

43. CLADRASTIS Rafinesque, Cincinnati Lit. Gaz. 1(8): 60. 1824.

香槐属 *xiang huai shu*

Bao Bojian (包伯坚); Michael A. Vincent

Trees, deciduous, rarely woody lianas; bud enclosed within inflated base of petiole. Leaves imparipinnate; stipules absent; stipels present or absent; leaflets alternate or subopposite, membranous, entire. Paniculate racemes terminal; bracts and bracteoles caducous. Calyx campanulate; teeth 5. Corolla white (or pink); petals subequal. Stamens 10, free; filaments distinct or slightly joined at base; anthers versatile. Ovary linear-lanceolate, shortly stalked; ovules few to many; style incurved; stigmas small. Legume compressed, winged or not, tardily dehiscent. Seeds 1 to many.

Eight species: SE Asia and E North America; six species (five endemic) in China.

See the synopsis of *Cladrastis* by Duley and Vincent (Rhodora 105: 205–239. 2003).

- 1a. Leaflets dark green adaxially, paler abaxially, stipels and bracteoles absent; legumes wingless.
 - 2a. Leaflets ovate-lanceolate or oblong-lanceolate, broadest near rounded base; flowers up to 1.5 cm; ovary pilose 2. *C. delavayi*
 - 2b. Leaflets ovate or oblong-ovate, broadest at or above middle, base acute; flowers ca. 2 cm; ovary densely sericeous 6. *C. wilsonii*
- 1b. Leaflets concolorous, stipels present; bracteoles usually caducous; legume margins winged.
 - 3a. Leaflets less than 4 cm, nearly membranous; panicle less than 10 cm 3. *C. parvifolia*
 - 3b. Leaflets more than 4 cm, papery; panicle 15–20 cm.
 - 4a. Wooden lianas or climbing shrubs; wings and keels smaller than standard 5. *C. scandens*
 - 4b. Trees; wings and keels larger than standard.
 - 5a. Stipels simple, subulate, 1 on each side of pulvinus; fruit apex and base acute; leaflets typically 11 or more 4. *C. platycarpa*
 - 5b. Stipels branched and/or 2 or more on each side of pulvinus; fruit apex and base rounded; leaflets typically 9 or fewer 1. *C. chingii*

1. *Cladrastis chingii* Duley & Vincent, Rhodora 105: 217. 2003.

秦氏香槐 *qin shi xiang huai*

Trees, to 13 m tall; bark gray or gray-brown, smooth, lenticellate. Leaves imparipinnately compound; leaflets 9 or fewer, alternate; stipels 1 or 2 or more on each side of pulvinus, simple or branched; petiolule 3–5 mm, white hairy when young, then glabrous; blades ovate to elliptic, 3.9–7.8 × 1.2–3.5 cm, somewhat leathery, glabrous to sparsely white pilose along main vein abaxially, yellow-green and glabrous adaxially, veins raised on both surfaces, base rounded to broadly cuneate, apex acute-acuminate. Panicle terminal, to 30 cm, erect; bracteoles caducous. Calyx campanulate, 4.5–4.8 mm, rusty brown tomentose. Corolla white; standard elliptic or ovate-elliptic, ca. 5.6 × 5.1 mm, rounded at apex, claw ca. 1.5 mm; wings sagittate, ca. 6 × 3.4 mm, auriculate at base, obtuse at apex; keels lanceolate, ca. 6 × 3.4 mm, auriculate at base. Ovary sessile, densely white sericeous; ovules 3–6; style slightly curved, glabrous. Legumes oblong, flat, 6–8 cm, rounded to acute at apex, winged, with 1–3 seeds. Fl. Apr–May, fr. Jun–Aug.

• Hill forests. Guangxi, Hunan, Yunnan, Zhejiang.

2. *Cladrastis delavayi* (Franchet) Prain, Ann. Roy. Bot. Gard. (Calcutta) 10: 109. 1904.

小花香槐 *xiao hua xiang huai*

Dalbergia delavayi Franchet, Pl. Delavay. 186. 1890; *Cladrastis sinensis* Hemsley.

Trees, to 20 m tall. Young branches gray-brown hairy.

Leaves imparipinnate, to 20 cm; leaflets 9–13, alternate; stipels absent; petiolule 1–3 mm; blades ovate-lanceolate or oblong-lanceolate, 3.9–11.3 × 1.7–3.8 cm, gray-white hairy abaxially, dark green and glabrous adaxially, veins obviously raised abaxially with obvious veinlets, base obtuse or slightly cordate, apex acuminate or obtuse. Panicle terminal, 12–30 cm; bracts caducous. Calyx campanulate, 4.6–6.9 mm, with 5 semiorbicular teeth, densely whitish rusty brown pubescent. Corolla white or light yellow, rarely pink; standard obovate or orbicular, 6.4–14.4 mm, retuse at apex, narrowing to claw at base, claw 0.6–3.2 mm; wings sagittate, 6.4–9.6 mm, claw 2.1–4 mm; keels lanceolate, 6.2–10.5 mm, auriculate at base. Ovary linear, light yellow pilose, 6–10-ovuled. Legumes flat, elliptic or long elliptic, wingless, 3–8 × 1–2 cm, with 1–3(–5) seeds. Seeds brown, ovoid, compressed, ca. 4 × 2 mm. Fl. Jun–Aug, fr. Aug–Oct.

• Warm hill forests; 1000–2500 m. Fujian, Gansu, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

3. *Cladrastis parvifolia* C. Y. Ma, Bull. Bot. Res., Harbin 2(1): 110. 1982.

小叶香槐 *xiao ye xiang huai*

Trees; bark gray-white or brown, lenticellate. Young branches green, glabrous. Leaves imparipinnate, 10–15 cm; petiole gray-brown pilose; leaflets 3- or 4-paired; stipel subulate, glabrous; petiolule ca. 4 mm, brown pubescent; blades ovate, 2–4 × ca. 2 cm, membranous, pilose along veins abaxially, veins obviously raised abaxially with obvious veinlets, base obtuse, apex acuminate. Panicle terminal; rachis slender, 5–10 cm, gray-brown hairy. Flowers ca. 7 mm; pedicel short,

ca. 4 mm, pubescent. Calyx cup-shaped, with 2 caducous bracts at base, unequally toothed, hairy. Corolla white; standard oblong, ca. 7 × 3.5 mm, rounded at apex, narrowing to claw at base, claw ca. 1.5 mm; wings ovate-oblong, claw ca. 2 mm; keels similar to wings. Ovary densely gray-white sericeous; style erect. Legumes narrowly winged on both sides, pilose. Fl. Oct.

- Guangxi.

This taxon is doubtfully a species of *Cladrastis*, and according to Duley and Vincent (Rhodora 105: 234–235. 2003), based on the descriptions, it may be conspecific with *Maackia fauriei* (H. Léveillé) Takeda (*Cladrastis fauriei* H. Léveillé), described from Korea.

4. *Cladrastis platycarpa* (Maximowicz) Makino, Bot. Mag. (Tokyo) 15: 62. 1901.

翅荚香槐 chi jia xiang huai

Sophora platycarpa Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 18: 398. 1873; *Cladrastis yungchunii* Xiang W. Li & G. S. Fan; *Platyosprion platycarpum* Maximowicz.

Trees, to 30 m tall, 80–120 cm d.b.h.; bark dark gray, many lenticellate. Leaves imparipinnately compound; leaflets (7–)13(–15); stipels 1 on either side of pulvinus, unbranched, subulate, to 2 mm, glabrous; petiolule 3–5 mm, densely gray-brown hairy; blades long elliptic or ovate-oblong, smaller toward base, 2–10 × 1–3.5 cm, pilose near midrib or glabrous abaxially, glabrous adaxially, veins obviously raised abaxially with obvious veinlets, base obtuse or broadly cuneate, apex acuminate. Panicle 9–30 cm, to 15 cm in diam. Pedicel slender, 7–11 mm. Calyx campanulate, densely white-yellow sericeous, triangular toothed. Corolla white, with yellow spot in throat; standard oblong, 5.3–8.2 × 5.3–8.6 mm, rounded or retuse at apex, claw 1.2–4.8 mm; wings lanceolate-ovate, 5.9–9.3 × 3.2–5.4 mm, slightly auriculate, claw 2.9–5.1 mm; keels lanceolate, 6.4–9.9 × 3.5–5.9 mm, base auriculate. Ovary linear, yellow-white pubescent, 5–7-ovuled; style slightly curved. Legumes long elliptic or oblong, 5–8 × 1.5–2 cm, winged on both sides, indehiscent. Seeds 1–3, dark brown or black, oblong, ca. 8 mm. Fl. Apr–Jun, fr. Jul–Oct.

Forests in valleys and on slopes; below 1000 m. Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Yunnan, Zhejiang [Japan].

5. *Cladrastis scandens* C. Y. Ma, Bull. Bot. Res., Harbin 2(1): 111. 1982.

藤香槐 teng xiang huai

Lianas or climbing shrubs; stem lenticellate. Leaves imparipinnate; leaflets 4-paired, alternate; stipel subulate, glabrous; petiolule ca. 2 mm, glabrous; blades elliptic or oblong, terminal one larger, ca. 9 × 6 cm, smaller toward base, usually 3–6 × 2–4 cm, papery, glabrous, veins obviously raised abaxially and with obvious veinlets, base obtuse, apex rounded or acute. Panicle terminal and large. Pedicel 6–8 mm, brown-gray pubescent. Calyx cup-shaped, equally and triangular toothed, hairy. Corolla white; standard oblong, rounded at apex, narrowing to claw at base, claw ca. 3 mm; wings triangular-ovate, claw ca. 4 mm; keels similar to wings, slightly broad, ca. 3.5 mm, one auriculate at base. Ovary linear, white pilose, 6–8-

ovuled; style slightly curved; stigma very small.

- Hill scrub; ca. 1200 m. Guizhou.

According to Duley and Vincent (Rhodora 105: 234. 2003), based on the description, it is highly probable that this species is conspecific with *Cladrastis platycarpa*.

6. *Cladrastis wilsonii* Takeda, Notes Roy. Bot. Gard. Edinburgh 8: 103. 1913.

香槐 xiang huai

Cladrastis lichuanensis Q. W. Yao & G. G. Tang.

Trees, to 16 m tall; bark gray or gray-brown, smooth, lenticellate. Leaves imparipinnately compound; leaflets 8–11, alternate; stipels absent; petiolule 4–5 mm, white hairy when young, then glabrous; blades ovate or oblong-ovate, terminal one larger, usually 3.5–14.3 × 1.8–6.5 cm, papery, golden pilose along main vein abaxially, dark green and glabrous adaxially, veins raised on both surfaces, base broadly cuneate, apex acute. Panicle terminal or axillary, 10–28 cm; bracts caducous. Calyx campanulate, 7.2–8 mm, triangular toothed, yellow-brown tomentose. Corolla white; standard elliptic or ovate-elliptic, 9.3–15.2 × 9–13 mm, rounded or retuse at apex, claw 2.3–5.1 mm; wings sagittate, 9.3–14.4 mm, auriculate at base, obtuse at apex; keels falcate, 8.8–14.9 × 4.8–7.2 mm, auriculate at base. Ovary sessile, densely yellow-white sericeous; ovules (1–)3–5; style slightly curved, glabrous. Legumes oblong, flat, 4.5–8 × 0.8–1

cm, beaked at apex, wingless. Seeds 1–5, gray-brown, reniform.
Fl. May–Jul, fr. Aug–Sep.

- Hill forests; 1000–1500 m. Anhui, Fujian, Gansu, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang.

