

2. **AKEBIA** Decaisne, Compt. Rend. Hebd. Séances Acad. Sci. 5: 394. 1837.

木通属 mu tong shu

Woody climbers, deciduous or subevergreen. Monoecious. Stems twining. Winter bud outer scales numerous, persistent. Leaves alternate or clustered on short branches; petiole long; leaf blade palmately compound, 3–5(–7)-foliolate; leaflet margin entire, sinuate, or undulate. Inflorescences axillary, racemose, sometimes umbellate; bracts subtending inflorescences, persistent, scaly. Sepals usually 3(–6), purplish red or greenish white, subvalvate, reflexed at anthesis. Petals absent. Male flowers: borne apically on inflorescence. Stamens free; filaments very short; anthers incurved at anthesis. Pistillodes small. Female flowers: 1 or 2 basally on inflorescence, larger than male flowers. Carpels 3–9(–12), free, cylindrical. Stigma capitate. Fruit fleshy follicles, dehiscent along abaxial suture. Seeds numerous, in several rows within pulp, slightly compressed; embryo small.

Five species: China, Japan, Korea; four species (two endemic) in China.

1a. Leaves 3(–5)-foliolate.

- 2a. Leaflet margin usually sinuate-dentate; sepals of male flowers 2–3 mm ..... 3. *A. trifoliata*
- 2b. Leaflet margin subentire; sepals of male flowers 1–2 mm ..... 4. *A. chingshuiensis*

1b. Leaves (3–)5(–7)-foliolate.

- 3a. Racemes 6–12 cm, 4–8(–11)-flowered; sepals of male flowers 6–8 mm; leaflets papery, abaxially glaucous ..... 1. *A. quinata*
- 3b. Racemes 12–18 cm, 23–35(–43)-flowered; sepals of male flowers 4–4.5 mm; leaflets subleathery, abaxially pale green ..... 2. *A. longeracemosa*

1. ***Akebia quinata*** (Houttuyn) Decaisne, Arch. Mus. Hist. Nat. 1: 195. 1839.

木通 mu tong

*Rajania quinata* Houttuyn, Nat. Hist. 11: 366. 1779; *Akebia micrantha* Nakai; *A. quinata* var. *polyphylla* Nakai; *A. quinata* var. *yiehii* W. C. Cheng.

Woody climbers, deciduous. Stems grayish brown, slender, cylindrical; lenticels prominent, small, orbicular. Winter bud outer scales imbricate, pale red-brown. Petiole slender, 4.5–10 cm; petiolules slender, 0.8–1.5(–2.5) cm; leaflets (3–)5(–7), obovate to obovate-elliptic, papery, abaxially glaucous, adaxially dark green, base rounded to broadly cuneate, apex rounded and usually emarginate and cuspidate; lateral leaflets 2–5 × 1.5–2.5 cm; terminal leaflet 2.5–5(–7) cm. Racemes fascicled, 6–12 cm; bracts imbricate, scaly; peduncle ca. 2.5 cm, axillary on short branches. Flowers slightly fragrant. Male flowers: 4–8 (–11). Pedicel slender, 7–10 mm. Sepals 3(–5), pale purple, occasionally pale green or white, broadly cucullate-ovate, 6–8 × 4–6 mm, apex rounded. Stamens 6(or 7), straight at first, incurved at length; filaments very short; anthers oblong. Pistillodes 3–6, small. Female flowers: pedicel slender, 2–4(–5) cm. Sepals dark purple, occasionally green or white, broadly elliptic to suborbicular, 1–2 × 0.8–1.5 cm. Staminode 6–9. Carpels 3–6(–9). Fruit purplish at maturity, straight or slightly incurved, oblong to ellipsoid, 5–8 × 3–4 cm. Seeds ovoid-oblong, compressed, pulp white; seed coat brown to black, shiny. Fl. Apr–May, fr. Jun–Aug.

Forest margins along streams, scrub on mountain slopes; 300–1500 m. Anhui, Fujian, Henan, E Hubei, E Hunan, Jiangsu, N Jiangxi, Shandong, Sichuan, Zhejiang [Japan, Korea].

The roots, stems, and fruits are used medicinally.

2. ***Akebia longeracemosa*** Matsumura, Bot. Mag. (Tokyo) 13: 18. 1899.

长序木通 chang xu mu tong

*Akebia quinata* (Houttuyn) Decaisne var. *longeracemosa* (Matsumura) Rehder & E. H. Wilson.

Woody climbers, subevergreen. Stems grayish brown when dry, longitudinally striate; branches slender, ca. 5 mm in diam.; lenticels orbicular. Petiole 7–10 cm; petiolules 0.8–1.5 cm, terminal one longest; leaflets 5, oblong to obovate-oblong, 4–9.5 × 2–4 cm, subleathery, abaxially pale green, base cuneate to obtuse, margin entire, apex rounded and usually emarginate and cuspidate; primary veins 3. Inflorescences clustered with leaves; bracts persistent, scaly. Racemes 1–3, fascicled, 12–18 cm, slender; peduncle 3.5–7 cm. Male flowers: 23–35(–43). Pedicel slender, ca. 5 mm; bracteoles linear, subulate. Sepals 3, reddish purple, elliptic-oblong to broadly elliptic, 4–4.5 × ca. 3 mm, reflexed at anthesis. Stamens ca. 3 mm; filaments less than 1 mm. Female flowers: 1 or 2, or absent. Pedicel 4.5–5 cm. Sepals 3, reddish purple, broadly elliptic to suborbicular, 1–1.2 × 0.8–1 cm. Staminodes minute. Carpels 6–9, cylindrical. Fruit solitary or paired, reddish purple at maturity, oblong, 6–7 × ca. 2 cm, longitudinally wrinkled when dry. Fl. Mar–Apr, fr. Aug.

• Evergreen forests, mountain slopes, 300–1600 m. Fujian, N Guangdong, S Hunan, C Taiwan.

3. ***Akebia trifoliata*** (Thunberg) Koidzumi, Bot. Mag. (Tokyo) 39: 310. 1925.

三叶木通 san ye mu tong

Woody climbers, deciduous or subevergreen. Stems grayish brown, verruculose, laxly lenticellate. Petiole 7–11 cm; lateral petiolules 6–12 mm; terminal petiolule 2–4 cm; leaflets 3 (–5), ovate, ovate-oblong, or broadly

ovate, 3–8 × 1.5–6 cm, papery, subleathery, or leathery, abaxially pale green, adaxially dark green, base truncate, rounded, cordate, or cuneate, margin sinuate, shallowly lobed, subentire, or entire, apex obtuse to narrowly rounded and slightly emarginate, cuspidate. Racemes axillary on short branches, 6–16 cm; peduncle slender, 3–5 cm. Male flowers: 15–30. Pedicel filiform, 2–5 mm. Sepals 3 or 4, pale purple to purple, broadly elliptic, elliptic, or oblong. Stamens 6; filaments very short; anthers incurved at anthesis. Pistillodes 3, oblong-subulate. Female flowers: pedicel 1.5–3 cm, slightly thicker than in male flower. Sepals 3, purplish brown, dark purple, or purplish black, suborbicular, sublinear, or narrowly oblong. Carpels 4–9, straight, 4–6 mm. Fruit oblong, straight or slightly curved. Seeds ovoid, 5–7 × 4–5 mm. Fl. Apr–May, fr. Jun–Sep.

Semideciduous forest margins, open forest along valleys, scrub on hillsides, by streams; 200–2100 m. Anhui, Fujian, SE Gansu, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Shandong, S Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan]. The roots, stems, and fruits are used medicinally.

- 1a. Sepals of male flowers oblong, more than 2 × as long as stamens 3c. subsp. *longisepala*  
1b. Sepals of male flowers elliptic to broadly elliptic, ± as long as stamens.  
2a. Leaflets papery to subleathery, margin sinuate to shallowly lobed 3a. subsp. *trifoliata*  
2b. Leaflets leathery, margin usually entire, very rarely irregularly sinuate ..... 3b. subsp. *australis*

### 3a. *Akebia trifoliata* subsp. *trifoliata*

三叶木通(原亚种) san ye mu tong (yuan ya zhong)

*Clematis trifoliata* Thunberg, Trans. Linn. Soc. London 2: 337. 1794; *Akebia clematifolia* Siebold & Zuccarini; *A. lobata* Decaisne var. *clematifolia* (Siebold & Zuccarini) Ito; *A. quercifolia* Siebold & Zuccarini; *A. sempervirens* Nakai; *A. trifoliata* var. *clematifolia* (Siebold & Zuccarini) Nakai; *A. trifoliata* var. *honanensis* T. Shimizu.

Leaflets 3, ovate to broadly ovate, 3–8 × 2–6 cm, papery to subleathery, base truncate to rounded, margin sinuate to shallowly lobed, apex obtuse to slightly emarginate and cuspidate. Racemes 6–16 cm. Male flowers: pedicels 2–5 mm. Sepals 3, pale purple, broadly elliptic to elliptic, 2.5–3 mm. Stamens 2.5–3 mm. Female flowers: sepals purplish brown, suborbicular, 1–1.2 × ca. 1 cm. Carpels 6–9. Fruit grayish white and slightly pale purple at maturity, oblong, 6–8 × 2–4 cm.

Open forest along valleys, scrub on hillsides; 200–2000 m. SE Gansu, S Henan, W Hubei, S Shaanxi, Shandong, S Shanxi, Sichuan [Japan].

3b. *Akebia trifoliata* subsp. *australis* (Diels) T. Shimizu, Quart. J. Taiwan Mus. 14: 201. 1961.

白木通 bai mu tong

*Akebia lobata* Decaisne var. *australis* Diels, Bot. Jahrb. Syst. 29: 344. 1901; *A. chaffanjonii* H. Léveillé; *A. trifoliata* var. *australis* (Diels) Rehder; *A. trifoliata* subsp. *australis* var. *honanensis* T. Shimizu; *A. trifoliata* var. *integrifolia* T. Shimizu.

Leaflets 3, ovate-oblong to ovate, 4–7 × 1.5–3(–5) cm, leathery, base rounded, broadly cuneate, truncate, or cordate, margin usually entire, very rarely irregularly sinuate, apex narrowly rounded, slightly emarginate, and cuspidate. Racemes axillary on short branches. Male flowers: sepals 3, purple, broadly elliptic to elliptic, 2–3 mm. Stamens red to purplish red when fresh, brown to pale brown when dry, ca. 2.5 mm. Female flowers: sepals dark purple, 9–12 × 7–10 mm. Carpels 5–7, purple. Fruit yellowish brown at maturity, 6–8 × 3–5 cm. Seeds blackish brown, ovoid. Fl. Apr–May, fr. Jun–Sep.

• Open forest along valleys, among shrubs on mountain slopes; 300–2100 m. Anhui, Fujian, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, S Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

3c. *Akebia trifoliata* subsp. *longisepala* H. N. Qin, Cathaya 8–9: 71. 1997.

长萼三叶木通 chang e san ye mu tong

Stems with purplish brown bark; lenticels numerous. Leaves 8–16 cm; petiole 5–8.5 cm; leaflets 3(–5), ovate to ovate-oblong, 3–6 × 2–3.5 cm, leathery, base truncate to cuneate, margin subentire, apex obtuse; primary veins 3 from base. Racemes axillary, 6–8 cm, with 7 or 8 male and 2 female flowers. Male flowers: pedicel ca. 5 mm. Sepals 3 or 4, oblong, 0.9–1.2 cm. Stamens 2.5–3.5 mm. Female flowers: pedicel 1.5–3 cm. Sepals purplish black, sublinear to narrowly oblong, 2.2–2.7 cm. Carpels 4–6, cylindrical, 4–6 mm. Fruit not seen. Fl. Apr.

• Semideciduous forest margins, hillsides, by streams; 600–800 m. SE Gansu (Wen Xian).

4. *Akebia chingshuiensis* T. Shimizu, Quart. J. Taiwan Mus. 14: 201. 1961.

清水山木通 qing shui shan mu tong

Woody climbers, deciduous or subevergreen. Leaves herbaceous; petiole 3–5 cm; leaflets 3, petiolulate, ovate, 2–3 × 1–1.5 cm, glabrous, base round to broadly cuneate, margin subentire, apex emarginate and mucronate. Racemes axillary on short branches, ca. 10 cm; peduncle slender, 4–6 cm. Male flowers 10–20. Pedicel filiform, 2–3 mm. Bracts paleaceous, linear, subulate. Sepals 3, reflexed, elliptic, navicular, 1–2 mm, glabrous. Female flowers 1 or 2. Pedicel 1–1.3 cm, filiform. Sepals 3, black purple, obovate, navicular, 5–7 mm. Carpels 3 or 4. Fruit unknown. Fl. Apr–May.

• Open forests in mountains on limestone slopes; 1500–2400 m. Taiwan.

