

60. EPIPACTIS Zinn, Cat. Pl. Hort. Gott. 85. 1757, nom. cons., not Séguier (1754).

火烧兰属 huoshao lan shu

Chen Xinqi (陈心启 Chen Sing-chi), Luo Yibo (罗毅波); Phillip J. Cribb, Stephan W. Gale

Amesia A. Nelson & J. F. Macbride; *Arthrochilium* (Irmisch) Beck (1890), not *Arthrochilus* F. Mueller (1858); *Calliphyllo* Buhari; *Epipactis* [unranked] *Arthrochilium* Irmisch; *Helleborine* Miller; *Limonia* Ehrhart; *Parapactis* W. Zimmermann.

Herbs, terrestrial, autotrophic or rarely holomycotrophic, medium-sized. Rhizome creeping, short or elongate, with many elongate, fleshy roots. Stem erect, leafy, with 2 or 3 scalelike sheaths toward base, glabrous or pubescent. Leaves 3 to many, cauline, spirally arranged, broadly elliptic to linear-lanceolate, plicate, scabrous or smooth. Inflorescence terminal, racemose, often secund, few to many flowered; floral bracts usually foliaceous. Flowers spreading or nodding, resupinate or very rarely not resupinate, medium-sized. Sepals free, spreading or connivent, glabrous, puberulent, or pubescent. Petals similar to sepals but shorter; lip fleshy, not spurred, constricted near middle to form a distinct epichile and hypochile, and sometimes with a mesochile in between; hypochile cymbiform or saccate, sometimes containing lamellae; mesochile (when present) short or elongate, narrow; epichile spreading, usually hinged at its base, thickened or not, variable in shape, sometimes 3-lobed, sometimes with wartlike calli or keels. Column short, without a column foot; anther sessile; pollinia 4, granular-farinaceous, without caudicles; viscidium absent in autogamous species; rostellum usually large, very rarely absent; stigma rounded to subquadrate. Capsule pendulous or ascending, obovoid to ellipsoid.

About 20 species: throughout Europe and through temperate and alpine parts of E, S, and SW Asia, also in tropical Africa and North America; ten species (two endemic) in China.

- 1a. Upper stem and rachis glabrous (though rachis of *E. alata* occasionally puberulent).
 - 2a. Flowers not resupinate, rose-purple; floral bracts all shorter than ovary 10. *E. alata*
 - 2b. Flowers resupinate, green, yellow, yellow-green, or yellow-brown; lower floral bracts foliaceous and exceeding flowers.
 - 3a. Lip with a short mesochile 1–2 mm; lateral margins of mesochile parallel; epichile with a pair of low keels 8. *E. thunbergii*
 - 3b. Lip with an elongate mesochile ca. 6 mm; lateral margins of mesochile slightly protruding and obtuse-rounded; epichile without keels 9. *E. xanthophaea*
- 1b. Upper stem and rachis pubescent.
 - 4a. Hypochile of lip subglobose-saccate, without lateral lobes.
 - 5a. Leaves glabrous 1. *E. helleborine*
 - 5b. Leaves adaxially white papillose-puberulent along veins and margins 2. *E. papillosa*
 - 4b. Hypochile of lip cymbiform, with lateral lobes.
 - 6a. Epichile of lip oblate to suborbicular, connected to hypochile by a short mesochile ca. 2 mm 7. *E. palustris*
 - 6b. Epichile of lip ovate, ovate-elliptic, or elliptic, connected directly to hypochile; lip without a mesochile.
 - 7a. Plants 10–20 cm tall 5. *E. humilior*
 - 7b. Plants 30–100 cm tall.
 - 8a. Leaves scabrous adaxially; rachis 10- to more than 20-flowered 3. *E. mairei*
 - 8b. Leaves glabrous; rachis 2–8-flowered.
 - 9a. Leaves 6–9; lip purple or pink with purple or dark red venation 4. *E. royleana*
 - 9b. Leaves 3–5; lip white with brown and orange markings 6. *E. veratrifolia*

1. *Epipactis helleborine* (Linnaeus) Crantz, Stirp. Austr. Fasc., ed. 2, 2: 467. 1769.

火烧兰 huoshao lan

Plants 20–70 cm tall. Rhizome short. Stem glabrous toward base, becoming pubescent above, with 2 or 3 scalelike sheaths near base. Leaves 4–7, ovate-orbicular, ovate, or elliptic-lanceolate, rarely lanceolate, upper ones narrower and lanceolate to linear-lanceolate, 3–13 × 1–6 cm, glabrous, apex acuminate to long acuminate. Rachis 10–30 cm, pubescent, laxly to subdensely 3–40-flowered; floral bracts foliaceous, linear-lanceolate, lower ones exceeding flowers, becoming shorter above. Flowers usually nodding, resupinate, green or pale purple, out-crossing; pedicel and ovary 10–15 mm, yellow-

brown tomentose. Dorsal sepal ovate-lanceolate, rarely elliptic, cymbiform, 6–13 × 4–5 mm, apex acuminate; lateral sepals ovate-lanceolate, oblique, 9–13 × ca. 4 mm, apex acuminate. Petals elliptic, 5.5–8 × 3–4 mm, apex acute or obtuse; lip 6–8 mm, without a mesochile; hypochile subglobose-saccate, 3–4 mm; epichile subtriangular or suboblate, ca. 3 × 3–4 mm, veins sometimes thickened near apex, with a pair of either suborbicular, erose lamellae or thickened, fleshy wartlike calli toward base, apex acute. Column 2–5 mm (excluding anther). Capsule obovoid-ellipsoid, ca. 10 mm, puberulent. Fl. Jun–Jul, fr. Sep. 2*n* = 38, 40.

Forests, grasslands, wooded slopes, streamsides; 200–3600 m. Anhui, Gansu, Guizhou, Hebei, Hubei, Liaoning, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Afghanistan, Bhutan,

Kashmir, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Russia, Tajikistan, Uzbekistan; N Africa, SW Asia, Europe; naturalized in North America].

- 1a. Flowers usually 7–40; epichile of lip with a pair of suborbicular, erose lamellae toward base 1a. var. *helleborine*
- 1b. Flowers usually 6–10; epichile of lip with a pair of thickened, fleshy wartlike calli toward base 1b. var. *tangutica*

1a. *Epipactis helleborine* var. *helleborine*

火烧兰(原变种) huo shao lan (yuan bian zhong)

Serapias helleborine Linnaeus, Sp. Pl. 2: 949. 1753; *Amesia discolor* (Kraenzlin) Hu; *A. longibracteata* C. Schweinfurth; *A. monticola* (Schlechter) Hu; *A. squamellosa* (Schlechter) Hu; *A. tenii* (Schlechter) Hu; *A. yunnanensis* (Schlechter) Hu; *Epipactis discolor* Kraenzlin; *E. helleborine* subsp. *ohwii* (Fukuyama) H. J. Su; *E. helleborine* var. *rubiginosa* Crantz; *E. helleborine* var. *viridans* Crantz; *E. latifolia* (Linnaeus) Allioni; *E. lingulata* Handel-Mazzetti; *E. longibracteata* (C. Schweinfurth) S. Y. Hu (1972), not Wettstein (1889); *E. macrostachys* Lindley; *E. monticola* Schlechter; *E. nephrocordia* Schlechter; *E. ohwii* Fukuyama; *E. squamellosa* Schlechter; *E. tenii* Schlechter; *E. yunnanensis* Schlechter; *S. helleborine* var. *latifolia* Linnaeus.

Flowers usually 7–40. Dorsal sepal 8–13 mm. Petals 6.5–8 mm; lip with a pair of suborbicular, erose lamellae toward base of epichile. Column 3–5 mm. $2n = 36, 38, 40, 44$.

Forests, grasslands, wooded slopes, streamsides; 200–3600 m. Anhui, Gansu, Guizhou, Hebei, Hubei, Liaoning, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Afghanistan, Bhutan, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Russia, Tajikistan, Uzbekistan; N Africa, SW Asia, Europe; naturalized in North America].

This species has an extensive synonymy, only part of which is provided here.

1b. *Epipactis helleborine* var. *tangutica* (Schlechter) S. C. Chen & G. H. Zhu, Novon 13: 423. 2003.

青海火烧兰 qing hai huo shao lan

Epipactis tangutica Schlechter, Repert. Spec. Nov. Regni Veg. Beih. 4: 57. 1919; *Amesia tangutica* (Schlechter) Hu; *Epipactis micrantha* E. Peter ex Handel-Mazzetti.

Flowers usually 6–10. Dorsal sepal 6–7 mm. Petals 5.5–6 mm; lip with a pair of thickened, fleshy wartlike calli toward base of epichile. Column ca. 2 mm.

- Near border between Qinghai and Gansu.

2. *Epipactis papillosa* Franchet & Savatier, Enum. Pl. Jap. 2: 519. 1878.

细毛火烧兰 xi mao huo shao lan

Epipactis helleborine (Linnaeus) Crantz var. *papillosa* (Franchet & Savatier) T. Hashimoto; *E. latifolia* (Linnaeus) Allioni var. *papillosa* (Franchet & Savatier) Maximowicz ex Komarov; *E. sayekiana* Makino.

Plants 30–70 cm tall. Rhizome short. Stem brown papillose-pubescent throughout, with several sheaths toward base. Leaves 5–7, elliptic-ovate to broadly elliptic, 7–12 × 2–4 cm, adaxially white papillose-puberulent along veins and margins, apex shortly acuminate. Rachis 10–20 cm, brown papillose-pubescent, laxly to subdensely 10- to more than 20-flowered; floral bracts lanceolate, lower ones exceeding flowers. Flowers spreading horizontally or nodding, resupinate, probably self-pollinating, green; lip pale green. Sepals narrowly ovate, 9–12 × 3–5 mm, apex acute. Petals ovate-orbicular, 8–10 × 2–4 mm, apex acute; lip 7–8 mm, without a mesochile; hypochile subglobose-saccate; epichile narrowly cordate or triangular, apex acute. Column ca. 3 mm. Capsule ellipsoid, ca. 10 mm. Fl. Aug. $2n = 38, 40$.

Forests. S Liaoning (Fengcheng) [Japan, Korea].

3. *Epipactis mairei* Schlechter, Repert. Spec. Nov. Regni Veg. Beih. 4: 55. 1919.

大叶火烧兰 da ye huo shao lan

Amesia mairei (Schlechter) Hu; *A. schensiana* (Schlechter) Hu; *A. setschuanica* (Ames & Schlechter) Hu; *A. wilsonii* (Schlechter) Hu; *Arthrochilium mairei* (Schlechter) Szlachetko; *A. schensianum* (Schlechter) Szlachetko; *A. setschuanicum* (Ames & Schlechter) Szlachetko; *A. wilsonii* (Schlechter) Szlachetko; *Epipactis schensiana* Schlechter; *E. setschuanica* Ames & Schlechter; *E. wilsonii* Schlechter; *Helleborine mairei* (Schlechter) Soó; *H. schensiana* (Schlechter) Soó; *H. setschuanica* (Ames & Schlechter) Soó; *H. wilsonii* (Schlechter) Soó.

Plants 30–100 cm tall. Rhizome short and inconspicuous. Stem glabrous toward base, becoming rusty pubescent above, with 2 or 3 scalelike sheaths toward base. Leaves 5–8, usually elliptic to ovate-elliptic, 7–16 × 3–8 cm, adaxially scabrous, especially so on veins, base sheathing and amplexicaul, apex shortly acuminate to acuminate. Rachis 10–20 cm, rusty pubescent, subdensely 10- to more than 20-flowered; floral bracts elliptic-lanceolate, lower ones exceeding flowers. Flowers usually nodding, resupinate; sepals and petals yellowish green tinged purple on outer surfaces, lip with a purplish brown hypochile and an orange or yellowish brown epichile; pedicel and ovary 12–15 mm, yellowish brown- or rusty pubescent. Dorsal sepal elliptic or obovate-elliptic, cymbiform, 13–17 × 4–7.5 mm, outer surfaces occasionally puberulent, apex acuminate; lateral sepals ovate-lanceolate or ovate, oblique, 15–20 × 5–9 mm, apex acuminate and mucronate. Petals narrowly elliptic or elliptic, 11–17 × 5–9 mm, apex acuminate; lip 12–16 mm, without a mesochile; hypochile cymbiform, 6–9 mm, with suberect lateral lobes 4–6 mm wide, with 2 or 3 central crestlike lamellae; hypochile lamellae separate and narrow at base, converging and becoming wider toward apex; epichile thickened, ovate-elliptic to elliptic, 5–9 × 3–6 mm, apex acute. Column 4–5 mm; anther 3–4 mm. Capsule ellipsoid, ca. 25 mm, glabrous. Fl. Jun–Jul, fr. Sep. $2n = 40$.

Thickets, grasslands, riverbeds; 1200–3200 m. Gansu, Guizhou, Hubei, Hunan, Shaanxi, W Sichuan, Xizang, NW Yunnan [Bhutan, Myanmar, Nepal].

4. *Epipactis royleana* Lindley, Gen. Sp. Orchid. Pl. 461. 1840.

卵叶火烧兰 *luan ye huo shao lan*

Amesia royleana (Lindley) Hu; *Arthrochilium royleanum* (Lindley) Szlachetko; *Cephalanthera royleana* (Lindley) Regel; *Helleborine royleana* (Lindley) Soó; *Limodorum royleanum* (Lindley) Kuntze.

Plants 30–80 cm tall. Rhizome elongate, 3–5 mm in diam. Stem glabrous toward base, usually puberulent or glabrescent above, with several sheaths toward base. Leaves 6–9, ovate-lanceolate to lanceolate, lowest one occasionally elliptic or ovate, 7–12 × 2.5–4 cm, glabrous, base amplexicaul, apex acuminate. Rachis 5–8(–10) cm, brown pubescent, laxly (2–)5–8-flowered; floral bracts 15–40(–70) × 5–10 mm, lower ones exceeding flowers. Flowers resupinate; sepals and petals pale green, lip purple or pink with purple or dark red venation; pedicel and ovary 13–16 mm, brown pubescent. Sepals ovate to elliptic-ovate, 15–18 × 5–7 mm, outer surface carinate, apex shortly acuminate; lateral sepals oblique, slightly wider than dorsal sepal. Petals ovate-elliptic, 13–16 × 6–8 mm, apex obtuse; lip 14–18 mm, without a mesochile; hypochile cymbiform, 7–10 × 14–18 mm, with erect, elliptic lateral lobes 5–7 mm wide; epichile narrowly ovate-elliptic, 9–10 × 4–5 mm, with a pair of fleshy, suborbicular calli on lateral veins toward margins and occasionally with minute protuberances centrally. Column 4–7 mm. Fl. Jul–Aug. $2n = 40, 60$.

Moist soil along streams, wet prairies; 2900–3000 m. S and SE Xizang [Bhutan, N India, Kashmir, Kyrgyzstan, Nepal, Pakistan, Tajikistan, Uzbekistan].

5. *Epipactis humilior* (Tang & F. T. Wang) S. C. Chen & G. H. Zhu, *Novon* 13: 423. 2003.

短茎火烧兰 *duan jing huo shao lan*

Epipactis mairei Schlechter var. *humilior* Tang & F. T. Wang, *Acta Phytotax. Sin.* 1: 67. 1951.

Plants 10–20 cm tall. Rhizome elongate, usually more than 10 cm, 3–4 mm in diam., many noded. Stem glabrous toward base, rusty pubescent above, with 2 or 3 sheaths toward base. Leaves 4–6, ovate-lanceolate or lanceolate, 4–9 × 2–3 cm, adaxially slightly scabrous or glabrescent, base amplexicaul, apex acuminate. Rachis 5–8 cm, rusty pubescent, laxly 5–8-flowered; floral bracts 15–40 × 5–10 mm, lower ones exceeding flowers. Flowers resupinate, yellow-green tinged purple; pedicel and ovary 13–16 mm, yellowish brown pubescent. Dorsal sepal obovate-elliptic, cymbiform, 13–17 × 5–7 mm, apex acuminate; lateral sepals ovate-lanceolate, oblique, slightly wider than dorsal sepal. Petals ovate-elliptic, 13–16 × 5–7 mm, apex obtuse; lip without a mesochile; hypochile cymbiform, 7–9 × 12–16 mm, with erect lateral lobes; epichile thickened, subovate, 8–9 × 4–5 mm, with 3 central crisped lamellae. Column 6–7 mm. Fl. Jun–Jul.

• Forests, grassy slopes, swampy meadows; 2200–2700 m. W Sichuan, E Xizang, Yunnan.

6. *Epipactis veratrifolia* Boissier & Hohenacker in Boissier, *Diagn. Pl. Orient.*, ser. 1, 13: 11. 1854.

疏花火烧兰 *shu hua huo shao lan*

Arthrochilium veratrifolium (Boissier & Hohenacker) Szlachetko; *A. wallichii* (Schlechter) Szlachetko; *Epipactis handeli* Schlechter; *E. somaliensis* Rolfe; *E. wallichii* Schlechter; *Helleborine veratrifolia* (Boissier & Hohenacker) Bornmüller.

Plants 30–40 cm tall. Rhizome usually elongate. Stem glabrous, with 2–4 sheaths toward base. Leaves 3–5, ovate-lanceolate, 6–11 × 2–3 cm, papery, glabrous, base amplexicaul, apex acuminate or long acuminate. Rachis 5–15 cm, yellowish brown puberulent, laxly (3 or)4–6-flowered; floral bracts foliaceous, spreading, ovate-lanceolate, lower ones exceeding flowers, upper ones nearly as long as flowers. Flowers secund, resupinate; sepals chestnut-brown, petals green with broad chestnut-brown margins, lip white with chestnut-brown markings on hypochile and an orange-brown band across epichile; pedicel and ovary grayish white tomentose, ca. 10 mm. Sepals grayish white tomentose on outer surfaces, 5-veined, midvein conspicuous; dorsal sepal elliptic, ca. 10 × 5 mm, apex acute; lateral sepals ovate-lanceolate, oblique, ca. 11 × 7 mm, apex acute. Petals ovate-elliptic, ca. 9 × 6 mm, apex acute; lip ca. 9 mm, without a mesochile; hypochile cymbiform, 5–6 × 3–4 mm, with erect lateral lobes, margins incurved; epichile broadly ovate, 8–12 × 6–9 mm, fleshy, apex subacute or obtuse. Column ca. 8 mm including anther, with 2 short falcate lateral wings; anther cylindric, ca. 4 mm. Fl. May. $2n = 20, 40, 60$.

Forests, forest margins; 2700–3400 m. W Sichuan, Xizang, C and W Yunnan [Afghanistan, India, Myanmar, Nepal, Pakistan, Africa (Ethiopia, Somalia), SW Asia, Caucasus].

This species was misidentified as *Epipactis consimilis* D. Don in *FRPS* (17: 91. 1999).

7. *Epipactis palustris* (Linnaeus) Crantz, *Stirp. Austr. Fasc.*, ed. 2, 2: 462. 1769.

新疆火烧兰 *xin jiang huo shao lan*

Serapias helleborine Linnaeus var. *palustris* Linnaeus, *Sp. Pl.* 2: 950. 1753; *Arthrochilium palustre* (Linnaeus) Beck; *Helleborine palustris* (Linnaeus) Schrank; *Limodorum palustre* (Linnaeus) Kuntze; *S. longifolia* Linnaeus.

Plants 25–60 cm tall. Rhizome elongate. Stem glabrous toward base, papillose-pubescent above, with 3 or 4 sheaths toward base. Leaves 7 or 8, spreading, lowest one ovate or ovate-elliptic, 4–5 × 2–2.5 cm, others relatively narrow, ovate-lanceolate, narrowly lanceolate, or linear-lanceolate, 4–16 × 0.6–2.5 cm, glabrous, base amplexicaul, apex acute to acuminate. Rachis 10–20 cm, papillose-pubescent, laxly 6- or more flowered. Flowers spreading, resupinate, yellow-green; sepals flushed chestnut-brown and petals with chestnut-brown venation, lip with yellow marks at base and a white epichile; pedicel and ovary ca. 15 mm, papillose-pubescent. Dorsal sepal elliptic-lanceolate, slightly cymbiform, 8–9 × ca. 2.5 mm, apex acute; lateral sepals ovate-lanceolate, slightly oblique, 7–8 × ca. 4 mm, apex acute and apiculate. Petals elliptic, 7–8 × ca. 3 mm, apex acuminate; lip ca. 10 mm, with a mesochile connecting hypochile and epichile; hypochile cymbiform, ca. 4 × 4–6 mm, with suberect lateral lobes, irregularly papillate inside and slightly

carinate; mesochile oblong to subsquare, ca. 2×1.5 mm, with a pair of suborbicular lamellae 1–1.5 mm tall that extend onto epichile; epichile oblate to suborbicular, $3\text{--}5 \times 4\text{--}4.5$ mm, margin irregularly and inconspicuously crenulate, apex rounded. Column erect, ca. 3 mm; anther elliptic, ca. 3 mm, papillate on dorsal surface. Fl. Jul. $2n = 40, 44, 46, 48$.

N Xinjiang [Russia; Europe].

8. *Epipactis thunbergii* A. Gray in Perry, Narr. Exped. China Japan 2. 319. 1857.

尖叶火烧兰 jian ye huo shao lan

Amesia thunbergii (A. Gray) A. Nelson & J. F. Macbride; *Arthrochilium thunbergii* (A. Gray) Szlachetko; *Epipactis gigantea* Douglas var. *manshurica* Maximowicz ex Komarov; *E. gigantea* var. *thunbergii* (A. Gray) M. Hiroe; *E. thunbergii* var. *manshurica* (Maximowicz ex Komarov) Tang & F. T. Wang; *Helleborine chinensis* Soó; *H. thunbergii* (A. Gray) Druce; *Limodorum thunbergii* (A. Gray) Kuntze.

Plants 20–30 cm tall. Rhizome elongate. Stem glabrous, with 2–4 sheaths toward base. Leaves 6–8, spreading, ovate-lanceolate, $5\text{--}13 \times 1.2\text{--}3$ cm, glabrous, base amplexicaul, apex acuminate or cuspidate-acuminate. Rachis 3–5 cm, glabrous, laxly 3–10-flowered; floral bracts foliaceous, ovate-elliptic, lower ones exceeding flowers. Flowers spreading, resupinate, pale green or yellow-green; lip white with purple venation on side lobes and purple markings on disk; ovary and pedicel ca. 15 mm, glabrous. Dorsal sepal ovate-elliptic, ca. 11×4 mm, apex acute; lateral sepals ovate-elliptic, ca. 10×3 mm, apex acute. Petals broadly ovate, slightly oblique, $7\text{--}10 \times$ ca. 5 mm, apex acute; lip ca. 10 mm, with a short mesochile connecting hypochile and epichile; hypochile cymbiform, ca. 3×3 mm, with erect lateral lobes ca. 4×2 mm; mesochile sometimes inconspicuous, oblong, $1\text{--}2 \times$ ca. 2 mm; epichile ovate-orbicular, ca. 3×3 mm, margin slightly undulate, with a pair of low keels. Column ca. 3 mm excluding anther, relatively thick. Fl. Jun–Jul. $2n = 40$.

E Zhejiang [Japan, Korea].

9. *Epipactis xanthophaea* Schlechter, Repert. Spec. Nov. Regni Veg. Beih. 12: 341. 1922.

北火烧兰 bei huo shao lan

Amesia xanthophaea (Schlechter) Hu; *Arthrochilium xanthophaeum* (Schlechter) Szlachetko; *Helleborine xanthophaea* (Schlechter) Soó.

Plants 40–60 cm tall. Rhizome slender. Stem glabrous, with 3 or 4 sheaths toward base. Leaves 5–7, ovate-lanceolate to elliptic-lanceolate, $6\text{--}13 \times 3\text{--}5$ cm, glabrous, base amplexicaul, apex acuminate or long acuminate. Rachis 7–10 cm, glabrous, laxly 5–10-flowered; floral bracts foliaceous, ovate-lanceolate, apex long acuminate, lower ones exceeding flowers. Flowers resupinate, rather large, yellow, yellowish brown, or rarely pale red; ovary and pedicel ca. 15 cm. Dorsal sepal elliptic, ca. 15×6 mm, apex acuminate; lateral sepals ovate-lanceolate, oblique, $15\text{--}16 \times$ ca. 6 mm, apex long acuminate.

Petals broadly ovate, ca. 12×8 mm, base broadly cuneate, apex acuminate; lip ca. 15 mm, with a broad mesochile connecting hypochile and epichile; hypochile cymbiform, with erect ovate-suborbicular lateral lobes; mesochile ca. 6×5 mm, lateral margins slightly protruding and obtuse-rounded, with a pair of subtriangular lamellae ca. 3.5×3 mm; epichile ovate-orbicular. Column ca. 6 mm including anther; anther ovoid, ca. 3 mm. Capsule ellipsoid, ca. 20 mm. Fl. Jul, fr. Sep.

• Meadows, damp places in forests; ca. 300 m. Hebei, Heilongjiang, Jilin, Liaoning, Shandong.

10. *Epipactis alata* Averyanov & Efimov, Rheedeia 16: 4. 2006 [*“alatus”*].

短苞火烧兰 duan bao huo shao lan

Plants 20–30 cm tall. Rhizome short, 3–5 mm in diam. Stem flexuous, glabrous, with 3 or 4 sheaths toward base. Leaves 2 or 3, ovate-lanceolate to lanceolate, lowest one elliptic or ovate, $2\text{--}7 \times 1\text{--}4$ cm, finely papillose along margins, base amplexicaul, apex acute. Rachis ca. 4 cm, glabrous or puberulent, laxly 1–4-flowered; floral bracts narrowly ovate, $3\text{--}4 \times 2\text{--}3$ mm, shorter than ovary, apex acute. Flowers not resupinate, rose-pink, lip with a yellow callus on epichile and brown warts on hypochile; pedicel and ovary ca. 10 mm, puberulent. Sepals ovate, ca. $10 \times 5\text{--}5.5$ mm, apex acute; lateral sepals oblique, slightly wider than dorsal sepal. Petals ovate, ca. 8.5×5 mm,

apex shortly acuminate; lip ca. 12 mm, with a mesochile connecting hypochile and epichile; hypochile cymbiform, with broadly triangular, rounded side lobes ca. 4 mm, with numerous brown warts; mesochile oblong, ca. 3.5×2 mm, with a pair of fleshy low keels; epichile suborbicular, ca. 3.5 mm, with a small callus at base, margin undulate, apex obtuse. Column ca. 7 mm. Fl. Jul–Aug. $2n = 40, 60$.

Coniferous (*Tsuga chinensis*) forests, on limestone karst; 1100–1200 m. SE Yunnan [N Vietnam].

