

## 2. STAPHYLEA Linnaeus, Sp. Pl. 1: 270. 1753.

省沽油属 sheng gu you shu

Small trees or shrubs, deciduous. Leaves odd-pinnate, usually with 3 or 5 leaflets; stipules caducous; leaflet blades oblong to elliptic, glabrous or sometimes slightly pubescent, margin serrate to serrulate. Inflorescence a panicle or a raceme, usually terminal. Flower bisexual. Sepals 5, of equal size, imbricate. Petals 5, as long as sepals or slightly longer, white, yellow, or pinkish. Stamens 5, inserted at base of petals; filaments glabrous or slightly pubescent. Disk small, inconspicuous. Ovary 2- or 3-locular; styles 2 or 3, free or united; stigma capitate; ovules several per locule. Capsule inflated, bladderlike, with membranous fruit wall, dehiscent at tip of each carpel. Seeds shining yellow to brown.

About 13 species: Asia, Europe, North America; six species (five endemic) in China.

- 1a. Petiolule of terminal leaflet up to 1 cm; capsule flat, 2-lobed ..... 1. *S. bumalda*
- 1b. Petiolule of terminal leaflet more than 1 cm; capsule inflated, usually 3(or 4)-lobed.
  - 2a. Petiolule of lateral leaflets 7–14 mm ..... 6. *S. yuanjiangensis*
  - 2b. Petiolule of lateral leaflets only 1–3 mm, or leaflets nearly sessile.
    - 3a. Filaments glabrous; capsule campanulate, base rounded ..... 5. *S. campanulata*
    - 3b. Filaments ± pubescent; capsule cylindrical-obovoid, base acute.
      - 4a. Inflorescence a broad corymb; leaflet blades subcoriaceous ..... 2. *S. holocarpa*
      - 4b. Inflorescence a raceme; leaflet blades membranous or papery.
        - 5a. Leaflet blades membranous, glabrous, margin glandular toothed ..... 3. *S. shweliensis*
        - 5b. Leaflet blades papery, pilose along lower portion of midvein on adaxial surface ..... 4. *S. forrestii*

### 1. *Staphylea bumalda* Candolle, Prodr. 2: 2. 1825.

省沽油 sheng gu you

*Bumalda trifolia* Thunberg, Nov. Gen. Pl. 3: 63. 1783, not *Staphylea trifolia* Linnaeus (1753); *S. bumalda* var. *pubescens* N. Li & Y. H. He.

Shrubs, 2(–5) m tall; bark dark red or grayish brown with vertical stripes. Branches spreading, greenish white. Leaves trifoliolate; petiole 2.5–3 cm; petiolule of terminal leaflet 5–10 mm, that of lateral leaflets 1–2 mm; leaflet blades elliptic, ovate, or lanceolate-ovate, (3.5–)4.5–8 × (2–)2.5–5 cm, glabrescent and green on adaxial surface, pubescent along veins and pale green on abaxial surface, base cuneate or rounded, margin serrulate with sharp teeth, apex caudate with ca. 1 cm cauda. Inflorescence a terminal panicle, erect. Flowers white. Sepals light yellow, elliptic. Petals white, obovate to elliptic, 5–7 mm, slightly larger than sepals. Stamens 5, as long as petals. Ovary 2-locular; styles 2, free. Capsule bladderlike, compressed, 2-locular, dehiscent at apex. Seeds shining yellow. Fl. Apr–May, fr. Aug–Sep.

Open forests, roadsides. Anhui, Hebei, Heilongjiang, Jiangsu, Jilin, Liaoning, Shaanxi, Shanxi, Sichuan [Japan, Korea].

The seed oil is used for making soap and paint, and the cortex is used for fiber.

### 2. *Staphylea holocarpa* Hemsley, Bull. Misc. Inform. Kew 1895: 15. 1895.

膀胱果 pang guang guo

Trees or shrubs, 3–5(–10) m tall; twigs glabrous. Leaves trifoliolate; lateral leaflets subsessile, petiolule of terminal leaflet 2–4 cm; leaflet blades oblong-lanceolate to elliptic, 5–10 cm, subcoriaceous, glabrous or densely pubescent on abaxial surface when young and pubescent along veins when mature, green adaxially, pale green abaxially, lateral veins 7–10 pairs,

base obtuse to rounded, sometimes oblique on lateral leaflets, margin serrulate with hard teeth, apex narrowly acuminate. Corymb broad, at least 5 cm, flowering after emergence of foliage. Flowers white or rosy. Capsule inflated to pear-shaped, 4–5 × 2.5–3 cm, base narrow, apex truncate with 3 openings. Seeds subovoid, shining brown. Fl. Apr–May, fr. Sep.

• Open forests on hillsides; 1200–2200 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, E Xizang, SE Yunnan, Zhejiang.

- 1a. Leaflet blades glabrous; flowers white ..... 2a. var. *holocarpa*
- 1b. Leaflet blades densely pubescent on abaxial surface when young and pubescent along veins when mature; flowers rosy to pinkish ..... 2b. var. *rosea*

### 2a. *Staphylea holocarpa* var. *holocarpa*

膀胱果(原变种) pang guang guo (yuan bian zhong)

*Tecoma cavaleriei* H. Léveillé; *Xanthoceras enkianthiflorum* H. Léveillé.

Leaflet blades glabrous when young. Flowers white. Fl. Apr–May, fr. Sep.

• Open forests; 900–2200 m. Anhui, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, E Xizang, Zhejiang.

### 2b. *Staphylea holocarpa* var. *rosea* Rehder & E. H. Wilson in Sargent, Pl. Wilson. 2: 186. 1916.

玫红省沽油 mei hong sheng gu you

Leaflet blades densely pubescent on abaxial surface when young and pubescent along veins when mature. Flowers rosy to pinkish. Fl. Apr–May, fr. Sep.

- Open forests; 1400–2000 m. W Hubei, Sichuan, SE Yunnan.

**3. *Staphylea shweliensis*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 184. 1921.

腺齿省沽油 xian chi sheng gu you

Trees or shrubs, 6–9 m tall, young branches glabrous. Leaves imparipinnate, 3-foliolate; rachis 4–6 cm; stipules 2–3 cm, linear-lanceolate, membranous; terminal petiolule ca. 1.5 cm, lateral ones ca. 3 mm; leaflet blades elliptic, 6–8 × 3–3.5 cm, membranous, glabrous, green adaxially and light green to pale abaxially, lateral veins 5 or 6 pairs, base broadly cuneate, margin glandular serrulate, apex acuminate. Inflorescence with 20–30 flowers terminally on new branchlets; bracts linear, 2–3 mm; peduncle 4–6 cm. Flowers white to light yellow; pedicel ca. 8 mm. Sepals elongate-orbicular, ca. 8 mm. Petals obovate, as long as sepals. Filaments slightly puberulent. Ovary 2-locular; style 2, slightly villous. Fruits not seen.

- Forests; ca. 2700 m. NW Yunnan (Nu Jiang).

**4. *Staphylea forrestii*** I. Balfour, Notes Roy. Bot. Gard. Edinburgh 13: 183. 1921.

高明省沽油 song ming sheng gu you

Trees, (8–)10–17 m tall; old branches yellowish brown with vertical stripes, glabrous. Leaves trifoliolate, rarely 5-foliolate; rachis 4–7 cm, glabrous, grayish brown; terminal petiolule (1–)2.5–3.5 cm, lateral ones 2–3 mm or lateral leaflets sessile; leaflet blades oblong-oval to elliptic, (6–)8–10 × (2.5–)3.5–4.5 cm, papery, glabrous and dark green adaxially, slightly pubescent along veins near base of blade and pale green abaxially, veins conspicuous on both surfaces, lateral veins 6 or 7 pairs, base broadly cuneate, margin serrate, slightly revolute, apex acuminate. Inflorescence an axillary raceme, flowering before foliage, bracteoles linear. Flowers 9–12 mm; pedicel 4–5(–8) mm. Sepals linear-deltoid, 7–9 × ca. 4 mm, glabrous or exterior slightly pubescent at base. Petals spatulate, ca. 9 mm, glabrous, inserted at disk margin. Stamens alternate to petals; filaments ca. 7 mm, base glabrous; anthers ca. 2 mm. Ovary 1-locular, with numerous ovules per locule; styles 3, ca. 7 mm including ovary, base slightly pubescent; stigma capitate. Capsules 4.5–6.5 × 2–3.5 cm, columnar to campanulate, base rounded. Seeds 5–7 mm in diam., shining, olive green to yellow. Fl. May, fr. Aug.

- Open forests on slopes; 2300–2700 m. N Guangdong (Ruyuan), Guizhou, S Sichuan (Huidong), Yunnan (Songming).

**5. *Staphylea campanulata*** J. Wen, Brittonia 45: 247. 1993.

钟果省沽油 zhong guo sheng gu you

Trees, 3–13 m tall. Axillary buds ± rounded, slightly flat, obtuse at apex. Leaves trifoliolate; rachis 4.5–13 cm, glabrescent or slightly pilose; stipules linear, 2–2.5 cm, caducous; petiolule of lateral leaflets 2–4 mm, pilose, that of terminal leaflet 15–45 mm, pubescent or slightly glabrescent; leaflet blades elliptic to oblong-elliptic, (4.2–)7–12 × (2–)3–5.5 cm, subcoriaceous, glabrous or pilose on lower portion of midvein of young leaflets adaxially, pubescent along veins and veinlets or glabrescent abaxially, lateral veins 9–11 pairs, base acute to obtuse, margin serrulate, apex acuminate to acute, usually oblique in lateral leaflets. Raceme terminal or axillary, 6.5–12 cm. Flowers pinkish; pedicel glabrous, 12–16.6 mm. Sepals petal-like, elliptic, 11–12 × 5–5.5 mm. Petals equal to or slightly longer than sepals. Stamens as long as petals; filaments glabrous. Ovary 3-locular, slightly pubescent; styles 3; stigma united. Capsule ± campanulate, 2.5–4 × 2.5–3.5 cm, dehiscent at tip of each carpel, rounded at base, tip of segment acute. Seeds shining yellowish brown, 7–9 mm. Fl. May, fr. Jun–Sep.

- Forests, moist mountain slopes, near ravines, roadsides; 900–2200 m. Sichuan (Dujiang Yan, Emei, Maowen).

**6. *Staphylea yuanjiangensis*** K. M. Feng & T. Z. Hsu, Acta Bot. Yunnan. 6: 395. 1984.

元江省沽油 yuan jiang sheng gu you

Small trees, 4–5 m tall; branches glabrous, grayish brown. Leaves usually 3(or 5)-foliolate; rachis 3–11 cm, grayish brown, glabrous; petiolule of terminal leaflet 8–25 mm, that of lateral ones 7–14 mm; leaflet blades oblong or elliptic-ovate, (7–)8–12 × (3–)4–4.5 cm, papery, glabrous, dark green adaxially and pale abaxially, main vein prominent abaxially, lateral veins 7–9 pairs, impressed adaxially, base cuneate to obtuse, margin serrate, slightly revolute, apex acuminate. Panicle terminal, ca. 12 cm, slightly pubescent; bracts deltoid. Pedicel 2–6 mm. Sepals 5, oblong-elliptic, 4–7 mm, ciliate. Petals spatulate, 8–10 mm, glabrous. Stamens reciprocal on petals; filaments ca. 8 mm, slightly pubescent; anthers ca. 2 mm. Ovary 3-locular, with 6–8 ovules per locule; styles 3. Capsule 4–6 × 1.2–2 cm, columnar-campanulate, base acute. Seeds ca. 3.5 mm, shining. Fl. Apr, fr. Apr.

- About 2400 m. Yunnan (Yuan Jiang).

