

# STACHYURACEAE

旌节花科 jing jie hua ke

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Shrubs or small trees, sometimes climbing, deciduous or evergreen; branchlets conspicuously pithy, most often glabrous, occasionally puberulous when young. Winter buds small, with 2–4 scales. Leaves simple, alternate; stipules caducous, linear-lanceolate; leaf blade membranous to leathery, margin serrate. Racemes or spikes axillary, erect or nodding. Flowers small, regular, bisexual, or plant dioecious, shortly pedicellate or sessile; bracteoles connate at base. Sepals 4, imbricate. Petals 4, imbricate. Stamens 8 in 2 series; filaments subulate; anthers versatile, introrsely longitudinally dehiscent. Ovary superior, 4-loculed; ovules numerous on intrusive-parietal placentae; style short; stigma capitate, shallowly 4-lobed. Fruit a berry, pericarp leathery. Seeds numerous, small, with soft arils; endosperm fleshy; embryo straight; cotyledons elliptic; radicle short.  $2n = 24$ .

One genus and ca. eight species: E Asia; seven species (four endemic) in China.

Although the familial status of the Stachyuraceae has been generally accepted, its systematic position has been long controversial. It was considered related to Actinidiaceae, Clethraceae, Crossosomataceae, Flacourtiaceae, Hamamelidaceae, Staphyleaceae, Theaceae, or Violaceae by different authors based on evidence from embryology, seed anatomy, wood anatomy, palynology, or *rbcL* sequence data.

The reader may also wish to refer to two other recent studies of the family, by Chen (Acta Bot. Yunnan. 3: 125–137. 1981) and Tang et al. (Acta Phytotax. Sin. 21: 236–253. 1983).

Shan Hanrong. 1999. Stachyuraceae. In: Ku Tsuechih, ed., Fl. Reipubl. Popularis Sin. 52(1): 81–96.

## 1. STACHYURUS Siebold & Zuccarini, Fl. Jap. 1: 42. 1836.

旌节花属 jing jie hua shu

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

“*Stachyurus calcareus*” (H. T. Chang & Z. R. Xu, Acta Sci. Nat. Univ. Sunyatseni 1986(2): 98. 1986) was not validly published because no type was indicated. It was described from Guizhou as similar to *S. oblongifolius*, which is a synonym of *S. yunnanensis* in the present treatment.

- 1a. Shrubs usually deciduous; leaves papery or membranous, rarely leathery, margin serrate or serrulate.
  - 2a. Leaf blade oblong or oblong-lanceolate, rarely ovate, 2–2.5 × as long as wide or more, base usually cuneate, rarely subcordate or subobtusate ..... 7. *S. himalaicus*
  - 2b. Leaf blade suborbicular, ovate, oblong-ovate, or obovate, rarely lanceolate, nearly as long as wide, rarely ca. 2 × as long as wide, base usually shallowly cordate, very rarely cuneate or subrounded.
    - 3a. Leaf blade suborbicular, apex obtuse to retuse or emarginate, abaxially densely white puberulous to glabrous, margin serrate ..... 5. *S. retusus*
    - 3b. Leaf blade ovate, oblong-ovate, or suborbicular, rarely lanceolate, papery to membranous, apex acuminate to obviously caudate, abaxially glabrous, margin serrate or serrulate ..... 6. *S. chinensis*
- 1b. Shrubs evergreen; leaves leathery, rarely papery, margin finely and densely serrate, rarely with incurved obtuse teeth.
  - 4a. Leaf blade linear-lanceolate or narrowly lanceolate, 4–8 × as long as wide, 1–2 cm wide ..... 1. *S. salicifolius*
  - 4b. Leaf blade ovate-lanceolate to obovate-lanceolate or obovate, less than 3 × as long as wide, 2–4 cm wide.
    - 5a. Leaf blade oblong to oblong-lanceolate, lateral veins joining a connecting vein, base usually cordate, rarely cuneate ..... 4. *S. cordatulus*
    - 5b. Leaf blade ovate-lanceolate to obovate-lanceolate or obovate, lateral veins irregularly anastomosing at margin, base cuneate or obtuse.
      - 6a. Leaf blade ovate-lanceolate to obovate-lanceolate, apex usually shortly caudate, margin serrate throughout; inflorescences longer than 3 cm; peduncles 5–10 mm ..... 2. *S. yunnanensis*
      - 6b. Leaf blade obovate, apex long caudate, margin usually serrate only in upper half; inflorescences shorter than 2 cm; peduncles 3–5 mm ..... 3. *S. obovatus*

1. *Stachyurus salicifolius* Franchet, J. Bot. (Morot) 12: 253. 1898.

K. Chen) Y. C. Tang & Y. L. Cao; *S. salicifolius* var. *lancifolius* C. Y. Wu ex S. K. Chen.

柳叶旌节花 liu ye jing jie hua

*Stachyurus salicifolius* subsp. *lancifolius* (C. Y. Wu ex S.

Shrubs evergreen, 2–3 m tall. Bark brown or purple-brown. Petiole ca. 4 mm; leaf blade linear-lanceolate or narrowly lanceolate, 7–16 × 1–2 cm, leathery or thickly papery,

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both surfaces glabrous, midvein raised on both sides, lateral veins 6–8-paired,  $\pm$  anastomosing at margin, base obtuse to rounded, margin inconspicuously serrate, apex acuminate. Spikes erect or nodding, 5–7 cm; peduncles short, ca. 6 mm. Flowers yellow-green,  $\pm$  sessile; bract triangular, ca. 2 mm, apex acute; bracteoles ovate, ca. 2 mm, ciliate, apex acute. Sepals ovate, ca.  $4 \times 3$  mm, ciliate, apex obtuse. Petals obovate, ca.  $5 \times 4$  mm, apex obtuse or subrounded. Ovary bottle-shaped, pubescent; style ca. 6 mm. Fruit globose, 5–6 mm in diam.,  $\pm$  glabrous. Fl. Apr–May, fr. Jun–Jul.  $2n = 24^*$ .

- Broad-leaved mixed forests, mixed forests or thickets on mountain slopes, streamsides in mountain valleys; 800–2000 m. Chongqing (Nanchuan), Sichuan, NE Yunnan.

This species is often easily distinguishable from other species in the genus by its usually linear-lanceolate, leathery or thickly papery leaves. Few plants with somewhat broader leaves, which had been previously referred to *Stachyurus salicifolius* var. *lancifolius*, cannot be distinctly differentiated from *S. yunnanensis*, thus indicating a possibly close affinity between these two species.

**2. *Stachyurus yunnanensis*** Franchet, J. Bot. (Morot) 12: 253. 1898.

云南旌节花 yun nan jing jie hua

*Stachyurus callosus* C. Y. Wu ex S. K. Chen; *S. esquirolii* H. Léveillé; *S. oblongifolius* F. T. Wang & T. Tang; *S. yunnanensis* var. *pedicellatus* Rehder.

Shrubs evergreen, 1–3 m tall. Bark dark gray. Petiole 1–2.5 cm, stout; leaf blade elliptic-oblong to oblong-lanceolate, rarely obovate-lanceolate,  $7\text{--}15 \times 2\text{--}4$  cm, leathery or thinly leathery, both surfaces glabrous, midvein conspicuously raised abaxially, lateral veins 5–7-paired, inconspicuous on both sides, base cuneate or obtuse, margin serrulate throughout, apex acute, acuminate, caudate-acuminate, or obtuse. Spikes 12–22-flowered, 3–8 cm; peduncles short, 5–10 mm. Flowers subsessile; bract triangular, ca. 1.5 mm, apex acute; bracteoles triangular-ovate, ca. 2.5 mm, apex acute. Sepals ovate-orbicular, ca. 3.5 mm. Petals yellow to white, obovate-orbicular,  $5.5\text{--}6.5 \times$  ca. 4 mm, apex obtuse. Ovary bottle-shaped, glabrous; style ca. 6 mm. Fruit globose, 6–7 mm in diam. Fl. Mar–Apr, fr. Jun–Sep.  $2n = 24^*$ .

Evergreen broad-leaved forests on mountain slopes, thickets at forest margins; 800–1800 m. Chongqing, N Guangdong (Yangshan), SW Guangxi, Guizhou, W Hubei, W Hunan, Sichuan, Yunnan [N Vietnam].

This fairly widely distributed species is characterized by having leaves elliptic-oblong to oblong-lanceolate, and leathery or thinly leathery. Plants from Gongshan, NW Yunnan, have leaves relatively long caudate, and those from Emei Shan, Sichuan, have somewhat larger leaves. Some plants with obovate-lanceolate leaves look very similar to *Stachyurus obovatus*, and differ only in having relatively shortly caudate, narrower leaves, with their margins serrulate throughout.

The length of the fruit stalk shows some variation between and within populations. However, the difference is so tenuous that it seems not justifiable to describe the plants with somewhat longer fruit stalks as any independent taxonomic entity.

**3. *Stachyurus obovatus*** (Rehder) Handel-Mazzetti, Oesterr. Bot. Z. 90: 118. 1941.

倒卵叶旌节花 dao luan ye jing jie hua

*Stachyurus yunnanensis* Franchet var. *obovatus* Rehder, J. Arnold Arbor. 11: 165. 1930.

Shrubs or small trees, evergreen, 1–4 m tall. Bark gray or gray-brown. Petiole 5–10 mm; leaf blade obovate or obovate-elliptic, abruptly narrowing below middle,  $5\text{--}8 \times 2\text{--}3.5$  cm, leathery or subleathery, both surfaces glabrous, midvein conspicuously raised abaxially, slightly raised adaxially, lateral veins 5–7-paired, conspicuous abaxially, base attenuate and cuneate, margin serrate above middle, apex long caudate-acuminate. Spikes 5–8-flowered, 1–2 cm; peduncles 3–5 mm. Flowers yellowish green, pedicels 2–4 mm; bract persistent, triangular, ca. 1.5 mm, apex acute; bracteoles median, ovate, ca. 2 mm. Sepals ovate, ca. 2 mm. Petals obovate,  $5.5\text{--}7 \times 2\text{--}5$  mm, apex obtuse. Ovary narrowly ovoid, puberulous; style ca. 3 mm; stigmas ovoid. Fruit globose, 6–7 mm in diam., slightly puberulous. Fl. Apr–May, fr. Aug.

- Evergreen broad-leaved forests on mountain slopes, forest margins; 500–2000 m. Chongqing, N Guizhou, Sichuan, NE Yunnan (Suijiang).

The pedicels in fruit appear to be articulated because of the scars left by the bracteoles.

**4. *Stachyurus cordatulus*** Merrill, Brittonia 4: 122. 1941.

滇缅旌节花 dian mian jing jie hua

Shrubs evergreen, ca. 3 m tall. Petiole 6–10 mm; leaf blade oblong to oblong-lanceolate,  $8\text{--}10 \times 2.3\text{--}4$  cm, papery to leathery, both surfaces glabrous, midvein and lateral veins raised on both sides; lateral veins 6- or 7-paired, abruptly ascending between midvein and margin, and connected into a longitudinal vein, base cordate or cuneate, margin densely serrulate, apex caudate-acuminate. Spikes erect, 6–8 cm; peduncles ca. 5 mm. Flowers sessile; bract triangular, ca. 1 mm, apex acute; bracteoles ovate, ca. 2 mm, apex acute. Sepals ovate-elliptic, ca. 3 mm. Petals greenish, slightly rosy, obovate, ca. 5 mm, apex rounded. Ovary ovoid-globose, glabrous; style ca. 1 mm. Fruit obovoid-globose, ca. 4 mm in diam. Fl. Jan–Feb, fr. Mar–Jun.

Broad-leaved forests on mountain slopes; 1400–2100 m. NW Yunnan (Gongshan) [N Myanmar].

This species is easily distinguished by its quite special venation.

**5. *Stachyurus retusus*** Y. C. Yang, Contr. Biol. Lab. Sci. Soc. China 12: 105. 1939.

凹叶旌节花 ao ye jing jie hua

*Stachyurus szechuanensis* W.P. Fang, Icon. Pl. Omei. 2(1): t. 103. 1945.

Shrubs deciduous, 2–3 m tall. Petiole 1–2 cm; leaf blade suborbicular,  $6\text{--}10 \times 4\text{--}9$  cm, papery, abaxially white puberulous to glabrous, adaxially glabrous, lateral veins 5- or 6-paired, ascending, anastomosing at margin, conspicuously raised on both sides, base obtuse or slightly cordate, margin slightly revolute, remotely serrate, apex obtuse or emarginate, rarely subtruncate or slightly retuse. Spikes nodding, 2–5 cm; peduncles nearly absent. Flowers sessile; bract broadly triangular-ovate, ca. 2 mm; bracteoles ovate, apex acute. Sepals greenish, ovate.

Flower buds yellowish blue. Mature flowers not seen. Ovary ovoid, glabrous; styles very short, longer than ovary. Fruit globose, ca. 6 mm in diam. Fl. May, fr. Jul.  $2n = 24^*$ .

• Mixed forests and thickets on mountain slopes; 1600–2500 m. Sichuan, NE Yunnan (Yiliang).

This species is easily distinguishable from other species in the genus by having suborbicular leaves usually obtuse or emarginate at their apices. The leaf blade is adaxially sometimes densely white puberulous, but often subglabrous or glabrous.

**6. *Stachyurus chinensis*** Franchet, J. Bot. (Morot) 12: 254. 1898.

中国旌节花 zhong guo jing jie hua

*Stachyurus caudatilimbus* C. Y. Wu ex S. K. Chen; *S. chinensis* subsp. *cuspidatus* (H. L. Li) Y. C. Tang & Y. L. Cao; *S. chinensis* var. *cuspidatus* H. L. Li; *S. chinensis* subsp. *latus* (H. L. Li) Y. C. Tang & Y. L. Cao; *S. chinensis* var. *latus* H. L. Li; *S. duclouxii* Pitard ex Chung; *S. sigeyosii* Masamune.

Shrubs deciduous, 2–4 m tall. Petiole 1–2 cm; leaf blade ovate or oblong-ovate to oblong-elliptic, or suborbicular, 5–12 × 3–7 cm, papery to membranous, abaxially glabrous or sparsely pubescent along midvein and lateral veins, adaxially glabrous, lateral veins 5- or 6-paired, raised on both sides, base usually subcordate, or obtuse, margin crenate-serrate, apex acuminate to shortly caudate-acuminate, or rarely retuse. Spikes 5–10 cm. Flowers opening before leaves appear, yellow, ca. 7 mm, subsessile or shortly pedicellate; bract triangular-ovate, ca. 3 mm, apex acute; bracteoles ovate, ca. 2 mm. Sepals yellow-green, ovate, ca. 3.5 mm, apex obtuse. Petals ovate, ca. 6.5 mm, apex rounded. Ovary bottle-shaped, puberulous; style ca. 2 mm. Fruit globose, 6–7 mm in diam., glabrous. Fl. Mar–Apr, fr. May–Jul.  $2n = 24^*$ .

• Forests, thickets, forest margins; 400–3000 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

This most widely distributed species in the genus is very highly polymorphic in the shape, size, and apices of the leaves. The apices of the leaves are highly variable, but the variation seems to be continuous.

The bases of the leaves are usually subcordate, and seemingly the most stable diagnostic character for this species. The plants from Taiwan are more narrowly oblong-elliptic, but show no essential differences from those of Fujian, Guangdong, and Jiangxi. From the subcordate leaf bases of the Taiwan plants, it seems more reasonable to refer them to *Stachyurus chinensis* than to *S. himalaicus*. These two species are usually distinguishable by leaf shape, particularly the leaf base, but the plants from SW Sichuan, SE Xizang, and NW Yunnan cannot be distinctly differentiated from those of the Himalayan region. In a broader sense, the two species may be better treated as conspecific.

**7. *Stachyurus himalaicus*** J. D. Hooker & Thomson ex Benth, J. Linn. Soc., Bot. 5: 55. 1861.

西域旌节花 xi yu jing jie hua

*Stachyurus brachystachyus* (C. Y. Wu & S. K. Chen) Y. C. Tang & Y. L. Cao; *S. chinensis* subsp. *brachystachyus* (C. Y. Wu & S. K. Chen) Y. C. Tang & Y. L. Cao; *S. chinensis* var. *brachystachyus* C. Y. Wu & S. K. Chen; *S. himalaicus* var. *alatifolius* C. Y. Wu ex S. K. Chen; *S. himalaicus* var. *dasyrachis* C. Y. Wu ex S. K. Chen, p.p.; *S. himalaicus* var. *microphyllus* C. Y. Wu ex S. K. Chen, p.p.; *S. himalaicus* subsp. *purpureus* Y. P. Zhu & Z. Y. Zhang.

Shrubs or small trees, 3–5 m tall. Petiole 0.5–1.5 cm; leaf blade lanceolate to oblong-lanceolate, 8–13 × 3.5–5.5 cm, papery to thinly leathery, lateral veins 5–7-paired, raised on both sides, base obtuse, margin densely serrulate, apex acuminate to long acuminate. Spikes usually nodding, 5–13 cm, sessile. Flowers yellow, ca. 6 mm, subsessile; bract triangular, ca. 2 mm; bracteoles broadly ovate, apex acute. Sepals broadly ovate, ca. 3 mm, apex obtuse. Petals obovate, ca. 5 × 3.5 mm. Ovary ovoid-oblong, hairy; style ca. 1.5 mm. Fruit subglobose, 7–8 cm in diam., ± glabrous. Fl. Mar–Apr, fr. May–Aug.

Broad-leaved forests, thickets; 400–3000 m. Xizang, Yunnan [Bhutan, N India, N Myanmar, Nepal].

Some plants from NW, SW, and S Yunnan, which had been previously referred to *Stachyurus brachystachyus*, *S. himalaicus* var. *dasyrachis*, and *S. himalaicus* var. *microphyllus*, respectively, actually belong to *S. yunnanensis*. As the type gatherings of these names belong to *S. himalaicus*, they are reduced here to synonymy under that species.