

72. MILLETTIA Wight & Arnott, Prodr. Fl. Ind. Orient. 263. 1834, nom. cons.

崖豆藤属 ya dou teng shu

Wei Zhi (韦直); Les Pedley

Trees, shrubs, or lianas. Stipules present, persistent or caducous. Leaves imparipinnate; stipels present or absent; leaflet blades opposite or rarely subalternate. Inflorescence a pseudoraceme, unbranched (but branched in *Millettia ichthyochtona*), rachis with lateral flowering branchlets reduced to knobs or short spur at each node, flowers 2–5 in a clusters or fascicles per node; bracts and bracteoles present. Calyx tube broad, shortly 5-toothed; adaxial 2 teeth ± connate. Corolla standard large, with or without basal lobes. Vexillary stamen free in bud sometimes and becoming adherent to other 9 when mature. Ovary linear; style straight or inflexed. Legume 2-valved, flat, sometimes cylindrical or inflated only around ellipsoid seeds, tardily dehiscent, not winged or with 2 wings perpendicular to abaxial or both sutures. Seeds 1 to several per legume, lenticular or globose; funicle fleshy, swelling at adaxial side, surrounding and clasping hilum as a short ringlike aril.

About 100 species: subtropical and tropical Africa, Asia, and Australia; 18 species (six endemic) in China.

Many species are used in China as medicinal drugs, insecticide, or fish poison. A few species are cultivated as ornamentals.

- 1a. Petals outside glabrous (but not always explicitly stated in description; corolla unknown in *M. entadoides*).
- 2a. Leaf rachis and leaflet blades glabrous.
- 3a. Leaflets subalternate, blades obliquely ovate, base asymmetric; legume stipitate 1. *M. ichthyochtona*
- 3b. Leaflets opposite, blades oblong-lanceolate, oblanceolate, or oblong, base symmetric; legume sessile.
- 4a. Leaflet blades 12–25 cm, secondary veins 11–13 on each side of midvein; seeds thickly lenticular; trees 3. *M. leptobotrya*
- 4b. Leaflet blades 9–12 cm, secondary veins 9–12 on each side of midvein; seeds reniform; lianas 13. *M. entadoides*
- 2b. Leaf rachis and leaflet blades at least abaxially with trichomes.
- 5a. Leaflets 13–17, blades abaxially brown sericeous; legume inflated, rough with dense warts; lianas 12. *M. pachycarpa*
- 5b. Leaflets 7–11 (or 13), blades abaxially yellow tomentose, scarlet strigose on midvein and margins, or pilose on midvein; legume flat, without warts; trees.
- 6a. Leaflet blades abaxially yellow tomentose; legume sutures both with 2 ca. 1 cm wide woody wings 2. *M. tetraptera*
- 6b. Leaflet blades abaxially scarlet strigose on midvein and margins or pilose on midvein; legume sutures both only thickened.
- 7a. Leaflet blades abaxially scarlet strigose on midvein and margins; pseudoracemes erect 4. *M. erythrocalyx*
- 7b. Leaflet blades abaxially pilose on midvein; pseudoracemes pendulous 5. *M. leucantha*
- 1b. Petals outside pubescent.
- 8a. Stipels absent.
- 9a. Leaflet blades broadly elliptic, membranous, both surfaces pubescent, apex acute; legume flat 6. *M. pubinervis*
- 9b. Leaflet blades oblong-elliptic to lanceolate-elliptic or lanceolate to oblong-lanceolate, glabrous or sparsely pilose adaxially, apex caudate; legume inflated.
- 10a. Leaflet blades oblong-elliptic to lanceolate-elliptic, papery, abaxially brown tomentose, adaxially shiny and sparsely pilose 11. *M. sapindifolia*
- 10b. Leaflet blades lanceolate to oblong-lanceolate, subleathery, abaxially sparsely strigose and adaxially glabrous 7. *M. austroyunnanensis*
- 8b. Stipels present.
- 11a. Leaflets 13–19.
- 12a. Stipules ca. 8 mm, persistent; branchlets reddish brown tomentose 8. *M. cubittii*
- 12b. Stipules 1–3 mm, caducous; branchlets yellow tomentose or grayish yellow pubescent.
- 13a. Pseudoracemes 20–25 cm; flowers 1.3–1.6 cm; corolla white or lilac; legume tomentose; trees 8–15 m tall 16. *M. velutina*
- 13b. Pseudoracemes 6–15 cm; flowers 0.9–1.2 cm; corolla pale red to scarlet; legume gray pubescent but glabrescent; erect shrubs or trees 3–8 m tall 17. *M. pulchra*
- 11b. Leaflets (5 or) 7–13 (or 15).
- 14a. Leaf rachis 15–20 cm; leaflet blades 4–5.5 cm 18. *M. oraria*
- 14b. Leaf rachis 25–40 cm; leaflet blades 7–18 cm.
- 15a. Leaflets 5; stems slender, without lenticels 9. *M. lantsangensis*
- 15b. Leaflets 7–13; stems thick, with scattered lenticels.
- 16a. Leaflet blade secondary veins 13–17 on each side of midvein; lianas 10. *M. pachyloba*
- 16b. Leaflet blade secondary veins 7–10 on each side of midvein; trees or erect shrubs.

- 17a. Leaflet blades abaxially glabrescent; inflorescences longer than subtending leaf; flowers ca. 1.8 cm; trees 14. *M. macrostachya*
17b. Leaflet blades abaxially densely brown pubescent especially on veins; inflorescences shorter than subtending leaf; flowers ca. 1 cm; erect shrubs 15. *M. griffithii*

1. *Millettia ichthyochtona* Drake, J. Bot. (Morot) 5: 188. 1891.

闹鱼崖豆 *nao yu ya dou*

Trees, 10–15 m tall. Branchlets flexuous, with longitudinal ridges, glabrous. Buds rounded; scales 6–8, broadly ovate. Leaves 5–9-foliolate; rachis 12–17 cm, including petiole 2–3 cm; leaflet blades subalternate, obliquely ovate, 5–8 × 1.5–2.5 cm, papery, base cuneate and asymmetric, apex acuminate. Pseudoracemes axillary, main axis often repeatedly branched, with white crisped trichomes. Pedicel 1–1.5 cm, slender. Flowers ca. 1.5 cm. Calyx 5–6 mm; teeth triangular. Corolla white; standard broadly ovate, without basal calluses. Stamen monadelphous. Ovary stipitate, glabrous, with 2 ovules. Legume falcate-oblongate, 11–14 × 2–3 cm, flat, thinly woody, smooth, apex shortly beaked; stipe ca. 1 cm. Seeds 1 or 2 per legume, pale brown, ellipsoid, ca. 1.3 × 1 cm, flat, shiny; hilum white. Fl. Feb–Apr, fr. year-round.

Sandy riverbanks; 100–800 m. SE Yunnan [Vietnam].

The pale, nearly white wood is used for construction. The seeds are used as a fish poison. The stems or roots are soaked in water and applied to relieve itching.

2. *Millettia tetraptera* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 42: 69. 1873.

四翅崖豆 *si chi ya dou*

Trees, 15–26 m tall. Branchlets grayish yellow, rough, yellowish tomentose, glabrescent. Leaves 7–11 (or 13)-foliolate; rachis 15–30 cm, including petiole 2–3 cm; stipels absent; leaflet blades elliptic-obovate, 8–13 × 2.5–3.5 cm, papery, abaxially yellow tomentose, base rounded to subcordate, apex obtuse, acute, or retuse. Pseudoracemes axillary at top of branchlets; rachis nodes with clusters of 2–5 flowers. Pedicel ca. 7 mm. Flowers 0.9–1.1 cm. Calyx 2–2.5 mm; teeth shortly triangular. Corolla lilac; standard broadly orbicular, basally thickened and emarginate. Stamens monadelphous. Ovary villous, with 4 ovules. Legume linear to oblong, 15–27 × 3–3.5 cm, flat, base tapering; stipe ca. 2 cm; both sutures with 2 ca. 1 cm wide woody wings perpendicular to them. Seeds 1 or 2 per legume, black, orbicular, ca. 1 cm in diam. Fl. May–Jun, fr. Sep–Jan.

Seasonal rain forests; 700–800 m. S Yunnan [Myanmar].

3. *Millettia leptobotrya* Dunn, J. Linn. Soc., Bot. 41: 189. 1912.

思茅崖豆 *si mao ya dou*

Fordia leptobotrya (Dunn) Schot, Dasuki & Buijsen.

Trees, 18–25 m tall. Bark gray, rough. Branchlets brown pubescent, brittle, glabrescent. Leaves 7- or 9-foliolate; rachis 20–50 cm, including petiole 5–6 cm; leaflet blades oblong-lanceolate, 12–25 × 5–8 cm, papery, secondary veins 11–13 on each side of midvein, base cuneate to obtuse, apex acuminate. Pseudoracemes axillary, 35–50 cm, straight, brown pubescent;

rachis nodes with 2–5 flowers. Pedicel ca. 2 mm. Flowers 1.1–1.3 cm. Calyx ca. 5 mm, pubescent. Corolla white; standard orbicular, without basal calluses. Stamens monadelphous. Ovary sericeous, with 3–5 ovules. Legume linear-oblong, 7–20 × 3.5–4 cm, flat, base obtuse, apex beaked; valves leathery; both sutures obscure. Seeds 1–3 per legume, pale yellow, thickly lenticular, shiny. Fl. Apr, fr. Oct–Jan.

Woodlands on slopes; 300–1000 m. S Yunnan [Laos, Vietnam].

Millettia leptobotrya is represented in China by the typical variety. Another variety, *Millettia leptobotrya* var. *macrocarpa* P. K. L c, is endemic to Vietnam.

4. *Millettia erythrocalyx* Gagnepain, Notul. Syst. (Paris) 2: 356. 1913.

红萼崖豆 *hong e ya dou*

Trees. Bark gray. Branchlets rusty strigose, glabrescent, spotted lenticels prominent. Leaves 7–11-foliolate; rachis ca. 25 cm, including petiole ca. 8 cm; leaflet blades ovate-lanceolate to elliptic-lanceolate, 3–6 × 1.5–2 cm, papery, abaxially scarlet strigose on midvein and margins, adaxially glabrous and shiny, base narrowly cordate, apex caudate. Pseudoracemes axillary near apex of branchlets, 6–7 cm, densely dark brown strigose; rachis nodes with 2 or 3 flowers. Pedicel ca. 3 mm. Flowers ca. 9 mm. Calyx dark red, ca. 3 mm, with sparse trichomes; teeth truncate, ciliate. Corolla lilac; standard glabrous, basally with 2 minute calluses, base rounded. Ovary villous, with 4 or 5 ovules. Legume linear-oblong, 9–10 × ca. 2 cm, flat, slightly curved, brown tomentose when young, glabrescent, base tapered; sutures thickened; valves woody, spirally twisted. Seeds 2 or 3 per legume, chestnut-brown, lenticular, ca. 1.3 × 1 cm, smooth. Fl. Mar–Jun, fr. year-round.

Evergreen broad-leaved forests; 600–700 m. S Yunnan [Cambodia, Laos, Thailand, Vietnam].

5. *Millettia leucantha* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 42: 68. 1873.

垂序崖豆 *chui xu ya dou*

Millettia pendula Bentham ex Baker, nom. illeg. superfl.

Trees, 6–7 m tall. Bark gray. Branchlets smooth, striate, rusty pilose when young, gradually glabrescent, scattered with minute, smooth lenticels. Leaves (5 or) 7- or 9-foliolate; rachis 15–50 cm, including petiole 4.5–14 cm, rusty pilose; stipels aciculate, ca. 1 mm, caducous; petiolules densely pubescent, 5–6 mm; leaflet blades lanceolate to oblong, 8–30 × 2.5–6 cm, papery, abaxially appressed puberulent, pilose along midvein, adaxially sparsely appressed puberulent except along midvein, secondary veins 6–10 on each side of midvein, base rounded or broadly cuneate, apex caudate or long caudate. Pseudoracemes axillary or terminal, pendulous, slender, (15–)25–45 cm, brown pubescent; peduncle 1–4 cm, densely rusty scabrous; rachis nodes with 2–5 flowers. Pedicel 1–3 mm. Flowers 1.1–1.3 cm.

Calyx 5–6 mm, densely brown pubescent; teeth shorter than tube, apex cuspidate. Corolla white; standard broadly orbicular, glabrous, base auriculate, with 2 minute calluses and claw ca. 2.5 mm. Ovary ca. 6 mm, densely sericeous, with (3 or)4 ovules. Legume oblong, flat, 10–17 × 2.7–3.5 cm, woody, brown tomentose, apex obtuse, with a beak. Seeds (3 or)4 per legume, orbicular, ca. 1.5 × 6 mm. Fl. Mar–Apr, fr. Jun–Nov.

Sparse woodlands; ca. 1100 m. S Yunnan (Jiangcheng) [Laos, Myanmar, Thailand].

This species was first recorded from China by Y. Y. Qian (Acta Phytotax. Sin. 39: 464–465. 2001, as *Millettia pendula*).

6. *Millettia pubinervis* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 42: 68. 1873.

薄叶崖豆 bao ye ya dou

Trees, to 8 m tall. Bark gray, rough. Branchlets pubescent, glabrescent. Leaves 7–11-foliolate; rachis 20–25 cm, including petiole 8–12 cm; stipels absent; leaflet blades broadly elliptic, 6–14 × 3–5 cm, membranous, both surfaces appressed pubescent but adaxially sparsely so, base broadly cuneate, apex acute. Pseudoracemes axillary or supra-axillary, 10–15 cm; rachis nodes with 1 or 2 flowers on a ca. 1 mm spur; peduncle 4–5 cm. Pedicel filiform, 4–5 mm. Flowers ca. 1 cm. Calyx ca. 3 mm, densely brown pubescent. Corolla pale red; standard orbicular, without basal calluses, outside finely woolly, base auriculate. Ovary pubescent, with 2–6 ovules. Legume linear, 9–12 × 1.3–2 cm, flat, yellow tomentose, base rounded, apex abruptly beaked; valves thinly leathery, twisted. Seeds 1–3 per legume, dark brown, oblate when immature but unknown when mature. Fl. Apr–Aug, fr. Sep.

Thickets at forest margins; 500–800 m. S Yunnan [Laos, Myanmar, Thailand, Vietnam].

7. *Millettia austroyunnanensis* Y. Y. Qian, Acta Phytotax. Sin. 35: 183. 1997.

滇南崖豆 dian nan ya dou

Trees, 4–6 m tall. Bark gray, rough. Branchlets pubescent. Leaves 7- or 9-foliolate; rachis 20–40 cm, including petiole 3.5–8 cm; stipels absent; leaflet blades lanceolate to oblong-lanceolate, 4–20 × 1.3–5 cm, subleathery, abaxially sparsely strigose, adaxially glabrous, secondary veins 7–11 on each side of midvein, base cuneate, apex caudate. Pseudoracemes axillary, 4–14 cm; rachis nodes with 1 or 2 flowers. Pedicel 1–2 mm. Flowers 1–1.5 cm. Calyx 5–6 mm, densely yellow pubescent. Corolla white; standard orbicular, without basal calluses or auricles, outside puberulent. Ovary stipitate, villous, with 7–9 ovules. Legume linear, 10–15 × 1.8–2.8 cm, woody, inflated, stipitate, gray tomentose, apex beaked. Seeds 3–5 per legume, narrowly ovoid, 2–2.5 cm. Fl. Apr, fr. Sep–Dec.

• Sparse woodlands; ca. 2000 m. S Yunnan.

8. *Millettia cubittii* Dunn, J. Linn. Soc., Bot. 41: 188. 1912.

红河崖豆 hong he ya dou

Trees, 8–10 m tall. Branchlets ridged, reddish brown tomentose, with evident leaf traces. Stipules subulate, ca. 8 mm, sturdy and straight, persistent. Leaves 13–17-foliolate; rachis

25–35 cm, including petiole 7–9 cm; stipels present; leaflet blades oblong-lanceolate, 8–11 × 2.2–3 cm, subleathery, both surfaces appressed brown pubescent on midvein, base rounded and asymmetric, apex acuminate. Pseudoracemes axillary, gathered apically on branchlets, 15–25 cm; rachis nodes laxly arranged, with 2–4 flowers. Pedicel ca. 1 cm. Flowers ca. 2.2 cm. Calyx 6–7 mm. Corolla purple; standard orbicular, outside puberulent, base auriculate and with 2 columnar calluses near claw. Ovary densely red villous, with numerous ovules. Legume linear-oblong, 18–22 × 2.5–3 cm, flat, brown tomentose; valves woody. Seeds ca. 5 per legume, mature ones unknown. Fl. Apr–Jun, fr. Jan.

Woodlands by river margins; 300–1000 m. S Yunnan [Myanmar, Vietnam].

9. *Millettia lantsangensis* Z. Wei, Acta Phytotax. Sin. 23: 277. 1985.

澜沧崖豆藤 lan cang ya dou teng

Callerya lantsangensis (Z. Wei) H. Sun.

Lianas, 2–4 m. Young branchlets, leaf rachises, and inflorescences yellowish green and appressed retrorse hirsute. Branches soft, ridged longitudinally, without lenticels. Stipules linear, ca. 4 mm, apex acuminate. Leaves 5-foliolate; rachis 25–35 cm, including petiole 8–13 cm; stipels acicular, ca. 4 mm; leaflet blades rhombic-ovate, 8–18 × 3.5–6 cm, papery, abaxially densely hirsute, adaxially pilose on midvein, base broadly cuneate and asymmetric, apex acuminate. Pseudoracemes axillary, 30–50 cm, slender; rachis nodes with 3 or 4 clustered flowers densely gathered at apical part; peduncle 6–10 cm. Pedicel ca. 1 mm. Flowers ca. 8 mm. Calyx ca. 6 × 4 mm, densely hirsute; teeth longer than tube, adaxial pair connate. Corolla pale pink; standard orbicular, without basal calluses, outside densely sericeous, base with a short claw. Vexillary stamens free. Ovary shortly stipitate, sericeous, with 10–12 ovules. Legume rhomboid-oblong to clavate, ca. 7 × 3 cm, inflated, brown tomentose, base tapering to short stipe, apex beaked. Seed usually 1 per legume, dark brown, ellipsoid, ca. 2.5 × 2 cm, shiny. Fl. May, fr. Jul.

• Thickets on slopes; 1200–1600 m. SW Yunnan.

10. *Millettia pachyloba* Drake, J. Bot. (Morot) 5: 187. 1891.

海南崖豆藤 hai nan ya dou teng

Callerya pachyloba (Drake) H. Sun; *Derris lasiopetala* Hayata; *Millettia lasiopetala* (Hayata) Merrill; *M. obovata* Gagnepain; *M. pachyloba* var. *lasiopetala* (Hayata) P. K. Lôt.

Lianas, to 20 m. Bark yellow, splitting longitudinally. Branches straight, hollow, densely brown sericeous, glabrescent, sparsely scattered with large lenticels. Leaves 9-foliolate; rachis 25–35 cm, including petiole 6–8 cm; stipels acicular, ca. 3 mm; leaflet blade elliptic-oblong to obovate-oblong, 7–17 × 3–5.5 cm, papery, abaxially yellow sericeous, secondary veins 13–17 on each side of midvein, base rounded, apex acute to obtuse and sometimes emarginate. Pseudoracemes axillary near apex of branchlets, 20–30 cm, brown sericeous; rachis nodes with 3–7 flowers clustered on a 4–5 mm spur. Pedicel 2–3 mm. Flowers 1.2–1.5 cm. Calyx ca. 3 × 4–5 mm, sericeous. Corolla

lilac; standard without basal calluses, outside sericeous. Ovary sericeous, with 4–6 ovules. Legume rhomboid-oblong, 5–8 × 3–4 cm, inflated, woody, yellow tomentose, base rounded, apex beaked. Seeds 1–4 per legume, dark brown, ovoid, shiny, 1.8–2 × ca. 1.5 cm. Fl. Apr–Jun, fr. Jul–Nov.

Evergreen broad-leaved forests in valleys; below 1500 m. Guangdong, Guangxi, SW Guizhou, Hainan, SW Hunan, Yunnan [Vietnam].

Millettia pachyloba is represented in China by the typical variety. Another variety, *Millettia pachyloba* var. *spireana* (Gagnepain) P. K. L c, occurs in Cambodia, Laos, Thailand, and Vietnam.

11. *Millettia sapindifolia* T. C. Chen, Acta Phytotax. Sin. 3: 361. 1954.

无患子叶崖豆藤 wu huan zi ye ya dou teng

Lianas. Branchlets yellow tomentose. Leaves 7–11-foliolate; rachis 25–30 cm, including petiole 3.5–5.5 cm; stipels absent; leaflet blades oblong-elliptic to lanceolate-elliptic, 6.5–11 × 2.8–3.5 cm, papery, abaxially brown tomentose, adaxially shiny and sparsely pilose, secondary veins 9–12 on each side of midvein, base broadly cuneate, apex caudate. Pseudoracemes axillary near apex of branchlets, 15–27 cm, yellow tomentose; rachis nodes with 3–5 flowers clustered on a 2–3 mm spur. Pedicel 2–3 mm. Flowers ca. 1.2 cm. Calyx ca. 5 mm. Corolla white; standard obovate, outside brown sericeous, apex emarginate. Vexillary stamen free. Ovary shortly stipitate, sericeous, with 3 or 4 ovules. Legume (immature) oblong, inflated, densely yellow villous, base tapering to stipe, apex beaked. Mature seeds unknown. Fl. Jun–Jul, fr. Jul–Aug.

• Thickets on slopes; 1100–1200 m. Guangxi, Guizhou.

12. *Millettia pachycarpa* Benth in Miquel, Pl. Jungh. 250. 1852.

厚果崖豆藤 hou guo ya dou teng

Millettia dunnii Merrill; *M. fooningensis* Hu; *M. taiwaniana* (Hayata) Hayata; *Pongamia taiwaniana* Hayata; *Whitfordiodendron taiwaniana* (Hayata) Ohwi.

Lianas, to 15 m. Branchlets brown, yellow tomentose when young, glabrescent, scattered with brown lenticels. Leaves 13–17-foliolate; rachis 30–50 cm, including petiole 7–9 cm; leaflet blades elliptic-oblong to lanceolate-oblong, 10–18 × 3.5–4.5 cm, papery, abaxially brown appressed sericeous, adaxially flat and glabrous, base cuneate to rounded, apex acute. Pseudoracemes with 2–6 branches beneath new stems, 15–30 cm, brown tomentose; rachis nodes with 2–5 flowers clustered on a 1–3 mm spur. Pedicel 6–8 mm. Flowers 2.1–2.3 cm. Calyx ca. 6 mm. Corolla lilac; standard obovate, glabrous or ciliate on apical margin, without basal calluses. Ovary tomentose, with 5–7 ovules. Legume dark brown, oblong or when 1-seeded ovoid, 5–25 × ca. 4 cm, inflated, densely covered with pale yellow warts, glabrescent; valves thick, woody. Seeds 1–5 per legume, dark brown, reniform, 2.5–3.5 × ca. 2 cm. Fl. Apr–Jun, fr. Jul–Nov. $2n = 22$.

Evergreen broad-leaved forests in valleys; 100–2000 m. Fujian, Guangdong, Guangxi, Guizhou, SW Hubei, Hunan, S Jiangxi, Sichuan, Taiwan, SW Xizang, Yunnan, S Zhejiang [Bangladesh, Bhutan, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

The seeds and roots are ground into a powder that is used as an insecticide. The bark fiber is used for making rough ropes.

13. *Millettia entadoides* Z. Wei, Acta Phytotax. Sin. 23: 278. 1985.

榿藤子崖豆藤 ke teng zi ya dou teng

Lianas. Branchlets yellow, trailing, glabrous, with dense prominent tiny lenticels. Leaves 7–13-foliolate; rachis 20–30 cm, including petiole 8–10 cm; leaflet blades oblanceolate to oblong, 9–12 × 2–3 cm, papery, glabrous, secondary veins 9–12 on each side of midvein, base broadly cuneate, apex caudate. Pseudoracemes axillary or cauliflorous, 12–15 cm, glabrescent; rachis nodes with 2 or 3 clustered flowers. Pedicel ca. 5 mm. Calyx ca. 4 × 5 mm; teeth obscure. Corolla unknown. Legume yellow, linear-oblong, ca. 20 × 4 cm, inflated, woody, glabrous, contracted between seeds, both ends rounded; sutures thickened. Seeds 2–4 per legume, dark brown, reniform, ca. 3 × 2.6 cm. Fl. Apr, fr. Aug–Nov.

• Thickets on upland slopes; 1500–2600 m. SW Yunnan.

14. *Millettia macrostachya* Collett & Hemsley, J. Linn. Soc., Bot. 28: 41. 1890.

大穗崖豆 da sui ya dou

Millettia macrostachya var. *multifoliolata* Y. Y. Qian.

Trees, to 10 m tall. Branchlets dark brown, ridged, glabrous, scattered with fine lenticels. Leaves 7–11 (or 13)-foliolate; rachis 30–40 cm, including petiole 8–9 cm; stipels present; leaflet blades broadly oblong to obovate-elliptic, 8–16 × 4–8 cm, papery, both surfaces glabrescent, secondary veins 8–10 on each side of midvein, base broadly cuneate and slightly asymmetric, apex acute. Pseudoracemes axillary, 35–50 cm, longer than subtending leaf, thick, straight, slightly puberulent; rachis nodes ± whorled with 3–7 flowers clustered on a 2–4 mm spur. Pedicel 4–5 mm, brown puberulent. Flowers ca. 1.8 cm. Calyx ca. 7 mm. Corolla pale red to lilac; standard orbicular, without basal calluses, outside puberulent, base auriculate, apex purple striped. Ovary with trichomes, with numerous ovules. Legume linear, 8–22 × ca. 1.5 cm, leathery, apex beaked; sutures thickened. Seeds 5–8 per legume, olive-green, ellipsoid, ca. 1.5 × 8 mm. Fl. Mar, fr. Jun–Aug.

Thickets on slopes; 800–900 m. S Yunnan [Myanmar].

This species occasionally is cultivated in courtyards.

15. *Millettia griffithii* Dunn, J. Linn. Soc., Bot. 41: 146. 1912.

孟连崖豆 meng lian ya dou

Shrubs, erect. Branchlets grayish brown, yellow pubescent when young, glabrescent, scattered with lenticels. Leaves 7–13-foliolate; rachis 25–40 cm, including petiole 4–8 cm; stipels present; leaflet blades oblong-lanceolate, 7–16 × 4–5 cm, papery, abaxially densely brown pubescent especially on veins, adaxially glabrescent, secondary veins 8–10 on each side of midvein, base cuneate, apex acute. Pseudoracemes axillary, gathered apically on branchlets, ca. 20 cm, shorter than subtending leaf; rachis nodes sparse, with 1–3 flowers clustered on a short spur. Pedicel 1.5–2 mm, finely puberulent. Flowers ca. 1

cm. Corolla pale pink; standard orbicular, outside apically puberulent. Ovary stipitate, with trichomes, with 3 ovules. Legume linear, 9–10 × ca. 1.5 cm, flat, appressed cream-colored pubescent, apex rounded and with a short beak; valves thinly leathery, twisted; suture conspicuously thickened. Seeds ca. 3 per legume, oblate when immature, unknown when mature. Fl. May–Jul, fr. Aug–Nov.

Sparse woodlands on slopes, near villages; ca. 1100 m. S Yunnan [Myanmar].

16. *Millettia velutina* Dunn, J. Linn. Soc., Bot. 41: 149. 1912.

绒毛崖豆 rong mao ya dou

Millettia yunnanensis Pampanini var. *robusta* Pampanini.

Trees, 8–15 m tall. Bark grayish brown, rough. Branchlets yellow tomentose, gradually glabrescent, scattered with minute prominent lenticels. Leaves 15–19-foliolate; rachis 25–30 cm, including petiole 5–7 cm; stipels ca. 1.5 mm, caducous; leaflet blades oblong-lanceolate to oblong, 4–9 × 1.5–2.5 cm, papery, abaxially yellow velutinous especially on veins, adaxially finely appressed pubescent, secondary veins 7 on each side of midvein, base obtuse to broadly cuneate, apex acute. Pseudoracemes axillary, 20–25 cm, shorter than subtending leaf; rachis nodes with 4 or 5 flowers clustered on a short decumbent spur; peduncle 3.5–8 cm, yellow tomentose. Pedicel 4–5 mm. Flowers 1.3–1.6 cm. Calyx ca. 5 mm; teeth longer than tube, cuspidate. Corolla white or lilac; standard broadly orbicular, outside apically sparsely puberulent. Ovary densely sericeous, with 6 or 7 ovules. Legume linear, 9–14 × 1.3–1.6 cm, flat, thinly leathery, brown tomentose, apex truncate and with a beak; suture prominent. Seeds 3–5 per legume, chestnut-brown, oblong, ca. 12 × 8 mm, compressed. Fl. May–Aug, fr. Jul–Nov.

• Thickets, woodlands, evergreen broad-leaved forests; 500–1900 m. N Guangdong, N Guangxi, S Guizhou, S Hunan, SW Sichuan, Yunnan.

17. *Millettia pulchra* (Benth) Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 42: 69. 1873.

印度崖豆 yin du ya dou

Shrubs or trees, 3–8 m tall. Branchlets and inflorescences grayish yellow pubescent, glabrescent. Leaves 13–19-foliolate; rachis 8–20 cm, including petiole 3–4 cm; stipels acicular, 1–3 mm, caducous; petiolules ca. 2 mm, with trichomes; leaflet blades lanceolate, elliptic-lanceolate, narrowly elliptic, oblong, or ovate, 1.2–10 × 0.7–4 cm, papery to stiffly papery, abaxially pale green, adaxially dark green, base attenuate, cuneate, or subcordate and symmetric or slightly asymmetric, apex acute to attenuate. Pseudoracemes axillary, 6–15 cm; rachis nodes with 3 or 4 clustered flowers. Pedicel 3–4 mm. Flowers 0.9–1.2 cm. Calyx ca. 4 mm; teeth triangular, shorter than tube. Corolla pale red to scarlet; standard oblong, distally outside somewhat pubescent, apex retuse. Ovary pubescent, with 5 ovules. Legume linear, 5–10 × 1–1.5 cm, flat, gray pubescent but glabrescent; valves subleathery. Seeds 2–4 per legume, brown, ellipsoid, ca. 1 cm. Fl. Apr–Aug, fr. Jun–Oct.

Open places of lowland woodlands, thickets, grasslands, sparse or mixed woodlands, woodland margins; near sea level to 1700 m. Fujian,

Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, S Taiwan, Yunnan [India, Laos, Myanmar, Vietnam].

- 1a. Leaflet blades adaxially glabrous but pilose on midvein and margins when young.
- 2a. Leaflet blades ovate, 1.2–1.8 cm, base subcordate and asymmetric 17f. var. *parvifolia*
- 2b. Leaflet blades elliptic, 2–6 cm, base cuneate-rounded and symmetric 17g. var. *microphylla*
- 1b. Leaflet blades adaxially pubescent or villous.
- 3a. Leaflet blades 2–3.5(–6) cm.
 - 4a. Leaflet blades lanceolate, midvein adaxially flat, secondary veins 5 or 6 on each side of midvein 17a. var. *pulchra*
 - 4b. Leaflet blades narrowly elliptic, midvein adaxially sunken, secondary veins 8 or 9 on each side of midvein 17c. var. *chinensis*
- 3b. Leaflet blades 3.5–10 cm.
 - 5a. Leaflet blades oblong, base conspicuously asymmetric 17e. var. *yunnanensis*
 - 5b. Leaflet blades lanceolate-elliptic, base symmetric or only slightly asymmetric.
 - 6a. Leaflet blades abaxially appressed pilose 17b. var. *laxior*
 - 6b. Leaflet blades abaxially gray tomentose 17d. var. *tomentosa*

17a. *Millettia pulchra* var. *pulchra*

印度崖豆(原变种) yin du ya dou (yuan bian zhong)

Mundulea pulchra Benth in Miquel, Pl. Jungh. 248. 1852; *Tephrosia tutcheri* Dunn.

Leaves and inflorescences gathered near apex of branchlets. Leaflet blades lanceolate, 2–3.5(–6) × 0.7–1.5 cm, abaxially appressed pubescent, adaxially sparsely puberulent, midvein adaxially flat, secondary veins 5 or 6 on each side of midvein, base attenuate to cuneate, apex acuminate.

Open places of lowland woodlands; near sea level to 1200 m. Guangxi, Guizhou, Hainan, Yunnan [India, Laos, Myanmar].

17b. *Millettia pulchra* var. *laxior* (Dunn) Z. Wei, Acta Phytotax. Sin. 23: 280. 1985.

疏叶崖豆 shu ye ya dou

Millettia pulchra f. *laxior* Dunn, J. Linn. Soc., Bot. 41: 151. 1912.

Leaves and inflorescences scattered on branches rather than near apex of branchlets. Leaflet blades oblong-elliptic, 3.5–10 × 1.5–4 cm, abaxially pale green and finely appressed pilose, adaxially pubescent, secondary veins 6 or 7 on each side

of midvein, base symmetric or only slightly asymmetric, apex acute.

Thickets on riverbanks; 200–1100 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Yunnan [India].

17c. *Millettia pulchra* var. *chinensis* Dunn, J. Linn. Soc., Bot. 41: 152. 1912.

华南小叶崖豆 *hua nan xiao ye ya dou*

Millettia chenkangensis Hu.

Leaflet blades narrowly elliptic, 2–3.5(–6) cm, adaxially pubescent but glabrescent, midvein adaxially sunken, secondary veins 8 or 9 on each side of midvein and curved toward apex, both ends acute but sometimes apex retuse, margins slightly revolute. Calyx teeth cuspidate.

• Grasslands, sparse woodlands; 800–1500 m. Guangxi, Yunnan.

17d. *Millettia pulchra* var. *tomentosa* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 66: 358. 1897.

绒叶印度崖豆 *rong ye yin du ya dou*

Leaflet blades 3.5–10 cm, abaxially gray tomentose, adaxially villous but become sparsely so with age, base symmetric or only slightly asymmetric. Calyx with dense trichomes.

Thickets on dry slopes; 100–800 m. Guangxi, Yunnan [India, Myanmar].

17e. *Millettia pulchra* var. *yunnanensis* (Pampanini) Dunn, J. Linn. Soc., Bot. 41: 152. 1912.

云南崖豆 *yun nan ya dou*

Millettia yunnanensis Pampanini, Nuovo Giorn. Bot. Ital., n.s., 17: 26. 1910.

Leaflet blades oblong, 3.5–10 cm, adaxially pubescent, secondary veins 6 or 7 on each side of midvein, adaxially sunken, and densely yellow villous, base conspicuously asymmetric, apex acute.

Thickets, sparse woodlands; 500–1200 m. Yunnan [Myanmar].

17f. *Millettia pulchra* var. *parvifolia* Z. Wei, Acta Phytotax. Sin. 23: 281. 1985.

景东小叶崖豆 *jing dong xiao ye ya dou*

Leaflet blades ovate, 1.2–1.8 cm, adaxially glabrous but pilose on midvein and margin when young, base subcordate and asymmetric.

• Thickets, woodland margins; ca. 1700 m. S Yunnan.

17g. *Millettia pulchra* var. *microphylla* Dunn, J. Linn. Soc., Bot. 41: 512. 1912.

台湾小叶崖豆 *tai wan xiao ye ya dou*

Leaflet blades elliptic, 2–6 cm, abaxially gray villous especially on margins, secondary veins 4 or 5 on each side of midvein but obscure, base cuneate-rounded and symmetric. $2n = 22^*$.

• Thicket margins; below 200 m. S Taiwan.

18. *Millettia oraria* (Hance) Dunn, J. Linn. Soc., Bot. 41: 149. 1912.

香港崖豆 *xiang gang ya dou*

Tephrosia oraria Hance, J. Bot. 24: 17. 1886.

Shrubs or trees, to 5 m tall, erect. Bark smooth, dark gray. Branchlets ridged, tomentose, scattered with prominent lentils. Stipules lanceolate, 2–3 mm. Leaves (7 or)9–13(or 15)-foliolate; rachis 15–20 cm, including yellow tomentose petiole 3.5–4.5 cm; stipels present; leaflet blades broadly ovate to elliptic, 4–5.5 × 2–3 cm, papery, abaxially tomentose, adaxially densely pubescent, secondary veins 6 or 7 on each side of midvein and reaching to margins, base rounded to subcordate, apex rounded. Pseudoracemes axillary, gathered near apex of branchlets, shorter than subtending leaf, yellow tomentose. Flowers 8–11 mm. Calyx ca. 3 mm. Corolla purple; standard suborbicular, outside puberulent. Ovary sericeous, with 2–4 ovules. Legume linear, 5–9 × 1–1.5 cm, flat, brown tomentose, somewhat glabrescent. Seeds 2 or 3 per legume, orange, oblate, ca. 7 mm. Fl. May–Jul, fr. Nov–Dec.

• Thickets; 300–800 m. Guangdong, S Guangxi.

