

# ALANGIACEAE

八角枫科 ba jiao feng ke

Qin Haining (覃海宁)<sup>1</sup>; Chamlong Phengkhai<sup>2</sup>

Trees or shrubs, deciduous, sometimes spiny. Leaves alternate, simple, estipulate, bases often oblique. Flowers bisexual, actinomorphic, often bracteate, in axillary cymes. Calyx lobes 4–10, toothlike or obsolete. Petals as many as calyx lobes, valvate, linear to loriate, sometimes basally coherent. Stamens as many as petals or 2–4 × as many, distinct, arising from an enlarged disk; anthers 2-celled, dehiscing longitudinally. Ovary inferior, commonly 1- or rarely 2-loculed; ovule solitary, pendulous; style and stigma simple, or 2- or 3-lobed. Fruit a drupe, crowned with persistent calyx and disk. Seeds 1 or 2, with straight embryo and copious endosperm.

One genus and ca. 21 species: tropical and subtropical regions from Africa east to Australia and Fiji; 11 species (four endemic) in China.

Alangiaceae are treated here as separate from the Cornaceae, into which they have sometimes been placed. See the discussion under Cornaceae in Fl. China (14: 206. 2005).

Fang Wen-pei, Soong Tze-pu & Su He-yi. 1983. Alangiaceae. In: Fang Wen-pei & Chang Che-yung, eds., Fl. Reipubl. Popularis Sin. 52(2): 160–179.

## 1. ALANGIUM Lamarck, Encycl. 1: 174. 1783, nom. cons.

八角枫属 ba jiao feng shu

*Angolam* Adanson; *Kara-angolam* Adanson; *Marlea* Roxburgh.

Morphological characters and geographic distribution are the same as those of the family.

- 1a. Stamens not less than 10; leaf blade broadly ovate to cordate or orbicular, membranous to subleathery.
  - 2a. Leaf blade broadly ovate to ovate, sometimes obovate ..... 8. *A. premmifolium*
  - 2b. Leaf blade oblong, cordate, or orbicular
    - 3a. Leaf blade oblong ..... 10. *A. salviifolium*
    - 3b. Leaf blade cordate or orbicular ..... 7. *A. platanifolium*
- 1b. Stamens not more than 10; leaf blade ovate or orbicular, rarely linear-lanceolate, papery, rarely leathery.
  - 4a. Flowers small, petals usually shorter than 1 cm.
    - 5a. Leaf blade suborbicular; styles pubescent ..... 11. *A. yunnanense*
    - 5b. Leaf blade oblong or broadly elliptic; styles glabrous.
      - 6a. Leaf blade oblong or lanceolate, pubescent when young, glabrescent; anthers basally pubescent ..... 4. *A. faberi*
      - 6b. Leaf blade broadly elliptic or ovate-oblong, both surfaces pubescent; anthers inside with soft hairs .... 2. *A. barbatum*
  - 4b. Flowers large, petals ca. 1 cm or longer.
    - 7a. Connectives of stamens glabrous.
      - 8a. Inflorescences 7–30(–50)-flowered, petals lanceolate, 1–1.5 cm; leaf blade suborbicular, elliptic, or ovate, petiole 4–6 cm; drupe ovoid, 5–7 mm ..... 3. *A. chinense*
      - 8b. Inflorescences 1–5-flowered, petals linear, 1.8–2.3 cm; leaf blade ovate or suborbicular, petiole 1–4 cm; drupe ellipsoid, 1.3–2 cm ..... 1. *A. alpinum*
    - 7b. Connectives of stamens pubescent.
      - 9a. Climbing shrub; petals 5; inflorescences 5–12-flowered; leaf blade oblong ..... 6. *A. kwangsiense*
      - 9b. Erect small tree or shrub; petals 6–10; inflorescences 2–7-flowered; leaf blade ovate to broadly ovate or suborbicular.
        - 10a. Leaf blade suborbicular or broadly ovate, 12–14 × 7–9 cm, petiole 2.5–4 cm; inflorescences 5–7-flowered, petals 6–8(–10), 2–2.5 cm ..... 5. *A. kurzii*
        - 10b. Leaf blade narrowly to broadly ovate, 4–7 × 2.7–4 cm, petiole 1–1.6 cm; inflorescences 2- or 3-flowered, petals 7, ca. 1 cm ..... 9. *A. qingchuanense*

**1. *Alangium alpinum*** (C. B. Clarke) W. W. Smith & Cave, Rec. Bot. Surv. India 6: 96. 1914.

J. D. Hooker, Fl. Brit. India 2: 744. 1879; *M. alpina* (C. B. Clarke) Brandis.

高山八角枫 gao shan ba jiao feng

*Marlea begoniifolia* Roxburgh var. *alpina* C. B. Clarke in

Trees deciduous, to 12 m tall. Branchlets ascending; internodes obscurely angular. Petiole 3.5–5 cm; leaf blade subor-

<sup>1</sup> Institute of Botany, Chinese Academy of Sciences, 20 Nanxincun, Xiangshan, Beijing 100093, People's Republic of China.

<sup>2</sup> Forest Herbarium, Royal Forest Department, Bangkok 10900, Thailand.

bicular, ovate, or oblong-ovate, 6–16(–20) × 5–13 cm, papery, abaxially sparsely hairy, adaxially glabrous, base rounded, subtruncate, or cordate, margin wavy, apex acuminate. Inflorescences axillary, 3-flowered, 4–10 cm. Pedicels ca. 1 cm, to 3 cm in fruit. Calyx lobes 6–8. Petals 6–8, linear, 1.8–2.3 cm. Stamens 6–8; filaments 5–6 mm, glabrous. Drupe ellipsoid, ca. 20 × 8–9 mm. Seed 1. Fl. Jan–Aug, fr. Oct–Nov.

Forests; 1800–3000 m. S Xizang, W Yunnan [Bhutan, N India, N Myanmar, E Nepal].

**2. *Alangium barbatum*** Baillon ex Kuntze, Revis. Gen. Pl. 273. 1891.

髯毛八角枫 ran mao ba jiao feng

Shrubs or trees, to 6 m tall. Branchlets shaggy, hirsute to glabrescent. Petiole 2–2.5 cm; leaf blade broadly ovate to obovate or oblong, 10–15(–18) × 5–8 cm, papery, abaxially hirsute throughout, adaxially hirsute at midvein and veins, base cordate or rounded, margin entire, rarely 1-lobed or 1-toothed, apex acute to acuminate. Inflorescence branched binate, 1.2–2.5 cm, hirsute. Flowers 3–15 or more; peduncles 3–10 mm. Pedicels 2–10 mm. Calyx lobes 4–7. Petals 4–7, 6–10 mm, outside hirsute, inside glabrous. Stamens 5–7; anthers with soft hairs inside. Style 4–8 mm, glabrous; stigma subclavate; ovary 1-loculed; ovule 1. Drupe ovate or ellipsoid, 8–10 × 4.5–6 mm; seed 1. Fl. Jun–Aug, fr. Oct–Mar.

Forests; below 1000 m. Guangdong, S Guangxi, S Yunnan [India (Assam), Laos, Myanmar, Thailand, Vietnam].

**3. *Alangium chinense*** (Loureiro) Harms, Ber. Deutsch. Bot. Ges. 15: 24. 1897.

八角枫 ba jiao feng

Shrubs or small trees, 3–5 m tall. Branchlets pubescent when young, glabrescent. Petiole reddish, 4–6 cm; leaf blade ovate or orbicular to cordate, 8–20 × 5–12 cm, abaxially tufted pubescent at axils of veins, adaxially glabrous, strongly 3–5-veined at base, base usually oblique, occasionally rounded or subrounded, or triangular, margin entire or with few shallow lobes, apex acuminate. Inflorescences axillary cymes, 3–15-flowered. Flowers ca. 2 cm. Calyx lobes 4–7, shortly dentate. Petals valvate, 6(–8), lanceolate, 1–1.5 cm. Stamens 6–8, ca. as many as petals, glabrous. Drupe ovoid, 5–7 mm, seed 1. Fl. May–Jul, Sep–Oct, fr. Jul–Nov.

Forests, forest margins, exposed places; below 2500 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Sichuan, Taiwan, S Xizang, Yunnan, Zhejiang [Bhutan, India, Nepal; E Africa, SE Asia].

- 1a. Inflorescences not less than 7-flowered.
  - 2a. Branchlets, petioles, and inflorescences without long hairs ..... 3a. subsp. *chinense*
  - 2b. Branchlets, petioles, and inflorescences with long hairs ..... 3b. subsp. *strigosum*
- 1b. Inflorescences usually to 6-flowered.
  - 3a. Leaf blade ovate, base rounded, margin entire ..... 3c. subsp. *pauciflorum*

- 3b. Leaf blade usually orbicular, base triangular or suborbicular, 3–5-lobed, lobes lanceolate or subovate ..... 3d. subsp. *triangulare*

**3a. *Alangium chinense*** subsp. ***chinense***

八角枫(原亚种) ba jiao feng (yuan ya zhong)

*Styldium chinense* Loureiro, Fl. Cochinch. 1: 221. 1790; *Alangium begoniifolium* (Roxburgh) Baillon; *A. chinense* var. *taiwanianum* (Masamune) Koidzumii; *A. taiwanianum* Masamune; *Marlea begoniifolia* Roxburgh.

Branchlets, petioles, and inflorescences without long hairs. Inflorescences 7–30(–50)-flowered. Fl. May–Jul, Sep–Oct, fr. Jul–Nov.

Forest margins, exposed places; below 1800 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Sichuan, Taiwan, S Xizang, Yunnan, Zhejiang [Bhutan, India, Nepal; E Africa, SE Asia].

**3b. *Alangium chinense*** subsp. ***strigosum*** W. P. Fang, Acta Sci. Nat. Univ. Szechuan 1979(2): 93. 1979.

伏毛八角枫 fu mao ba jiao feng

Branchlets, petioles, and inflorescences with long hairs. Inflorescences 7–30(–50)-flowered. Fl. Jun–Jul, fr. Aug–Sep.

• Forests; 900–1200 m. Anhui, Chongqing, Guizhou, W Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Yunnan.

**3c. *Alangium chinense*** subsp. ***pauciflorum*** W. P. Fang, Acta Sci. Nat. Univ. Szechuan 1979(2): 94. 1979.

稀花八角枫 xi hua ba jiao feng

*Alangium chinense* var. *pauciflorum* W. P. Fang ex Y. C. Ho.

Inflorescences usually 3–6-flowered. Leaf blade ovate, base rounded, margin entire.

• Forests; 1100–2500 m. Gansu, Guizhou, Henan, Hubei, Hunan, Shanxi, Sichuan, Yunnan.

**3d. *Alangium chinense*** subsp. ***triangulare*** (Wangerin) W. P. Fang, Acta Sci. Nat. Univ. Szechuan 1979(2): 95. 1979.

深裂八角枫 shen lie ba jiao feng

*Alangium platanifolium* (Siebold & Zuccarini) Harms f. *triangulare* Wangerin in Engler, Pflanzenr. 41(IV. 220b): 24. 1910.

Inflorescences usually 3–6-flowered. Leaf blade usually orbicular, base triangular or subrounded, 3–5-lobed, lobes lanceolate or subovate.

• Forests; 1000–2500 m. Anhui, Gansu, Guizhou, Hubei, Hunan, Shanxi, Sichuan, Yunnan.

**4. *Alangium faberi*** Oliver, Hooker's Icon. Pl. 18: t. 1774. 1888.

小花八角枫 xiao hua ba jiao feng

Shrubs deciduous, 1–4 m high. Bark smooth; branchlets slender, with adnate large hairs when young, glabrescent. Winter buds ovoid, bracts ovate, outside with short soft hairs. Peti-

oles 1–1.5 cm; leaf blade abaxially light green, adaxially green, oblong, lanceolate, or oblong-oblancheolate, 7–12(–19.5) × 2.5–3.5(–5.5) cm, thinly papery to membranous, 3-lobed or entire, abaxially with large deplanate hairs when young, glabrescent, adaxially loosely shortly pubescent, midvein and 6 or 7 lateral veins conspicuous abaxially, inconspicuous adaxially, base sub-orbicular, apex acute or acuminate. Inflorescences 5–10(–20)-flowered, short, 2–2.5 cm, slender; peduncle 5–8 mm. Pedicel 5–8 mm. Calyx campanulate, 7-lobed; lobes triangular, 1–1.5 mm. Petals 5 or 6, reflexed at anthesis, linear, 5–6 × ca. 1 mm, outside and inside with hairs. Stamens 5 or 6, equal to petals; filaments ca. 2 mm, adnate to petals at base, broad and pubescent at upper part; anthers 4–6 mm, pubescent at base. Disk globose. Ovary 1-loculed; style glabrous; stigma globose. Drupe light purple when mature, subovoid or ovoid-elliptic, 6.5–10(–14) mm, 4(–7) mm in diam., with persistent calyx lobes at apex. Fl. Jun, fr. Sep.

• Forests, sparse forests, among shrubs; below 1600 m. Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Sichuan, SE Xizang, Yunnan.

- 1a. Leaf blade linear-lanceolate.  
 2a. Leaf blade 10–20 cm × 10–20 mm; connectives pubescent ..... 4d. var. *heterophyllum*  
 2b. Leaf blade 4–7 cm × 5–8 mm; connectives glabrous ..... 4e. var. *perforatum*  
 1b. Leaf blade oblong, lanceolate, elliptic-ovate, or oblong-oblancheolate.  
 3a. Leaf blade 7–12 × 2.5–3.5 cm ..... 4a. var. *faberi*  
 3b. Leaf blade 12–20 × 2.5–8 cm.  
 4a. Leaf blade 14–19.5 × 2.5–5.5 cm ..... 4b. var. *dolichocarpum*  
 4b. Leaf blade 12–15 × 6–8 cm ..... 4c. var. *platyphyllum*

#### 4a. *Alangium faberi* var. *faberi*

小花八角枫(原变种) xiao hua ba jiao feng (yuan bian zhong)

*Alangium barbatum* Baillon ex Kuntze subsp. *faberi* (Oliver) Bloembergen; *A. tetrandrum* R. H. Miao; *Marlea bodinieri* H. Léveillé.

Leaf blade oblong, lanceolate, elliptic-ovate, or oblong-oblancheolate, 7–12(–19) × 2.5–3.5(–5.5) cm.

• Sparse forests; below 1600 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan.

4b. *Alangium faberi* var. *dolichocarpum* Z. Y. Li, Bull. Bot. Res., Harbin 8(3): 129. 1988

长果八角枫 chang guo ba jiao feng

Leaf blade oblong-oblancheolate, 14–19.5 × 2.5–5.5 cm, base very oblique, lateral veins 8–10. Drupe 1.3–1.4 cm, 5–7 mm in diam.

• Among shrubs; ca. 1200 m. SE Xizang.

4c. *Alangium faberi* var. *platyphyllum* Chun & F. C. How, Acta Phytotax. Sin. 7: 71. 1958.

阔叶八角枫 kuo ye ba jiao feng

Leaf blade oblong, lanceolate, or elliptic-ovate, 12–15 × 6–8 cm.

• Forests; below 400 m. S Guangdong, S Guangxi.

4d. *Alangium faberi* var. *heterophyllum* Y. C. Yang, J. W. China Border Res. Soc., ser. B, 15: 90. 1945.

异叶八角枫 yi ye ba jiao feng

Leaf blade linear-lanceolate, 10–20 × 1–2 cm. Stamen connectives pubescent.

• Forests. Guizhou, E Sichuan, Yunnan.

4e. *Alangium faberi* var. *perforatum*, (H. Léveillé) Rehder, J. Arnold Arbor. 15: 108. 1934.

小叶八角枫 xiao ye ba jiao feng

*Ardisia perforata* H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 462. 1911.

Leaf blade linear-lanceolate, 4–7 cm × 5–8 mm. Stamen connectives glabrous.

• Forests. Guizhou, SE Yunnan.

5. *Alangium kurzii* Craib, Bull. Misc. Inform. Kew 1911: 60. 1911.

毛八角枫 mao ba jiao feng

Trees or shrubs, erect, to 28 m tall, to 57 cm in diam. Twigs smooth, sparsely pubescent, glabrescent. Petiole 2.5–4 cm; leaf blade abaxially light green, adaxially dark green, sub-orbicular or broadly ovate, 12–14 × 7–9 cm, papery, abaxially pubescent, adaxially glabrous, base rounded or subrounded, margin entire, apex acuminate. Inflorescences 5–7-flowered; peduncle 3–5 mm. Pedicel 5–8 mm. Flowers strongly fragrant. Petals 6–8(–10), yellow, dark yellow, orange, or brick red, rarely white or cream-yellow, linear, 2–2.5 cm. Stamens 6–8(–10), yellow, pubescent. Ovary 2-loculed; style white; stigma subglobal, 4-lobed. Mature drupe dark violet to nearly black, elliptic, 1.2–1.5 mm. Fl. May–Jun, fr. Sep.

Forests, sparse forests, woodlands; 600–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanxi, Yunnan, Zhejiang [Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

1a. Petals yellow to brick-red ..... 5a. var. *kurzii*

1b. Petals white or cream-colored ..... 5b. var. *handelii*

5a. *Alangium kurzii* var. *kurzii*

毛八角枫(原变种) mao ba jiao feng (yuan bian zhong)

*Alangium begoniifolium* (Roxburgh) Baillon subsp. *tomentosum* (Blume) Palm; *A. chinense* (Loureiro) Harms var. *tomentosum* (Blume) Merrill; *A. chungii* H. L. Li; *A. kurzii* var. *laxifolium* (Y. C. Wu) W. P. Fang; *A. kurzii* var. *umbellatum* (Y. C. Yang) W. P. Fang; *A. rotundifolium* (Hasskarl) Bloembergen var. *laxifolium* Y. C. Wu; *A. tomentosum* (Blume) Koorders (1912), not Lamarck (1783); *A. umbellatum* Y. C. Yang; *Diacarpium tomentosum* Blume; *Marlea tomentosa* (Blume) Endlicher ex Hasskarl.

Trees or shrubs, to 28 m high. Petals yellow, dark yellow, orange, or brick-red.

Sparse forests; 600–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hunan, Jiangsu, Jiangxi, Shanxi, Yunnan, Zhejiang [Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

"*Alangium kurzii* var. *pachyphyllum*" (W. P. Fang & H. Y. Su, J. Sichuan Univ., Nat. Sci. Ed. 1979(2): 96. 1979) belongs here but was not validly published under Art. 37.2 of the *Vienna Code* because two gatherings were indicated as types.

**5b. *Alangium kurzii* var. *handelii*** (Schnarf) W. P. Fang, J. Sichuan Univ., Nat. Sci. Ed. 1979(2): 97. 1979.

云山八角枫 yun shan ba jiao feng

*Alangium handelii* Schnarf, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 107. 1922.

Shrubs or trees, to 20 m high. Petals white or cream-colored.

Woodlands; below 1000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, S Henan, Hubei, Hunan, Jiangxi, Zhejiang [Japan, Korea].

**6. *Alangium kwangsiense*** Melchior, Notizbl. Bot. Gart. Berlin-Dahlem 10: 823. 1929.

广西八角枫 guang xi ba jiao feng

Shrubs or scandent shrubs, deciduous, 1–5 m high, pubescent. Bark dark purple, smooth; branchlets slender, pubescent. Petiole 1–1.5 cm; leaf blade oblong or narrowly elliptic, 8–17 × 4–8 cm, papery or membranous, midveins 3–5 and lateral veins 5–7 pairs, both surfaces pubescent, base unequal, apex acute or acuminate. Inflorescences axillary, 5–12-flowered, short, slender, pubescent; peduncle 1–1.5 cm. Pedicel 0.5–1.5 cm. Calyx cup-shaped, outside pubescent; lobes 5. Petals 5, reflexed at anthesis, linear, 1–1.5 cm, outside pubescent, inside glabrous, fused at base. Stamens 5, shorter than petals, pubescent; filaments adnate to petals at base, ca. 5 mm, pubescent. Disk subglobose, glabrous. Ovary 1-loculed. Drupe elliptic, 8–12 × ca. 5 mm. Fl. May, fr. Aug.

• Dense forests; below 700 m. Guangdong, Guangxi.

**7. *Alangium platanifolium*** (Siebold & Zuccarini) Harms var. ***trilobum*** (Miquel) Ohwi, Fl. Japan, 651. 1965.

三裂瓜木 san lie gua mu

*Marlea platanifolia* Siebold & Zuccarini var. *triloba* Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 159. 1866; *Alangium sinicum* (Nakai) S. Y. Hu et al.; *M. sinica* Nakai.

Shrubs. Branches gray-brown, usually shortly pilose when young. Petiole 3–10 cm, shortly pubescent; leaf blade abaxially pale, adaxially green, cordate-orbicular, 7–20 × 7–20 cm, thinly membranous, 4-angled, abaxially usually prominently shortly pubescent, adaxially usually slightly shortly pilose, base slightly cordate, shallowly 3–5(–7)-lobed; lobes deltoid, apex caudately long acuminate. Inflorescence loosely few flowered. Limb of calyx ca. 1 mm, minutely toothed. Petals white, revolute at anthesis, linear, 3–3.5 cm × ca. 2.5 mm. Stamens 12; filaments shortly pilose on back at base; anthers glabrous. Drupe blue, ellipsoid, 7–8 mm, glabrous. Fl. Mar–Jun, fr. Jul–Sep.

Woods in mountains, loose, fertile soils; below 2000 m. Gansu, Guizhou, Hebei, Henan, Hubei, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, NE Yunnan, Zhejiang [Japan, Korea].

*Alangium platanifolium* var. *platanifolium* occurs only in Japan and Korea.

**8. *Alangium premnifolium*** Ohwi, Acta Phytotax. Geobot. 7: 30. 1938.

日本八角枫 ri ben ba jiao feng

Trees deciduous, to 15 m high. Branches glabrous or shortly appressed pubescent. Petiole 2–4 cm; leaf blade obliquely broadly ovate to ovate, sometimes obovate, 10–17 × 5–12 cm, abaxially with axillary tufts of hairs, base obliquely truncate or slightly cordate, margin entire, apex acuminate or abruptly obtuse. Inflorescences 2–5-flowered, short, 3–8 cm. Pedicels 1–1.5 cm. Calyx glabrous. Petals 7, linear, ca. 2 cm, inside pale yellow pubescent. Stamens 7, ca. 1.8 cm, connective densely appressed yellowish pubescent on inner side at base. Style ca. 2.5 cm, glabrous; stigma 2-fid. Drupe ellipsoid, 1–1.2 cm. Fl. May–Jun, fr. Sep.

Forests; 500–1500 m. Anhui, Guangdong, Guangxi, Hunan, Jiangsu, Jiangxi, Zhejiang [India, Indonesia, Japan, Malaysia, Myanmar, Vietnam].

**9. *Alangium qingchuanense*** M. Y. He, J. Sichuan Univ., Nat. Sci. Ed. 33: 739. 1996.

青川八角枫 qing chuan ba jiao feng

Trees deciduous, ca. 5 m high. Branches slender, glabrous or rarely pubescent. Petiole 1–1.6 cm; leaf blade abaxially light gray, adaxially light green, ovate, narrowly ovate, or broadly ovate, 4–7 × 2.7–4 cm, papery, abaxially with yellow axillary tufts of hairs, adaxially glabrous, base broadly attenuate or cordate, margin entire or inconspicuously 3-lobed, apex caudate. Inflorescences axillary, 2- or 3-flowered; peduncle 1–1.3 cm. Pedicels ca. 1 cm. Calyx cup-shaped, inconspicuously lobed. Petals 7, white to yellowish white, linear, ca. 1 × 0.6 cm, adnate at base, both sides pubescent at base. Stamens 7, shorter than petals, pubescent. Ovary glabrous; style ca. 1 cm, glabrous; stigma capitate. Drupe not seen. Fl. Jun–Jul, fr. unknown.

• Forests; ca. 2300 m. N Sichuan.

**10. *Alangium salviifolium*** (Linnaeus f.) Wangerin in Engler, Pflanzenr. 41(IV. 220b): 9. 1910.

土坛树 tu tan shu

*Grewia salviifolia* Linnaeus f., Suppl. Pl. 409. 1782; *Alangium lamarkii* Thwaites.

Shrubs or trees, deciduous, to 20 m high. Branchlets sometimes spinescent, tomentose to glabrescent. Petiole ca. 1 cm; leaf blade oblong to oblong-lanceolate, 8–18 × 2.3–7 cm, papery to subleathery, glabrescent, base cuneate, margin entire, apex obtuse. Inflorescence sessile, often clusters of 4–8 flowers, usually fewer, sometimes only a solitary flower, densely rusty tomentose. Pedicels 2–8 mm. Flowers fragrant, cream-colored, 1.2–3 cm. Calyx tube ca. 2.5 mm; lobes 5–10, ca. 3 mm, toothed. Petals 4–6(–10), basally swollen and apically obtuse, 1.2–3 cm, outside tomentose, inside less so. Stamens 10–30; filaments 4–12 mm, apically geniculate and bearded. Disk lobed.

Ovary glabrous except near base of inner side, 1- or 2-loculed; ovule 1 per locule, pendulous; style glabrous, 8–24 mm; stigma capitate. Drupe red when ripe, subglobose, 9–24 × 6–16 mm. Fl. Feb, fr. Mar.

Forests; below 1200 m. Guangdong, S Guangxi, Hainan [Cambodia, India, Indonesia, Laos, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, Vietnam; SE Africa].

**11. *Alangium yunnanense*** C. Y. Wu ex W. P. Fang et al., J. Sichuan Univ., Nat. Sci. Ed. 1979(2): 98. 1979.

云南八角枫 yun nan ba jiao feng

Shrubs or small trees, ca. 4 m high, pubescent. Branchlets

light purple, slender. Petiole 2–3 cm; leaf blade suborbicular, 7–13 × 5–11 cm, papery, both surfaces pubescent, palmately 5-veined, lateral veins 4 or 5, more conspicuous abaxially, base subrounded, often 3-, rarely 5-lobed, apex acuminate. Inflorescences axillary, 7–15-flowered; peduncle 0.8–1.2 cm. Pedicel 1–3 mm. Calyx funnelform; lobes 9, dentiform. Petals 6–10, ca. 7 mm. Stamens 6–?10, slightly shorter than petals; filaments pubescent inside, slight adnate to petals at base. Disk slightly lobed. Style loosely pubescent; stigma capitate. Drupe ellipsoid, ca. 1 cm, pubescent; pedicel ca. 5 mm. Fl. Apr–May, fr. Aug–Sep.

• Forests; ca. 1400 m. C Yunnan.