

31. PLATANThERA Richard, De Orchid. Eur. 20, 26, 35. 1817, nom. cons.

舌唇兰属 she chun lan shu

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Blephariglottis Rafinesque; *Gymnadeniopsis* Rydberg; *Limnorchis* Rydberg; *Lysiella* Rydberg; *Perularia* Lindley; *Piperia* Rydberg; *Tulotis* Rafinesque.

Herbs, terrestrial, small to medium-sized. Rootstock composed of a slender, creeping stolon, or of a fusiform or ovoid tuber, fleshy, sometimes fascicled, usually with several filiform roots at neck. Stem erect or ascending, with 1 to several leaves. Leaves basal or cauline, alternate or rarely subopposite, elliptic, ovate-elliptic, or linear-lanceolate, sheathing at base. Inflorescence terminal, glabrous; peduncle cylindric, with 1 or more often foliaceous bracts; rachis few to many flowered, lax or dense; floral bracts usually lanceolate, herbaceous. Flowers often sweetly scented, resupinate, white, green, yellow-green, rose-pink, or orange, variable in size; pedicel and ovary twisted, arcuate toward apex, cylindric to fusiform, glabrous. Dorsal sepal usually connivent with petals and forming a hood, concave, short, margin ciliate or glabrous; lateral sepals spreading or reflexed, longer than dorsal sepal, margin ciliate or glabrous. Petals usually narrower than sepals; lip spreading or pendulous, sometimes strongly deflexed, entire and ligulate, sometimes with small lateral lobes at base, or divided and fimbriate to varying degrees, usually slightly fleshy, sometimes with a central thickening, sometimes with a callus on disk, spurred at base; spur usually very long and filiform or narrowly cylindric, rarely short and conic. Column short, stout, with a pair of staminodes at base of anther; anther erect, broad, with 2 parallel or divergent locules, connective conspicuous; pollinia 2, sectile, clavate, granular-farinoaceous, each with conspicuous caudicle and naked viscidium; rostellum triangular, with 2 divergent arms at base; stigma lobes confluent, concave, lying below rostellum and fused with its lower part, or on a convex surface surrounded by rostellum, or sometimes of 2 separate, raised lobes placed in front of mouth of spur. Capsule erect.

About 200 species: throughout Europe and N Africa, north temperate Asia, the Malay Archipelago, and New Guinea, and Central and North America; 42 species (19 endemic) in China.

Placement of some of the small-flowered and shortly spurred species here as opposed to in *Peristylus* is questionable, though critical re-evaluation currently is hampered by the very limited material (particularly of the endemic Chinese species) available for study.

- 1a. Spur shorter than or subequal in length to lip.
 - 2a. Leaves 4 or 5; floral bracts pubescent; lip with a basal callus 34. *P. clavigera*
 - 2b. Leaves 1–3; floral bracts glabrous; lip ecallose.
 - 3a. Plants less than 5 cm tall; lip 15–20 mm; spur 7–9 mm 42. *P. peichatieniana*
 - 3b. Plants more than 5 cm tall; lip 1.5–6 mm; spur 1–4 mm.
 - 4a. Flowers white, sometimes flushed with pink.
 - 5a. Leaves 1 or 2, oblong to elliptic, 1–3 cm wide; dorsal sepal ovate to suborbicular, 2.5–3 mm 35. *P. brevicealcarata*
 - 5b. Leaf solitary, linear to ligulate, 0.4–1 cm wide; dorsal sepal oblong, 5–6.5 mm 36. *P. roseotinca*
 - 4b. Flowers green, pale green, or yellowish green.
 - 6a. Leaf solitary; spur ca. 1 mm 37. *P. minutiflora*
 - 6b. Leaves 2; spur 2–3 mm.
 - 7a. Leaves linear, at least 5 × as long as broad; disk of lip densely papillose 41. *P. kwangsiensis*
 - 7b. Leaves ovate, ovate-oblong, oblong, or elliptic, less than 4 × as long as broad; lip glabrous.
 - 8a. Leaves 5–7 × 2–3 cm; lip more than 4 mm 40. *P. taiwanensis*
 - 8b. Leaves 3–3.5 × 1–1.6 cm; lip to ca. 3.6 mm.
 - 9a. Lip ca. 3.6 mm; spur clavate, ca. 2.2 mm; leaves oblong, ca. 3 × 1 cm 38. *P. handel-mazzettii*
 - 9b. Lip ca. 2.5 mm; spur cylindric to ovoid, ca. 2 mm; leaves elliptic, ca. 3.5 × 1.6 cm 39. *P. herminioides*
 - 1b. Spur conspicuously longer than lip.
 - 10a. Leaves always 2, basal and subopposite.
 - 11a. Spur 20–25 mm, slender, not dilated; connective narrow, apex ca. 0.5 mm wide; anther locules parallel 13. *P. bifolia*
 - 11b. Spur 25–36 mm, stout, dilated toward apex; connective rather broad, apex ca. 1.5 mm wide; anther locules divergent 14. *P. chlorantha*
 - 10b. Leaf solitary and basal, or leaves 2–6, cauline, alternate and usually widely spaced, never basal and subopposite.
 - 12a. Lip with a pair of small lateral lobes at base.
 - 13a. Lip with a conic callus on disk in front of mouth of spur 28. *P. finetiana*
 - 13b. Lip ecallose.
 - 14a. Spur 50–64 mm 24. *P. arcuata*
 - 14b. Spur 4–14 mm.
 - 15a. Spur 4–5 mm, shorter than ovary 23. *P. ussuriensis*

- 15b. Spur 10–14 mm, equal in length to or exceeding ovary.
- 16a. Leaves linear to linear-lanceolate, 1–2.5 cm wide; lip 6–8 mm 15. *P. devolii*
- 16b. Leaves obovate to elliptic, 3–7 cm wide; lip 4–5 mm 19. *P. souliei*
- 12b. Lip simple, lacking lateral lobes.
- 17a. Lip with an oblong or conic callus on disk in front of mouth of spur.
- 18a. Leaves (2 or)3–6; inflorescence laxly flowered; margin of dorsal sepal ciliate 29. *P. latilabris*
- 18b. Leaves 1–4; inflorescence subdensely to densely flowered; dorsal sepal glabrous 20. *P. sachalinensis*
- 17b. Lip ecallose.
- 19a. Leaves usually 4–6 (though *P. japonica* occasionally 3-leaved).
- 20a. Leaves 3–7.5 cm wide; spur 25–60 mm 30. *P. japonica*
- 20b. Leaves 0.8–3 cm wide; spur 10–20 mm.
- 21a. Plants less than 25 cm tall; inflorescence laxly 5–9-flowered 33. *P. sikkimensis*
- 21b. Plants more than 30 cm tall; inflorescence subdensely to densely many flowered.
- 22a. Plants 30–35 cm tall; peduncle robust; flowers green to yellowish green; lip linear, ca. 1 mm wide 31. *P. oreophila*
- 22b. Plants 35–85 cm tall; peduncle slender; flowers white; lip ligulate to ligulate-lanceolate, 2.5–3 mm wide 32. *P. hologlottis*
- 19b. Leaves 1–3.
- 23a. Sepal margins ciliate.
- 24a. Lip ca. 11 mm; petals ca. 8 mm 18. *P. curvata*
- 24b. Lip to 8 mm; petals to 6 mm.
- 25a. Leaf usually solitary, or rarely 2; inflorescence 3–10-flowered.
- 26a. Leaf linear to linear-oblong, 0.7–1.4 cm wide; viscidia suborbicular 8. *P. leptocaulon*
- 26b. Leaf elliptic or oblong-elliptic, 0.7–3.5 cm wide; viscidia narrowly oblong.
- 27a. Petals 2–2.2 mm wide; anther locules divergent; staminodes rectangular 6. *P. chiloglossa*
- 27b. Petals 1–1.5 mm wide; anther locules parallel; staminodes suborbicular 7. *P. exelliana*
- 25b. Leaves usually 2 (though *P. stenantha* occasionally 1-leaved); inflorescence 7- to many flowered.
- 28a. Lip 2–2.5 mm wide; stigma lobes confluent 12. *P. stenantha*
- 28b. Lip 1.5–1.6 mm wide; stigma lobes separate.
- 29a. Spur 17–18 mm; lip strongly deflexed; sepals only ciliate along apical margin 16. *P. deflexilabella*
- 29b. Spur 10–12 mm; lip straight; sepals ciliate along whole margin 17. *P. longiglandula*
- 23b. Sepals glabrous.
- 30a. Leaves 3.
- 31a. Dorsal sepal and petals not connivent, not forming a hood; leaves 13–19 cm 27. *P. likiangensis*
- 31b. Dorsal sepal and petals connivent, forming a hood; leaves 8–13 cm.
- 32a. Lip ca. 14 mm 25. *P. sinica*
- 32b. Lip ca. 6 mm 26. *P. bakeriana*
- 30b. Leaves 1 or 2 (though *P. minor* sometimes 3-leaved).
- 33a. Dorsal sepal and petals not connivent, not forming a hood.
- 34a. Leaf always solitary, basal, broadly elliptic to ovate-elliptic, 2–6 cm wide; sterile bracts small, not foliaceous 1. *P. stenoglossa*
- 34b. Leaves 1 or 2, basal or cauline, narrowly elliptic, oblong, or linear-lanceolate, 1.5–3 cm wide; sterile bracts large, foliaceous 9. *P. mandarinorum*
- 33b. Dorsal sepal and petals connivent, forming a hood.
- 35a. Plants less than 18 cm tall; leaf narrow, to 0.8 cm wide 5. *P. stenophylla*
- 35b. Plants 20–80 cm tall; leaf 0.8–5 cm wide.
- 36a. Spur 6–8 mm, slightly shorter than to ca. as long as ovary; viscidia large, lanceolate 11. *P. longicalcarata*
- 36b. Spur more than 10 mm, usually exceeding ovary; viscidia small, suborbicular.
- 37a. Leaf 0.8–2.2 cm wide.
- 38a. Inflorescence 3–8-flowered; dorsal sepal 4.5–6 × 3–4.5 mm; lip 6–8 mm 3. *P. damingshanica*
- 38b. Inflorescence many flowered; dorsal sepal 2.5–3 × 2–2.5 mm; lip 5–6 mm 4. *P. tipuloides*
- 37b. Leaf 2–5 cm wide.
- 39a. Peduncle usually robust; rachis many flowered.
- 40a. Dorsal sepal 3.5–4 mm wide; spur pendent 21. *P. minor*
- 40b. Dorsal sepal ca. 7 mm wide; spur spreading horizontally 22. *P. densa*
- 39b. Peduncle slender; rachis 4–14-flowered.
- 41a. Spur pendulous, incurved, ca. 11 mm 2. *P. lancilabris*
- 41b. Spur usually spreading horizontally, parallel to ovary, occasionally slightly

pendulous and incurved, 17–23 mm 10. *P. yangmeiensis*

1. *Platanthera stenoglossa* Hayata, Icon. Pl. Formosan. 4: 123. 1914.

狭瓣舌唇兰 xia ban she chun lan

Platanthera chingshuishania S. S. Ying; *P. iriomotensis* Masamune; *P. stenosepala* Schlechter.

Plants 12–40 cm tall. Rootstock tuberous, fusiform, 2–5 × 0.4–0.7 cm. Stem erect or ascending, with a tubular sheath at base, 1-leaved. Leaf basal, broadly elliptic to ovate-elliptic, 3–15 × 2–6 cm, base clasping, apex acute or obtuse. Peduncle ridged, with 1–3 scattered, small, scalelike (non-foliaceous), lanceolate bracts; rachis 5–15 cm, laxly 5–10-flowered; floral bracts lanceolate to ovate-lanceolate, 6–13 mm, shorter than ovary. Flowers pale yellowish green to green; pedicel and ovary arcuate, fusiform, 8–16 mm. Dorsal sepal not connivent with sepals, ovate, concave, 4–5 × 2–4 mm, glabrous, 1-veined, apex acute; lateral sepals strongly reflexed, linear, 6–7 × 0.8–1.5 mm, glabrous, 1-veined, apex obtuse. Petals erect, spreading, deltoid to ovate-lanceolate, oblique, 4.5–6 × 3–4 mm, 2-veined, apex acute; lip linear-lanceolate, 7–8 × 2–2.5 mm, fleshy, entire, apex obtuse; spur spreading horizontally to slightly pendulous, cylindrical, 12–18 mm, slender, apex obtuse. Column 2.5–3 mm; staminodes conspicuous, ellipsoid; anther locules nearly parallel; connective broad, concave; pollinia ovoid, with slender caudicles and orbicular viscidia; rostellum slightly arched, concave; stigma lobes confluent, transversely oblong. Capsule erect, fusiform. Fl. Mar–May.

Broad-leaved forests, forest margins, moist rocks; 300–1600 m. C and N Taiwan [Japan (Ryukyu Islands)].

2. *Platanthera lancilabris* Schlechter, Repert. Spec. Nov. Regni Veg. 17: 25. 1921.

披针唇舌唇兰 pi zhen chun she chun lan

Plants 30–35 cm tall. Rootstock tuberous, narrowly oblong. Stem erect or ascending, with tubular sheaths at base, 1-leaved. Leaf oblong, 7–8 × 2.7–3 cm, base contracted and clasping, apex obtuse. Peduncle with 2 foliaceous, lanceolate bracts; rachis to 9 cm, subdensely 8–14-flowered; floral bracts lanceolate, basal ones exceeding flowers, apex acuminate. Flowers green; pedicel and ovary cylindrical, ca. 7 mm. Dorsal sepal erect, lanceolate, concave, ca. 4.5 mm, glabrous, 1-veined, apex obtuse; lateral sepals reflexed, ligulate-lanceolate, oblique, ca. 5 mm, glabrous, 1-veined, apex obtuse. Petals ovate-lanceolate, oblique, 1-veined, apex subacute; lip ca. 5 × 1.5 mm, entire, basal margin adnate to petals, free part lanceolate, apex obtuse; spur pendulous, slightly incurved, cylindrical, ca. 11 mm, apex subobtuse; anther locules slightly divergent; rostellum short, broadly triangular.

• Forests on slopes. NE Yunnan.

3. *Platanthera damingshanica* K. Y. Lang & H. S. Guo, Fl. Zhejiang 7: 552. 1993.

大明山舌唇兰 da ming shan she chun lan

Plants 32–47 cm tall. Rootstock creeping, cylindrical, stoliferous. Stem slender, with tubular sheaths at base, 1-leaved. Leaf basal, narrowly oblanceolate to oblong, 7–15 × 1–2.2 cm, base contracted and clasping, apex obtuse. Peduncle slender, with 1–3 scattered bracts; rachis 6–11 cm, laxly 3–8-flowered; floral bracts lanceolate, 6–13 mm. Flowers yellowish green; pedicel and ovary cylindrical, 6–12 mm. Dorsal sepal erect, forming a hood with petals, broadly ovate, cymbiform, 4.5–6 × 3–4.5 mm, glabrous, 3-veined, apex acute; lateral sepals reflexed, narrowly oblong to linear, oblique, ca. 7 × 2 mm, glabrous, 3-veined, apex obtuse. Petals erect, ovate, oblique, 4–5.5 × 2–3.5 mm, 2-veined, apex acute; lip linear-ligulate, 6–8 × ca. 1 mm, entire, apex obtuse; spur pendulous, cylindrical, 12–14 mm. Column ca. 4 mm; anther locules nearly parallel; pollinia obovoid, with long caudicles and suborbicular viscidia; rostellum rather large; stigma lobes confluent, concave, lying directly below rostellum. Fl. May.

• Dense forests on slopes, shaded and humid places along valleys. Fujian, Guangdong, Guangxi, Hunan, Zhejiang.

4. *Platanthera tipuloides* (Linnaeus f.) Lindley, Gen. Sp. Orchid. Pl. 285. 1835.

筒距舌唇兰 tong ju she chun lan

Orchis tipuloides Linnaeus f., Suppl. Pl. 401. 1782; *Perularia whangshanensis* S. S. Chien; *Tipularia tipuloides* (Linnaeus f.) Druce; *Tulotis whangshanensis* (S. S. Chien) H. Hara.

Plants 20–40 cm tall. Rootstock tuberous, narrowly fusiform to cylindrical, elongate, 3.5–5 × 0.3–0.6 cm. Stem slender, with a tubular sheath at base, 1-leaved. Leaf oblong-elliptic, 5–11 × 0.8–2 cm, base clasping, apex obtuse. Peduncle slender, with 2 or 3 foliaceous, ovate-lanceolate bracts; rachis 6–12 cm, sparsely many flowered; floral bracts narrowly lanceolate, 12–15 mm, basal ones exceeding ovary. Flowers yellowish green; pedicel and ovary cylindrical, 9–12 mm, slender. Dorsal sepal erect, forming a hood with petals, broadly ovate, cymbiform, 2.5–3 × 2–2.5 mm, glabrous, 3-veined, apex obtuse; lateral sepals reflexed, narrowly elliptic, 3–3.5 × 1.2–1.3 mm, glabrous, 3-veined, apex obtuse. Petals erect, ovate to narrowly ovate, oblique, 2.5–3 × 1–1.5 mm, slightly fleshy, 1-veined, apex obtuse; lip spreading horizontally to pendulous, broadly linear, 5–6 × 1.2–1.5 mm, entire, apex obtuse; spur slightly pendulous, sometimes incurved, cylindrical, 12–17 mm, slender, apex obtuse. Column ca. 1.5 mm; anther locules nearly parallel; connective slightly concave; pollinia obovoid, with short caudicles and suborbicular viscidia; rostellum rather small; stigma lobes confluent, concave, lying directly below rostellum. Fl. May–Jul. $2n = 42$.

Dense forests on slopes, forest margins along valleys; 700–1700 m. Anhui, Fujian, Hong Kong, Hunan, Jiangxi, Zhejiang [Japan, Korea, Russia (Kamchatka, Sakhalin)].

5. *Platanthera stenophylla* Tang & F. T. Wang, Acta Phytotax. Sin. 1: 59. 1951.

独龙江舌唇兰 du long jiang she chun lan

Plants 15–17.5 cm tall. Rootstock creeping, cylindrical. Stem erect or ascending, rather slender, with 1 tubular sheath at base, 1-leaved. Leaf cauline, narrowly oblong, 4–4.5 × 0.7–0.8 cm, base attenuate and clasping, apex obtuse. Peduncle slender; rachis 3.5–4 cm, laxly 3–5-flowered; floral bracts lanceolate, slightly exceeding ovary, apex acuminate. Flowers green; pedicel and ovary cylindrical-fusiform, ca. 8 mm. Dorsal sepal ovate-lanceolate, ca. 6 × 1.8 mm, glabrous, 3-veined, apex obtuse; lateral sepals lanceolate, oblique, 3.5–6 × ca. 1.3 mm, glabrous, 1-veined, apex obtuse. Petals ovate-lanceolate, oblique, ca. 5 × 1.8 mm, slightly fleshy, 1-veined, apex obtuse; lip lanceolate-ligulate, ca. 5 × 1.4 mm, entire, apex obtuse; spur pendulous to spreading horizontally, cylindrical, ca. 9.5 × 1 mm, exceeding ovary, tapering slightly toward apex, apex obtuse. Column ca. 1.5 mm. Fl. Aug–Sep.

• *Betula* forests, grasslands on slopes; 2500–3800 m. SE Xizang (Bomi), NW Yunnan (Gongshan).

6. *Platanthera chiloglossa* (Tang & F. T. Wang) K. Y. Lang, Vasc. Pl. Hengduan Mts. 2: 2523. 1994.

察瓦龙舌唇兰 cha wa long she chun lan

Habenaria chiloglossa Tang & F. T. Wang, Acta Phytotax. Sin. 1: 63. 1951.

Plants 10–31 cm tall. Rootstock creeping, cylindrical, stoloniferous. Stem erect or ascending, slightly stout, with 1 or 2 tubular sheaths at base, 1-leaved. Leaf cauline, oblong-elliptic, 2.5–10 × 0.7–3.5 cm, base clasping, apex acute. Peduncle sometimes with 1 small, foliaceous bract; rachis 2–10 cm, 3–10-flowered; floral bracts lanceolate, apex acuminate, basal ones exceeding flowers. Flowers pale yellowish green; pedicel and ovary fusiform, ca. 9 mm. Dorsal sepal erect and connivent with petals, narrowly elliptic, concave, 5.5–6 × ca. 2 mm, 3-veined, margin ciliate, apex obtuse; lateral sepals reflexed, obliquely lanceolate, 5.5–6 × ca. 2 mm, 1-veined, margin ciliate, apex subacuminate. Petals triangular, oblique, ca. 5 × 2–2.2 mm, 1-veined, apex obtuse; lip slightly recurved, ligulate, ca. 6.5 × 1.5 mm, entire, apex obtuse; spur pendulous, cylindrical, slightly incurved, ca. 16 mm, exceeding ovary, somewhat dilated toward apex, apex obtuse. Column short; staminodes rectangular, small; anther locules slightly divergent; pollinia ellipsoid, with long caudicles and narrowly oblong viscidia; rostellum erect, short; stigma lobes separate, raised, elliptic, large, extending on either side of mouth of spur. Fl. Aug.

• Forests, grasslands on slopes and along gullies; 2500–3300 m. W Sichuan, Xizang (Zayü), NW Yunnan.

7. *Platanthera exelliana* Soó, Ann. Hist.-Nat. Mus. Natl. Hung. 26: 359. 1929.

高原舌唇兰 gao yuan she chun lan

Platanthera elachyantha Tang & F. T. Wang.

Plants 15–25 cm tall. Rootstock tuberous, fusiform, ca. 1.5 cm. Stem erect or ascending, with a tubular sheath at base, 1- or rarely 2-leaved. Leaf basal, elliptic to oblong-elliptic, 2.5–10 × 0.7–3.5 cm, base sheathing, apex obtuse or acute. Peduncle

slender, with 1 or 2 small, foliaceous bracts; rachis 2–10 cm, laxly 3–10-flowered; floral bracts lanceolate, 8–22 mm, apex acuminate. Flowers pale yellowish green; pedicel and ovary slightly arcuate, cylindrical-fusiform, 6–7 mm. Dorsal sepal erect, forming a hood with petals, narrowly oblong, 3.5–4.5 × 1.2–1.8 mm, 1- or 3-veined, margin ciliate, apex obtuse; lateral sepals reflexed, narrowly oblong, oblique, 4–5 × 1.5–1.8 mm, 1- or 3-veined, margin ciliate, apex slightly obtuse. Petals erect, narrowly triangular-lanceolate, oblique, 3.5–5 × 1–1.5 mm, fleshy, apex obtuse; lip slightly recurved, ligulate to ligulate-lanceolate, 3.8–5 × ca. 1.3 mm, thickened, entire, apex obtuse; spur pendulous, slightly incurved, cylindrical, 8–10 mm, ca. as long as or exceeding ovary, somewhat dilated toward apex, apex obtuse. Column short; staminodes suborbicular, small; anther locules parallel; connective very narrow; pollinia obovoid, with short caudicles and narrowly oblong viscidia; rostellum rather small; stigma lobes separate, raised, elliptic, extending on either side of mouth of spur. Capsule ovoid. Fl. Aug–Sep.

Alpine and subalpine meadows, scrub; 3300–4500 m. W Sichuan, SE Xizang, NW Yunnan (Dêqên, Gongshan, Zhongdian) [Bhutan, India (Sikkim), Nepal].

8. *Platanthera leptocaulon* (J. D. Hooker) Soó, Ann. Hist.-Nat. Mus. Natl. Hung. 26: 360. 1929.

条叶舌唇兰 tiao ye she chun lan

Habenaria leptocaulon J. D. Hooker, Fl. Brit. India 6: 154. 1890; *Platanthera silaensis* Handel-Mazzetti.

Plants 19–25 cm tall. Rootstock creeping, cylindrical, stoloniferous. Stem erect, with 1 or 2 sheaths at base, 1- or rarely 2-leaved. Leaf cauline, linear to linear-oblong, 3.5–8.5 × 0.7–1.4 cm, base clasping, apex acute to subobtuse. Peduncle slender, with 1–3 foliaceous, linear-lanceolate bracts; rachis 4.5–9 cm, laxly 3–6-flowered; floral bracts erect, lanceolate to ovate-lanceolate, 10–12 mm, apex acuminate. Flowers yellowish green; pedicel and ovary cylindrical-fusiform, ca. 10 mm. Dorsal sepal erect and forming a hood with petals, sublanceolate, ca. 6 × 2–2.2 mm, 3-veined, margin ciliate, apex obtuse; lateral sepals reflexed, lanceolate, slightly oblique, ca. 6 × 2–2.1 mm, 3-veined, margin ciliate, apex obtuse. Petals triangular-lanceolate, oblique, ca. 6 × 2 mm, fleshy, 1-veined, apex acute; lip ligulate-lanceolate, 5.5–8 × 1–1.3 mm, thickened, entire, apex obtuse; spur pendulous, cylindrical, 12–20 mm, usually much longer than ovary, slender. Column erect, short; staminodes subelliptic, small; anther locules nearly parallel; pollinia ellipsoid, with short caudicles and suborbicular viscidia; rostellum erect, short; stigma lobes separate, raised, elliptic-oblong, extending on either side of mouth of spur. Fl. Aug–Oct.

Forests, grasslands on slopes; 3000–4000 m. SW Sichuan, S Xizang, NW Yunnan [Bhutan, NE India, Nepal].

9. *Platanthera mandarinorum* H. G. Reichenbach, Linnaea 25: 226. 1852.

尾瓣舌唇兰 wei ban she chun lan

Plants 10–50 cm tall. Rootstock tuberous, ovoid to fusiform, 3–8 × 0.4–0.8 cm. Stem erect, with 2 or 3 tubular sheaths at base, 1- or 2-leaved. Leaves basal or cauline, alternate, nar-

rowly elliptic, oblong, or linear-lanceolate, 3–12 × 0.8–3 cm, base clasping, apex acute or obtuse. Peduncle slender to somewhat robust, distinctly ridged, with several foliaceous, lanceolate bracts; rachis 3–22 cm, laxly to subdensely 3–20-flowered; floral bracts lanceolate to ovate-lanceolate, 8–20 mm, equal to or exceeding ovary. Flowers pale greenish yellow to green; pedicel and ovary arcuate, narrowly fusiform, 10–14 mm. Dorsal sepal not connivent with petals, broadly ovate to cordate or deltoid, concave, 4–7 × 3–5.5 mm, glabrous, 3-veined, apex obtuse or bluntly rounded; lateral sepals spreading or reflexed, oblong-lanceolate to broadly lanceolate or linear-lanceolate, oblique, 5–9 × 1.3–3.5 mm, glabrous, 3-veined, apex acute to acuminate. Petals spreading, ovate-lanceolate or ovate-linear, oblique, 6–9 × 3–4 mm, 3-veined, apex acute or obtuse; lip pendulous, linear-lanceolate to ligulate, 7–10 × 1–2.5 mm, entire, apex obtuse; spur pendulous, spreading horizontally, or curving upward, cylindrical, 8–30 mm, obtuse to acute. Column 3–4 mm; staminodes ellipsoid, conspicuous; anther locules divergent or parallel, connective 2–3 mm wide, apex emarginate; pollinia ellipsoid, with long caudicles and suborbicular viscidia; rostellum broadly triangular; stigma lobes confluent, transversely oblong, concave, lying directly below rostellum.

Forests, forest margins, alpine or moist grasslands; 300–3200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shandong, Sichuan, Taiwan, NE Yunnan, Zhejiang [Japan, Korea].

- 1a. Lateral sepals linear-lanceolate, 1.3–2 mm wide, dorsal sepal deltoid 9b. subsp. *formosana*
- 1b. Lateral sepals oblong-lanceolate to broadly lanceolate, (1.5–)2–3.5 mm wide, dorsal sepal broadly ovate to cordate.
 - 2a. Spur usually spreading horizontally or upcurved, (15–)20–30 mm; anther locules divergent 9a. subsp. *mandarinorum*
 - 2b. Spur pendulous, 8–15 mm; anther locules parallel 9c. subsp. *pachyglossa*

9a. *Platanthera mandarinorum* subsp. *mandarinorum*

尾瓣舌唇兰(原亚种) wei ban she chun lan (yuan ya zhong)

Habenaria mandarinorum (H. G. Reichenbach) Herklots; *Platanthera cornu-bovis* Nevski; *P. delavayi* Schlechter; *P. mandarinorum* var. *cornu-bovis* (Nevski) Kitagawa; *P. mandarinorum* var. *delavayi* (Schlechter) Soó; *P. mandarinorum* var. *neglecta* (Schlechter) F. Maekawa; *P. mandarinorum* var. *ophryodes* Finet; *P. mandarinorum* subsp. *winkleriana* (Schlechter) Soó; *P. minax* Schlechter; *P. neglecta* Schlechter; *P. winkleriana* Schlechter.

Leaves elliptic to oblong, rarely linear-lanceolate, 4.5–10 × 0.8–2.5 cm. Dorsal sepal broadly ovate to cordate, 4–4.5 × 3–4 mm; lateral sepals oblong-lanceolate to broadly lanceolate, 5–7 × (1.5–)2–3 mm; spur 15–30 mm. Anther locules divergent. Fl. Apr–Jun.

Forests, grasslands; 300–2100 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shandong, Sichuan, NE Yunnan [Japan, Korea].

9b. *Platanthera mandarinorum* subsp. *formosana* T. P. Lin & K. Inoue, J. Phytogeogr. Taxon. 28: 12. 1980.

宝岛舌唇兰 bao dao she chun lan

Platanthera mandarinorum var. *formosana* (T. P. Lin & K. Inoue) S. S. Ying.

Leaves ovate, oblong, or lanceolate, 3–6 × 1.2–3 cm. Dorsal sepal deltoid, 5–7 × 4–4.5 mm; lateral sepals linear-lanceolate, oblique, 7–9 × 1.3–2 mm; spur 12–18 mm. Anther locules slightly divergent. Fl. May–Jul.

• Moist grasslands, forest margins; 1200–1600 m. Taiwan (Taibei, Taidong).

9c. *Platanthera mandarinorum* subsp. *pachyglossa* (Hayata) T. P. Lin & K. Inoue, J. Phytogeogr. Taxon. 28: 10. 1980.

厚唇舌唇兰 hou chun she chun lan

Platanthera pachyglossa Hayata, Icon. Pl. Formosan. 4: 123. 1914; *Habenaria pachyglossa* (Hayata) Masamune.

Leaves oblong to lanceolate, 5–12 × 2–3 cm. Dorsal sepal broadly ovate, 5–6 × 4.5–5.5 mm; lateral sepals oblong-lanceolate, oblique, 7–9 × 3–3.5 mm; spur 8–15 mm. Anther locules parallel. Fl. Jun–Aug.

• Alpine grasslands; 2000–3200 m. C and N Taiwan.

10. *Platanthera yangmeiensis* T. P. Lin, J. Phytogeogr. Taxon. 28: 7. 1980.

阴生舌唇兰 yin sheng she chun lan

Platanthera lalashaniana S. S. Ying.

Plants 22–40 cm tall. Rootstock tuberous, fusiform, 2–5 × 0.3–0.5 cm. Stem erect, with a tubular sheath at base, 1- or 2-leaved. Leaves basal or cauline, alternate, elliptic-oblong, 10–15 × 3–5 cm, base clasping, apex obtuse or acute. Peduncle slender, with several scattered, foliaceous, lanceolate bracts; rachis 2–7 cm, laxly 4–8-flowered; floral bracts lanceolate, 8–30 mm. Flowers pale yellowish white to light whitish green; pedicel and ovary arcuate, cylindrical, 12–15 mm, slender, glabrous. Dorsal sepal forming a hood with petals, suborbicular, concave, ca. 4.5 × 3.5 mm, glabrous, 3-veined, apex obtuse; lateral sepals reflexed, linear-falcate, ca. 6.5 × 1.8 mm, glabrous, 2-veined, apex acuminate. Petals deltoid, oblique, ca. 5.5 × 1.8 mm, 2-veined, apex acuminate; lip broadly linear, ca. 7 × 1.6 mm, entire, apex obtuse; spur usually spreading horizontally and parallel to ovary, occasionally slightly pendulous and incurved, cylindrical, 17–23 mm, slender, gradually tapering toward apex. Column ca. 3 mm; staminodes conspicuous; anther locules nearly parallel; pollinia obovoid, with slender caudicles and suborbicular viscidia; rostellum slightly arched, concave; stigma lobes confluent, flat to slightly concave. Fl. Jun–Aug.

• Shaded humid places in forests; 1000–1700 m. Taiwan.

11. *Platanthera longicalcarata* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 350. 1911.

长距舌唇兰 chang ju she chun lan

Habenaria longicalcarata (Hayata) S. S. Ying; *Plantagin-*

orchis longicalcarata (Hayata) Szlachetko & Kras-Lapinska;
Tulotis longicalcarata (Hayata) T. S. Liu & H. J. Su.

Plants 20–45 cm tall. Rootstock elongate, creeping, tapering, 3–8 × 0.3–0.6 cm, stoloniferous. Stem erect, with 1 or 2 tubular sheaths at base, 1- or 2-leaved. Leaves cauline, alternate, widely spaced, oblong-ob lanceolate, 8–12 × 3–3.5 cm, base cuneate, apex subacute. Peduncle slender, ridged, with 2 foliaceous, lanceolate bracts; rachis 8–18 cm, 5–20-flowered; floral bracts lanceolate, 6–16 mm. Flowers greenish; pedicel and ovary fusiform, 6–9 mm. Dorsal sepal forming a hood with petals, ovate-triangular, 3–3.5 × 2.8–3.3 mm, glabrous, 1-veined, apex obtuse; lateral sepals reflexed, ovate-lanceolate, oblique, 4.5–5.5 × 2–3 mm, glabrous, 1-veined, apex obtuse. Petals lanceolate, oblique, 4–4.5 × 1.8–2 mm; lip ovate-triangular, 4.5–5 × 1.8–2.5 mm, entire, apex obtuse; spur pendulous, incurved, 6–8 mm, apex obtuse. Column 1.5–2 mm, with 2 small projections linking to lip at base; staminodes conspicuous; anther locules slightly divergent; connective narrow; pollinia ellipsoid, with slender caudicles and large, oblong viscidia; rostellum curved; stigma lobes confluent, flat, anterior margin protruding beyond anther locules. Fl. Jul–Sep.

• *Tsuga chinensis* and *Picea morrisonicola* forests on slopes; 2400–3000 m. Taiwan.

12. *Platanthera stenantha* (J. D. Hooker) Soó, Ann. Hist.-Nat. Mus. Natl. Hung. 26: 363. 1929.

条瓣舌唇兰 tiao ban she chun lan

Habenaria stenantha J. D. Hooker, Fl. Brit. India 6: 153. 1890; *Hemihabenaria stenantha* (J. D. Hooker) Finet.

Plants 25–32 cm tall. Rootstock elongate, cylindrical, stoloniferous. Stem erect, with 1 or 2 tubular sheaths at base, 1- or 2-leaved. Leaves cauline, alternate, widely spaced, elliptic or broadly elliptic, 4–15 × 2–5.5 cm, base contracted and clasping, apex acute. Peduncle slender, with 2–4 foliaceous bracts; rachis 6–15 cm, 7–17-flowered; floral bracts linear-lanceolate, 10–20 mm, basal ones exceeding flowers, apex acuminate. Flowers yellowish green; pedicel and ovary cylindrical, 8–12 mm. Dorsal sepal erect, forming a hood with petals, ovate, cymbiform, 4–5 × 2–2.6 mm, 3-veined, margin ciliate, apex obtuse; lateral sepals reflexed, oblong, oblique, 5–6 × 1.5–1.7 mm, 3-veined, margin ciliate, apex obtuse. Petals yellow, erect, linear, oblique, 4–5 × ca. 1 mm, slightly fleshy, 1-veined, apex obtuse; lip yellow, narrowly ovate to ligulate-lanceolate, 5–6 × 2–2.5 mm, entire, apex obtuse; spur pendulous, slightly incurved, cylindrical, 12–18 mm, exceeding ovary, slender, slightly dilated toward apex. Column short; staminodes small; anther locules slightly divergent; pollinia obovoid, with long caudicles and lanceolate viscidia; rostellum rather large; stigma lobes confluent, raised, elliptic, placed above mouth of spur. Fl. Aug–Sep.

Evergreen broad-leaved forests, coniferous (*Abies* and *Tsuga*) forests; 1500–3100 m. S and SE Xizang (Médog, Yadong), Yunnan (Bijiang, Gongshan) [Bhutan, India (Sikkim), N Myanmar, Nepal].

13. *Platanthera bifolia* (Linnaeus) Richard, De Orchid. Eur. 35. 1817.

细距舌唇兰 xi ju she chun lan

Orchis bifolia Linnaeus, Sp. Pl. 2: 939. 1753; *Habenaria bifolia* (Linnaeus) R. Brown; *Platanthera metabifolia* F. Maekawa.

Plants 28–42 cm tall. Rootstock tuberous, ovoid-fusiform, tapering at base, 2.5–3 × 0.8–1.4 cm. Stem erect, with 1 or 2 tubular sheaths at base, 2-leaved. Leaves basal, subopposite, spatulate-elliptic, oblong, or elliptic, 9–12 × 1.8–3.5 cm, gradually contracted at base, apex obtuse. Peduncle slender to robust, with 2–4 scattered, lanceolate bracts; rachis 9–19 cm, laxly to subdensely 7–17-flowered; floral bracts lanceolate, 15–20 mm, basal ones exceeding ovary. Flowers fragrant, white, greenish white, or green; pedicel and ovary arcuate, cylindrical, 14–15 mm. Dorsal sepal erect and forming a hood with petals, ovate to broadly ovate, cymbiform, 5.5–6 × 4–4.5 mm, glabrous, apex obtuse; lateral sepals spreading, ovate-lanceolate, oblique, 6–7 × 3.5–4 mm, glabrous, apex subacute. Petals linear-lanceolate, oblique, 5.5–6 × ca. 1 mm, apex acute; lip spreading, ligulate, 9–10 × 1–1.5 mm, thickened, entire, apex obtuse; spur pendulous, cylindrical, slender, 20–25 × 1.5–1.8 mm, apex subacute. Column stout; staminodes conspicuous; anther locules slightly divergent; pollinia ellipsoid, with long caudicles and suborbicular viscidia; rostellum belt-shaped; stigma lobes confluent, concave, lying directly below rostellum. Fl. Jul–Aug, fr. Aug–Sep. $2n = 42$.

Forests on slopes, damp meadows; 200–2800 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Qinghai, Shandong, Shanxi, Sichuan [Japan, Korea, Mongolia, Russia; N Africa, W Asia, Europe].

The Chinese plants do not differ significantly from the widespread Eurasian *Platanthera bifolia*. Its sister and equally widespread species, *P. chlorantha*, is also found in China. The distinctness of *P. metabifolia*, originally described from Japan, is questionable once the full range of variation in *P. bifolia* is considered.

The extensive extra-Chinese synonymy is not cited here.

14. *Platanthera chlorantha* (Custer) Reichenbach in Mössler, Handb. Gewächsk., ed. 2, 2: 1565. 1829.

二叶舌唇兰 er ye she chun lan

Orchis chlorantha Custer, Neue Alp. 2: 400. 1827; *Gymnadenia chlorantha* (Custer) Ambrosi; *Habenaria chlorantha* (Custer) Babington; *H. subulifera* W. W. Smith; *Platanthera sigmoidea* Maekawa; *P. subulifera* (W. W. Smith) Schlechter.

Plants 30–54 cm tall. Rootstock tuberous, ovoid-fusiform, 2–4 × 0.8–1.5 cm. Stem erect, with a tubular sheath at base, 2-leaved. Leaves basal, subopposite, spatulate-elliptic or oblanceolate-elliptic, 10–20 × 3–8 cm, gradually contracted and sheathing at base, apex obtuse or acute. Peduncle slender to robust, with 1–4 scattered, lanceolate bracts; rachis 7–23 cm, laxly to subdensely 9–32-flowered; floral bracts lanceolate, 10–22 mm, basal ones exceeding ovary, apex acuminate. Flowers fragrant, greenish white or white; pedicel and ovary arcuate, cylindrical, 12–18 mm. Dorsal sepal erect, forming a hood with petals, ovate to orbicular-cordate, cymbiform, 5–7 × 5–6 mm, glabrous, 5-veined, apex obtuse; lateral sepals spreading, ovate, oblique, 7.5–8 × 4–4.5 mm, glabrous, 3–5-veined, apex acute. Petals narrowly ovate-lanceolate, oblique, 5–6 × 2.5–3 mm, 1–3-veined, apex acute; lip spreading to pendulous, ligulate,

gradually tapering toward apex, 8–13 × ca. 2 mm, entire, apex obtuse; spur pendulous to spreading horizontally or sometimes arching upward, clavate-cylindric, 16–36 mm, exceeding ovary, conspicuously thickened toward apex, apex obtuse. Column stout; staminodes conspicuous; anther locules divergent; pollinia ellipsoid, with slender caudicles and orbicular viscidia; rostellum broad, tapelike; stigma lobes confluent, concave, lying directly below rostellum. Fl. Jun–Aug, fr. Jul–Sep. $2n = 42$.

Forests on slopes, grasslands; 400–3300 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan [Japan, Korea, Russia; W Asia, Europe].

15. *Platanthera devolii* (T. P. Lin & T. W. Hu) T. P. Lin & K. Inoue, *J. Phytogeogr. Taxon.* 28: 5. 1980.

长叶舌唇兰 chang ye she chun lan

Tulotis devolii T. P. Lin & T. W. Hu, *Quart. J. Chin. Forest.* 9: 53. 1976; *Platanthera longicalcarata* Hayata var. *devolii* (T. P. Lin & T. W. Hu) S. S. Ying.

Plants 20–35 cm tall. Rootstock creeping, slender, stoloniferous. Stem erect, with 2 tubular sheaths at base, 2-leaved. Leaves cauline, alternate, widely spaced, linear to linear-lanceolate, 8–18 × 1–2.5 cm, base clasping, apex acute. Peduncle slender, with 2 or 3 small, lanceolate bracts; rachis 10–25 cm, 8–16-flowered; floral bracts lanceolate, 10–14 mm, apex acuminate. Flowers yellowish green; pedicel and ovary fusiform-cylindric, 8–15 mm. Dorsal sepal erect, forming a hood with petals, broadly ovate, concave, 2.5–3 × 2.5–3 mm, glabrous, 3-veined, apex obtuse; lateral sepals spreading or reflexed, oblique, ovate to narrowly elliptic, 4–5 × 2–3 mm, glabrous, 3-veined, apex obtuse. Petals ovate-lanceolate, oblique, ca. 3 × 1.5–2 mm, 1-veined, apex obtuse; lip pendulous and strongly deflexed, ligulate-lanceolate, 6–8 × ca. 2 mm, with small lateral lobes at base, apex obtuse; basal lobes square or obtusely triangular, to 2 mm, apex acute; spur pendulous, cylindric, 10–14 mm, exceeding ovary, slender, apex acute. Fl. Jun–Sep.

• Shaded places and wet mossy rocks in forests, forest margins, roadsides; 1900–2400 m. C and N Taiwan.

16. *Platanthera deflexilabella* K. Y. Lang, *Acta Phytotax. Sin.* 20: 186. 1982.

反唇舌唇兰 fan chun she chun lan

Plants 30–47 cm tall. Rootstock creeping, cylindric, stoloniferous. Stem erect or ascending, with 2 tubular sheaths at base, 2-leaved. Leaves cauline, widely spaced, elliptic, narrowly elliptic, or narrowly oblong, 9–15 × 1.5–5 cm, base contracted and clasping, apex subobtuse or subacute. Peduncle slender, with 1 or 2 foliaceous, lanceolate bracts; rachis cylindric, 6.5–12 cm, laxly many flowered; floral bracts narrowly lanceolate, margin ciliate, apex long acuminate. Flowers fragrant, yellowish green; pedicel and ovary cylindric-fusiform, 5–6 mm. Dorsal sepal erect, connivent with petals, ovate-oblong, ca. 4 × 1.8 mm, 3-veined, apical margin ciliate, apex obtuse; lateral sepals spreading, linear-lanceolate, oblique, ca. 4.5 × 1.2

mm, 3-veined, apical margin ciliate, apex obtuse. Petals triangular-ovate, oblique, ca. 5 × 2 mm, 1- or rarely 2-veined, apex obtuse; lip strongly deflexed, ligulate-linear, ca. 6 × 1.5 mm, entire, apex obtuse; spur pendulous, cylindric, 17–18 mm, exceeding ovary, slender, tapering slightly toward apex, apex obtuse. Column ca. 1.5 mm, stout; staminodes small; anther locules nearly parallel; pollinia obovoid, with short caudicles and elliptic viscidia; rostellum erect, short; stigma lobes separate, raised, clavate, protruding. Fl. Jul–Aug.

• Forests on slopes, roadsides; 2500–2600 m. SC Sichuan (Emei Shan).

17. *Platanthera longiglandula* K. Y. Lang, *Acta Phytotax. Sin.* 20: 188. 1982.

长粘盘舌唇兰 chang zhan pan she chun lan

Plants 28–33 cm tall. Rootstock creeping, cylindric, stoloniferous. Stem erect or ascending, with 2 tubular sheaths at base, 2-leaved. Leaves cauline, widely spaced, narrowly oblong, narrowly lanceolate, or spatulate, 12–17 × 1.5–3 cm, base attenuate and clasping, apex obtuse or acute. Peduncle slender, with 2 or 3 foliaceous bracts; rachis cylindric, 8–10 cm, subdensely many flowered; floral bracts lanceolate, margin ciliate, apex acuminate, basal ones exceeding flowers. Flowers fragrant, yellowish green; pedicel and ovary slightly arcuate, fusiform, 6–7 mm, glabrous. Dorsal sepal erect and connivent with petals, ovate, cymbiform, ca. 4 × 2.2 mm, 1-veined, margin ciliate, apex obtuse; lateral sepals spreading, ovate, slightly oblique, ca. 4 × 2 mm, 1-veined, margin ciliate, apex obtuse. Petals ovate, oblique, ca. 3.5 × 2 mm, 1-veined, apex slightly obtuse; lip straight, ligulate-ovate, ca. 3.5 × 1.6 mm, entire, apex obtuse; spur pendulous, cylindric, 10–12 mm, exceeding ovary, slender, apex obtuse. Column ca. 1.5 mm, stout; staminodes small; anther locules nearly parallel; pollinia obovoid, with short caudicles and narrowly lanceolate viscidia; rostellum erect, short; stigma lobes separate, raised, clavate, protruding, apex obtuse. Fl. Jul.

• Bamboo forests on slopes; ca. 2800 m. SC Sichuan (Emei Shan).

18. *Platanthera curvata* K. Y. Lang, *Fl. Xizang.* 5: 697. 1987.

弓背舌唇兰 gong bei she chun lan

Habenaria platantheroides Tang & F. T. Wang, *Bull. Fan Mem. Inst. Biol. Bot.* 7: 133. 1936, not Schlechter (1918); *Platanthera platantheroides* K. Y. Lang.

Plants 24–32 cm tall. Rootstock creeping, cylindric, stoloniferous. Stem erect or ascending, with 1 or 2 tubular sheaths at base, usually 2-leaved. Leaves elliptic to obovate, 5–8 × 2–3.5 cm, base clasping, apex acute or acuminate. Peduncle slender, sometimes with 1 or 2 foliaceous bracts; rachis 5.5–12 cm, 4–10- or more flowered; floral bracts lanceolate, apex acuminate or acute. Flowers yellowish green; pedicel and ovary strongly arcuate, cylindric-fusiform, ca. 12 mm. Dorsal sepal erect and connivent with petals, broadly ovate, cymbiform, ca. 7 × 5 mm, 3-veined, margin ciliate, apex obtuse; lateral sepals reflexed, lanceolate, oblique, ca. 9 × 3 mm, 3-veined, margin ciliate, apex obtuse. Petals erect, narrowly lanceolate, falcate, ca.

8 × 2 mm, 1- or rarely 3-veined, apex acute; lip ligulate-lanceolate, ca. 11 × 2.3 mm, 3-veined, entire, apex obtuse; spur spreading horizontally, cylindric-clavate, ca. 18 mm, much longer than ovary, slightly thickened toward apex, apex obtuse. Column erect, short; staminodes square, small; anther locules slightly divergent; pollinia ellipsoid, with slender caudicles and large, orbicular viscidia; rostellum erect, short; stigma lobes separate, clavate, large, protruding obliquely on either side of mouth of spur. Fl. Jul–Aug.

• Forests, scrub, grasslands on slopes; 1900–3600 m. SW and W Sichuan, SE Xizang (Médog), SW Yunnan (Menglian).

19. *Platanthera souliei* Kraenzlin, Repert. Spec. Nov. Regni Veg. 5: 199. 1908.

蜻蜓舌唇兰 qing ting she chun lan

Habenaria pugionifera W. W. Smith; *Orchis fuscescens* Linnaeus; *Perularia fuscescens* (Linnaeus) Lindley; *P. souliei* (Kraenzlin) Schlechter; *Platanthera fuscescens* (Linnaeus) Kraenzlin; *P. pugionifera* (W. W. Smith) Schlechter; *Tulotis asiatica* H. Hara; *T. fuscescens* (Linnaeus) Rafinesque; *T. souliei* (Kraenzlin) H. Hara.

Plants 20–60 cm tall. Rootstock slender, stoloniferous. Stem erect, stout, with 1 or 2 tubular sheaths at base, 2(or 3)-leaved. Leaves cauline, obovate to elliptic, 6–15 × 3–7 cm, base clasping, apex obtuse. Peduncle with several lanceolate bracts; rachis elongate, many flowered; floral bracts narrowly lanceolate, exceeding ovary. Flowers yellowish green; pedicel and ovary cylindric-fusiform, ca. 10 mm. Dorsal sepal erect, forming a hood with petals, ovate, concave, ca. 4 × 3 mm, glabrous, 3-veined, apex acute or obtuse; lateral sepals spreading, elliptic, oblique, slightly longer and narrower than dorsal sepal, glabrous, 3-veined, margin slightly reflexed, apex obtuse. Petals elliptic-lanceolate, oblique, 5.5–6.5 × 1.5–1.8 mm, slightly fleshy, 1-veined, apex obtuse; lip pendulous, ligulate-lanceolate, 4–5 × ca. 1.5 mm, with small lateral lobes at base, apex obtuse; basal lobes triangular-falcate, ca. 1 mm, apex acute; spur pendulous, slightly arcuate, cylindric, ca. 10 mm, ca. equal in length to ovary, slender, slightly dilated toward apex. Fl. Jun–Aug, fr. Sep–Oct. $2n = 42$.

Forests along gullies; 400–4300 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, E Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, NW Yunnan [Japan, Korea, Russia (Siberia)].

20. *Platanthera sachalinensis* F. Schmidt, Reis. Amur-Land., Bot. 181. 1868.

高山舌唇兰 gao shan she chun lan

Habenaria transnokoensis (Ohwi & Fukuyama) S. S. Ying; *Platanthera longibracteata* Hayata; *P. transnokoensis* Ohwi & Fukuyama; *Tulotis transnokoensis* (Ohwi & Fukuyama) S. S. Ying; *T. ussuriensis* (Regel) H. Hara var. *transnokoensis* (Ohwi & Fukuyama) T. S. Liu & H. J. Su.

Plants 25–60 cm tall. Rootstock tuberous, clavate-fusiform, 1.5–6 × 0.4–0.9 cm. Stem erect, stout, with several tubular sheaths, 1–3-leaved. Leaves cauline, alternate, widely spaced, ovate-oblong to lanceolate, 8–15 × 2.5–5 cm, base

clasping, apex obtuse. Peduncle with several scattered, foliaceous, lanceolate bracts; rachis 10–30 cm, subdensely to densely 10–40-flowered; floral bracts lanceolate, 8–27 mm, exceeding ovary. Flowers whitish green to nearly white; pedicel and ovary arcuate, cylindric-fusiform, 6–18 mm. Dorsal sepal forming a hood with petals, narrowly ovate, concave, 3–3.5 × ca. 2 mm, glabrous, 3-veined, apex obtuse; lateral sepals reflexed or spreading, ovate-lanceolate, falcate, 4–4.5 × ca. 2 mm, glabrous, 3-veined, apex obtuse. Petals oblong, oblique, 3–3.5 × 1.5–2 mm, 2-veined, apex obtuse; lip strongly deflexed, broadly linear, 5–7 × 1–1.2 mm, entire, apex obtuse; disk with an oblong callus in front of mouth of spur; spur spreading horizontally, slightly arcuate, cylindric, 10–20 mm, slender, apex obtuse. Column 2–2.5 mm; staminodes ellipsoid, small, inconspicuous; anther locules parallel; connective narrow; pollinia ellipsoid, with long caudicles and small, narrowly triangular viscidia; rostellum concave, V-shaped; stigma lobes confluent, concave, anterior margin slightly protruding. Fl. Jul–Sep. $2n = 42$.

Alpine grasslands, sparse forests; 2000–3000 m. C and N Taiwan [Japan, Russia (Sakhalin)].

21. *Platanthera minor* (Miquel) H. G. Reichenbach, Bot. Zeitung (Berlin) 36: 75. 1878.

小舌唇兰 xiao she chun lan

Habenaria japonica (Thunberg) A. Gray var. *minor* Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 207. 1865; *H. henryi* Rolfe; *H. multibracteata* W. W. Smith; *Platanthera henryi* (Rolfe) Kraenzlin; *P. interrupta* Maximowicz; *P. multibracteata* (W. W. Smith) Schlechter; *P. sigeyosii* Masamune.

Plants 20–60 cm tall. Rootstock tuberous, fusiform, elongate, 1.5–6 × 0.4–1.5 cm. Stem erect, stout, with 1 or 2 tubular sheaths at base, 1- or 2(or 3)-leaved. Leaves cauline, alternate, usually widely spaced, elliptic, ovate-elliptic, or oblong-lanceolate, 6–15 × 2–5 cm, base clasping, apex acute or obtuse-rounded. Peduncle robust, ridged, with 2–5 foliaceous, lanceolate bracts; rachis 10–18 cm, laxly many flowered; floral bracts ovate-lanceolate, 8–20 mm, basal ones exceeding flowers, apex acuminate. Flowers yellowish green; pedicel and ovary slightly arcuate, cylindric-fusiform, 10–15 mm. Dorsal sepal erect, forming a hood with petals, broadly ovate, concave, 4–5 × 3.5–4 mm, glabrous, 3-veined, apex obtuse or acute; lateral sepals reflexed, elliptic, oblique, 5–6(–7) × 2.5–3 mm, glabrous, 3-veined, apex obtuse. Petals ovate, oblique, 4–5 × 2–2.5 mm, 2-veined, apex obtuse; lip spreading horizontally to slightly pendulous, ligulate, 5–8 × 1.5–2.5 mm, entire, apex obtuse; spur pendulous, cylindric, 11–18 mm, apex obtuse or acute. Column 3–4 mm; staminodes conspicuous; anther locules slightly divergent; connective broad, apex concave; pollinia obovoid, with slender caudicles and suborbicular viscidia; rostellum broad, short; stigma lobes confluent, concave, large, lying directly below rostellum. Fl. May–Jul. $2n = 42$.

Forests on slopes, alpine meadows; 200–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea].

22. *Platanthera densa* Freyn, Oesterr. Bot. Z. 46: 96. 1896.

多叶舌唇兰 *duo ye she chun lan*

Platanthera chloranthella Nakai; *P. chlorantha* var. *orientalis* Schlechter; *P. densa* subsp. *orientalis* (Schlechter) Efimov.

Plants ca. 30 cm tall. Rootstock narrowly fusiform, shortly 2-lobed, ca. 4 × 1.3 cm. Stem erect, with 2 tubular sheaths at base, 2-leaved. Leaves cauline, elliptic, 6–7 × 2–3 cm, contracted and clasping at base, apex obtuse. Peduncle with 1 lanceolate bract; rachis ca. 6 cm, subdensely 15-flowered; floral bracts ovate-lanceolate, ca. 15 × 5 mm, slightly exceeding ovary. Flowers green; pedicel and ovary ca. 8 mm. Dorsal sepal erect, forming a hood with petals, cordate-ovate, ca. 5 × 7 mm, apex obtuse; lateral sepals elliptic, oblique, shorter and narrower than dorsal sepal. Petals lanceolate, ca. 3 mm, apex abruptly cuspidate; lip spreading forward, ligulate, ca. 10 × 2.5 mm, entire, apex obtuse; spur spreading horizontally, ca. 20 mm, much longer than ovary. Fl. Jun.

Alpine meadows. China (without precise locality) [Korea, Russia (Far East)].

Material of this species has not been seen. It is possibly conspecific with *Platanthera minor*.

23. *Platanthera ussuriensis* (Regel) Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 31: 107. 1887.

东亚舌唇兰 *dong ya she chun lan*

Platanthera tipuloides Lindley var. *ussuriensis* Regel, Tent. Fl. Ussur. 157. 1861; *Habenaria shensiana* Kraenzlin; *H. ussuriensis* (Regel) Miyabe; *Perularia shensiana* (Kraenzlin) Schlechter; *P. ussuriensis* (Regel) Schlechter; *Platanthera herbiola* Lindley var. *japonica* Finet; *P. shensiana* (Kraenzlin) Tang & F. T. Wang; *Tulotis shensiana* (Kraenzlin) H. Hara; *T. ussuriensis* (Regel) H. Hara.

Plants 20–55 cm tall. Rootstock creeping, 2–4 cm, slender, stoloniferous. Stem erect, slender, with 1 or 2 tubular sheaths at base, 2- or 3-leaved. Leaves cauline, widely spaced, spatulate to narrowly oblong, 6–14 × 1.2–2.5(–3) cm, base clasping, apex obtuse or acute. Peduncle slender, with 1 to several small, lanceolate bracts; rachis 6–10 cm, laxly 10–20-flowered; floral bracts narrowly lanceolate, 8–11 mm, apex acuminate. Flowers pale yellowish green; pedicel and ovary cylindrical, 8–9 mm. Dorsal sepal erect, forming a hood with petals, broadly ovate, concave, 2.5–3 × 2–2.5 mm, glabrous, 3-veined, apex obtuse; lateral sepals spreading or reflexed, narrowly elliptic, slightly oblique, ca. 3 × 1 mm, glabrous, 3-veined, apex obtuse. Petals narrowly oblong-lanceolate, 2.5–3 × ca. 1 mm, slightly fleshy, 1-veined, apex obtuse or subtruncate; lip pendulous, slightly deflexed, narrowly ligulate-lanceolate, ca. 4 × 1 mm, with small lateral lobes at base, apex obtuse; basal lobes suborbicular, apex rounded; mid-lobe ligulate-lanceolate or ligulate, apex obtuse; spur pendulous, slightly incurved, cylindrical, 4–5 mm, shorter than ovary, slender, apex acute. Fl. Jul–Aug, fr. Sep–Oct. *2n* = 42.

Forests, forest margins, shaded places along gullies; 400–2800 m. Anhui, N Fujian, NE Guangxi (Ziyuan), Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Shaanxi, Sichuan, Zhejiang [Japan, Korea, Russia (Far East)].

24. *Platanthera arcuata* Lindley, Gen. Sp. Orchid. Pl. 289.

1835.

弧形舌唇兰 *hu xing she chun lan*

Habenaria arcuata (Lindley) J. D. Hooker.

Stem erect, robust, 2- or more leaved. Leaves cauline, oblong or oblong-lanceolate, 6.5–10.2 cm, base clasping, apex acute. Rachis laxly many flowered; floral bracts foliaceous, linear-lanceolate, 15–38 mm, lower ones exceeding flowers, apex acuminate. Flowers large; pedicel and ovary arcuate, ca. 35 mm. Dorsal sepal cymbiform, ca. 8 mm; lateral sepals deflexed, oblong, slightly larger than dorsal sepal, 3-veined, apex obtuse. Petals linear, 1-veined; lip linear-ligulate, entire, with small lateral lobes at base, margin reflexed; disk puberulous; basal lobes rounded; spur cylindrical, slender, 50–64 mm, exceeding ovary, incurved, apex acute. Column stout; anther locules divergent; pollinia obovoid, with stout, short caudicles and large, ovate viscidia; rostellum broadly triangular.

Grasslands. Xizang [Bhutan, NE India, Nepal].

The present authors saw no Chinese specimens of this species. It was reported from Xizang by Press et al. (Annot. Checkl. Fl. Pl. Nepal, 223. 2000).

25. *Platanthera sinica* Tang & F. T. Wang, Acta Phytotax. Sin. 1: 59. 1951.

滇西舌唇兰 *dian xi she chun lan*

Plants 35–50 cm tall. Rootstock creeping, cylindrical, to 4 cm, stoloniferous. Stem erect, stout, with 2 or 3 tubular sheaths at base, usually 3-leaved. Leaves cauline, oblong or elliptic, 8–11 × 3–4.5 cm, base contracted and clasping, apex obtuse or acute. Peduncle slender, with several scattered, lanceolate bracts; rachis 10–12 cm, laxly 8–12-flowered; floral bracts lanceolate, basal ones exceeding flowers, apex acuminate. Flowers fragrant, yellowish green, petals and lip white and sometimes tinged yellow; pedicel and ovary cylindrical, 14–15 mm. Dorsal sepal erect, forming a hood with petals, elliptic, cymbiform, 6–6.5 × 3–3.5 mm, glabrous, 3-veined, apex obtuse; lateral sepals reflexed, ovate, oblique, 6.5–7 × 3.5–4.5 mm, glabrous, 3-veined, apex obtuse. Petals erect, linear, oblique, 5.5–6 × 1.4–1.5 mm, 1-veined, apex truncate and slightly emarginate; lip linear-subulate, ca. 14 × 1–1.8 mm, base slightly dilated, entire, apex emarginate; spur pendulous, cylindrical, 16–18 × ca. 1.5 mm, slightly thickened toward apex, apex obtuse. Column short; staminodes conspicuous; anther locules parallel; connective rather broad, apex slightly concave; pollinia obovoid, with short caudicles and linear-ellipsoid viscidia; rostellum erect, short; stigma lobes confluent, concave, elliptic, lying directly below rostellum. Fl. Jun–Jul.

• Forests, grassy slopes; 2500–3500 m. NW Yunnan (Gongshan to Zhongdian).

26. *Platanthera bakeriana* (King & Pantling) Kraenzlin, Orchid. Gen. Sp. 1: 632. 1899.

滇藏舌唇兰 *dian zang she chun lan*

Habenaria bakeriana King & Pantling, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 65: 132. 1896.

Plants 30–58 cm tall. Rootstock tuberous, cylindrical-fusi-

form, tapering, 2–7 × 0.5–1 cm. Stem erect, stout, with 2 or 3 tubular sheaths at base, usually 3-leaved. Leaves cauline, alternate, clustered to widely spaced, broadly elliptic, 8–13 × 1.5–5.5 cm, base contracted and clasping, apex acute. Peduncle slender to robust, with 2–4 foliaceous bracts; rachis 4–25 cm, subdensely many flowered; floral bracts linear-lanceolate, 10–25 mm, basal ones exceeding flowers, apex acuminate. Flowers faintly fragrant, yellowish green or green; pedicel and ovary cylindrical-fusiform, 8–14 mm. Dorsal sepal erect, forming a hood with petals, oblong-ovate, cymbiform, 4–5.5 × 1.5–2.2 mm, glabrous, 3-veined, apex obtuse; lateral sepals reflexed, oblong-lanceolate, 4–5.5 × ca. 2 mm, glabrous, 3-veined, apex obtuse. Petals erect, obliquely ovate, 4.5–5 × 1.5–2.2 mm, apex obtuse; lip spreading to slightly pendulous, linear to ligulate, ca. 6 × 1.5 mm, entire, apex obtuse; spur pendulous, incurved, cylindrical, 8–16 mm, much longer than ovary, slender, apex acuminate. Column short, staminodes small; anther locules slightly divergent; pollinia obovoid, with long caudicles and linear viscidia; rostellum rather large; stigma lobes confluent, raised, transversely elliptic, deeply 2-lobed, somewhat saddle-shaped, placed above mouth of spur. Fl. Jun–Aug.

Forests, scrub; 2200–4000 m. Sichuan (Miyi), SE Xizang (Médog), N Yunnan (Baoshan, Luquan) [Bhutan, India, Nepal].

27. *Platanthera likiangensis* Tang & F. T. Wang, Acta Phytotax. Sin. 1: 58. 1951.

丽江舌唇兰 li jiang she chun lan

Plants 28–30 cm tall. Rootstock tuberous, narrowly ellipsoid, 1.5–1.7 × 0.4–0.5 cm. Stem erect, stout, with 2 or 3 tubular sheaths at base, 3-leaved. Leaves cauline, spatulate, 13–19 × 2.8–5.3 cm, base attenuate and sheathing, apex acute. Peduncle with 1 or 2 lanceolate bracts; rachis 5–8 cm, laxly 9–12-flowered; floral bracts lanceolate, 12–13 mm, exceeding ovary, apex acuminate. Flowers yellowish green; pedicel and ovary cylindrical-fusiform, 12–13 mm. Dorsal sepal erect, not connivent with petals, cymbiform, cordate-ovate, ca. 5 × 5 mm, glabrous, 7-veined, apex obtuse; lateral sepals spreading, ovate-lanceolate, oblique, ca. 7.5 × 3.5 mm, glabrous, 3(–5)-veined. Petals erect, linear-lanceolate, oblique, ca. 6 × 1.5 mm, slightly fleshy, apex obtuse; lip pendulous, linear, ca. 10 × 1 mm, entire, apex obtuse; spur pendulous, cylindrical-clavate, 20–21 × ca. 1 mm, slightly dilated toward apex, apex obtuse. Fl. Jul.

• Forests on slopes; 2800–3000 m. NW Yunnan (Lijiang, Weixi).

28. *Platanthera finetiana* Schlechter, Repert. Spec. Nov. Regni Veg. 9: 23. 1910.

对耳舌唇兰 dui er she chun lan

Habenaria stenantha J. D. Hooker var. *auriculata* (Finet) S. Y. Hu; *Hemihabenaria stenantha* (J. D. Hooker) Finet var. *auriculata* Finet.

Plants 30–60 cm tall. Rootstock creeping, cylindrical, stoloniferous. Stem erect, stout, with tubular sheaths at base, 3- or 4-leaved. Leaves cauline, widely spaced, oblong, elliptic, or elliptic-lanceolate, 10–16 × 2.3–5 cm, base clasping, apex obtuse or acute. Peduncle with several lanceolate bracts; rachis 10–18 cm, subdensely to densely 8–26-flowered; floral bracts lanceolate, basal ones exceeding flowers, apex acuminate.

Flowers pale yellowish green to whitish green; pedicel and ovary slightly arcuate, cylindrical, 12–13 mm. Dorsal sepal erect, forming a hood with petals, ovate-elliptic, cymbiform, 4.5–5.5 × 3–3.5 mm, glabrous, 3-veined, apex obtuse; lateral sepals reflexed, broadly ovate, oblique, 4.5–5.5 × 3.2–3.6 mm, glabrous, 3-veined, apex obtuse. Petals linear, oblique, 4–5 × ca. 1.5 mm, 1-veined, apex truncate-obtuse; lip pendulous, linear-ligulate, 9–10.5 × ca. 1.5 mm, with small lateral lobes at base, margin reflexed, apex obtuse; disk with a conic callus in front of mouth of spur; basal lobes square, apex truncate; spur pendulous, cylindrical, exceeding ovary, tapering gradually toward apex, apex acute and slightly hooked. Column short; staminodes conspicuous; anther locules parallel; connective somewhat broad, apex subretuse; pollinia obovoid, with long, slender caudicles and linear-elliptic viscidia; rostellum erect, broadly triangular, short; stigma lobes confluent, concave, elliptic, lying directly below rostellum. Fl. Jul–Aug.

• Forests on slopes or along valleys; 1200–3500 m. SE Gansu, W Hubei, Sichuan.

29. *Platanthera latilabris* Lindley, Gen. Sp. Orchid. Pl. 289. 1835.

白鹤参 bai he shen

Habenaria bonatiana Schlechter; *H. latilabris* (Lindley) J. D. Hooker; *Habenella latilabris* (Lindley) Szlachetko & Kras-Lapinska; *Pecteilis latilabris* (Lindley) Mitra; *Platanthera acuminata* Lindley; *Platantheroides latilabris* (Lindley) Szlachetko.

Plants 18–55 cm tall. Rootstock tuberous, ellipsoid or ovoid, 1–2.5 cm. Stem stout, with 2 or 3 tubular sheaths at base, (2 or)3–6-leaved. Leaves cauline, widely spaced, ovate to oblong, 5–13 × 2–5 cm, base clasping, apex acuminate. Peduncle elongate, with 1–4 foliaceous bracts; rachis cylindrical, 7–30 cm, laxly several to 40-flowered; floral bracts lanceolate or ovate-lanceolate, apex acuminate. Flowers yellowish green; ovary and pedicel cylindrical-fusiform, 10–16 mm. Dorsal sepal erect and connivent with petals, broadly ovate to orbicular, cymbiform, 5–7 × 3–4.5 mm, 3-veined, pubescent, margin ciliate, apex obtuse-rounded; lateral sepals reflexed or spreading, ovate, slightly oblique, 5.5–8 × ca. 3.5 mm, 3-veined, pubescent, margin ciliate, apex obtuse. Petals oblong, slightly oblique, 4–7 × (2.5–)4–5 mm, fleshy, 1- or rarely 2-veined, apex obtuse to subacute; lip linear-lanceolate to oblong, 5.5–13 × ca. 1 mm, entire, apex obtuse; disk with a conic callus in front of mouth of spur; spur spreading horizontally to slightly pendulous, cylindrical, 8–18 mm, usually longer than ovary, slender, apex obtuse to slightly acuminate. Column erect, short; staminodes subsquare, small; anther locules nearly parallel; pollinia obovoid, with very short caudicles and small, orbicular viscidia; rostellum erect, short; stigma lobes separate, raised, oblong to narrowly oblong, parallel, spreading on either side of base of lip. Capsule fusiform, shortly beaked. Fl. Jul–Aug.

Forests, scrub, grasslands; 1600–3500 m. SW Sichuan, S and SE Xizang, NE and NW Yunnan [Bhutan, NE India, Kashmir, Nepal].

30. *Platanthera japonica* (Thunberg) Lindley, Gen. Sp. Orchid. Pl. 290. 1835.

舌唇兰 she chun lan

Orchis japonica Thunberg in Murray, Syst. Veg., ed. 14, 811. 1784; *Habenaria japonica* (Thunberg) A. Gray; *H. omeiensis* Rolfe; *Platanthera manubriata* Kraenzlin; *P. omeiensis* (Rolfe) Schlechter; *P. setchuenica* Kraenzlin; *P. stenantha* (J. D. Hooker) Soó subsp. *omeiensis* (Rolfe) Soó.

Plants 35–80 cm tall. Rootstock tuberous, cylindrical to narrowly ovoid. Stem erect, stout, with several tubular sheaths at base, (3 or) 4–6-leaved. Leaves cauline, alternate, widely spaced, elliptic to narrowly elliptic, 10–18 × 3–7.5 cm, base sheathing, apex obtuse or acute. Peduncle robust, with 3 or 4 foliaceous, lanceolate bracts; rachis 10–18 cm, 10–28-flowered; floral bracts narrowly lanceolate, 20–45 mm, basal ones exceeding flowers, apex acuminate. Flowers white; pedicel and ovary straight to slightly arcuate, cylindrical, 18–25 mm. Dorsal sepal erect, forming a hood with petals, ovate, cymbiform, 7–8 × 5–6 mm, glabrous, 3-veined, apex obtuse or acute; lateral sepals reflexed, ovate, oblique, 8–9 × 4–5 mm, glabrous, 3-veined, apex acute. Petals linear, 6–7 × ca. 1.5 mm, 1-veined, apex obtuse; lip pendulous or spreading, linear, 13–15(–20) mm, entire, apex obtuse; spur pendulous, cylindrical to filiform, 25–60 mm, much longer than ovary, slender, apex acute. Column 1–2 mm; staminodes conspicuous; anther locules almost parallel; connective rather broad, apex subretuse; pollinia obovoid, with slender caudicles and linear-ellipsoid viscidia; rostellum erect, broadly triangular, short; stigma lobes confluent, concave, lying directly below rostellum. Fl. Mar–Jul, fr. May–Sep. *2n* = 42.

Forests, grasslands on slopes; 600–2600 m. Anhui, Chongqing, Gansu, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan, Yunnan, Zhejiang [Japan, Korea].

31. *Platanthera oreophila* Schlechter, Repert. Spec. Nov. Regni Veg. 20: 381. 1924.

齿瓣舌唇兰 chi ban she chun lan

Habenaria oreophila W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 208. 1921, not Greenman (1903).

Plants 30–35 cm tall. Rootstock tuberous, cylindrical. Stem erect, stout, with 1 or 2 tubular sheaths at base, 4-leaved. Leaves cauline, elliptic to lanceolate, 8–9 × 2.5–3 cm, base clasping, apex subacute. Peduncle with 3–5 bracts; rachis 7–10 cm, densely many flowered; floral bracts lanceolate, 10–20 mm, basal ones exceeding flower, apex acuminate. Flowers green to yellowish green; pedicel and ovary cylindrical-fusiform, 11–13 mm. Dorsal sepal erect, forming a hood with petals, ovate, cymbiform, 6–7 × 4–4.5 mm, slightly fleshy, glabrous, 3-veined, apex obtuse; lateral sepals reflexed, narrowly ovate, oblique, 7.5–8 × 3–3.8 mm, slightly fleshy, glabrous, 3-veined, apex subacute. Petals triangular-ovate, oblique, 6–7 × 3–3.2 mm, 1-veined, margin ciliate, apex slightly acute; lip pendulous, linear, 7–10 × ca. 1 mm, entire, apex subobtuse; spur pendulous, cylindrical-clavate, 13–20 mm, exceeding ovary, apex obtuse. Column stout; staminodes small; anther locules parallel; connective broad, apex subtruncate; pollinia obovoid, with long caudicles and small, suborbicular viscidium; rostellum deltoid, short; stigma lobes confluent, concave, lying directly below

rostellum. Fl. Jun–Jul.

• Forests, scrub, grasslands; 1900–3800 m. SW Sichuan (Muli), NW and W Yunnan (Tengchong, Zhongdian).

32. *Platanthera hologlottis* Maximowicz, Mém. Acad. Imp. Sci. St. Pétersbourg Divers Savans 9 [Prim. Fl. Amur.] 268. 1859.

密花舌唇兰 mi hua she chun lan

Habenaria glossophora W. W. Smith; *Limnorchis hologlottis* (Maximowicz) Nevski; *Platanthera glossophora* (W. W. Smith) Schlechter; *P. hologlottis* var. *glossophora* (W. W. Smith) K. Inoue.

Plants 35–85 cm tall. Rootstock elongate, creeping, cylindrical, narrow, stoloniferous. Stem erect, with 1 or 2 tubular sheaths at base, 4–6-leaved. Leaves cauline, alternate, widely spaced, linear-lanceolate to broadly linear, 7–20 × 0.8–2 cm, base clasping, apex acuminate or acute. Peduncle slender, with several scattered lanceolate bracts; rachis 5–20 cm, subdensely to densely many flowered; floral bracts lanceolate or linear-lanceolate, 10–15 × 2–3 mm, subequal in length to ovary, apex acuminate. Flowers fragrant, white; pedicel and ovary slightly arcuate, cylindrical-fusiform, 10–13 mm. Dorsal sepal erect, forming a hood with petals, ovate or elliptic, cymbiform, 4–5 × 3–3.5 mm, glabrous, 5–7-veined, apex obtuse; lateral sepals reflexed, elliptic-ovate, oblique, 5–6(–7) × 1.5–2.5(–3) mm, glabrous, 5–7-veined, apex obtuse. Petals ovate, oblique, 4–5 × 1.5–2 mm, 5-veined, apex obtuse; lip pendulous, ligulate to ligulate-lanceolate, 6–7 × 2.5–3 mm, entire, apex obtuse-rounded; spur pendulous, slightly arcuate, cylindrical, 10–20 mm, exceeding ovary, slender, with a conspicuous projection near mouth. Column short; staminodes conspicuous, suborbicular; anther locules parallel; connective broad, apex subtruncate; pollinia obovoid, with long caudicles and lanceolate viscidia; rostellum erect, short; stigma lobes confluent, large, concave, lying directly below rostellum. Fl. Jun–Jul, fr. Aug. *2n* = 42.

Forests on slopes, damp grasslands along valleys; 300–3200 m. Anhui, Fujian, Guangdong, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shandong, W Sichuan, W Yunnan, Zhejiang [Japan, Korea, Russia (Far East)].

33. *Platanthera sikkimensis* (J. D. Hooker) Kraenzlin, Orchid. Gen. Sp. 1: 621. 1898.

长瓣舌唇兰 chang ban she chun lan

Habenaria sikkimensis J. D. Hooker, Fl. Brit. India 6: 155. 1890.

Plants 17–21 cm tall. Rootstock tuberous, cylindrical to ovoid, 0.5–1.5 × 0.3–0.5 cm. Stem erect, with tubular sheaths at base, 5- or 6-leaved. Leaves cauline, oblong-lanceolate, 4–5 × 1–1.5 cm, base clasping, apex acute. Peduncle slender, with several foliaceous, lanceolate bracts; rachis 4–7 cm, laxly 5–9-flowered; floral bracts ovate-lanceolate, 10–25 mm, lower ones exceeding ovary, apex acute. Flowers yellowish green with deep yellow-green petals and a brownish red lip; pedicel and ovary slightly arcuate, cylindrical-fusiform, 9–13 mm. Dorsal sepal erect, narrowly triangular-ovate, 5–7 × 2.5–4 mm, 1-veined, apex subacute; lateral sepals reflexed, linear-lanceolate, 6.5–8 × 1.2–1.8 mm, glabrous, 1-veined, apex acute. Petals spreading,

lanceolate, falcate, 6.5–7 × 2.2–2.5 mm, glabrous, 1-veined, apex obtuse; lip pendulous, lanceolate, ca. 9 × 1.2 mm, 1-veined, entire, apex acuminate; spur curving upward, cylindrical, 11–15 mm, exceeding ovary. Column short; staminodes narrowly oblong; anther locules divergent; connective emarginate at apex; pollinia ellipsoid, with long caudicles and small, ovoid viscidia; rostellum large; stigma lobes confluent, large, concave, lying directly below rostellum. Fl. Jul–Aug.

Evergreen broad-leaved forests; ca. 2300 m. NW Yunnan (Gongshan) [India (Sikkim), Nepal].

34. *Platanthera clavigera* Lindley, Gen. Sp. Orchid. Pl. 289. 1835.

藏南舌唇兰 zang nan she chun lan

Habenaria clavigera (Lindley) Dandy; *H. densa* Wallich ex Lindley; *Habenella clavigera* (Lindley) Szlachetko & Kras-Lapinska; *H. densa* (Wallich ex Lindley) Szlachetko & Kras-Lapinska; *Platanthera densa* (Wallich ex Lindley) Soó (1929), not Freyn (1896); *Platantheroides clavigera* (Lindley) Szlachetko; *P. densa* (Wallich ex Lindley) Szlachetko.

Plants 18–62 cm tall. Rootstock tuberous, ovoid, 1–2 cm. Stem stout, with 2 or 3 tubular sheaths at base, 4- or 5-leaved. Leaves cauline, widely spaced, narrowly ovate to oblong, 3.5–10 × 1.5–3 cm, base clasping, apex acuminate. Peduncle with 1 foliaceous bract; rachis cylindrical, 8–30 cm, densely many flowered; floral bracts lanceolate, pubescent, apex acuminate. Flowers yellowish green; pedicel and ovary cylindrical-fusiform, 8–12 mm. Dorsal sepal erect and connivent with petals, elliptic-oblong, cymbiform, 3–5 × 2–2.6 mm, pubescent, 3-veined, margin ciliate, apex obtuse; lateral sepals spreading or reflexed, elliptic-oblong to elliptic-lanceolate, oblique, 4–5.5 × 1.8–2.5 mm, pubescent, 3-veined, margin ciliate, apex obtuse. Petals oblong-ovate, oblique, 3.5–5 × 1.8–2.2 mm, fleshy, 3-veined, apex acute; lip linear, 5–5.5 × ca. 1 mm, entire, apex obtuse; disk with a conic callus in front of mouth of spur; spur pendulous, clavate, 5–6 mm, much shorter than ovary. Column erect, short; staminodes small, elliptic; anther locules nearly parallel; pollinia subglobose, with very short caudicles and large, orbicular viscidia; rostellum erect, small; stigma lobes separate, raised, shortly clavate to narrowly oblong, spreading on either side of base of lip. Capsule ovoid, ridged. Fl. Aug–Sep.

Forests, scrub, grasslands along valleys, flooded wastelands; 2300–3400 m. S Xizang [Bhutan, India, Kashmir, Nepal].

35. *Platanthera brevicealcarata* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 350. 1911.

短距舌唇兰 duan ju she chun lan

Habenaria brevicealcarata (Hayata) Masamune (1968), not Fukuyama (1932).

Plants 7–20 cm tall. Rootstock elongate, creeping, 2–6 cm, 2–5 mm in diam., stoloniferous. Stem erect or ascending, with 1 or 2 tubular sheaths at base, 1- or 2-leaved. Leaves basal, widely spaced, oblong to elliptic, 2–6 × 1–3 cm, base cuneate, apex acute. Peduncle slender, with 1–4 foliaceous, lanceolate bracts; rachis 3–5 cm, 3–8-flowered; floral bracts lanceolate, 7–

11 mm, ca. as long as or slightly exceeding ovary. Flowers white; pedicel and ovary cylindrical-fusiform, 7–10 mm. Dorsal sepal forming a hood with petals, ovate to suborbicular, concave, 2.5–3 × 2–2.3 mm, glabrous, 1-veined, apex obtuse; lateral sepals spreading, obovate-elliptic, slightly oblique, 4–5 × 2–3 mm, glabrous, 1-veined, apex obtuse. Petals ovate, oblique, 2.5–3 × 1.8–2 mm, 1- or 2-veined, apex subobtusely; lip deflexed, oblong, 4–5.5 × 2–2.5 mm, entire, apex obtuse; spur pendulous, slightly incurved, cylindrical, ca. 3 mm, apex rounded. Column short, ca. 1.5 mm; staminodes conspicuous; anther locules nearly parallel; pollinia ellipsoid, with slender caudicles and globose viscidia; rostellum protruding; stigma lobes confluent, slightly raised, anterior margin protruding beyond anther locules. Fl. May–Jul.

Coniferous and mixed broad-leaved forests, grasslands; 1600–3700 m. Taiwan [S Japan].

36. *Platanthera roseotincta* (W. W. Smith) Tang & F. T. Wang, Bull. Fan Mem. Inst. Biol. Bot. 10: 30. 1940.

棒距舌唇兰 bang ju she chun lan

Habenaria roseotincta W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 210. 1921; *Chondradenia doyonensis* (Handel-Mazzetti) Vermeulen; *Galearis doyonensis* (Handel-Mazzetti) P. F. Hunt; *Galeorchis doyonensis* (Handel-Mazzetti) Soó; *Orchis doyonensis* Handel-Mazzetti; *Platanthera altigena* Schlechter.

Plants 8–15 cm tall. Rootstock creeping, cylindrical, stoloniferous. Stem erect or ascending, with 1 or 2 tubular sheaths at base, 1-leaved. Leaf cauline, linear or ligulate, 3–4 × 0.4–1 cm, base clasping, apex obtuse to acute. Peduncle slender, sometimes with 1 foliaceous bract; rachis 2–5 cm, 3–10- or more flowered; floral bracts lanceolate to ovate-lanceolate, 6–25 mm, basal ones exceeding ovary, apex acuminate. Flowers white, sometimes flushed with pink; pedicel and ovary fusiform, 4–7 mm. Dorsal sepal erect, connivent with petals, oblong, 5–6.5 × 2–2.2 mm, glabrous, 1-veined, apex acute; lateral sepals spreading, oblong, 5–6.5 × 1.8–2 mm, glabrous, 1-veined, apex acute. Petals ovate to ovate-lanceolate, 4.5–5.5 × 1.5–1.8 mm, 1-veined, apex acute; lip ligulate-lanceolate, 5–6 × ca. 2 mm, thickened, entire, apex acute; spur pendulous, clavate-fusiform, 3–4 mm, shorter than ovary, neck narrowed, apex obtuse-rounded. Column short; staminodes small; anther locules nearly parallel; pollinia obovoid, with short caudicles and elliptic viscidia; rostellum small; stigma lobes separate, raised, globose, extending on either side of mouth of spur. Fl. Sep.

Alpine grasslands; 3400–3800 m. Xizang (Médog, Zayü), Yunnan (Dêqên, Fugong, Gongshan) [N Myanmar].

37. *Platanthera minutiflora* Schlechter, Acta Horti Gothob. 1: 138. 1924.

小花舌唇兰 xiao hua she chun lan

Lysiella nevskii Averyanov.

Plants 10–30 cm tall. Rootstock creeping, cylindrical, stoloniferous. Stem erect, with 1 or 2 tubular sheaths at base, 1-leaved. Leaf basal, spatulate or elliptic-spatulate, 5–10 × 1–2.5

cm, base contracted and clasping, apex obtuse or acute. Peduncle slender, ridged, with 1 or 2 foliaceous, lanceolate bracts; rachis 3–8 cm, subdensely 4–12-flowered; floral bracts lanceolate, 8–14 mm, nearly as long as flowers, apex acuminate. Flowers yellowish green; pedicel and ovary cylindrical, ca. 10 mm. Dorsal sepal erect, forming a hood with petals, broadly ovate or nearly orbicular, cymbiform, 2–3 × ca. 2.5 mm, glabrous, 1(–3)-veined, apex obtuse; lateral sepals spreading, ovate, falcate, 2.5–3.5 × 1.2–1.8 mm, glabrous, 1-veined, apex obtuse. Petals ovate to ovate-lanceolate, oblique, 2–3 × 1–1.3 mm, 1-veined, apex obtuse; lip pendulous, slightly recurved, ligulate to ligulate-lanceolate, 2.5–3 × ca. 1 mm, entire, apex obtuse; spur pendulous, conic, very short, ca. 1 mm, apex usually slightly hooked. Column stout; staminodes subelliptic, small; anther locules slightly divergent; connective rather broad, apex subretuse; pollinia obovoid, with short caudicles and suborbicular viscidia; rostellum broadly triangular, short; stigma lobes confluent, concave, lying directly below rostellum. Fl. Jun–Jul.

Forests on slopes; 2700–4100 m. Gansu, Shaanxi, NW and W Sichuan, Xinjiang, SE Xizang, NW Yunnan [Kazakhstan, Kyrgyzstan].

38. *Platanthera handel-mazzettii* K. Inoue, J. Jap. Bot. 61: 195. 1986.

贡山舌唇兰 gong shan she chun lan

Plants ca. 16 cm. Rootstock tuberous, narrowly ellipsoid, ca. 2 cm. Stem erect, 1- or 2-leaved. Leaves basal, oblong, ca. 3 × 1 cm, apex acute. Peduncle slender, with 1 small bract; rachis ca. 6 cm, 8- or 9-flowered; floral bracts lanceolate, ca. 8 mm. Flowers green; pedicel and ovary cylindrical, ca. 5 mm. Dorsal sepal forming a hood with petals, narrowly ovate, ca. 2.6 × 1.7 mm, glabrous, 1-veined, apex obtuse; lateral sepals slightly reflexed, narrowly ovate, oblique, ca. 2.6 × 1.3 mm, glabrous, 1-veined, apex obtuse. Petals deltoid, oblique, ca. 2.8 × 1.6 mm, 2-veined, apex obtuse; lip slightly deflexed, narrowly triangular, ca. 3.6 × 1.6 mm, entire, apex obtuse; spur clavate, ca. 2.2 mm. Column ca. 1.3 × 0.5 mm; anther locules nearly parallel; connective narrow; pollinia ca. 1 mm, with short caudicles and oblong-lanceolate viscidia; rostellum well developed, protruding; stigma lobes confluent, triangular, flat. Fl. Aug.

• Bamboo forests on slopes; 3600–3800 m. NW Yunnan (Gongshan).

39. *Platanthera herminioides* Tang & F. T. Wang, Acta Phytotax. Sin. 1: 58. 1951.

高黎贡舌唇兰 gao li gong she chun lan

Plants ca. 12 cm tall. Stem erect, with 2 tubular sheaths at base, 2-leaved. Leaves basal, elliptic, ca. 3.5 × 1.6 cm, base attenuate and clasping, apex obtuse. Rachis ca. 3 cm, densely 7-flowered; floral bracts lanceolate, ca. 4 mm, exceeding ovary. Flowers green; pedicel and ovary cylindrical-fusiform, ca. 4 mm. Dorsal sepal orbicular, ca. 2.5 × 3 mm, glabrous, 3-veined, apex rounded; lateral sepals oblong, oblique, ca. 3 × 1.5 mm, glabrous, 3-veined, apex obtuse. Petals rhombic-ovate, ca. 2 × 1.5 mm, 1-veined, apex obtuse; lip ligulate, ca. 2.5 × 1 mm, dilated at base, entire; spur cylindrical to ovoid, ca. 2 × 1 mm, slightly hooked toward apex, apex obtuse. Column ca. 1 mm.

Fl. Jul–Aug.

• NW Yunnan (Gaoligong Shan).

40. *Platanthera taiwanensis* (S. S. Ying) S. C. Chen, S. W. Gale & P. J. Cribb, **comb. nov.**

台湾舌唇兰 tai wan she chun lan

Basionym: *Tulotis taiwanensis* S. S. Ying, Quart. J. Chin. Forest. 8: 144. 1975.

Plants 15–20 cm tall. Rootstock tuberous, ovoid, 3–5 × ca. 0.4 cm. Stem erect, slender, with basal sheaths, 2-leaved. Leaves basal, ovate to ovate-oblong, 5–7 × 2–3 cm, membranous, base contracted and sheathing, apex acute. Rachis many flowered; floral bracts lanceolate to ovate-lanceolate, 6–9 × 2–3 mm, apex acute. Flowers pale green to yellowish green; pedicel and ovary cylindrical, 4–6 mm. Dorsal sepal ovate, 2–2.5 × ca. 1.5 mm, glabrous, apex obtuse; lateral sepals ovate, 1.5–2 × ca. 1.5 mm, apex obtuse or acute. Petals narrowly ovate, 2–3 × ca. 1 mm, glabrous, apex acuminate; lip ligulate, 4–6 × 2–3 mm, entire, apex obtuse-rounded; spur 2–2.5 × ca. 1 mm.

• Alpine grasslands; 3200–3600 m. C and S Taiwan.

41. *Platanthera kwangsiensis* K. Y. Lang, Guihaia 18: 5. 1998.

广西舌唇兰 guang xi she chun lan

Plants 23–28 cm tall. Stem erect or ascending, with tubular sheaths at base, 2-leaved. Leaves cauline, alternate, linear, 10–12 × 1.8–2 cm, base contracted and clasping, apex obtuse or acute. Peduncle slender, with 1 or more lanceolate bracts; rachis 4.5–10.5 cm, densely many flowered; floral bracts lanceolate, ca. 15 mm, basal ones exceeding flowers. Flowers yellowish

green; pedicel and ovary fusiform, 7–8 mm. Dorsal sepal erect, forming a hood with petals, ovate-oblong, cymbiform, 5–6 × ca. 2 mm, glabrous, 3-veined, apex obtuse; lateral sepals spreading, ovate-oblong, oblique, 5–6 × ca. 2 mm, glabrous, 3-veined, apex subobtuse. Petals erect, narrowly ovate, ca. 5.5 × 2.2 mm, 3-veined, apex obtuse; lip deflexed, linear, ca. 5 mm, fleshy, disk densely papillose, entire, apex obtuse; spur clavate, ca. 3 × 1.3 mm, shorter than ovary, apex obtuse. Column stout, ca. 1 mm; staminodes small; anther locules nearly parallel; pollinia obovoid, with short caudicles and elliptic viscidia; rostellum broad; stigma lobes confluent, concave, lying directly below rostellum. Fl. Jul–Aug.

- Alpine grasslands; ca. 2100 m. N Guangxi (Xingan).

42. *Platanthera peichatieniana* S. S. Ying, Coloured Ill. Fl. Taiwan 2: 691. 1987 [*“peichatieniana”* and *“peichiatieniana”*].

北插天山舌唇兰 bei cha tian shan she chun lan

Plants 2–4 cm tall. Stem with tubular sheaths at base, 2- or 3-leaved. Leaves ovate-lanceolate to oblong-lanceolate, 3.5–4.5 × 1.5–2 cm, base obtuse and clasping, apex acute to acuminate. Peduncle short, slender, with a foliaceous, lanceolate bract; rachis 1.5–2 cm, 2–4-flowered; floral bracts lanceolate to linear-lanceolate, 4–8 × 2–2.5 mm, apex acuminate. Flowers pale green to greenish yellow, small; pedicel and ovary fusiform, 4–8 mm. Dorsal sepal erect, forming a hood with petals, ovate to triangular-ovate, strongly concave, 2.5–3 × ca. 1.5 mm, glabrous, 3-veined, apex acute; lateral sepals lanceolate, 5–6.5 × 2–3 mm, glabrous, apex obtuse. Petals narrowly ovate-lanceolate, slightly oblique, ca. 5.5 × 2 mm, apex acute; lip spreading forward, entire, ligulate, elongate, 15–20 × 2.5–3.5 mm, apex obtuse; spur cylindric, slender, 7–9 × ca. 0.5 mm, tapering toward apex, apex obtuse. Column 2–2.5 × ca. 1.5 mm.

- *Quercus* forests, *Fagus* forests; 1400–1700 m. N Taiwan (Beicha Shan).

