

1. AILANTHUS Desfontaines, Mém. Acad. Sci. (Paris) 1786: 265. 1788, nom. cons.

臭椿属 chou chun shu

Trees or small trees. Branchlets pubescent, with a pith. Leaves alternate, pinnate; leaflets 13–41, opposite or nearly so; blades papery or thinly leathery, base oblique, margin entire or serrate, apex acuminate, base sometimes 1- or 2-dentate on either side, teeth glandular abaxially at apex. Flowers small, polygamo-dioecious, in axillary or terminal thyrses. Sepals 5, imbricate. Petals 5, valvate. Disk 10-lobed. Stamens 10, inserted at base of disk, undeveloped or rudimentary in pistillate flowers. Carpels 2–5, free or slightly connate only at base; ovules 1 or 2 per locule, campylotropous or anatropous; styles 2–5, connate, but only with female trace in male flowers. Samarium oblong-elliptic, with a seed surrounded by wing. Seed flat, rounded, obovate or slightly deltoid, with some endosperm or without; endocarp thin; cotyledons compressed.

About ten species: Asia to N Oceania; six species (five endemic) in China.

- 1a. Leaflet blade entire, base without marked teeth on either side; carpels 3–5.
 - 2a. Small trees; carpels 5, lower portion of filaments glabrous 3. *A. fordii*
 - 2b. Trees, 15–40(–45) m tall; carpels 3, filaments pilose proximally (unknown in *A. guanxiensis*).
 - 3a. Samarium 4.5–8 × 1.5–2.5 cm 1. *A. triphysa*
 - 3b. Samarium 12–15 × 3.5–4 cm 2. *A. guanxiensis*
- 1b. Leaflet blade entire, sinuous, or shallowly sinuous-dentate, base with 1 to several teeth on each side; carpels 5.
 - 4a. Branches with soft thorns when young; leaflet blade with 2–4 teeth on either side, petiole sometimes with thorns 4. *A. vilmoriniana*
 - 4b. Branches without soft thorns when young; leaflet blade base with 1 or 2 teeth on either side, petiole without thorns.
 - 5a. Branches yellow or yellow-brown, pilose when young, then glabrescent; leaflet blade margin entire 5. *A. altissima*
 - 5b. Branches gray-white or gray-brown, pilose; leaflet blade margin sinuous or shallowly sinuous-dentate 6. *A. giraldii*

1. *Ailanthus triphysa* (Dennstedt) Alston in Trimen, Handb. Fl. Ceylon 6(suppl.): 41. 1931.

岭南臭椿 ling nan chou chun

Adenantha triphysa Dennstedt, Schlüssel Hortus Malab. 32. 1818; *Ailanthus malabarica* Candolle.

Trees, evergreen, usually 15–20(–45) m tall. Leaves pinnate, 30–60 cm; leaflets 6–17(–30) pairs; petiolule pubescent, 5–7 mm; blades ovate-lanceolate or oblong-lanceolate, 15–20 × 2.5–5.5 cm, thinly leathery, base broadly cuneate or slightly rounded, oblique, margin entire, apex acuminate, abaxially ± shortly pubescent or glabrous. Panicles axillary, ± shortly pubescent, 25–50 cm; bracts small, ovate or deltoid, 5–7 mm, early caducous. Pedicel ca. 2 mm. Calyx abaxially pilose, 5-lobed, lobes shorter than 1 mm, deltoid, as long as tube. Petals 5, glabrous or nearly so, ca. 2.5 × 1–1.5 mm, valvate. Stamens 10, inserted at base of disk; filaments gracile, curved and folded in buds, lower part pilose, 1–3 mm in females, 3–6 mm in males; anthers ca. 1 mm in male, shorter in female. Carpels 3, glabrous, 2–2.5 mm; styles free or connate at base; stigmas 3-lobed, lobes shield-shaped, ca. 2 mm wide. Samarium 4.5–8 × 1.5–2.5 cm, both tops slightly obtuse. Seeds flat, surrounded by wing. Fl. Oct–Nov, fr. Jun–Mar.

Montane regions, sparse or thick woods, roadsides; below 100–600 m. Fujian, Guangdong, Guangxi, S Yunnan [India, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].

2. *Ailanthus guanxiensis* X. L. Mo ex C. F. Liang & X. L. Mo, Guihaia 2: 145. 1982.

广西臭椿 guang xi chou chun

Trees, to 40 m tall; trunk straight; bark gray or gray-brown, nearly smooth, annulate or subannulate, lenticels prominently rounded. Branchlets robust, nearly glabrous, leaf-scars conspicuous. Leaves even-pinnate, crowded at apex of branches, 25–50 cm; leaflets 4–6 pairs, alternate, very rarely opposite; petiolules 1–2 cm; blades ovate or oblong-ovate, 7–16(–20) × 4–8 cm, abaxially light green, adaxially dark green, lucid, papery, thin, both surfaces glabrous, base oblique, both sides with several semitransparent glands ca. 3 mm in diam., margin entire, apex acuminate; lateral veins 5–8 pairs, midrib and lateral veins prominent on both surfaces, reticulate veins inconspicuous. Flowers not seen. Infructescence paniculate, 15–35 cm, lax. Samarium compressed, oblong, 12–15 × 3.5–4 cm, apex somewhat contorted, reticulate. Seed 1, at middle of wing, compressed, 1.5–2 cm in diam. Fr. Aug–Oct.

• Forests of limestone valleys; ca. 300 m. SW Guangxi (Longzhou, Ningming).

3. *Ailanthus fordii* Nootboom in Steenis, Fl. Males., Ser. 1, Spermat. 6: 220. 1962.

常绿臭椿 chang lu chou chun

Small trees, evergreen. Branchlets gray-brown, densely puberulent. Leaves crowded at apex of branches, 40–60 cm; petiole 7–13 cm; leaflets 6–13 pairs, opposite or nearly so; blades oblong-ovate, 7–13 × 4–6 cm, base obtuse-rounded, oblique, margin entire, apex shortly acuminate or obtuse-rounded; rachis puberulent. Panicles terminal, 20–40 cm, base of branches at different levels articulate. Flowers unisexual or polygamous, 1–3-fasciculate; subtending bracts small, deltoid; pedicel 1–2 mm. Calyx cup-shaped, puberulent, ca. 0.5 mm high, with 5 short and obtuse lobes. Petals 5, glabrous, 2–3 ×

ca. 1 mm. Stamens curved and folded, glabrous, 3–5 mm in buds of males, 1–3 mm in females; anthers ca. 0.8 mm, degenerate in female. Carpels 5, densely puberulent; styles connate, 0.5–1 mm high, ± puberulent; stigmas 5, free or only base slightly connate, 1–1.5 mm. Samarium 3–5 × 1–1.8 cm. Fr. Dec–Apr.

• Mixed forests of hills and mountains; ca. 600 m. S Guangdong, S Yunnan (Xishuangbanna).

4. *Ailanthus vilmoriniana* Dode, Rev. Hort. (Paris) 1904: 444. 1904.

刺臭椿 ci chou chun

Ailanthus glandulosa Desfontaines var. *spinosa* M. Vilmorin & Bois.

Trees, usually over 10 m tall. Branches with soft thorns when young. Leaves odd-pinnate, 50–90 cm, with petiole violet-red and spiny; leaflets 8–17 pairs, opposite or nearly so; blades lanceolate-oblong, 9–15(–20) × 3–5 cm, abaxially gray-green, pilose, adaxially glabrous or puberulent except for veins which are pubescent, base broadly cuneate or somewhat rounded, each side 2–4-dentate, teeth abaxially glandular. Panicles ca. 30 cm. Samarium ca. 5 cm.

• Sparse woods of mountainous slopes or valleys; 500–2800 m. Hubei, Sichuan, Yunnan.

5. *Ailanthus altissima* (Miller) Swingle, J. Wash. Acad. Sci. 6: 495. 1916.

臭椿 chou chun

Trees, deciduous, up to 20 m tall; bark smooth and straightly grained. Branches with pith, yellow or yellow-brown pubescent when young, then glabrescent. Leaves odd-pinnate, 40–60 cm; petiole 7–13 cm; leaflets 13–27, opposite or nearly so; blades ovate-lanceolate, abaxially dark green, adaxially gray-green, smelly when rubbed. Panicles 10–30 cm. Flowers light green; pedicel 1–2.5 mm. Sepals 5, imbricate, 0.5–1 mm. Petals 5, 2–2.5 mm, base hispid. Stamens 10; filaments densely hispid basally, longer than petals in males, shorter than petals in females; anthers oblong, ca. 1 mm. Carpels 5; styles connate; stigmas 5-lobed. Samarium oblong, 3–4.5 × 1–1.2 cm. Seed in middle of wing, flat-globose. Fl. Apr–May, fr. Aug–Oct.

• Found in many habitats; 100–2500 m. All regions of China except Hainan, Heilongjiang, Jilin, Ningxia, Qinghai [widely cultivated and naturalized elsewhere].

1a. Samarium 5–7 × 1.4–1.8 cm 5c. var. *sutchuenensis*

1b. Samarium 3–4.5 × 0.7–1.2 cm.

2a. Samarium 1–1.2 cm wide 5a. var. *altissima*

2b. Samarium 0.7–0.8 cm wide 5b. var. *tanakae*

5a. *Ailanthus altissima* var. *altissima*

臭椿(原变种) chou chun (yuan bian zhong)

Toxicodendron altissimum Miller, Gard. Dict., ed. 8, *Toxicodendron* no. 10. 1768; *Ailanthus cacodendron*

(Ehrhart) Schinz & Thellung; *A. glandulosa* Desfontaines; *Albionia peregrina* Buc'hoz; *Pongelion glandulosum* Pierre; *Rhus cacodendron* Ehrhart.

Bark smooth and straightly grained. Petiolules 0.6–1.5 cm. Samarium oblong, 3–4.5 × 1–1.2 cm.

• Found in many habitats; 100–2500 m. All regions of China except Hainan, Heilongjiang, Jilin, Ningxia, Qinghai [widely cultivated and naturalized elsewhere].

5b. *Ailanthus altissima* var. *tanakae* (Hayata) Kanehira & Sasaki in Kanehira, Formosan Trees, rev. ed., 321. 1936 [*“tanakai”*].

台湾臭椿 tai wan chou chun

Ailanthus glandulosa var. *tanakae* Hayata, Icon. Pl. Formos. 4: 2. 1914 [*“tanakai”*].

Bark yellow-gray, smooth. Petiolules shorter. Samarium 7–8 mm wide.

• Mainly in alpine forests. N Taiwan.

5c. *Ailanthus altissima* var. *sutchuenensis* (Dode) Rehder & E. H. Wilson in Sargent, Pl. Wilson. 3: 449. 1917.

大果臭椿 da guo chou chun

Ailanthus sutchuenensis Dode, Bull. Soc. Dendrol. France 1907: 192. 1907; *A. cacodendron* var. *sutchuenensis* (Dode) Rehder & E. H. Wilson; *A. glandulosa* var. *sutchuenensis* (Dode) Rehder.

Bark white lenticellate. Samarium 5–7 × 1.4–1.8 cm.

- Mainly in valleys and in wet sparse forests or shrub forests; 1700–2500 m. Guangxi, Hubei, Hunan, Jiangxi, Sichuan, Yunnan.

6. **Ailanthus giraldii** Dode, Bull. Soc. Dendrol. France 1907: 191. 1907.

毛臭椿 mao chou chun

Ailanthus giraldii var. *duclouxii* Dode.

Trees deciduous, ca. 10 m tall. Branches densely gray-white or gray-brown, puberulent when young. Leaves odd-pinnate, 30–60(–90) cm; leaflets 9–16(–20) pairs; petiolules 3–7 mm, puberulent; blades broadly lanceolate or sickle-shaped-lanceolate, 7–15 × 2.5–5 cm, abaxially gray-green, densely white puberulent, adaxially dark green, glabrous but puberulent on veins, base cuneate, oblique, both margins 1- or 2-dentate, teeth abaxially glandular, margin shallowly sinuous to sinuous, apex long acuminate or acuminate; lateral veins 14 or 15 pairs. Panicles 20–30 cm. Flowers not seen. Samarium 4.5–6 × 1.5–2 cm. Fl. Apr–May, fr. Sep–Oct.

- Sparse forests or mixed forests in mountains. Gansu, Shaanxi, Sichuan, Yunnan.

