

89. EULOPHIA R. Brown, Bot. Reg. 7: ad t. 573 [“578”]. 1821 [“*Eulophus*”], nom. cons.

美冠兰属 mei guan lan shu

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

Cyrtopera Lindley; *Donacopsis* Gagnepain; *Lissochilus* R. Brown; *Semiphajus* Gagnepain, p.p.

Herbs, terrestrial, autotrophic or rarely heteromycotrophic. Pseudobulbs subterranean or borne above ground, cormlike, tuberous, or rhizomatous, usually several noded, with several slender or thick fibrous roots at base. Leaves appearing at or after anthesis, 1 to many, basal, base tapering or contracted into a long petiole-like stalk, reduced to scales in heteromycotrophic species; petiole-like leaf base sometimes overlapping and forming a pseudostem. Inflorescence erect, lateral, racemose or rarely paniculate, laxly to subdensely many flowered or occasionally reduced to a solitary flower. Flowers resupinate, small to large, sometimes showy; pedicel and ovary slender. Sepals free, similar; lateral sepals usually slightly oblique, sometimes adnate to column foot. Petals similar to dorsal sepal or slightly wider; lip \pm erect, usually 3-lobed, lateral lobes erect and embracing column, rarely entire, base usually spurred or saccate; disk usually with a callus consisting of lamellae, ridges, or fringes. Column short to long, usually winged; column foot present or less commonly absent; anther terminal, incompletely 2-locular, anther cap often with 2 projections; pollinia 2, \pm cleft, waxy, attached to a suborbicular viscidium by a short, broad stipe.

About 200 species: tropical and subtropical regions, most diverse in Africa, but also widespread from Madagascar and the Mascarene Islands to C and tropical Asia, the SW Pacific islands, and N and NW Australia; 13 species (two endemic) in China.

- 1a. Plants leafless at anthesis or heteromycotrophic and lacking leaves altogether.
 - 2a. Flowers lemon-yellow; lip 25–30 mm 6. *E. flava*
 - 2b. Flowers purple-red, brownish yellow, green, purple, maroon, or pink; lip 9–15 mm.
 - 3a. Column with a prominent column foot 3–5 mm.
 - 4a. Plants heteromycotrophic, lacking green leaves; sepals dull purple-red to brownish yellow; spur conic, ca. 2 mm 1. *E. zollingeri*
 - 4b. Plants autotrophic, with green leaves; sepals pale green with purple veins; spur saccate, ca. 4 mm 2. *E. bicallosa*
 - 3b. Column lacking a column foot, or if present ca. 1 mm.
 - 5a. Plants 40–80 cm tall; pseudobulb borne above ground; inflorescence occasionally branched and paniculate; lip 4–5 mm wide, 3-lobed at or below middle 5. *E. graminea*
 - 5b. Plants 15–45 cm tall; pseudobulb subterranean; inflorescence always racemose, never paniculate; lip 6.5–12 mm wide, 3-lobed above middle.
 - 6a. Leaves 3–5 cm wide; sepals ca. 2 mm wide 3. *E. dentata*
 - 6b. Leaves 0.4–0.8 cm wide; sepals 3–5 mm wide 4. *E. dabia*
- 1b. Plants with leaves present at anthesis.
 - 7a. Flower solitary 7. *E. monantha*
 - 7b. Flowers 3 or more.
 - 8a. Leaves to 1 cm wide.
 - 9a. Flowers olive-green; lip 9–10 mm; spur 3–3.5 mm 5. *E. graminea*
 - 9b. Flowers purplish red; lip 20–23 mm; spur 7–8 mm 12. *E. siamensis*
 - 8b. Leaves 2–7 cm wide.
 - 10a. Flowers purplish red; spur 6–9 mm 13. *E. spectabilis*
 - 10b. Flowers yellow, yellowish green, or green; spur absent or 1.5–5 mm.
 - 11a. Floral bracts 20–50 mm, exceeding ovary.
 - 12a. Plants 25–50 cm tall; sepals 4–5 mm wide; spur 1.5–3 mm 9. *E. herbacea*
 - 12b. Plants 45–80 cm tall; sepals 8–9 mm wide; spur ca. 5 mm 10. *E. bracteosa*
 - 11b. Floral bracts 6–9 mm, shorter than ovary.
 - 13a. Leaves 3–7 cm wide, petiole-like stalk 8–15 cm; rachis more than 10-flowered; flowers pale green with purple or red spots and blotches; column 4–4.5 mm 8. *E. pulchra*
 - 13b. Leaves ca. 2 cm wide, petiole-like stalk ca. 50 cm; rachis up to 10-flowered; flowers yellow; column ca. 7 mm 11. *E. sooi*

1. *Eulophia zollingeri* (H. G. Reichenbach) J. J. Smith, Orch. Java, 228. 1905.

无叶美冠兰 wu ye mei guan lan

Cyrtopera zollingeri H. G. Reichenbach, Bonplandia 5: 38. 1857; *C. formosana* Rolfe; *C. papuana* Ridley (1886), not Kraenzlin (1898); *C. rufa* Thwaites; *C. sanguinea* Lindley;

Cyrtopodium rufum (Thwaites) Trimen; *C. sanguineum* (Lindley) N. E. Brown; *Eulophia carrii* C. T. White; *E. formosana* (Rolfe) Rolfe; *E. macrorhiza* Blume; *E. ochobiensis* Hayata; *E. papuana* (Ridley) J. J. Smith (1909), not Schlechter (1905), nor F. M. Bailey (1907); *E. sanguinea* (Lindley) J. D. Hooker; *E. yushuiana* S. Y. Hu; *Graphorkis macrorhiza* (Blume) Kuntze; *G. papuana* (Ridley) Kuntze; *G. rufa* (Thwaites) Kuntze;

G. sanguinea (Lindley) Kuntze.

Plants heteromycotrophic, without green leaves, (15–)40–80 cm tall. Pseudobulb subterranean, tuberous, pale yellow, suboblong, 3–16 × 1.5–5 cm, many noded, with many stout roots. Inflorescence brownish red, racemose, (15–)40–80 cm, stout, with several scattered, clasping sheaths; rachis 4–13 cm, laxly 8- to more than 20-flowered; floral bracts narrowly lanceolate to almost subulate, 10–25 mm, subequal in length to or exceeding ovary, apex acuminate. Flowers suberect, spreading, or nodding, dull purple-red to brownish yellow, medium-sized, 25–30 mm in diam.; pedicel and ovary 16–20 mm. Dorsal sepal elliptic-oblong, 15–23 × 4–7 mm, apex acuminate; lateral sepals suboblong, slightly oblique, 16–25 × 6–9 mm, adnate at base to column foot, apex acuminate. Petals oblanceolate, 11–18 × 5–7 mm, apex mucronate; lip adnate to column foot, subobovate or oblong-obovate, 14–15 × 15–18 mm, shortly saccate-spurred at base, 3-lobed; lateral lobes erect and loosely embracing column, subovate or oblong, 3–4 × ca. 4.5 mm, apex rounded; mid-lobe ovate, 4–7 × 3–5 mm, with 5–7 thickened, papillose veins, margin undulate, apex apiculate; disk sparsely papillose, with 2 central, suborbicular lamellae; spur broad, conic, ca. 2 mm. Column ca. 5 mm; column foot 4–5 mm. Fl. Apr–May. $2n = 34$.

Sparse forests, bamboo forests, grassy slopes; sea level to 500 m. Fujian, Guangdong, Guangxi, S Jiangxi, Taiwan, C Yunnan [India, Indonesia, Japan (Ryukyu Islands), Malaysia, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia].

2. *Eulophia bicallosa* (D. Don) P. F. Hunt & Summerhayes, Kew Bull. 20: 60. 1966.

台湾美冠兰 tai wan mei guan lan

Bletia bicallosa D. Don, Prodr. Fl. Nepal. 30. 1825; *Cyrtopera bicarinata* Lindley; *C. candida* Lindley; *C. papuana* Kraenzlin (1898), not Ridley (1886); *Eulophia bicallosa* var. *major* (King & Pantling) Pradhan; *E. bicarinata* (Lindley) J. D. Hooker; *E. bicarinata* var. *major* King & Pantling; *E. brachycentra* Hayata; *E. candida* (Lindley) J. D. Hooker; *E. fitzalanii* F. Mueller; *E. merrillii* Ames; *E. papuana* Schlechter (1905), not F. M. Bailey (1907), nor (Ridley) J. J. Smith (1909); *E. vanoverberghii* Ames; *E. venosa* (F. Mueller) H. G. Reichenbach ex Benth. var. *papuana* (Schlechter) Schlechter; *E. versteegii* J. J. Smith; *Graphorkis bicallosa* (D. Don) Kuntze; *G. bicarinata* (Lindley) Kuntze; *G. candida* (Lindley) Kuntze; *G. fitzalanii* (F. Mueller) Kuntze; *Limodorum bicallosum* (D. Don) Buchanan-Hamilton ex D. Don; *Liparis bicallosa* (D. Don) Schlechter.

Plants autotrophic, 50–75 cm tall. Pseudobulb subterranean, usually whitish, subglobose to cylindrical, 5–10 cm, covered with a few sheaths. Leaf solitary, emerging after anthesis, linear, ca. 50 × 1.2 cm, gradually tapering at base into a petiole-like stalk, apex acute or acuminate; petiole-like stalk to ca. 35 cm. Inflorescence racemose, 50–75 cm, slender, with 3–5 scattered tubular sheaths; rachis to 10 cm, subdensely few to many flowered; floral bracts lanceolate, 8–14 mm, shorter than ovary, apex acuminate. Flowers medium-sized, ca. 25 mm in diam. Sepals pale green, with 5 purple veins. Petals pale green, tinged purplish red at apex, and lip pale purplish red, with dark purple

venation; pedicel and ovary 10–15 mm. Dorsal sepal lanceolate, ca. 13 × 3 mm, apex acute; lateral sepals lanceolate, ca. 13 × 3–5 mm, adnate at base to column foot, apex acute. Petals lanceolate to narrowly elliptic, ca. 13 × 7–8 mm, base contracted, apex acute; lip subovate, ca. 15 mm, spurred at base, 3-lobed; lateral lobes erect, triangular, oblique; mid-lobe recurved, broadly ovate, clawed at base, apex retuse; disk with 3 purplish red ridges; spur saccate, ca. 4 mm, apex obtuse. Column ca. 6 mm, slender, with a distinct column foot ca. 3 mm. Fl. Jun.

Hainan [India, Indonesia, Malaysia, Myanmar, Nepal, New Guinea, Thailand; Australia].

3. *Eulophia dentata* Ames, Philipp. J. Sci., C, 6: 51. 1911.

宝岛美冠兰 bao dao mei guan lan

Eulophia graminea Lindley var. *kitamurae* (Masamune) S. S. Ying; *E. kitamurae* Masamune; *E. segawae* Fukuyama; *E. taiwanensis* Hayata.

Plants autotrophic, 15–40 cm tall. Pseudobulb subterranean, white, ovoid, ca. 3 × 2.2–2.5 cm, often borne in clusters and connected to each other by short rhizomes. Leaves 2 or 3, emerging after anthesis, linear, 10–25 × 3–5 cm, apex acute to acuminate. Inflorescence dark green to purplish, racemose, 15–40 cm, stout, with several purplish sheaths below middle; rachis 4–15 cm, laxly 3- to more than 10-flowered; floral bracts narrowly ovate-lanceolate, 5–11 mm, shorter than ovary, apex acuminate. Flowers nodding, medium-sized, ca. 30 mm in diam.; sepals and petals pale purple, white tinged pink, or occasionally pale green, lip pinkish white or green with purple venation; pedicel and ovary 10–20 mm. Sepals similar, linear, 10–13 × ca. 2 mm, apex acute. Petals similar to sepals but slightly shorter, 9–12 × ca. 2 mm, apex acute; lip suboblong-elliptic, 10–12 × ca. 6.5 mm, spurred at base, 3-lobed above middle; lateral lobes erect and loosely embracing column, triangular-ovate, apex acute; mid-lobe orbicular to subquadrate, ca. 3 × 4 mm, apical margin crisped, apex truncate; disk papillose, with 3 longitudinal ridges; ridges white tinged purple, slightly crested; spur projecting backward or slightly hooked, cylindrical, 4–5 mm, apex acute. Column white, tinged pale greenish brown, ca. 6.5 mm, slender, with a short column foot ca. 1 mm. Fl. Feb–Apr. $2n = 54$, 56.

Forests, grasslands. E Taiwan [Philippines].

4. *Eulophia dabia* (D. Don) Hochreutiner, Bull. New York Bot. Gard. 6: 270. 1910.

长距美冠兰 chang ju mei guan lan

Bletia dabia D. Don, Prodr. Fl. Nepal. 30. 1825; *Eulophia campestris* Wallich ex Lindley; *E. faberi* Rolfe; *E. hemileuca* Lindley; *E. hormusjii* Duthie; *E. ramentacea* (Roxburgh) Lindley; *E. rupestris* Wallich ex Lindley; *E. turkestanica* (Litvinov) Schlechter; *Geodorum ramentaceum* (Roxburgh) Voigt; *Graphorkis campestris* (Wallich ex Lindley) Kuntze; *G. dabia* (D. Don) Kuntze; *G. rupestris* (Wallich ex Lindley) Kuntze; *Limodorum dabium* (D. Don) Buchanan-Hamilton ex D. Don; *L. ramentaceum* Roxburgh; *L. turkestanicum* Litvinov.

Plants 16–45 cm tall. Pseudobulb subterranean, irregularly

triangular or subglobose, 1–2 cm in diam., sometimes borne in clusters. Leaves 2 or 3, emerging after anthesis, linear, 15–20 × 0.4–0.8 cm, gradually tapering at base into a petiole-like stalk, apex acuminate; petiole-like stalk enclosed in basal sheaths and forming a pseudostem ca. 10 cm. Inflorescence racemose, 16–45 cm, slender to stout, with several scattered sheaths 3–4 cm; rachis 6–12 cm, laxly 4–14-flowered; floral bracts ovate-lanceolate, 6–12 × 3–5 mm, shorter than ovary, membranous, apex acuminate. Flowers nodding, pale pink to maroon, medium-sized, 18–25 mm in diam.; pedicel and ovary 11–22 mm. Sepals similar, oblong, 12–16 × 3–5 mm, apex acute or mucronate; lateral sepals slightly oblique. Petals narrowly obovate-oblong, 10–14 × 2–3 mm, slightly shorter than sepals, apex acute or mucronate; lip broadly oblong-obovate, 11–15 × 8–12 mm, spurred at base, 3-lobed above middle; lateral lobes erect and loosely embracing column, broadly ovate-triangular, apex obtuse; mid-lobe oblate to transversely oblong, 2–4(–6) × 3–5(–8) mm, margin undulate, apex truncate; disk with 3 longitudinal fimbriate lamellae extending from base of lip to midway along mid-lobe; spur cylindrical, 5–8 × 0.8–1.5 mm, apex obtuse. Column 7–9 mm, without a column foot. Capsule pendulous, ellipsoid, ca. 18 × 10 mm. Fl. Apr–May, fr. May–Jun. $2n = 54$.

Grassy slopes, rocky wastelands; below 800 m. SW Guizhou, W Hubei, Jiangsu, Sichuan, SW Yunnan [Afghanistan, Bangladesh, Bhutan, India, Kashmir, Nepal, Pakistan, Tajikistan, Turkmenistan, Uzbekistan].

5. *Eulophia graminea* Lindley, Gen. Sp. Orchid. Pl. 182. 1833.

美冠兰 mei guan lan

Eulophia decipiens Kurz; *E. gusukumae* Masamune; *E. inconspicua* Griffith; *E. ramosa* Hayata (1911), not Ridley (1885); *E. sinensis* Miquel; *E. ucbii* Malhotra & Balodi; *E. venusta* Schlechter; *Graphorkis decipiens* (Kurz) Kuntze; *G. graminea* (Lindley) Kuntze; *G. inconspicua* (Griffith) Kuntze.

Plants autotrophic, 40–80 cm tall. Pseudobulb borne above ground, erect, ovoid, conic, oblong, or subglobose, 3–7 × 2–4 cm, several noded, sometimes present in large numbers and forming clusters to 20–30 cm in diam. Leaves 3–5, present at or emerging after anthesis, linear to linear-lanceolate, 13–35 × 0.7–1 cm, apex acuminate; petiole-like stalk enclosed in several basal sheaths and forming a pseudostem. Inflorescence racemose or occasionally 1- or 2-branched and paniculate, 40–75 cm, slender, with several scattered sheaths 1.5–3.5 cm; rachis 12–40 cm, laxly 4- to more than 10-flowered; floral bracts linear-lanceolate, 4–8 × ca. 2 mm, shorter than ovary, apex acuminate. Flowers medium-sized, to ca. 30 mm in diam.; sepals and petals olive-green with dark green venation, lip white with purplish red lamellae; pedicel and ovary 15–20 mm. Dorsal sepal narrowly oblong to oblanceolate, 11–15 × 1.5–3 mm, apex acuminate; lateral sepals similar to dorsal sepal, usually slightly longer and slightly oblique. Petals reflexed above middle, narrowly ovate, 9–10 × 2.5–3 mm, apex shortly acuminate; lip subobovate-oblong, 9–10 × 4–5 mm, spurred at base, 3-lobed at or below middle; lateral lobes small; mid-lobe orbicular, 4–5 × 4–5 mm, apex with an acute mucro; disk with (3 or) 5 longitudinal lamellae, extending from base of lip almost to apex of mid-

lobe, divided into fimbriate fringes on mid-lobe, white tinged purplish red; spur usually curving forward, cylindrical or slightly clavate, 3–3.5 mm, apex acute to obtuse. Column 4–5 mm, without a column foot. Capsule pendulous, ellipsoid, 25–30 × ca. 10 mm. Fl. Apr–May, fr. May–Jun. $2n = 42, 48, 56$.

Grassy places in open forests, open slopes, disturbed grasslands, forests along sandy beaches, coastal grasslands; 900–2100 m. Anhui, Guangdong, Guangxi, Guizhou, Hainan, Taiwan, Yunnan [India, Indonesia, Japan (Ryukyu Islands), Laos, Malaysia, Myanmar, Nepal, Singapore, Sri Lanka, Thailand, Vietnam].

6. *Eulophia flava* (Lindley) J. D. Hooker, Fl. Brit. India 6: 7. 1890.

黄花美冠兰 huang hua mei guan lan

Cyrtopera flava Lindley, Gen. Sp. Orchid. Pl. 189. 1833; *C. cullenii* Wight; *Cyrtopodium flavum* (Lindley) Benth (1881), not Link & Otto ex Reichenbach (1830); *Eulophia cullenii* (Wight) Blume; *Graphorkis flava* (Lindley) Kuntze; *Lissochilus flavus* (Lindley) Schlechter.

Plants autotrophic, 60–95 cm tall. Pseudobulb borne above ground, erect, pale greenish, subcylindrical, 4–5 × 1.5–2 cm, many noded, with a few roots. Leaves usually 2, usually emerging after anthesis, oblong-lanceolate, 25–35 × 4.5–6 cm, papery, tapering at base into a long petiole-like stalk, apex acuminate; petiole-like stalk ca. 16 cm, equitant and forming a pseudostem. Inflorescence usually arising from an upper node of pseudobulb, racemose, 60–95 cm, thick, with several scattered sheaths 4–8 cm; rachis 18–32 cm, laxly more than 10-flowered; floral bracts lanceolate, 15–25 mm, shorter than ovary, apex acute to acuminate. Flowers lemon-yellow with purple or crimson spots inside toward base, large, 40–50 mm in diam., not scented; pedicel and ovary 25–30 mm. Sepals similar, narrowly elliptic-lanceolate, 30–36 × 9–11 mm, apex acute or acuminate; lateral sepals oblique. Petals obovate-elliptic or subobovate, 23–28 × 12–15 mm, apex rounded; lip broadly ovate, 25–30 × 20–25 mm, saccate-spurred at base, 3-lobed; lateral lobes incurved and loosely embracing column, subovate, apex rounded; mid-lobe oblate to subquadrate, 6–11 × 10–13 mm; disk with 3 papillate ridges extending from near base of lip to base of mid-lobe; outer 2 ridges longer and dilated into suborbicular lamellae at middle of disk; spur a broad sac ca. 3 mm, apex rounded. Column 12–15 mm, without a column foot. Fl. Apr–Jun.

Crevice along streamsides, open grassy slopes; below 400 m. SW Guangxi, Hainan, Hong Kong [India, Laos, Myanmar, Nepal, Thailand, Vietnam].

7. *Eulophia monantha* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 203. 1921.

单花美冠兰 dan hua mei guan lan

Plants autotrophic, 15–22 cm tall. Pseudobulb subterranean, subglobose, 1.5–2 cm in diam., often borne in clusters. Leaves 2, present at anthesis, linear, plicate, ca. 18 × 0.4–0.5 mm, apex acuminate; petiole-like stalk enclosed in basal sheaths. Inflorescence 15–22 cm, slender, with 2 or 3 lanceolate membranous sheaths 1.2–2 cm; rachis 1-flowered; floral bracts

8–12 mm. Flower fragrant, olive-green with brown stripes, medium-sized. Sepals similar, narrowly oblanceolate, ca. 30 × 5 mm, apex obtuse. Petals oblong, ca. 20 × 6 mm, apex obtuse; lip ca. 23 × 10 mm, spurred at base, 3-lobed; lateral lobes small and narrow; mid-lobe obscurely 3-lobed, margin undulate; disk with 7 longitudinal ridges; spur ca. 5 mm. Column ca. 9 mm, without a column foot. Fl. Aug.

• Open places in *Pinus* forests, dry crevices; ca. 2800 m. NW Yunnan.

8. *Eulophia pulchra* (Thouars) Lindley, Gen. Sp. Orchid. Pl. 182. 1833.

美花美冠兰 mei hua mei guan lan

Plants autotrophic, 50–70 cm tall. Pseudobulb borne above ground, erect, green, cylindrical or ovoid, 8–10 × 1.5–2 cm, 2–5-noded, with several to many, long, fibrous roots. Leaves 2 or 3, present at anthesis, narrowly elliptic to suboblong, 10–25 × 3–7 cm, with 3 main veins raised abaxially, tapering at base into a petiole-like stalk, apex acute to acuminate; petiole-like stalk 8–15 cm, usually enclosed in a basal sheath and forming a pseudostem. Inflorescence arising from an intermediate node of pseudobulb, racemose, 50–70 cm, with a few scattered amplexicaul sheaths below middle; rachis 12–15 cm, laxly more than 10-flowered; floral bracts linear, 6–9 mm, shorter than ovary, apex acuminate. Flowers medium-sized, pale green with dull purple or red spots and blotches, lip white with dull purple or red venation and blotches toward base and on lateral lobes; pedicel and ovary 11–15 mm. Sepals and petals similar, suboblong-lanceolate to elliptic, 10–15 × 3–5 mm, apex acute or acuminate; lateral sepals somewhat oblique. Petals erect, loosely connivent with dorsal sepal and forming a hood; lip usually orbicular, 10–16 × 11–16 mm, spurred at base, and 3-lobed, rarely ovate-elliptic, simple, ca. 14 × 4.5 mm, and without a spur in peloric forms; lateral lobes erect and loosely embracing column, falcate, ovate, apex obtuse-rounded; mid-lobe oblate, to ca. 13 mm wide, apex deeply emarginate; disk with a pair of calli in front of mouth of spur, or ecallose in peloric forms; spur green, subglobose, ca. 3.5 mm, apex rounded. Column ca. 4 mm. Fl. Oct–Dec. $2n = 32$.

Forests; 100–400 m. S Taiwan [Cambodia, India, Indonesia, Laos, Malaysia, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; E Africa, Australia, Madagascar, Mascarene Islands, Pacific islands].

- 1a. Lip 3-lobed, spurred at base; disk with a pair of calli 8a. var. *pulchra*
- 1b. Lip simple, without a spur; disk ecallose 8b. var. *actinomorpha*

8a. *Eulophia pulchra* var. *pulchra*

美花美冠兰(原变种) mei hua mei guan lan (yuan bian zhong)

Limodorum pulchrum Thouars, Hist. Orchid. ad t. 43. 1822; *Eulophia guamensis* Ames; *E. macrostachya* Lindley; *E. silvatica* Schlechter; *E. striata* Rolfe; *Eulophidium pulchrum* (Thouars) Summerhayes; *E. silvaticum* (Schlechter) Summerhayes; *Graphorkis macrostachya* (Lindley) Kuntze; *G. pulchra* (Thouars) Kuntze; *Lissochilus pulcher* (Thouars) H. Perrier (1941), not Schlechter (1915); *Oeceoclades pulchra* (Thouars) P. J. Cribb & M. A. Clements.

Lip white with dull purple or red venation and blotches toward base and on lateral lobes. Sepals and petals suboblong-lanceolate, 10–15 × 3–5 mm; lip orbicular, 10–16 × 11–16 mm, spurred at base, 3-lobed; lateral lobes erect and loosely embracing column, falcate, ovate, apex obtuse-rounded; mid-lobe oblate, to ca. 13 mm wide, apex deeply emarginate; disk with a pair of calli in front of mouth of spur; spur green, subglobose, ca. 3.5 mm, apex rounded. Column ca. 4 mm. Fl. Oct–Nov. $2n = 32$.

Forests; 100–400 m. S Taiwan [Cambodia, India, Indonesia, Laos, Malaysia, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; E Africa, Australia, Madagascar, Mascarene Islands, Pacific islands].

8b. *Eulophia pulchra* var. *actinomorpha* W. M. Lin, Kuo Huang & T. P. Lin, Taiwania 51: 163. 2006.

辐花美冠兰 fu hua mei guan lan

Eulophia pelorica D. L. Jones & M. A. Clements.

Flowers not opening widely, lip coloration similar to that of petals. Sepals and petals elliptic, 13–14 × 3.4–4 mm; lip similar to petals, ovate-elliptic, ca. 14 × 4.5 mm, not spurred, simple, ecallose. Column ca. 4.5 mm; rostellum reduced. Fl. Oct–Dec.

Broad-leaved forests; ca. 200 m. S Taiwan [Australia (Queensland)].

This entity was independently described from both Taiwan (Lin et al., loc. cit.) and Australia (Jones & Clements, Orchardian 14(8: Sci. Suppl.): ix. 2004). In both cases, the authors acknowledged its similarity to typical *Eulophia pulchra* in vegetative characters, citing the peloric perianth as the only distinguishing feature. Given the broad geographic range of the typical variety, Hsu and Chung (Taiwania 54: 82. 2009) noted that the peloric variety is likely to be more widespread than currently known, with the requirement of flowers limiting its positive identification.

9. *Eulophia herbacea* Lindley, Gen. Sp. Orchid. Pl. 182. 1833.

毛唇美冠兰 mao chun mei guan lan

Eulophia albiflora Edgeworth ex Lindley; *E. brachypetala* Lindley; *E. vera* Royle; *Geodorum bicolor* (Roxburgh) Voigt; *Graphorkis bicolor* (Roxburgh) Kuntze; *G. herbacea* (Lindley) A. Lyons; *Limodorum bicolor* Roxburgh.

Plants autotrophic, 25–50 cm tall. Pseudobulb borne above ground, irregularly ovoid, ca. 2 × 1 cm, few noded, with a few slender roots. Leaves 2 or 3, present at anthesis, lanceolate, 15–29 × 2–5.5 cm, tapering at base into a long petiole-like stalk, apex acuminate; petiole-like stalk 6–25 cm, partially enclosed in several basal sheaths and forming a pseudostem to ca. 15 cm. Inflorescence arising from an intermediate node of pseudobulb, racemose, 22–50 cm, slender, with 2 or 3 scattered sheaths 3–8 cm; rachis 8–15 cm, laxly 6–10-flowered; floral bracts linear-lanceolate, 20–33 mm, usually slightly exceeding ovary, apex acuminate. Flowers medium-sized to large, 30–52 mm in diam.; sepals pale green to greenish yellow, petals and lip white flushed yellowish green at base; pedicel and ovary 20–28 mm. Sepals similar, linear-lanceolate or narrowly oblong, 22–28 × 4–5 mm, apex acuminate; lateral sepals slightly oblique. Petals

obovate-oblong, 17–20 × 6–7 mm, apex obtuse; lip ovate-oblong, 17–20 × 7–10 mm, spurred at base, 3-lobed; lateral lobes incurved and loosely embracing column, subovate, narrow; mid-lobe strongly deflexed, broadly oblong, 7–8 × 5–7 mm, apex truncate-rounded; disk with several parallel rows of tall fimbriae extending to midway along mid-lobe; spur green, saccate-cylindric, 1.5–3 mm, apex rounded. Column ca. 10 mm, without a column foot. Fl. Jun.

Montane grasslands, scrub; below 1500 m. S Guangxi, S Yunnan [Bangladesh, India, Laos, Nepal, Thailand].

10. *Eulophia bracteosa* Lindley, Gen. Sp. Orchid. Pl. 180. 1833.

长苞美冠兰 chang bao mei guan lan

Eulophia grandiflora Lindley; *Graphorkis bracteosa* (Lindley) Kuntze.

Plants autotrophic, 45–80 cm tall. Pseudobulb subterranean, transversely ellipsoid, ca. 1.5 cm in diam., ± covered with membranous sheaths. Leaves 1–3, present at anthesis, lanceolate to narrowly oblong-lanceolate, (25–)45–65 × 2.4–5(–7) cm, papery, base cuneate and contracted into a long petiole-like stalk, apex acuminate; petiole-like stalk 23–40 cm, partially enclosed in several basal sheaths and forming a pseudostem. Inflorescence racemose or very rarely paniculate, 45–80 cm, thick, with several scattered, amplexicaul sheaths 4–8 cm; rachis 8–20 cm, subdensely to densely 8–16-flowered; floral bracts linear-lanceolate, 25–50 × 4–8 mm, exceeding ovary, membranous, apex acuminate. Flowers yellow, medium-sized, 20–25 mm in diam.; pedicel and ovary 20–30 mm. Sepals similar, obovate-elliptic to elliptic, 17–20 × 8–9 mm, apex obtuse and mucronate; lateral sepals usually slightly longer than dorsal sepal. Petals obovate-elliptic, 11–15 × 9–10 mm, membranous, apex rounded; lip obovate-oblong, 11–15 × 7–8 mm, spurred at base, obscurely 3-lobed near apex, apical margin undulate, apex rounded; disk with thickened central veins, with 5 irregularly fimbriate lamellae extending from midway along lip almost to apex of mid-lobe; spur hooked forward, cylindric, ca. 5 mm, apex obtuse. Column 5–6 mm, without a column foot. Fl. Apr–Jul.

Sunny places along valleys, scrubby grasslands; 400–600 m. N Guangdong, NE Guangxi, SE Yunnan [Bangladesh, India, Myanmar].

11. *Eulophia sooi* Chun & Tang ex S. C. Chen, Fl. Reipubl. Popularis Sin. 18: 412. 1999.

剑叶美冠兰 jian ye mei guan lan

Plants autotrophic, to 100 cm tall. Pseudobulb subterranean, transversely ellipsoid, ca. 4.5 × 2.5 cm. Leaves 1 or 2, present at anthesis, linear-lanceolate to ensiform, ca. 40 × 2 cm, contracted at base into a petiole-like stalk, apex acuminate; petiole-like stalk ca. 50 cm, enclosed in basal sheaths for ca. 2/3 of its length. Inflorescence racemose, to 100 cm, with several sheaths at blackish brown nodes; sheaths amplexicaul, tubular, 4–14 cm; rachis 8–10 cm, laxly 8–10-flowered; floral bracts lanceolate to oblong-lanceolate, 6–7 × ca. 2 mm, shorter than ovary, apex acuminate. Flowers yellow, small to medium-sized,

ca. 17 mm in diam.; pedicel and ovary 10–15 mm. Dorsal sepal suboblong, 10–12 × ca. 3.5 mm, apex obtuse; lateral sepals lanceolate-oblong, slightly oblique, 12–13 × ca. 3 mm, apex subacute. Petals subelliptic, 9–11 × 6–7 mm, apex obtuse; lip broadly ovate, ca. 13 × 11 mm, spurred at base, 3-lobed above middle; lateral lobes incurved and loosely embracing column, subelliptic; mid-lobe ovate-oblong, 4–5 × 3–4 mm, apical margin slightly undulate, apex obtuse; disk with 5 thickened ridge-like veins on mid-lobe and with 4 suborbicular lamellae midway along lip; lamellae 2–3 mm, ca. 1 mm tall; spur conic, 2–3 mm. Column ca. 7 mm, margin narrowly winged, with a column foot ca. 1 mm. Fl. Jun–Jul.

• Grassy slopes; 1000–1300 m. W Guangxi, SW Guizhou.

12. *Eulophia siamensis* Rolfe ex Downie, Bull. Misc. Inform. Kew 1925: 380. 1925.

线叶美冠兰 xian ye mei guan lan

Plants autotrophic, 20–40 cm tall. Pseudobulb subterranean, subcylindric, ca. 4 × 1 cm, with a few fleshy roots. Leaves 3, present at anthesis, linear, 10–20 × 0.4–0.8 cm, tapering at base into a petiole-like stalk, apex acuminate; petiole-like stalk enclosed in basal sheaths and forming a pseudostem ca. 5 cm. Inflorescence racemose, ca. 30 cm, slender, with several scattered tubular sheaths; rachis ca. 12 cm, usually laxly 3-flowered; floral bracts linear-lanceolate, 8–18 × 1.5–3 mm, shorter than ovary, apex acuminate. Flowers purplish red, small to medium-sized, 15–30 mm in diam.; pedicel and ovary 18–22 mm. Sepals similar, linear, 25–30 × 3–4 mm, margin incurved, apex acute; lateral sepals usually slightly longer than dorsal sepal. Petals oblanceolate-oblong, 20–23 × ca. 7 mm, apex rounded or acute; lip obovate-oblong, 20–23 × ca. 10 mm, base cuneate, spurred, margin entire, apical margin undulate, apex slightly retuse; disk with rows of fimbriae; spur slightly arcuate, 7–8 mm. Column ca. 9 mm, without a column foot. Fl. Jun.

Damp forests; ca. 900 m. S Guizhou [Thailand].

13. *Eulophia spectabilis* (Dennstedt) Suresh, Regnum Veg. 119: 300. 1988.

紫花美冠兰 zi hua mei guan lan

Wolfia spectabilis Dennstedt, Schlüssel Hortus Malab. 38. 1818; *Cyrtopera nuda* (Lindley) H. G. Reichenbach; *Cyrtopodium bicolor* Ridley; *Eulophia bicolor* Dalzell; *E. burkei* Rolfe ex Downie; *E. holochila* Collett & Hemsley; *E. mac-*

gregorii Ames; *E. nuda* Lindley; *Phaius steppicola* Handel-Mazzetti; *Semiphaeus chevalieri* Gagnepain.

Plants autotrophic, 30–65 cm tall. Pseudobulb subterranean, subglobose, 3–4 cm in diam., with several stout roots. Leaves 2 or 3, present at anthesis, oblong-lanceolate, 20–40 × 2.5–6 cm, contracted at base into a petiole-like stalk, apex acuminate; petiole-like stalk enclosed in several basal sheaths and forming a pseudostem 14–34 cm. Inflorescence racemose, 30–65 cm, stout, with several tubular sheaths below middle; rachis 5–20 cm, laxly 5–9(–15)-flowered; floral bracts lanceolate, 15–20 mm, shorter than ovary, membranous, apex acuminate. Flowers medium-sized, 20–35 mm in diam., purplish red, lip tinged yellow at center; pedicel and ovary 15–25 mm. Dorsal sepal linear or narrowly oblong, 18–25 × 3–6 cm, apex obtuse or acute; lateral sepals similar to dorsal sepal but slightly larger, to 10 mm wide, oblique, adnate at base to column foot. Petals suboblong, 15–17 × 5–9 mm, apex obtuse; lip ovate-oblong, 12–16 × 8–12 mm, spurred at base, obscurely 3-lobed or almost entire, margin ± crisped, apex subtruncate or emarginate; disk with slightly thickened veins or somewhat raised ridges; spur pointing down between divergent halves of broad column foot, broadly conic, 6–9 mm, apex acute. Column 6–8 mm, with a distinct, curved column foot 6–10 mm. Fl. Apr–Jun. $2n = 54$.

Mixed forests, grassy slopes; 200–1600 m. S Jiangxi, SE and SW Yunnan [Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; SW Pacific islands].

The full synonymy for this widespread species can be found in S. Thomas, Lindleyana 13: 170–202. 1998.

