

26. CHELONOPSIS Miquel, Ann. Mus. Bot. Lugduno-Batavum 2: 111. 1865.

铃子香属 *ling zi xiang shu*

Herbs or shrubs. Leaves crenate to serrate. Verticillasters in axils or upper leaves, 2–10-flowered. Calyx campanulate, membranous, dilated after anthesis, 10-veined, 4- or 5-toothed; teeth triangular, equal or subequal, or conspicuously 2-lipped, with upper lip 3-toothed and lower lip 2-toothed. Corolla white, yellow, or purple-red, 2-lipped; tube dilated in front near base, long exerted, not hairy annulate inside; upper lip short, straight, margin entire or emarginate; lower lip longer, subpatent, 3-lobed; middle lobe largest, emarginate, margin undulate to dentate. Stamens 4, ascending beneath upper corolla lip; filaments complanate, puberulent; anthers with 2-locular, bearded pollen sacs. Ovary glabrous. Style 2-cleft, lobes subulate. Nutlets flattened dorsiventrally, obliquely long winged at apex.

About 16 species: Asia, 13 species in China.

- 1a. Rhizomatous herbs; calyx conspicuously 2-lipped, with (4–)5 short unequal teeth 13. *C. chekiangensis*
- 1b. Shrubs or subshrubs; calyx with 5 equal teeth.
 - 2a. Leaves lanceolate to ovate-lanceolate, short petiolate to sessile; corolla usually creamy white to reddish, purple spotted.
 - 3a. Leaves opposite, membranous; flowers solitary, axillary; calyx sparsely white ciliate outside, teeth lanceolate, slightly longer than tube 3. *C. forrestii*
 - 3b. Leaves in whorls of 3, papery; cymes 1–3-flowered, axillary; calyx white villous, teeth triangular, shorter than tube.
 - 4a. Leaves lanceolate, 3.5–6×0.8–1.3 cm; cymes usually 1-flowered; peduncle less than 3 mm; corolla 1.5–2 cm 1. *C. albiflora*
 - 4b. Leaves ovate-lanceolate, 5–6×2–2.5 cm; cymes usually 3-flowered; peduncle ca. 1 cm; corolla ca. 3.5 cm 2. *C. souliei*
- 2b. Leaves ovate to ovate-triangular, long petiolate; corolla yellow to purple red.
 - 5a. Branchlets pilose or villous, sometimes intermixed with sparse bristly hairs, glandular hairs few.
 - 6a. Leaves less than 3 cm; cymes 1-flowered 4. *C. giraldii*
 - 6b. Leaves more than 3 cm; cymes rarely 1-flowered.
 - 7a. Corolla yellow, middle lobe of lower lip conspicuously dentate or undulate 5. *C. odontochila*
 - 7b. Corolla reddish to scarlet, middle lobe of lower lip entire or subentire.
 - 8a. Plants densely pilose; leaves slightly corrugate, coarsely crenate-serrate 7. *C. mollissima*
 - 8b. Plants sparsely villous; leaves not corrugate, double crenate-serrate 6. *C. rosea*
 - 5b. Branchlets densely spreading bristly, short glandular pilose.
 - 9a. Calyx teeth acute, wider than long 12. *C. abbreviata*
 - 9b. Calyx teeth acuminate, longer than wide.
 - 10a. Bracts linear, minute.
 - 11a. Leaves 8–12×6–7 cm; peduncle to 5 cm; pedicel 1.7–3 cm; corolla yellow 8. *C. lichiangensis*
 - 11b. Leaves 6–8×3–4 cm; peduncle ca. 2.5 cm; pedicel 2–3 mm; corolla dull purple 9. *C. siccanca*
 - 10b. Bracts leaflike, large, conspicuous.
 - 12a. Bracts close to calyx, at first covering cymes; pedicel 2–5 mm 10. *C. bracteata*
 - 12b. Bracts widely spaced, not covering calyx; pedicel to 2.5 cm 11. *C. pseudobracteata*

1. *Chelonopsis albiflora* Pax & K. Hoffmann ex Limpricht, Repert. Spec. Nov. Regni Veg. Beih. 12: 477. 1922.

白花铃子香 *bai hua ling zi xiang*

Shrubs 0.5–2 m tall. Stems gray-brown, bark peeling longitudinally; branches brown, puberulent, glabrescent. Leaves often in whorls of 3; petiole ca. 2 mm, puberulent; leaf blade lanceolate, 3.5–6 × 0.8–1.3 cm, sparsely puberulent, adaxially glandular, abaxially pubescent along veins otherwise glandular, base subrounded to broadly cuneate, margin serrulate, apex acuminate. Cymes 1(–3)-flowered; peduncle ca. 3 mm; bracteoles linear, 5–7×0.5 mm. Pedicel 1–2 mm. Calyx campanulate, 2–6 cm, pubescent, glandular outside, glabrous inside; teeth 5, narrowly triangular, to 8 mm, apex spinescent. Corolla white, 1.5–2 cm, puberulent outside, glabrous inside; upper lip ovate, ca. 7 mm; lower lip ca. 1.3 cm, middle lobe cordate, emarginate, lateral lobes ovate. Filaments puberulent, apex ± dentate. Style unequally 2-cleft. Fl. Aug.

• Wet thickets; 3400–3700 m. Sichuan, Xizang.

2. *Chelonopsis souliei* (Bonati) Merrill, J. Arnold Arbor. 28: 252. 1947.

轮叶铃子香 *lun ye ling zi xiang*

Shrubs ca. 1.5 m tall. Stems with peeling bark; branches brown, puberulent. Leaves in whorls of 3; petiole 3–4 mm, puberulent; leaf blade ovate-lanceolate, 5–6×2–2.5 cm, sparsely puberulent, densely so along midrib adaxially, glandular and pubescent along veins abaxially, base subrounded, margin serrate, apex acuminate. Cymes (2- or) 3-flowered; peduncle ca. 1 cm; bracteoles linear, ca. 5 mm. Pedicel 1–4 mm. Calyx campanulate, ca. 2 cm, densely pubescent, glandular outside, glabrous inside, tube ca. 1 cm; teeth 5, triangular, apex spinescent-acuminate. Corolla cream yellow, ca. 3.5 cm, puberulent, glandular outside, glabrous inside; tube ca. 2 cm, dilated in throat; upper lip ovate, ca. 1 cm, emarginate, lateral lobes ovate. Style equally 2-cleft at apex. Fl. Aug.

• Hillsides; 3600 m. Sichuan, Xizang.

3. *Chelonopsis forrestii* Anthony, Notes Roy. Bot. Gard. Edinburgh 15: 239. 1927.

大萼铃子香 da e ling zi xiang

Chelonopsis odontochila Diels subsp. *forrestii* (Anthony) Kudô.

Shrubs 1–2 m tall. Stems straw colored, bark peeling; branches sparsely pubescent to subglabrous, yellow-brown when dry. Leaves opposite; petiole ca. 5 mm; leaf blade ovate-lanceolate, 4–7×2–2.5 cm, sparsely pubescent adaxially, sparsely white pubescent and glandular abaxially, base slightly asymmetrical, rounded to cordate, margin shallowly serrate to subentire, ciliate, apex acuminate. Cymes 1-flowered; peduncle slender, 1–2.5 cm; bracteoles 2, at midpoint of pedicel, linear, ca. 5 mm. Pedicel ca. 3 mm. Calyx campanulate, ca. 2.3 cm, papery, with sparse white cilia outside, glabrous inside, tube ca. 1 cm; teeth 5, lanceolate, margin white ciliate, apex acuminate, spine tipped. Corolla ca. 3 cm, creamy white, tinged purple or red with purple lines on tube, sparsely pubescent outside, glabrous inside; tube ca. 2.2 cm, gradually dilated at apex; upper lip oblate, ca. 5×8 mm, emarginate; middle lobe of lower lip largest, ca. 8×7 mm, lateral lobes ca. 5 mm wide. Filaments puberulent. Style equally 2-cleft. Fl. Jul.

• Forests, streamside thickets; 2800–3100 m. Sichuan.

4. *Chelonopsis giraldii* Diels, Bot. Jahrb. Syst. 36, Beibl. 82: 94. 1905.

小叶铃子香 xiao ye ling zi xiang

Shrubs 1–2 m tall. Stems subterete, striate, densely puberulent, much branched; branches slender. Petiole 1–2 cm, densely puberulent; leaf blade ovate to ovate-triangular, 2.5–4×1.8–2.5 cm, villous-hispid, base rounded, margin sparsely incised-serrate, occasionally double serrate, apex acute. Cymes 1(–3)-flowered, densely puberulent; peduncle 1–1.4 cm; bracteoles linear-lanceolate, ca. 1×1.5 mm, puberulent abaxially. Pedicel ca. 2 mm. Calyx campanulate, ca. 1.8 cm, puberulent outside, glabrous inside, tube ca. 1.5 cm; teeth 5, triangular, ca. 5 mm, apex acuminate. Corolla ca. 3 cm, densely pubescent except at base outside, glabrous inside; tube ca. 2.6 cm, much exerted, dilated at throat; upper lip ovate, ca. 4 mm; middle lobe of lower lip obovate, emarginate. Filaments puberulent. Style equally 2-cleft. Immature nutlets dark brown, striate. Fl. Oct.

• Thickets in valleys; 800 m. Gansu, Shaanxi.

5. *Chelonopsis odontochila* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 240. 1912.

齿唇铃子香 chi chun ling zi xiang

Shrubs 1–2 m tall. Stems densely pubescent, sometimes also sparsely bristly. Petiole 1.5–2 cm, pubescent; leaf blade ovate, 3–8×1.5–5 cm, pilose, base cordate, margin finely crenate-serrate, slightly corrugate, apex subacuminate. Cymes (1–)3-flowered, pubescent; peduncle 1–2 cm; bracteoles leaflike to linear or linear-lanceolate, 4–6 mm, ciliate. Pedicel 5–7 mm. Calyx campanulate, ca. 1 cm in flower, to 1.5 cm in fruit, sparsely pubescent outside, glabrous inside, tube ca. 8 mm; teeth 5, triangular to broadly triangular, equal, ca. 2 mm, apex mucronate-acuminate. Corolla yellow, ca. 3.2 cm, puberulent outside, glabrous inside; tube ca. 2.2 cm, dilated in

throat; upper lip ca. 3 mm, emarginate; lower lip larger, middle lobe slightly undulate to conspicuously dentate. Filaments puberulent. Style glabrous, equally 2-cleft. Nutlets black-brown, ovoid-ellipsoid, ca. 1×2.5 mm, flattened, winged at apex, striate.

• Dry thickets in valleys; 1400–2500 m. Sichuan, Yunnan.

1a. Leaves 3–5×1.5–3 cm; bracteoles linear-lanceolate; calyx teeth triangular, mucronate-acuminate; middle lobe of lower corolla lip conspicuously dentate 5a. var. *odontochila*

1b. Leaves to 8×5 cm; bracteoles leaflike to linear; calyx teeth broadly triangular, acuminate; middle lobe of lower corolla lip slightly undulate to dentate

..... 5b. var. *smithii*

5a. *Chelonopsis odontochila* var. *odontochila*

齿唇铃子香 chi chun ling zi xiang

Leaves 3–5×1.5–3 cm. Bracteoles linear-lanceolate. Calyx teeth triangular, mucronate-acuminate. Middle lobe of lower corolla lip conspicuously dentate. Fl. Sep-Oct, fr. Oct-Nov.

• Dry thickets in valleys; 1400–2000 m. Sichuan, Yunnan.

5b. *Chelonopsis odontochila* var. *smithii* (Kudô) C. Y. Wu, Acta Phytotax. Sin. 8: 29. 1959.

钝齿变种 dun chi bian zhong

Chelonopsis odontochila Diels subsp. *smithii* Kudô, Mem. Fac. Sci. Taihoku Imp. Univ. 2: 154. 1929.

Leaves to 8×5 cm. Bracteoles leaflike to linear. Calyx teeth broadly triangular, acuminate. Middle lobe of lower corolla lip slightly undulate to dentate.

• Dry thickets in valleys; 1800–2500 m. Sichuan, Yunnan.

6. *Chelonopsis rosea* W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 93. 1916.

玫红铃子香 mei hong ling zi xiang

Chelonopsis odontochila Diels subsp. *rosea* (W. Smith) Kudô.

Shrubs 1–2 m tall. Branches robust, densely villous. Petiole 1–4.5 cm, densely villous; leaf blade broadly ovate, 3–8×2–5.5 cm, glandular, villous adaxially, densely so mainly along veins abaxially, base cordate, margin double crenate-serrate, apex short acuminate. Cymes densely villous, usually 3-flowered; peduncle 0.5–1.5 cm; bracteoles ± linear, 5–8 mm, densely villous. Pedicel 3–5 mm. Calyx tubular-campanulate, 1.2–1.4 cm in flower, 1.5–2.5 cm in fruit, densely pubescent outside, glabrous except for pubescent teeth inside; teeth 5, triangular to narrowly triangular, apex mucronate-acuminate. Corolla rose to purple-red, 3–4×0.8–1.2 cm, densely pubescent outside, glabrous inside; upper lip ca. 3×7 mm, subentire; middle lobe of lower lip ca. 6×10 mm, subentire, lateral lobes ca. 3×5 mm. Filaments puberulent. Style subequally 2-cleft. Nutlets brown, oblong, ca. 11×4 mm, winged at apex, finely striate. Fl. Sep-Oct, fr. Nov-Dec.

• Open thickets; 1600–3100 m. Yunnan.

7. *Chelonopsis mollissima* C. Y. Wu, Acta Phytotax. Sin. 10: 151. 1965.

多毛铃子香 duo mao ling zi xiang

Shrubs ca. 1 m tall, densely pilose. Branches subterete. Petiole 1.5–2.5 cm; leaf blade ovate-orbicular, 3–5×2.5–4.5 cm, base subcordate, margin coarsely crenate-serrate, apex acute. Cymes solitary or paired, or terminal on leafy axillary branchlets, 1–3-flowered; peduncle 4–8 mm; bracteoles ovate to oblanceolate, ca. 7×2–3 mm. Pedicel 1–2 mm. Calyx campanulate, ca. 1.5 cm, puberulent inside, accessory teeth slightly enlarged below sinus; teeth 5, narrowly triangular, ca. 7 mm, apex spinescent-acuminate. Corolla rose to red, ca. 3.2 cm, pubescent outside, glabrous inside; tube ca. 2.5 cm, dilated at throat; upper lip ca. 3×7 mm, emarginate; lower lip ca. 0.9×1.5 cm, middle lobe largest, trapeziform, emarginate, lateral lobes ovate. Filaments finely pilose. Style glabrous, equally 2-cleft. Fl. Nov–Dec.

• Dry thickets on open slopes in valleys; 1200–1700 m. Yunnan.

8. *Chelonopsis lichiangensis* W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 92. 1916.

丽江铃子香 *li jiang ling zi xiang*

Chelonopsis odontochila Diels subsp. *lichiangensis* (W. Smith) Kudô.

Shrubs 1–3 m tall. Branches robust, striate, densely tawny bristly, finely glandular pilose. Petiole 4–5 cm, robust, bristly, densely glandular pilose; leaf blade ovate, ca. 9×6.5 cm, pilose along veins, sparsely bristly adaxially, densely so abaxially, base shallowly cordate, margin coarsely lobulate to double crenate, apex ± acuminate. Cymes solitary or paired, bristly, densely glandular pilose, 3–7-flowered; peduncle 3.5–5 cm; floral leaves gradually reduced; bracteoles ± linear, 1–1.5 cm, villous. Pedicel ca. 1.5 cm. Calyx campanulate, 1.5–1.8 cm in flower, dilated in fruit, bristly, finely glandular pilose outside, glabrous inside; teeth 5, ovate-triangular to narrowly triangular, 5–6 mm, equal, callose acuminate, margin ciliate. Corolla yellow, ca. 3.7 cm, glabrous except for pubescent limb outside; tube ca. 3 cm, dilated at apex, ca. 1 cm wide at throat; upper lip ca. 3×8 mm, emarginate; middle lobe of lower lip ca. 8×11 mm, margin dentate, apex emarginate, lateral lobes ca. 3 mm. Filaments puberulent. Style subequally 2-cleft. Immature nutlets brown, oblong-ellipsoid, flattened, winged, base attenuate, apex acute, finely striate. Fl. Nov.

• Open slopes in valleys; 1900 m. Yunnan.

9. *Chelonopsis siccanea* W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 94. 1916.

干生铃子香 *gan sheng ling zi xiang*

Shrubs 1–2 m tall. Branches slender, densely glandular pubescent. Petiole 2.5–4 cm, sparsely puberulent, densely glandular pubescent; leaf blade ovate to ovate-lanceolate, 6–8×3–4 cm, sparsely puberulent, adaxially ciliate along veins, abaxially glabrous or subglabrous, base shallowly cordate, margin crenate-serrate, apex acuminate. Cymes glandular pubescent, usually 3-flowered; peduncle to 2.5 cm; bracts linear, 5–10 mm, pubescent. Pedicel 2–3 mm. Calyx 1–1.5 mm, sparsely pubescent, glandular pubescent at base; teeth 5, triangular, 3–4 mm, apex mucronate-acuminate. Corolla dark purple-red, ca. 3×1 cm at throat, apex puberulent outside, subglabrous inside; upper lip ca. 3 mm, slightly emarginate; middle lobe of lower lip narrowly elliptic, more than 1 cm, lateral lobes circular. Filaments glabrous. Style glabrous, 2-cleft (specimens not seen).

• Dry thickets in valleys; 2000 m. Yunnan.

10. *Chelonopsis bracteata* W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 92. 1916.

具苞铃子香 *ju bao ling zi xiang*

Chelonopsis odontochila Diels subsp. *bracteata* (W. Smith) Kudô.

Shrubs 0.5–1.5 m tall. Branches densely spreading bristly, finely glandular pilose. Petiole 3–5 cm, robust, bristly, finely glandular pilose; leaf blade ovate to lanceolate-ovate, with 1–3 lobes at base, 7–10×3.5–6 cm, sparsely bristly, finely pilose along veins adaxially, base shallowly cordate, margin crenate-serrate, apex acuminate. Cymes bristly, finely glandular pilose, solitary or paired, 3-flowered; peduncle 3–5 cm; bracts green or reddish, conspicuous, leaflike, lanceolate, to 2.5 cm, bristly, nearly covering calyx in flower. Pedicel 2–5 mm. Calyx ca. 2 cm, densely fine glandular pilose, sparsely bristly; teeth 5, triangular, 5–6 mm, subequal, apex mucronate-acuminate. Corolla dark rose, 2.5–3×1.2 cm wide at throat, subglabrous outside; upper lip ca. 2×4 mm; middle lobe of lower lip ca. 6×7 mm, margin undulate, lateral lobes ca. 4×5 mm. Filaments puberulent. Ovary dark brown, glabrous. Style equally 2-cleft. Fl. Oct–Nov.

• Dry thickets in valleys; 2000–2400 m. Sichuan, Yunnan.

11. *Chelonopsis pseudobracteata* C. Y. Wu & H. W. Li Acta Phytotax. Sin. 10: 152. 1965.

假具苞铃子香 *jia ju bao ling zi xiang*

Chelonopsis pseudobracteata var. *rubra* C. Y. Wu & H. W. Li.

Shrubs 0.5–1.5 m tall. Branches robust, striate, densely bristly, finely glandular pilose. Petiole 4–5 cm, robust, densely bristly, finely glandular pilose; leaf blade ovate, 6–8×3.5–5 cm, sparsely bristly, finely white pilose along veins adaxially, base shallowly cordate, margin callose crenate to sometimes double callose crenate, apex acuminate. Cymes axillary or subterminal, densely bristly, finely glandular pilose, solitary or paired, 3–7-flowered; peduncle 2–4 cm; bracts leaflike, linear to lanceolate, 1–3 cm, bristly, not covering cymes. Pedicel 1–2.5 cm. Calyx campanulate, ca. 1.6 cm in flower, to 2.3 cm in fruit, pilose along veins outside and on throat inside; teeth 5, narrowly triangular, anterior 2 slightly larger, 6–7 mm, apex cuspidate-acuminate, reflexed. Corolla yellow or reddish to scarlet, ca. 3.6 cm, projected, slightly saccate above middle, ca. 1 cm wide at throat, finely pilose at apex outside, glabrous inside; upper lip ca. 3 mm, entire; middle lobe of lower lip ca. 5 mm, emarginate, lateral lobes ca. 2 mm. Posterior filaments finely pilose, anterior filaments puberulent only at base. Style subequally 2-cleft. Nutlets brownish, ellipsoid, ca. 10×5 mm, winged, flattened, finely veined. Fl. Sep–Nov, fr. Nov.

• Forests, grassy areas, thickets in valleys, forest margins; 1300–2300 m. Sichuan, Yunnan.

12. *Chelonopsis abbreviata* C. Y. Wu & H. W. Li, Acta Phytotax. Sin. 10: 153. 1965.

缩序铃子香 *suo xu ling zi xiang*

Shrubs erect. Branchlets striate, densely, tawny bristly, finely glandular pilose. Petiole 0.5–2.8 cm, densely bristly, finely glandular pilose; leaf blade ovate, 6–8×4–4.5 cm,

reduced at apex, glandular, finely pilose adaxially and along veins abaxially, sparsely pubescent abaxially, base cordate, margin coarsely double incised crenate, apex acuminate. Cymes bristly, finely glandular pilose, solitary or paired, 3- to many flowered; peduncle subsessile to 1.8 cm; bracts leaflike, oblanceolate, ca. 8 mm, widely spaced 1- or 2-serrate to subentire, finely pilose, glandular. Pedicel 2–4 mm. Calyx campanulate, ca. 1.3 cm, finely pilose along veins and margin outside, glabrous inside; teeth 4 or 5, deltoid, equal, ca. 3 mm, callose acute. Corolla pale yellow, to 3.5 cm in flower, ca. 8 mm wide at throat, limb finely pilose outside, glabrous inside; upper lip ca. 4×7 mm, apex rounded; lower lip ca. 0.8×1.5 cm, middle lobe largest, ca. 6×7 mm, emarginate; lateral lobes ovate, ca. 4 mm wide. Filaments finely pilose. Ovary black-brown, glabrous. Style equally 2-cleft.

- Valleys. Yunnan.

13. *Chelonopsis chekiangensis* C. Y. Wu, Acta Phytotax. Sin. 8: 26. 1959.

浙江铃子香 zhe jiang ling zi xiang

Herbs erect, rhizomatous, ca. 60 cm tall. Stems obtusely 4-angled, grooved, glabrous or ± hirsute. Leaves gradually reduced upward, lanceolate, 3–15×1.5–4.5 cm, strigose along veins, sparsely hirsute adaxially, inconspicuously glandular along veins abaxially, base cuneate-attenuate, margin irregularly callose serrate, apex acuminate. Cymes sparsely strigose, 3–5-flowered; peduncle 1–1.5(–2) cm; bracteoles lanceolate, longer than pedicel. Pedicel to 5 mm. Calyx campanulate, 2-lipped, 8–10 mm in flower, saccate-dilated, to 2×1.5 cm in fruit, sparsely strigose, glabrescent outside, with conspicuous transverse veins at apex; teeth 4 or 5, unequal, deltoid, obtuse. Corolla purple, 3–4 cm, obscurely 2-lipped, finely papillate outside, puberulent at base of upper lip inside; tube projected, gradually dilated; upper lip ca. 7 mm, entire; lower lip as long as adaxial, middle lobe largest, margin entire or undulate. Filaments puberulent basally. Nutlets brown, narrowly ellipsoid, ca. 1 cm, winged, finely striate. Fl. Aug, fr. Sep-Oct.

- Slopes at low elevations. Anhui, Guangdong, Jiangxi, Zhejiang.

- 1a. Peduncle 1–1.5(–2) cm 13a. var. *chekiangensis*
1b. Peduncle 2–4 mm 13b. var. *brevipes*

13a. *Chelonopsis chekiangensis* var. *chekiangensis*

浙江铃子香 zhe jiang ling zi xiang

Peduncle 1–1.5(–2) cm.

- Slopes at low elevations. Anhui, Jiangxi, Zhejiang.

13b. *Chelonopsis chekiangensis* var. *brevipes* C. Y. Wu & H. W. Li, Acta Phytotax. Sin. 10: 154. 1965.

短梗变种 duan geng bian zhong

Peduncle 2–4 mm.

- Slopes; 1600 m. Guangdong.

