–Aug, fr. Aug–Oct.

Cultivated throughout China, escaping to fields and roadsides [widely cultivated elsewhere].

This is a hybrid between *Medicago sativa* and *M. falcata*.

**9. *Medicago arborea*** Linnaeus, Sp. Pl. 2: 778. 1753.

木本苜蓿 mu ben mu xu

*Rhodusia arborea* (Linnaeus) Vassilczenko.

Shrubs, 1–2(–4) m, pale yellow sericeous; bark split longitudinally. Stems erect, terete. Stipules narrowly triangular, 5–8 mm, acute, entire; petioles 2–4 cm; leaflets obovate to obcordate, 10–18 × 8–14 mm, sericeous abaxially, glabrous adaxially, lateral veins 5–7 pairs, base broadly cuneate, margin entire, apex obtuse or retuse. Flowers 6–10 scattered in racemes, 2–2.5 cm; peduncles axillary, 3–5 cm, densely silky; bracts ca. 2 mm; pedicels ca. 5 mm. Corolla orange, 12–15 mm. Ovary stipitate; ovules 12–15. Legume loosely coiled in 0.5–1.5 spirals, 12–15 mm in diam., center hollow, appressed pubescent, veins radially reticulate, netted in external circle. Seed reniform, ca. 4 mm. Fl. May.

Cultivated as an ornamental. Hebei, Jiangsu [native to the Mediterranean region].

**10. *Medicago minima*** (Linnaeus) Bartalini, Cat. Pianta Siena, 61. 1776.

小苜蓿 xiao mu xu

*Medicago polymorpha* Linnaeus var. *minima* Linnaeus, Sp. Pl. 2: 780. 1753.

Annual herbs, 5–30 cm, spreading hairy, sometimes with glandular hairs. Stems diffuse, prostrate or ascending, branched at base. Stipules ovate, base rounded, margin entire or obscurely shallowly serrate, apex acute; petioles slender, 5–10(–20) mm; leaflets obovate, 5–8(–12) × 3–7 mm, papery, villous on both surfaces, base cuneate, margin serrulate in apical 1/3, apex rounded or retuse, apiculate. Flowers 2–10 in capitate racemes; peduncles slender and straight; pedicels short or sessile. Corolla pale yellow, 3–4 mm; standard broadly ovate, longer than wings and keel. Legume globose, 2.5–4.5 mm, tightly coiled in 3–5 spirals; spines straight with hooked tip, equal to radius of legume. Seed long reniform, brown, 1.5–2 mm, smooth. Fl. Mar–Apr, fr. Apr–May.

Sandy slopes, waste fields, stream banks. Anhui, Gansu, Hebei, Henan, Hubei, Jiangsu, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang [Africa, Asia, Europe].

**11. *Medicago praecox*** Candolle, Cat. Pl. Horti Monsp. 123. 1813.

早花苜蓿 zao hua mu xu

Annual herbs, (5–)10–20(–50) cm. Stems prostrate or ascending, quadrangular, branched at base, sparsely hairy. Stipules ovate, incised or lacerate; leaflets obovate or obcordate, (2–)4–8(–12) × (2–)5–9(–13) mm, papery, sparsely hairy abaxially, glabrous adaxially, base broadly cuneate, margin only obscurely serrate apically, apex truncate or emarginate. Flowers 1 or 2 in axillary umbel; peduncles shorter than petiole, bracts ca. 1.5 mm; pedicels less than 1 mm. Corolla yellow, 3–4 mm; standard broadly orbicular. Ovary linear. Legume usually only 1 per umbel, scarlet to dark brown, discoid, 3–4 mm, loosely

coiled in 2–4(or 5) spirals, coil edge wide, deeply grooved, spines 10 in each row. Seed brown, reniform, 2–2.8 × 1–1.3 mm. Fl. Mar–Apr, fr. May–Jul.

Introduced and cultivated. Anhui, Fujian, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Sichuan [native to the N Mediterranean region].

**12. *Medicago polymorpha*** Linnaeus, Sp. Pl. 2: 779. 1753.

南苜蓿 nan mu xu

Annual or biennial herbs, 20–90 cm. Stems prostrate or ascending, branched at base, subquadrangular, glabrescent. Stipules ovate-oblong, 4–7 mm, base auriculate, margin irregularly lacinate or deeply incised, apex acuminate; petioles long and thin, 1–5 cm; leaflets obovate or triangular-obovate, 7–20 × 5–15 mm, papery, sparsely hairy abaxially, glabrous adaxially, base broadly cuneate, margin shallowly serrate in apical 1/3, apex obtuse, truncate, or emarginate, apiculate. Flowers (1 or)2–10 in axillary racemes; peduncles slender, 3–15 mm, usually longer than leaves; pedicel less than 1 mm. Corolla yellow, 3–4 mm; standard obovate, emarginate. Legume ash-green to greenish brown, discoid, 4–6(–10) mm, tightly coiled in 1.5–2.5(–6) spirals, turning clockwise, radial veins connected near edge on coil face, spines or tubercles 15 in each row. Seed brown, reniform, ca. 2.5 × 1.25 mm, smooth. Fl. Mar–May, fr. May–Oct.

Cultivated or escaped to fields, hillsides, and roadsides. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [native at least to N Africa, SW Asia, and S Europe; widely introduced elsewhere].

**13. *Medicago arabica*** (Linnaeus) Hudson, Fl. Angl. 288. 1762.

褐斑苜蓿 he ban mu xu

*Medicago polymorpha* Linnaeus var. *arabica* Linnaeus, Sp. Pl. 2: 780. 1753; *M. maculata* Willdenow; *M. oxalioides* Schur.

Annual herbs, 40–65 cm. Stems decumbent or spreading, longitudinally ridged, sparsely hairy, hairs simple and multicellular-glandular. Stipules ovate-lanceolate, 5–12 mm, incised, with 6–8 deep lobes; petioles slender, 2–8(–12) cm, 2–5 × as long as peduncle; leaflets usually with a dark colored patch at center, obcordate to broadly obovate, 7–25(–30) × 14–32 mm, sparsely hairy abaxially, glabrous adaxially, base broadly cuneate, margin subentire or shallowly serrate, apex rounded or emarginate. Flowers (1 or)2–5(or 6) in axillary racemes; peduncles with a terminal cusp; bracts ca. 1 mm; pedicels longer than or equal to bracts. Corolla yellow, 5–6.5 mm; standard broadly obovate, retuse. Legume cylindrical to globose, 5–7 mm, tightly coiled in 3–7 spirals, turning counterclockwise, 5–8 radial veins on coil face, spines 13–15 in each row. Seed yellowish brown, oblong-elliptic, 2.5–3.5 × 1.2–1.5 mm, smooth. Fl. Mar–May, fr. May–Aug.

Cultivated, rather moist stream banks, grasslands. Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangsu [native to the Mediterranean region].

**14. *Medicago monantha*** (C. A. Meyer) Trautvetter, Bull. Sci.

Acad. Imp. Sci. Saint-Petersbourg 8: 272. 1841.

单花胡卢巴 dan hua hu lu ba

*Trigonella monantha* C. A. Meyer, Verz. Pfl. Casp. Meer. 137. 1831; *T. geminiflora* Bunge.

Annual herbs, 20–40 cm. Stems prostrate or ascending, branched at base, ridged, pilose. Leaves 3-foliolate; stipules lanceolate-hastate, 5–7 mm; petioles 1–2.5 cm; leaflets oblong-obovate to obtriangular, (3–)5–12 × (3–)4–8 mm, pilose at least on midrib abaxially, subglabrous adaxially, lateral veins 5–8 pairs, base cuneate, margin denticulate in apical 2/3, apex truncate. Flower axillary, solitary at basal portion of stem, 2(or 3) in apical portion, sessile or peduncles developed, 6–8 mm, with straight dense hairs. Corolla yellow, 6–8 mm; standard evidently longer than wings and keel. Ovary linear; ovules 18–24; style short and flat. Legume straight, cylindric, 40–50(–80) × 1–2 mm, appressed pubescent, veins reticulate, forming a pattern of squares or pentagons, apex hooked. Seeds numerous, brown, oblong-elliptic, ca. 2 mm. Fl. May–Jul, fr. Jun–Aug.

Clay soils in deserts, wilderness tracts, or roadsides. Xinjiang [Afghanistan, Mongolia, Pakistan; C and SW Asia].

**15. Medicago orthoceras** (Karelin & Kirilov) Trautvetter, Trudy Glavn. Bot. Sada 5: 421. 1877.

直果胡卢巴 zhi guo hu lu ba

*Trigonella orthoceras* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 14: 399. 1841.

Annual herbs, 15–25(–40) cm. Stems prostrate or ascending, subquadrangular, sparsely pilose. Leaves 3-foliolate; stipules subhastate, 5–6 mm; leaflets obovate to obovate-triangular, 6–15 × 3–8 mm, pilose at least on midrib abaxially, glabrous adaxially, lateral veins 6–9 pairs, base cuneate, margin denticulate in upper 2/3, apex truncate. Flowers 2–5 in subumbellate heads; peduncles undeveloped, but sometimes to 3–5 mm. Corolla yellow, 4–5 mm; standard longer than wings and keel. Ovary linear; ovules numerous; style short and flat. Legume cylindric, 20–30 × 1–1.5 mm, appressed pubescent, veins reticulate. Seeds numerous, brown, oblong to ovoid, ca. 2 × 1 mm, warty. Fl. Apr–Jun, fr. May–Jul.

Sandy slopes, grasslands; 1200–1900 m. W Xinjiang [Pakistan, Russia (W Siberia); C and SW Asia].

