

109. COELOGYNE Lindley, Coll. Bot. ad t. 33. 1821 [“*Caelogyne*”].

贝母兰属 *bei mu lan shu*

Chen Xinqi (陈心启 Chen Sing-chi); Dudley Clayton

Herbs, epiphytic. Rhizome creeping or ± pendulous, usually with rather dense nodes. Pseudobulbs distant or close, ovoid to cylindrical, usually covered with leathery sheaths, usually with 2 leaves at apex but sometimes with only 1 leaf. Leaf blade often oblong to elliptic, usually thickly textured, usually petiolate at base. Inflorescence either terminal or lateral to mature pseudobulbs and either heteranthous, proteranthous, or synanthous with partially to entirely developed leaves, or hysteroanthous with fully developed pseudobulb and leaves, inflorescence erect or pendulous, with or without distichous-equant, persistent sheaths at base or imbricate, sterile, convolute sheathing bracts at interface between peduncle and rachis, sometimes its apex enclosed in a large bract or several bracts, usually several flowered, rarely more than 20-flowered or reduced to a solitary flower; floral bracts caducous, often large. Flowers opening successively or simultaneously, large or medium-sized, sometimes heteranthous. Sepals similar, often concave. Petals often linear, much narrower than sepals; lip often concave at base, 3-lobed or rarely unlobed; lateral lobes ± erect and embracing column; callus with longitudinal lamellae. Column rather long, winged on both sides and around top, without column foot; anther terminal, incumbent; pollinia 4, in 2 pairs, waxy, attached to 1 sticky substance; stigma concave; rostellum rather large. Capsule medium-sized, often ribbed or narrowly winged.

About 200 species: tropical and subtropical Asia to Oceania; 31 species (six endemic) in China.

*Coelogyne venusta* Rolfe (Gard. Chron., ser. 3, 35: 259. 1904) was described based on cultivated material. It is excluded from the present treatment because the cited locality “Yunnan” is incorrect and most probably resulted from the habit of early collectors to record false information; the species is only known from Borneo (Sarawak, Brunei, and Sabah).

1a. Inflorescence with imbricate sterile bracts.

2a. Inflorescence with imbricate sterile bracts mainly at base of peduncle; lip with 3 lamellae, margin of mid-lobe fimbriate.

3a. Petals ovate-lanceolate, nearly as wide as sepals, lip not 3-lobed ..... 1. *C. leungiana*

3b. Petals filiform to linear, much narrower than sepals, lip 3-lobed.

4a. Lip mid-lobe ovate, callus with 3 lamellae, median lamella indistinct, lateral lamellae terminating near tip of mid-lobe, undulate ..... 2. *C. ovalis*

4b. Lip mid-lobe orbicular, fimbriate, callus with 3 lamellae, median lamella virtually a brown vein, lateral lamellae terminating at tip of mid-lobe, initially diverging then converging at tip of mid-lobe ..... 3. *C. fimbriata*

2b. Inflorescence with imbricate sterile bracts at junction of peduncle and rachis.

5a. Rachis extending with new imbricate bracts to produce further annual sets of flowers.

6a. Pseudobulbs cylindrical or narrowly ovoid.

7a. Lip mid-lobe oblong-obcordate, 3–4 mm, callus with 3 lamellae, median lamella short, lateral lamellae parallel, extending from base of lip to 2/3 onto mid-lobe, low initially, then rising, abruptly terminating ..... 4. *C. raizadae*

7b. Lip mid-lobe broadly oblong or subelliptic, ca. 6 mm, callus with 2 narrow longitudinal lamellae extending from base of lip to near middle of mid-lobe, prominent on mid-lobe only ..... 5. *C. longipes*

6b. Pseudobulbs ovoid or ellipsoid.

8a. Lip with no callus; flowers red with a partly black apex to mid-lobe ..... 6. *C. tsii*

8b. Lip with a callus with 2 lamellae.

9a. Lip mid-lobe nearly broadly oblong, 2 lamellae faint near base of lip, elevated and prominent on mid-lobe ..... 7. *C. schultesii*

9b. Lip mid-lobe nearly elliptic, 2 lamellae terminating 2/3 onto mid-lobe ..... 8. *C. prolifera*

5b. Rachis producing single set of flowers.

10a. Lip with 5 lamellae.

11a. Lip with prominent lamellae, outer lamellae broader ..... 9. *C. griffithii*

11b. Lip with median keel fleshy on mid-lobe ..... 10. *C. zhenkangensis*

10b. Lip with 2 or 3 lamellae.

12a. Dorsal sepal more than 1.5 cm.

13a. Lip with crenulate lamellae, mid-lobe suborbicular or cordate, margin erose, 2 crenulate lamellae terminating at base of mid-lobe ..... 11. *C. stricta*

13b. Lip with fimbriate lamellae.

14a. Dorsal sepal ca. 4 cm; lip mid-lobe triangular with fimbriate margin and 3 fimbriate lamellae terminating at tip of mid-lobe ..... 12. *C. barbata*

- 14b. Dorsal sepal nearly 3 cm; lip mid-lobe quadrangular with fimbriate margin and 2 fimbriate lamellae terminating at middle of mid-lobe, lamellae becoming a warty projection toward tip ..... 13. *C. calcicola*
- 12b. Dorsal sepal less than 1.5 cm.
- 15a. Pseudobulbs less than 4 cm; lip mid-lobe nearly orbicular, bilobed, with 3 simple, straight lamellae; flowers white with some yellow ..... 14. *C. leucantha*
- 15b. Pseudobulbs more than 5 cm.
- 16a. Inflorescence slender and arching; lip mid-lobe suborbicular, 3 crenulate or fimbriate lamellae terminating at base of mid-lobe, median keel shorter ..... 15. *C. rigida*
- 16b. Inflorescence erect; lip with fimbriate or crenulate lamellae.
- 17a. Lip with 3 crenulate and fleshy lamellae terminating at base of mid-lobe, median keel shorter ..... 16. *C. pulchella*
- 17b. Lip with 3 fimbriate lamellae ..... 17. *C. sanderae*
- 1b. Inflorescence bare to first flower, or rarely with 1 or a few sterile bracts; flowers opening simultaneously.
- 18a. Pseudobulb with 1 leaf; flowers fleshy; lip  $\pm$  entire without distinct lateral lobes, and 3 smooth lamellae ..... 18. *C. malipoensis*
- 18b. Pseudobulbs with 2 leaves; flowers membranous; lip with distinct lateral lobes, basal part not embracing column, lip lacking transverse fold at base.
- 19a. Inflorescence heteranthous; lip mid-lobe suborbicular, callus with 4 or 5 fimbriate lamellae ..... 19. *C. cristata*
- 19b. Sepals, petals, and lip margins not undulate; lamellae not fimbriate, deeply serrate, deeply crenulate, or lacinate but entire or erose, papillate or verrucose, dentate or crenulate to irregularly cristate.
- 20a. Dorsal sepal forming a hood over column, larger than lateral sepals and petals; lateral sepals and petals not widespread away from column.
- 21a. Lip with mid-lobe orbicular, callus with 3 lamellae, but median lamella shorter ..... 20. *C. assamica*
- 21b. Lip with lateral lobes rounded in front, mid-lobe broadly ovate to cordate, callus with 3 fleshy, undulate lamellae ..... 21. *C. fuscescens*
- 20b. Dorsal sepal erect, away from column; lateral sepals and petals widespread away from column; sepals and petals of ca. equal length.
- 22a. Dorsal sepal and lateral sepals of ca. equal width, petals narrower.
- 23a. Lip with mid-lobe large in relation to overall size of flower, sometimes clawed; lip with margin tending toward being membranous.
- 24a. Lip mid-lobe ovate, margin membranous, callus with 3 lamellae terminating at tip of mid-lobe, median keel ca. 1/2 as long ..... 22. *C. taronensis*
- 24b. Lip mid-lobe oblong-ovate, callus with 5 lamellae, 3 crenate lamellae terminating at base of mid-lobe, 2 further lamellae continue to tip of mid-lobe ..... 23. *C. suaveolens*
- 23b. Lip with mid-lobe not large relative to overall size of flower; lip without evident claw; lip with margin tending toward being fleshy.
- 25a. Inflorescence heteranthous, with arching peduncle and rachis; lip mid-lobe ovate-lanceolate, crenate at sinuses, callus with 3 undulate lamellae terminating at base of mid-lobe ..... 24. *C. flaccida*
- 25b. Inflorescence proteranthous; lip mid-lobe initially with parallel sides then expanding, callus with 3 crenate lamellae terminating at ca. 1/3 way on mid-lobe ..... 25. *C. viscosa*
- 22b. Dorsal sepal, lateral sepals, and petals of ca. equal width; sepals, petals, and lip tending toward being fleshy.
- 26a. Inflorescence hysteranthous.
- 27a. Inflorescence peduncle enclosed with bracts to rachis, lower flowers concealed by bracts; lip with 3 lamellae, median keel short, lateral lamellae terminating on mid-lobe, crenate, thickened ..... 26. *C. occultata*
- 27b. Inflorescence bare; lip with 3 dentate lamellae converging toward base of mid-lobe then diverging and disappearing on mid-lobe, further dentate, curled lamellae appearing on outside of existing lamellae ..... 27. *C. punctulata*
- 26b. Inflorescence proteranthous or synanthous.
- 28a. Inflorescence proteranthous.
- 29a. Inflorescence 3–8-flowered; flowers white; lip with continuous golden yellow eyes on lateral lobes, 2 yellow patches bordered with red on mid-lobe, 3 lamellae terminating at base of mid-lobe ..... 28. *C. nitida*

- 29b. Inflorescence 2- or 3-flowered; flowers creamy yellow; lip with 3 white, crested lamellae terminating at middle of mid-lobe ..... 29. *C. weixiensis*
- 28b. Inflorescence synanthous.
- 30a. Sepals lanceolate; petals narrowly lanceolate; flowers white, 4 large yellow eyes bordered with orange-red on lip; lip with 3 low lamellae terminating at base of mid-lobe, crenulate ..... 30. *C. corymbosa*
- 30b. Sepals subelliptic; petals subrhombic-elliptic; flowers cream-colored with brown veins on lateral lobes and deep yellow lamellae ..... 31. *C. gongshanensis*

**1. *Coelogyne leungiana*** S. Y. Hu, Quart. J. Taiwan Mus. 25: 223. 1972.

单唇贝母兰 dan chun bei mu lan

Rhizome creeping, 2–3 mm in diam., densely covered with scales. Pseudobulbs oblong-ellipsoid, slightly compressed trigonous, 2–4 × 0.8–1.5 cm, with 2 leaves at apex and several sheaths at base; sheaths nearly ovate, 1–2 cm. Leaf blade oblong-elliptic, 5–8 × 1.3–2.3 cm, leathery, apex acute; petiole 6–8 cm. Inflorescence heteranthous, with several equitant cylindrical sheaths at base; sheaths tightly embracing lower half of inflorescence; rachis with 1 or 2 flowers opening successively, apex of rachis enclosed in several white bracts; floral bracts caducous, to 2 cm, papery; pedicel and ovary 6–8 mm. Flowers creamy yellow. Sepals and petals similar, ovate-lanceolate, ca. 20 × 6 mm; lip entire, ovate-lanceolate, ca. 20 × 7 mm, slightly fleshy; callus with 3 longitudinal lamellae extending from base to above middle, median lamella inconspicuous; lamellae purplish red, irregularly dentate. Column slightly arcuate, ca. 14 mm, both sides with narrow wings, ca. 4 mm wide; anther ovoid, ca. 3 mm wide. Fl. Dec.

- Dry and sunny rocks in mountainous areas. Hong Kong.

**2. *Coelogyne ovalis*** Lindley, Edwards's Bot. Reg. 24(Misc.): 91. 1838.

长鳞贝母兰 chang lin bei mu lan

*Coelogyne decora* Wallich ex Voigt; *C. pilosissima* Planchon.

Rhizome creeping, relatively long, ca. 3 mm in diam., internodes 1–2.4 cm. Pseudobulbs 8–13 cm apart on rhizome, not lucid when dried, nearly cylindrical, 3–6 cm × 6–8 mm, with 2 leaves at apex and 2 sheaths at base; sheaths ca. 3 cm, membranous, deciduous when old. Leaf blade lanceolate, oblong-lanceolate, or ovate-lanceolate, 6–12 × 2–3.7 cm, papery, apex acuminate or obtuse; petiole 5–10 cm. Inflorescence heteranthous; peduncle 5–8 cm, base covered with several equitant tubular sheaths; rachis often with 1 or 2 or rarely to 3 or 4 flowers opening successively, apex of rachis enclosed in several white bracts; floral bracts caducous; pedicel and ovary 6–10 mm. Flowers greenish yellow, with purplish red stripes on lip. Sepals oblong-lanceolate, ca. 20 × 5–6 mm. Petals filiform or narrowly linear, nearly as long as sepals, ca. 1 mm wide; lip suboblong-ovate, ca. 20 × 15 mm, 3-lobed; lateral lobes erect, subovate; mid-lobe elliptic, ca. 10 × 9 mm, fimbriate at margin; callus with 3 longitudinal lamellae, of which purple inner 2 extending from its middle or near apex to base of disk, median lamella indistinct, sometimes a further 2 much shorter lamellae

outside others on mid-lobe. Column slightly arching, ca. 13 mm, both sides with wings; wings widened toward column apex, apex obtuse; anther ca. 2.5 mm; rostellum ca. 2 mm. Capsule subobovoid, ca. 2.5 × 1.2 cm; fruiting pedicel ca. 5 mm. Fl. Aug–Nov, fr. next Sep.  $2n = 40, 80$ .

On trees or rocks along rivers or valleys; 1200–3200 m. SE Xizang, W Yunnan [Bhutan, NE India, Myanmar, Nepal, Vietnam].

**3. *Coelogyne fimbriata*** Lindley, Bot. Reg. 11: ad t. 868. 1825.

流苏贝母兰 liu su bei mu lan

*Broughtonia linearis* Wallich ex Lindley; *Coelogyne arunachalensis* H. J. Chowdhery & G. D. Pal; *C. chrysotropis* Schlechter; *C. fimbriata* var. *annamica* Finet ex Gagnepain; *C. fuliginosa* Loddiges ex Hooker; *C. laotica* Gagnepain; *C. longiciliata* Teijsmann & Binnendijk; *C. padangensis* J. J. Smith & Schlechter; *C. pallens* Ridley; *C. primulina* Barretto; *C. xerophyta* Handel-Mazzetti; *Pleione chinensis* Kuntze; *P. fimbriata* (Lindley) Kuntze; *P. fuliginosa* (Loddiges ex Hooker) Kuntze.

Rhizome creeping, slender, 1.5–2.5 mm in diam., internodes 3–7 mm. Pseudobulbs 2–4.5(–8) cm apart on rhizome, not lucid when dried, narrowly ovoid to nearly cylindrical, 2–3(–4.5) cm × 5–15 mm, with 2 leaves at apex and 2 or 3 sheaths at base; sheaths ovate, 1–2 cm, deciduous when old. Leaf blade oblong or oblong-lanceolate, 4–10 × 1–2 cm, papery, apex acute; petiole 1–1.5(–2) cm. Inflorescence heteranthous; peduncle 5–10 cm, base covered with several tubular sheaths; sheaths equitant, closely embracing inflorescence; rachis often with 1 or 2 flowers opening successively, apex of rachis enclosed in several white bracts; floral bracts caducous; pedicel and ovary 1–1.2 cm. Flowers pale yellow or nearly white, only with red stripes on lip. Sepals oblong-lanceolate, 16–20 × 4–7 mm. Petals filiform or narrowly linear, 16–20 × 0.7–1 mm; lip ovate, 13–18 mm, 3-lobed; lateral lobes erect, subovate; mid-lobe nearly elliptic, 5–7 × 5–6 mm, margin fimbriate, apex obtuse; callus with 2 irregularly undulate lamellae extending from base to near apex of mid-lobe and between them at base of callus with 1 short lamella, sometimes a further 2 much shorter lamellae outside others on mid-lobe. Column slightly arcuate, 10–13 mm, both sides with wings; wings widened toward column apex, one side 1–1.3 mm wide, apex irregularly incised or dentate. Capsule obovoid, 1.8–2 × ca. 1 cm; fruiting pedicel 6–7 mm. Fl. Aug–Oct, fr. next Apr–Aug.  $2n = 40, 40 + 2f$ .

On tree trunks or rocks along streamsides, in forests, or at forest margins; 500–2300 m. N Fujian, Guangdong, Guangxi, Hainan, S Jiangxi, SE Xizang, Yunnan [Bhutan, Cambodia, NE India, Indonesia, Laos, NE Malaysia, Myanmar, Nepal, Thailand, Vietnam].

**4. *Coelogyne raizadae*** S. K. Jain & S. Das, Proc. Indian Acad. Sci., B, 87(5): 119. 1978.

三褶贝母兰 san zhe bei mu lan

Pseudobulbs 2–8 cm apart on ascending, stout rhizome, cylindrical or narrowly oblong, tapering above to narrowly ovoid, 3–9.5 × 0.6–1.2 cm, slightly ridged when old, with 2 leaves at apex, sheathed with large bracts at base. Leaf blade narrowly elliptic-oblong, 6–11 × 1.6–2.5 cm, with 5–7 veins, midvein prominent, base narrowing gradually into grooved petiole 1.3–5 cm, margin entire, apex acute-acuminate. Inflorescence hysteroanthous; peduncle erect, greenish, 3–15 cm, slender, smooth, with imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis; rachis slightly zigzag, 2–6-flowered, continuing to develop and producing a further set of sterile bracts at interface between peduncle and rachis and flowers annually. Flowers small, 1–1.2 cm in diam., sepals and petals white or cream-colored, lip white or cream-colored, sometimes tinged with light yellow or light brown at front of lateral lobes, lamellae yellow. Dorsal sepal oblong-lanceolate, 12–15 × 3–5 mm, with 3–5 veins, midvein prominent, apex acute; lateral sepals oblong-lanceolate, 12–15 × 3–4 mm, with 3–5 veins, midvein prominent, somewhat acute. Petals reflexed, filiform, 1-veined, entire, acute; lip 11–15 × 6–7 mm, smooth, grooved at base, 3-lobed; lateral lobes clasping column, narrowly oblong, 8–11 × 2–3 mm, straight on sides, entire, obtuse or somewhat acute; mid-lobe oblong-obcordate, 3–4 mm, margin undulate, crenulate, apex retuse; callus with 3 lamellae, median lamella short, lateral lamellae parallel, extending from base of lip to 2/3 onto mid-lobe, low initially, then rising, abruptly terminating. Column slightly arcuate, 9–13 mm, narrowly winged at tip, entire. Fl. Mar–Jun.

On trees and rocks in lower montane forests; 1800–2200 m. SE Xizang, SW Yunnan [Bhutan, NE India, Laos, Nepal].

**5. *Coelogyne longipes*** Lindley, Fol. Orchid. 5(Coelogyne): 10. 1854.

长柄贝母兰 chang bing bei mu lan

*Pleione longipes* (Lindley) Kuntze.

Rhizome stout, 5–7 mm in diam., with dense, nearly leathery scaly sheaths, with rather short internodes. Pseudobulbs 3–4 cm apart on rhizome, lucid when dried, nearly cylindrical, slightly narrowed toward both ends, 3–7.5 cm × 8–12(–15) mm, with 2 leaves at apex and with several sheaths at base; sheaths bright yellow, lucid. Leaf blade oblong-oblancoleate or suboblong-lanceolate, (10–)15–23 × (1–)1.8–3 cm, base cuneate, apex acuminate; petiole 2.5–6 cm. Inflorescence hysteroanthous; peduncle bare, 7–15 cm, slender, with imbricate, convolute, sheathing, sterile bracts at interface between peduncle and rachis, 5–7-flowered; rachis thickened in lower part; floral bracts almost deciduous at anthesis, ca. 1.8 cm; pedicel and ovary 7–10 mm; rachis continuing to develop and producing a further set of imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis and flowers annually. Flowers white or pale yellow. Sepals ovate-oblong, ca. 10 × 5–6 mm, 5-veined, apex shortly acuminate. Petals narrowly linear or filiform, ca. 10 × 0.3 mm, attenuate toward apex; lip nearly

broadly ovate, ca. 10 × 8–9 mm, 3-lobed; lateral lobes subovate, margins entire; mid-lobe broadly oblong or subelliptic, ca. 6 × 5 mm, margin ± crisped, apex truncate and emarginate; callus with 2 narrow longitudinal lamellae extending from base of lip to near middle of mid-lobe, prominent on mid-lobe only. Column slightly arcuate, 5–6 mm, both sides with broad wings surrounding its apex, to 4 mm wide. Capsule narrowly obovoid-oblong, ca. 2 × 0.6 cm. Fl. Jun, fr. next Mar.  $2n = 40$ .

On trees in forests; 1000–2600 m. SE Xizang, W to SE Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Thailand].

**6. *Coelogyne tsii*** X. H. Jin & H. Li, Ann. Bot. Fenn. 43: 295. 2006.

吉氏贝母兰 ji shi bei mu lan

Rhizome creeping, ca. 3 mm in diam. Pseudobulbs 2–3 cm apart along rhizomes, conic to ovoid, 3–5 × 2–3 cm, when young covered with sheaths. Leaves 2 per pseudobulb, terminal, convolute, oblong, 14–16 × 4–5 cm, leathery, with 5–7 main veins. Inflorescence hysteroanthous, to 50 cm, with imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis; rachis 7–10-flowered; flowers open simultaneously; floral bracts caducous, lanceolate, ca. 2 cm; pedicel and ovary ca. 15 mm; rachis continuing to develop and producing a further set of sterile bracts at interface between peduncle and rachis and flowers annually. Flowers fully open, red with partly black tip on mid-lobe. Dorsal sepal narrowly ovate, ca. 14 × 7 mm, 9-veined, apex acuminate; lateral sepals elliptic, ca. 14 × 6 mm, 5-veined, acuminate. Petals linear, ca. 14 × 3 mm, 3-veined, acuminate; lip attached to column, white, ca. 15 × 9 mm, 3-lobed, without lamellae; lateral lobes erect, suborbicular, entire, edges slightly reflexed outward; claw to mid-lobe ca. 2 × 2 mm; mid-lobe black, rotund, ca. 3 × 6 mm, entire. Column red, ca. 8 mm, winged; pollinia 4, suborbicular. Capsule ca. 2 × 0.8 cm. Fl. Mar.

• On tree trunks in subtropical evergreen forests; ca. 2600 m. W Yunnan.

**7. *Coelogyne schultesii*** S. K. Jain & S. Das, Proc. Indian Acad. Sci., B, 87(5): 121. 1978.

疣鞘贝母兰 you qiao bei mu lan

*Coelogyne longipes* Lindley var. *verruculata* S. C. Chen.

Rhizome 5–7 mm in diam., with dense leathery scaly sheaths; sheaths surrounding young pseudobulb usually with small warts on abaxial surface. Pseudobulbs ovoid to narrowly ovoid, 2.5–6 × 1.5–2 cm, thinly wrinkled when dried, sheathing at base, with 2 leaves at apex. Leaf blade narrowly elliptic or narrowly oblong, 10–16 × 1.3–2.7 cm, leathery, narrowed toward both ends, apex acuminate; petiole 3–7.5 cm. Inflorescence hysteroanthous, 12–45 cm, with imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis; rachis 3–6-flowered, slightly flexuose; floral bracts caducous; pedicel and ovary 1–1.2 cm; rachis continuing to develop and producing a further set of sterile bracts at interface between peduncle and rachis and flowers annually. Flowers dark green-yellow, with brown lip. Sepals narrowly ovate-oblong, 13–15 × ca. 5 mm, 5–7-veined, apex acute. Petals linear or linear-lanceol-

late, 10–11 × ca. 1 mm, 1-veined, attenuate from base to apex; lip nearly ovate-oblong, 10–13 mm, near middle 3-lobed; lateral lobes subovate; mid-lobe nearly broadly oblong, apex undulate and emarginate; callus with 2 longitudinal lamellae 2–2.5 mm. Column arcuate, ca. 11 mm, upper part with suborbicular wings; wings 4–5 mm, ca. 1.5 mm wide on one side. Fl. Jul.  $2n = 40$ .

On trees in forests; ca. 1700 m. S and W Yunnan [Bhutan, NE India, Myanmar, Nepal, Thailand, Vietnam].

**8. *Coelogyne prolifera*** Lindley, Gen. Sp. Orchid. Pl. 40. 1830.

黄绿贝母兰 huang lü bei mu lan

*Coelogyne flavida* J. D. Hooker ex Lindley; *Pleione flavida* (J. D. Hooker ex Lindley) Kuntze; *P. prolifera* (Lindley) Kuntze.

Rhizome slightly rigid, 5–6 mm in diam., densely covered with leathery scaly sheaths, with rather short internodes. Pseudobulbs 2.5–4 cm apart on rhizome, somewhat lucid when dried, narrowly ovoid-oblong, 2.2–3.7 × 1–1.2 cm, with 2 leaves at apex and several sheaths at base. Leaf blade oblong-lanceolate or suboblong, 8–13 × 1.6–2.1 cm, apex acuminate; petiole 2–2.5 cm. Inflorescence hysteroanthous, 10–15 cm and elongated at fruiting, with imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis; rachis 4–6-flowered, lower part often slightly thickened; floral bracts almost deciduous at anthesis, ca. 1.2 cm; pedicel and ovary 8–10 mm; rachis continuing to develop and producing a further set of sterile bracts at interface between peduncle and rachis and flowers annually. Flowers green or yellowish green, ca. 10 mm in diam. Dorsal sepal oblong, 6–7 × ca. 2.8 mm, 3-veined, apex obtuse; lateral sepals ovate-oblong, similar to dorsal sepal in size. Petals linear, slightly narrowed toward base, 5–6 × ca. 0.6 mm, 1-veined; lip subovate, 6–7 × ca. 5 mm, base concave and shallowly saccate, 3-lobed; lateral lobes erect, ovate; mid-lobe nearly elliptic, ca. 4 × 3 mm, margin crisped, apex emarginate; callus with 2 inconspicuous longitudinal lamellae extending from base of mid-lobe and then diminishing. Column almost erect, subclavate, ca. 5 mm, apex narrowly winged and irregularly notched. Capsule oblong, 1.2–1.4 × 0.5–0.6 cm. Fl. Jun.

On trees or rocks in forests; 1100–2200 m. S, SE, and W Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

**9. *Coelogyne griffithii*** J. D. Hooker, Fl. Brit. India 5: 838. 1890.

格力贝母兰 ge li bei mu lan

Rhizome stout, rigid, 4.5–13 cm. Pseudobulbs compressed, linear-oblong, 4–10 × 1.4–3 cm, sulcate, with 2 leaves at apex and several sheaths at base. Leaf blade elliptic-lanceolate, 10–26 × 5–8 cm, leathery, acuminate; petiole ca. 5 cm. Inflorescence hysteroanthous; peduncle green, 5–15 cm, slender, glabrous; rachis zigzag, 10–20 cm; flowers 6–18, opening in succession; imbricate sterile bracts at interface between peduncle and rachis. Flowers light brownish, ca. 2.5 cm in diam. Sepals broadly oblong, 10–13 × ca. 6 mm, glabrous, 3-veined, acuminate. Petals 10–13 × ca. 1 mm, very slender, glabrous, 1-veined, obtuse; lip 3-lobed; lateral lobes rounded with broad

crenulations; mid-lobe narrowly truncate at base, entire, undulate, recurved; callus with 5 prominent, short lamellae, outer ones broader. Column ca. 5 mm, hood narrowly winged with wings serrate. Capsule ellipsoid, ca. 3.5 × 1.5 cm. Fl. Apr, Jun–Aug.

On trees, moss-covered rocks; 1300–1600 m. SE Yunnan [NE India, Myanmar].

**10. *Coelogyne zhenkangensis*** S. C. Chen & K. Y. Lang, Acta Phytotax. Sin. 21: 345. 1983.

镇康贝母兰 zhen kang bei mu lan

Rhizome slightly rigid, 3–5 mm in diam., with scaly sheaths. Pseudobulbs 3–5.5 cm apart on rhizome, cylindrical, 5–7 cm × 5–8 mm, attenuate toward apex, with 2 leaves at apex and several sheaths at base; sheaths oblong-lanceolate to nearly ovate, 2–4.5 cm, abaxially ± covered with small wartlike outgrowths. Leaf blade narrowly oblong-lanceolate or oblong-lanceolate, 8–11 × 2–3.2 cm, base cuneate, apex acuminate; petiole 1.4–2.5 cm. Inflorescence hysteroanthous, nearly as long as leaves, with 6 or 7 imbricate sterile bracts at interface between peduncle and rachis forming a tube 1.5–2 cm; rachis 3- or 4-flowered, slightly flexuose; floral bracts caducous. Sepals linear, ca. 11 × 2 mm, abaxially carinate, 5-veined, apex acuminate. Petals subfiliform or narrowly linear, ca. 11 × 0.7 mm, 3-veined; lip slightly anchor-shaped, ca. 11 mm, concave at base, 3-lobed; lateral lobes on basal sides of lip, oblong, ca. 2 × 1.2 mm, auriculate, irregularly dentate at apex; mid-lobe oblong-obovate, ca. 9 × 2.3 mm, apex subacute; callus with 5 lamellae, median lamella a thickened ridge extending to tip of mid-lobe, 4 lateral lamellae thick veins terminating at base of mid-lobe. Fl. Mar.

• On tree trunks; ca. 2500 m. SW Yunnan (Zhenkang).

**11. *Coelogyne stricta*** (D. Don) Schlechter, Repert. Spec. Nov. Regni Veg. Beih. 4: 184. 1919.

双褶贝母兰 shuang zhe bei mu lan

*Cymbidium strictum* D. Don, Prodr. Fl. Nepal. 35. 1825; *Coelogyne elata* Lindley.

Pseudobulbs sparse, 3–5 cm apart on rhizome, oblong or narrowly ovoid, 7–13 × 2.5–5 cm, with 2 leaves at apex. Leaf blade suboblong, 14–27 × 4–5 cm, leathery; petiole 3–6.5 cm. Inflorescence hysteroanthous, 15–21 cm, with imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis; raceme 7–12 cm, several to 10-flowered; floral bracts caducous. Flowers white, lip with yellow spots, lamellae tinged with red in apical part. Sepals oblong, 15–25 × 4–10 mm, acute; lateral sepals carinate abaxially. Petals narrowly oblong, 14–23 × 4–10 mm, acute; lip nearly ovate-oblong, ca. 22 mm, 3-lobed; mid-lobe irregularly undulate-dentate on margin; callus with 2 longitudinal lamellae extending from base to mid-lobe; lamellae crisped and slightly crenulate. Column slightly arcuate, ca. 14 mm, slightly expanded into a hood with small wings, notched at sides, front 3-lobed and margin irregular. Fl. Apr–Jun.  $2n = 40, 44$ .

On trees along steep riverbanks in lower and upper montane

forests; 1100–2000 m. SE Xizang, Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Vietnam].

**12. *Coelogyne barbata*** Lindley ex Griffith, *Itin. Pl. Khasyah Mts.* 72. 1848.

髯毛贝母兰 ran mao bei mu lan

Rhizome stout, 1–1.3 cm in diam., rigid, densely covered with scaly sheaths, with rather short internodes. Pseudobulbs sparse, usually narrowly ovoid-oblong, 7–11.5 × 1–2.5 cm, with 2 leaves at apex and several sheaths at base; sheaths ovate-lanceolate, 6–9 cm, often fibrously lacerate when old. Leaf blade oblanceolate-oblong or suboblong, 22–28 × 4–6 cm, 5-veined, apex acuminate or shortly cuspidate; petiole (4.5–)6–14 cm. Inflorescence hysteroanthous, 20–26 cm; imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis forming a tube 4–5 cm × 7–8 mm; rachis 9–12-flowered, slightly flexuose; floral bracts deciduous when all flowers opened, broadly ovate-rhombic, slightly conduplicate and cymbiform, 2.5–3 × ca. 2 cm. Flowers white, with brown spots on lip. Sepals narrowly ovate-oblong or suboblong, 33–36 × 8–10 mm, 7–9-veined, acute; lateral sepals often slightly narrower than dorsal sepal. Petals linear-lanceolate, ca. 34 × 2.5 mm, 3-veined; lip subovate, 25–30 × 24–28 mm, 3-lobed; lateral lobes erect, nearly suborbicular; mid-lobe ovate to suboblong, ca. 10 × 7–8 mm, margin long fimbriate; callus with 3 lacerate-fimbriate lamellae extending to middle or near apex of mid-lobe; fimbriate hairs 2 mm. Column arcuate, 19–22 mm, both sides winged; wings widened from base to apex, upper part 2.5–3 mm wide on one side, apex irregularly finely toothed. Capsule obovoid, ca. 4 × 1.5 cm, slightly 3-ridged. Fl. Sep–Oct. *2n* = 40.

On trees in forests or on cliffs; 1100–2900 m. SW Sichuan, SE Xizang, W to SE Yunnan [Bhutan, NE India, Nepal].

**13. *Coelogyne calcicola*** Kerr, *J. Siam Soc., Nat. Hist. Suppl.* 9: 233. 1933.

滇西贝母兰 dian xi bei mu lan

Pseudobulbs 3–4 cm apart on a stout, creeping, sheathed rhizome, ovoid, 5–10 cm, angled, with 2 leaves, enclosed with persistent bracts at base. Leaf blade oblong-lanceolate or oblong-obovate, 13–20 × 4–5.5 cm, abaxially minutely verrucose, many veined, prominent abaxially, somewhat acute; petiole 3.8–6 cm, narrow. Inflorescence hysteroanthous, erect, rigid; peduncle bare, 7–15 cm, with 6 or 7 densely imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis; rachis 5–7 cm; flowers up to 6, opening simultaneously. Flowers spreading, sepals and petals creamy white. Dorsal sepal oblong-lanceolate, ca. 28 × 14 mm, 7–9-veined, somewhat acute; lateral sepals oblong-lanceolate, ca. 27 × 9 mm, 7–9-veined, somewhat acute. Petals linear, ca. 26 × 3.5 mm, 3-veined, obtuse; lip ca. 27 × 25 mm, 3-lobed; lateral lobes small compared with remainder of lip, rounded, front margin fimbriate; mid-lobe quadrangular, ca. 13 × 14 mm, margin long fimbriate except around tip; callus with 2 lamellae extending from base of lip and reaching middle of mid-lobe, fimbriate, toward tip keels broadening into a warty protrusion. Column slightly arched, ca. 17 mm, hood winged. Fl. Apr–May.

On trees; 900–1500 m. SW Yunnan [Laos, Myanmar, Thailand, Vietnam].

This plant was first reported from Yunnan by Seidenfaden (*Dansk Bot. Ark.* 29(4): 71. 1975), based on *Forrest 18715* (K). It is similar to *Coelogyne sanderae* in having a fimbriate-margined lip and three fimbriate-hairy lamellae. But in the specimen collected from Yunnan, the central lamella is very short (3–4 mm), and the lateral two lamellae are almost not fimbriate when extending to mid-lobe.

**14. *Coelogyne leucantha*** W. W. Smith, *Notes Roy. Bot. Gard. Edinburgh* 13: 198. 1921.

白花贝母兰 bai hua bei mu lan

*Coelogyne leucantha* var. *heterophylla* Tang & F. T. Wang.

Rhizome rigid, 5–7 mm in diam., densely covered with lucid, scaly sheaths, with rather short internodes. Pseudobulbs 1–2 cm apart from each other, ovoid-oblong, 1.5–3(–5) cm × 8–15 mm, with 2 leaves at apex and several sheaths at base; sheaths ovate to lanceolate, 2.5–6.5 cm, lucid. Leaf blade oblanceolate to oblong-lanceolate, (5–)10–15 × 1.1–3 cm, base cuneate, apex subacuminate; petiole (1.5–)4–9.5 cm. Inflorescence hysteroanthous, 15–20 cm, with imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis forming a tube 1.5–3 cm; rachis 3–11-flowered, thickened in lower part; floral bracts caducous; pedicel and ovary ca. 10 mm. Flowers white, slightly spotted with yellow on lip. Sepals suboblong, 13–18(–25) × 3.5–4.5 mm, 5-veined, apex acuminate. Petals filiform, nearly as long as sepals, ca. 0.7 mm wide, 1-veined, apex acute; lip nearly ovate-oblong, 13–17(–24) × 7–11 mm, 3-lobed; lateral lobes erect, obtuse; mid-lobe nearly elliptic, 6–10 × 4–7 mm, margin irregularly dentate; callus with 3 longitudinal lamellae extending from base to ca. middle of mid-lobe, median lamella shorter; lamellae straight, crisped-crenate. Column suberect, 10–14(–21) mm, both sides winged; wings very narrow in lower part, widened toward upper part, ca. 0.7 mm wide on one side. Capsule obovoid-oblong, trigonous, 1.6–1.8 × 0.7–0.9 cm. Fl. May–Jul, fr. Sep–Dec.

On tree trunks in forests or rocks along valleys; 1500–2600 m. SW Sichuan, NW, S, and W Yunnan [N Myanmar].

**15. *Coelogyne rigida*** E. C. Parish & H. G. Reichenbach, *Trans. Linn. Soc. London* 30: 146. 1874.

挺茎贝母兰 ting jing bei mu lan

Pseudobulbs on stout, creeping, heavily sheathed rhizome, 3–5 cm apart, suboblong or oblong-cylindric, to 9 × ca. 1.3 cm, somewhat attenuate toward apex, with 2 leaves at apex. Leaf blade suboblong-oblong-lanceolate, 27–30 × 4.6–5 cm, leathery, base cuneate, apex acuminate; petiole 4–6 cm. Inflorescence hysteroanthous, ca. 20 cm, with 10 imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis forming a tube 3.5–4 cm; rachis 8-flowered, slightly flexuose; floral bracts not completely deciduous at anthesis, ovate-lanceolate, 1.8–1.9 cm; pedicel and ovary 7–8 mm. Flowers small. Dorsal sepal suboblong-elliptic, 8–10 × 4–5 mm, 3-veined; lateral sepals suboblong, 9–11 mm, slightly narrower than dorsal sepal, 3-veined. Petals linear, ca. 9 × 1 mm, 1-veined; lip subovate, 8–10 mm, 3-lobed; lateral lobes erect; mid-lobe nearly elliptic, 3–

4 mm, margin somewhat undulate, apex emarginate; callus with 3 longitudinal lamellae; lamellae conspicuously crisped, extending to mid-lobe, median lamella shorter. Column slightly arcuate, 5–6 mm, both sides winged; wings below middle very narrow, upper part slightly wider, ca. 0.5 mm wide on one side. Fl. Jun–Jul.

On trees in forests in limestone areas; 700–800 m. S Yunnan [NE India, Myanmar, Thailand, Vietnam].

**16. *Coelogyne pulchella*** Rolfe, Bull. Misc. Inform. Kew 1898: 194. 1898.

美丽贝母兰 mei li bei mu lan

Rhizome stout, creeping, sheathed. Pseudobulbs 2–3 cm apart on rhizome, dark green, ovoid to ovoid-oblong, 4–7 × 2–3 cm, rather drawn out in upper part with several obscure angles becoming pronounced with age, with 2 leaves at apex. Leaves oblong-lanceolate or elliptic, 13–17 × 2.5–5 cm, subleathery, with 7 veins prominent abaxially, apex acute; petiole ca. 4 cm, grooved. Inflorescence hysteroanthous; peduncle bare, erect, stiff, 10–11 cm, with imbricate bracts at interface of peduncle and rachis; rachis 14–15 cm, slender, 4–12-flowered; flowers closely spaced, opening simultaneously; floral bracts deciduous. Flowers 2.5–3 cm in diam., pure white with large yellowish brown blotch on disk that becomes darker on lamellae and a smaller blotch at extreme base of lip. Sepals ovate, 12.5–15 × ca. 7.5 mm, acute. Petals linear, 12.5–15 × 2–3 mm, subacute; lip 12.5–15 mm, 3-lobed; lateral lobes erect, subovate, rounded at tip, front margin nearly 5 mm wide; mid-lobe much larger with 2 rounded, crenulate, undulate lobes at apex; callus with 3 fleshy crenulate lamellae, extending from base of lip to base of mid-lobe, median keel short. Column incurved, flattened on front, less than 5 mm, tip denticulate. Fl. Mar, Sep–Oct.

On trees. Yunnan [Myanmar].

**17. *Coelogyne sanderae*** O'Brien, Gard. Chron., ser. 3, 13: 360. 1893.

撕裂贝母兰 si lie bei mu lan

*Coelogyne darlacensis* Gagnepain; *C. ridleyi* Gagnepain.

Rhizome stout, 6–8 mm in diam., covered with scaly sheaths, with rather short internodes. Pseudobulbs 1.5–3 cm apart on rhizome, yellowish when dried, lucid, usually narrowly ovoid to narrowly ovoid-oblong, 3–8 × 1–2 cm, with 2 leaves at apex and several sheaths at base. Leaf blade oblong to oblong-lanceolate, 9–20 × 2.8–4.6 cm, apex acuminate; petiole 1.5–4 cm. Inflorescence hysteroanthous, 20–25 cm, somewhat stout, with 10 imbricate, convolute, sheathing sterile bracts at interface between peduncle and rachis forming a tube 2.5–4.5 × 0.6–0.8 cm; rachis 4–6-flowered; floral bracts caducous; pedicel and ovary 15–20 mm. Flowers white, with yellow spots on lip. Sepals oblong or oblong-lanceolate, 26–30 × 8–10 mm, apex acuminate. Petals linear, ca. 28 × 2 mm; lip subovate, 25–29 × 20–24 mm, 3-lobed; lateral lobes erect, nearly suborbicular, margins ± dentate or shortly fimbriate; mid-lobe nearly broadly ovate or oblong, 10–13 × 9–11 mm, margin irregularly dentate or shortly fimbriate; callus with 3 lacerate-fimbriate brownish

lamellae extending to mid-lobe, median lamella slightly shorter. Column arcuate, ca. 17 mm, both sides winged; wings widened from base to apex, upper part ca. 1.5 mm wide on one side, apex obtuse. Capsule nearly narrowly obovoid, trigonous, 3.3–3.6 × ca. 1.5 cm. Fl. Mar–Apr, fr. Jun.

On tree trunks or rocks at forest margins; 1000–2300 m. S Yunnan [Myanmar, Vietnam].

**18. *Coelogyne malipoensis*** Z. H. Tsi, Bull. Bot. Res., Harbin 15: 43. 1995.

麻栗坡贝母兰 ma li po bei mu lan

Rhizome stout, 5–6 mm in diam., rigid, with dense, brown, scaly sheaths. Pseudobulbs 1.2–1.8 cm apart on rhizome, not lucid, narrowly oblong, slightly narrowed toward apex, 3.5–4 cm × 8–11 mm, longitudinally channeled when dried, with 1 leaf at apex, sheathing at base; sheaths 3–3.5 cm, later deciduous. Leaf blade elliptic, 9–15 × 4–5.2 cm, thickly leathery, apex shortly acuminate; petiole 2–8 cm. Inflorescence initially synanthous becoming hysteroanthous, pseudobulb and inflorescence basally embraced by sheaths at anthesis, but leaves completely stretching out, 15–22 cm; rachis 4.5–10.5 cm, 3- or 4-flowered, base with 1 amplexicaul sterile bract; floral bracts deciduous, narrowly oblong, ± cymbiform, 1.5–1.7 cm, papery; pedicel and ovary 10–15 mm. Flowers ca. 2.5 cm in diam., with sepals and petals white, lip white with yellow on mid-lobe. Sepals narrowly ovate or subovate-lanceolate, 18–20 × 6–7 mm, 5-veined, apex acuminate. Petals ovate, 14–15 × 5–6 mm; lip suboblong-obovate, 18–20 × ca. 9 mm, apex subtruncate or obtuse-rounded; callus with 3 longitudinal lamellae extending from base of lip to above middle. Column 8–10 mm, both sides winged; wings dilated at apex, to 5 mm wide, apex truncate. Fl. Nov–Dec.

Rocky slopes in limestone areas; ca. 1400 m. SE Yunnan [Vietnam].

**19. *Coelogyne cristata*** Lindley, Coll. Bot. ad t. 33. 1821.

贝母兰 bei mu lan

*Cymbidium speciosissimum* D. Don.

Rhizome somewhat rigid, 4–6 mm in diam., branched, with dense, lucid, leathery, scaly sheaths. Pseudobulbs 1.5–3 cm apart on rhizome, oblong or ovoid, (1–)2.5–6 × (0.5–)1–1.7 cm, corrugate and deeply channeled when dried, with 2 leaves at apex and several sheaths at base; sheaths ovate or ovate-lanceolate, 2–6 cm, leathery. Leaf blade linear-lanceolate, (5–)10–17 × (0.4–)0.7–1.9 cm, papery, base attenuate to inconspicuous petiole, apex long acuminate. Inflorescence heteranthous, 8–12 cm, basal half embraced in sheaths; raceme 5–7 cm, 2–10-flowered; floral bracts not deciduous at anthesis, ovate-lanceolate, ± cymbiform, 2.5–3.5 cm, papery; pedicel and ovary 20–25 mm. Flowers white, rather large. Sepals lanceolate or oblong-lanceolate, 30–40 × 10–15 mm, abaxially ± carinate, apex acute. Petals similar to sepals, 9–11 mm wide; lip ovate, concave, nearly as long as sepals, 3-lobed; lateral lobes erect, subovate, nearly entire; mid-lobe broadly obovate or suboblate, 12–15 mm, margin nearly entire, apex obtuse or emarginate; callus with 5 fimbriate lamellae extending from base of lip to base of mid-lobe, 2 inner

lateral lamellae continuing to apex of mid-lobe, elevated, plate-like, and crenulate, median lamella continuing as a prominent vein. Column slightly arcuate, 20–30 mm, both sides winged; wings widened from base to apex, ca. 1.5 mm wide on one side in upper part, apex emarginate or subtruncate. Fl. May.  $2n = 40$ .

On large rocks along forest margins; 1700–1800 m. S Xizang [Bhutan, NE India, Nepal].

**20. *Coelogyne assamica*** Linden & H. G. Reichenbach, Berliner Allg. Gartenzeitung 25: 403. 1857.

云南贝母兰 yun nan bei mu lan

*Coelogyne annamensis* Rolfe; *C. dalatensis* Gagnepain; *C. fuscescens* Lindley var. *assamica* (Linden & H. G. Reichenbach) Pfitzer & Kraenzlin; *C. saigonensis* Gagnepain; *C. siamensis* Rolfe; *Cymbidium evrardii* Guillaumin.

Pseudobulbs close together on a sturdy rhizome, spindle-shaped, 6–7 cm, 1.5–2 cm in diam. at middle, with 2 leaves. Leaf blade elliptic-lanceolate, 16–25 × 3.5–6 cm, with 3–5 veins, prominent abaxially, with petiole ca. 3 cm, barely attenuate, acute. Inflorescence proteranthous; peduncle enclosed with convolute bracts at base, 10–12 cm; rachis arching, slightly zigzag, 19–25 cm, thickened, becoming slender; flowers usually 8, opening simultaneously; floral bracts deciduous. Flowers pale yellow, more than 7 cm in diam., lip darker yellow with intricate brown veins on lateral lobes, veins on mid-lobe orange-brown. Dorsal sepal oblong, ca. 32 × 9 mm, with 7–9 branched veins, acuminate to slightly acute; lateral sepals linear, falcate, ca. 28 × 6 mm, with branched veins, acute. Petals narrowly linear, ca. 30 × 2.5 mm, with 3 branched veins; lip obovate with deep recess on each side, ca. 26 × 12 mm, conspicuously veined, 3-lobed; lateral lobes not spreading, triangular; mid-lobe somewhat orbicular, ca. 12 × 13 mm, shortly clawed, acute or subacute; callus with 3 lamellae but median lamella shorter. Column arcuate, clavate, ca. 20 mm, tip ca. 6 mm in diam., acuminate. Fl. Jan.

On trees in riverine forests; ca. 700 m. NW Yunnan [Bhutan, NE India, Laos, Myanmar, Thailand, Vietnam].

**21. *Coelogyne fuscescens*** Lindley, Gen. Sp. Orchid. Pl. 41. 1830.

褐唇贝母兰 he chun bei mu lan

*Coelogyne brunnea* Lindley; *C. cynoches* E. C. Parish & H. G. Reichenbach.

Rhizome slightly stout, 5–6 mm in diam., with dense brown sheaths. Pseudobulbs rather clustered on rhizome, 6–7 mm apart, not lucid when dried, suboblong, slightly narrowed toward both ends, 2–3 cm × 5–7 mm, with 2 leaves at apex, sheathing at base; sheaths brown, 1.5–2 cm. Leaf blade oblong-ob lanceolate, 11.5–13.5 × 1.3–2 cm, leathery, contracted at base into a petiole 1–2 cm, apex obtuse or acute. Inflorescence proteranthous, rarely synanthous, 12–14 cm, initially enclosed in sheaths at base; rachis 4–6 cm, usually 2-flowered; floral bracts often embracing pedicel and ovary, oblong-lanceolate, ± cymbiform, 2–2.5 cm, membranous; pedicel and ovary 2–2.5 cm. Flowers ca. 4 cm in diam. Sepals suboblong, 25–28 × 7–9 mm, 5-veined, apex acuminate or shortly cuspidate. Petals line-

ar, 22–24 × 2.5–3 mm; lip ovate, 25–28 mm, concave at base, 3-lobed; lateral lobes subovate, nearly entire; mid-lobe ovate, 10–13 × 6–7 mm; callus with 3 fleshy, undulate longitudinal lamellae extending to base of mid-lobe, then continuing as branched veins converging at tip of lip. Column ca. 20 mm, both sides with narrow wings. Fl. Jun.  $2n = 40$ .

On rocks; ca. 1300 m. S Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

**22. *Coelogyne taronensis*** Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 254. 1922.

高山贝母兰 gao shan bei mu lan

Pseudobulbs close together on short, creeping rhizome, 2–4 cm, longitudinally wrinkled, rounded at base, base enclosed with bracts that become fibrous but not adherent, with 2 leaves at apex. Leaf blade linear-lanceolate, 7–18 × 1.2–3.3 cm, with 7 major veins and further 4–7 minor veins, base with short indistinct petiole, apex acute or obtuse. Inflorescence synanthous; peduncle to 7 cm, enclosed in 3 or 4 straw-colored bracts; rachis to 10 cm; flowers 1–3, opening in succession; floral bracts deciduous. Flowers mainly yellow but spotted in form of brown holes or slits. Dorsal sepal oblong-lanceolate, 35–40 × 10–13 mm, 11-veined, acute; lateral sepals oblique, oblong-lanceolate, 35–40 × 10–13 mm, 11-veined, acute. Petals oblique, lanceolate, ca. 35 × 5–6 mm, base saccate; lip 3-lobed; lateral lobes narrow, front rounded; mid-lobe ovate, margin membranous, veined, apex acute; callus with 3 lamellae extending from base of lip, lateral lamellae extending to tip of mid-lobe, median lamella ca. 1/2 as long. Column slightly arcuate, middle section thickened, expanding to form winged hood, tip rounded, denticulate. Fl. Jul.

• On trees in montane forests; 2400–3500 m. W Yunnan.

**23. *Coelogyne suaveolens*** (Lindley) J. D. Hooker, Fl. Brit. India 5: 832. 1890.

疏茎贝母兰 shu jing bei mu lan

*Pholidota suaveolens* Lindley, Gard. Chron. 1856: 372. 1856; *Pleione suaveolens* (Lindley) Kuntze.

Rhizome stout, to 1 cm in diam., with dense, brown, scaly sheaths. Pseudobulbs ca. 6 cm apart on rhizome, somewhat lucid when dried, narrowly ovoid or linear-ovoid, 5.7–7 × ca. 1.5 cm, embraced by large sheaths (deciduous when old), with 2 leaves at apex. Leaf blade oblanceolate or oblong-ob lanceolate, 30–38 × 5.5–6 cm, thickly papery, base contracted into a petiole 9–11 cm, apex acuminate. Inflorescence synanthous, ca. 20 cm, enclosed in sheaths initially except flowering part; rachis flexuous, ca. 10 cm, usually more than 10-flowered; floral bracts deciduous, oblong-ovate, ± cymbiform, ca. 2 cm, papery; pedicel and ovary 15–17 mm. Flowers white, with yellow spots on lip. Sepals suboblong, ca. 12 × 4–4.5 mm, 5-veined, apex acuminate. Petals oblong-lanceolate or narrowly ovate-oblong, ca. 12 × 3.5 mm; lip suboblong, ca. 1 cm, near or above middle contracted into hypochile and epichile or slightly 3-lobed; lateral lobes very small or inconspicuous; mid-lobe oblong-ovate; callus with 4 or 5 longitudinal lamellae, 3 lamellae extending from base of lip to base of mid-lobe, further 2 crenate lamellae

on outside of existing lamellae extending from base of mid-lobe to tip of mid-lobe. Column 5–6 mm, both sides narrowly winged. Fl. May.

On rocks in evergreen broad-leaved forests; ca. 600 m. S Yunnan [NE India, Thailand].

**24. *Coelogyne flaccida*** Lindley, Gen. Sp. Orchid. Pl. 39. 1830.

栗鳞贝母兰 li lin bei mu lan

*Coelogyne esquirolii* Schlechter; *C. lactea* H. G. Reichenbach; *Pleione flaccida* (Lindley) Kuntze.

Rhizome stout, 7–8 mm in diam., rigid, with dense, purplish brown, leathery sheaths. Pseudobulbs often 2–3 cm apart on rhizome, bright yellow when dried, oblong or nearly cylindrical, 6–12.5 × 1.5–3.2 cm, somewhat attenuate toward apex, with 2 leaves at apex and several sheaths at base; sheaths 5–8 × 2.5–3 cm, leathery, abaxially mottled with purplish brown particularly in central part and basal half. Leaf blade oblong-lanceolate to elliptic-lanceolate, 13–19 × 3–4.5 cm, leathery, apex subacuminate or shortly cuspidate; petiole 4.5–8 cm. Inflorescence heteranthous, 16–32 cm, basal half enclosed in sheaths; rachis 11–21 cm, sparsely 8–10-flowered; floral bracts caducous, obovate-elliptic, ca. 2.5 cm; pedicel and ovary 17–20 mm. Flowers pale yellow to white, with yellow and pale reddish brown spots on lip. Dorsal sepal oblong or oblong-lanceolate, 21–24 × 6–7 mm; lateral sepals slightly narrower, abaxially ± carinate. Petals linear-lanceolate, 20–22 × 2–3 mm; lip subovate, 16–20 × ca. 15 mm, 3-lobed; lateral lobes erect, subovate, apex obtuse; mid-lobe suboblong, 6–7 × ca. 4 mm, margin ± crisped; callus with 3 crisped-incised lamellae extending from base of lip to basal half of mid-lobe. Column slightly arcuate, ca. 13 mm, both sides with wings; wings widened toward column apex, ca. 1.5 mm wide on one side in upper part. Fl. Mar.  $2n = 40$ .

On trees in forests; 1600–1700 m. NW Guangxi, S Guizhou, S and W Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

**25. *Coelogyne viscosa*** H. G. Reichenbach, Allg. Gartenzeitung 24: 218. 1856.

禾叶贝母兰 he ye bei mu lan

*Coelogyne graminifolia* E. C. Parish & H. G. Reichenbach; *Pleione graminifolia* (E. C. Parish & H. G. Reichenbach) Kuntze; *P. viscosa* (H. G. Reichenbach) Kuntze.

Rhizome stout, 6–8 mm in diam., with dense, leathery, shiny sheaths. Pseudobulbs 1–1.5 cm apart on rhizome, often bright yellow when dried, ovoid or terete-ovoid, 5–6 × 1–3.5 cm, vernicose, with 2 leaves at apex and several sheaths at base; sheaths abaxially mottled with purplish brown, 4–7 cm, leathery. Leaf blade linear, grasslike, 30–40 × 0.8–1.2 cm, leathery, base slightly contracted, without distinct petiole, apex obtuse. Inflorescence proteranthous, compressed cylindrical, relatively short, basal 2/3 embraced by sheaths; rachis 2–4-flowered; floral bracts caducous; pedicel and ovary ca. 15 mm. Flowers white, tinged with brown and with yellow spots on lip. Dorsal sepal oblong, ca. 23 × 7 mm, apex obtuse; lateral sepals slightly narrower, ca. 5 mm wide, abaxially slightly keeled. Petals simi-

lar to lateral sepals; lip ovate, ca. 20 × 15 mm, 3-lobed; lateral lobes erect, nearly subovate, apex obtuse; mid-lobe subovate, 7–8 × ca. 5 mm, apex acuminate; callus with 3 crisped-incised, longitudinal lamellae, extending from base of lip to ca. 1/3 way on mid-lobe, median lamella slightly shorter. Column slightly arching, ca. 12 mm, winged on both sides; wings widened toward column apex, ca. 1.5 mm wide on one side in upper part. Capsule suboblong-ovoid or narrowly obovoid-oblong, 3.2–3.8 × 0.7–1.1 cm; fruiting pedicel 9–12 mm. Fl. Sep–Nov.  $2n = 40$ .

On rocks in forests; 700–2000 m. S and SW Yunnan [NE India, Laos, Malaysia, Myanmar, Thailand, Vietnam].

**26. *Coelogyne occultata*** J. D. Hooker, Fl. Brit. India 5: 832. 1890.

卵叶贝母兰 luan ye bei mu lan

*Pleione occultata* (J. D. Hooker) Kuntze.

Rhizome stout, 4–5 mm in diam., with dense, brown, scaly sheaths. Pseudobulbs 2–5 cm apart on rhizome, obliquely attached or almost parallel to rhizome, dark brown and grooved when dried, slightly lucid, suboblong-obovoid or subrhombic, 1.5–5 cm × 8–15 mm, with 2 leaves at apex and 1 or 2 ovate sheaths at base. Leaf blade ovate or ovate-elliptic, (1.5–)3–6 × 1–2.5 cm, leathery, base broadly truncate or subrounded, apex acute or obtuse; petiole 4–9 mm, stout. Inflorescence hysteroanthous, usually rather short, 3–6 cm, embraced by sheaths at anthesis except inflorescence; rachis often 2- or 3-flowered, rarely a solitary flower; floral bracts caducous, linear-lanceolate, 2–3 cm; pedicel and ovary ca. 15 mm. Flowers white, with purple veins and 2 brownish yellow eyelike blotches. Sepals lanceolate or oblong-lanceolate, 30–33 × 6–10 mm; lateral sepals slightly shorter and narrower than dorsal sepal. Petals sublinear-oblong-ovate or narrowly elliptic-oblong-ovate, 30–33 × 3.5–4 mm; lip ovate, 20–25 × 14–16 mm, 3-lobed; lateral lobes erect, nearly suborbicular; mid-lobe ovate, ca. 10 × 6–7 mm, apex acuminate; callus with 2(or 3) irregularly crenulate lamellae extending from base of lip to mid-lobe. Column slightly arcuate, 15–18 mm, both sides winged; wings widened from base to apex, upper part ca. 2 mm wide on one side. Capsule suboblong, ca. 2 × 0.7–0.8 cm, ± 3-ridged. Fl. Jun–Jul, fr. Nov.  $2n = 38, 40, 76$ .

On tree trunks in forests or rocks along valleys; 1300–3000 m. S and SE Xizang, W Yunnan [Bhutan, NE India, Myanmar].

**27. *Coelogyne punctulata*** Lindley, Coll. Bot. ad t. 33. 1821.

狭瓣贝母兰 xia ban bei mu lan

*Coelogyne brevifolia* Lindley; *C. goweri* H. G. Reichenbach; *C. nitida* J. D. Hooker (1890), not (Wallich ex D. Don) Lindley (1830); *C. ocellata* Lindley; *C. ocellata* var. *boddaertiana* H. G. Reichenbach; *C. ocellata* var. *maxima* H. G. Reichenbach; *C. punctulata* var. *hysterantha* Tang & F. T. Wang; *Cymbidium nitidum* Roxburgh (1832), not Wallich ex D. Don (1825); *Pleione goweri* (H. G. Reichenbach) Kuntze; *P. nitida* Kuntze.

Rhizome rigid, stout, 5–7 mm in diam., with brown scaly sheaths. Pseudobulbs rather contiguous, less than 1 cm apart on rhizome, bright yellow when dried, oblong or narrowly ovoid-oblong, 2.5–4 cm × 7–13 mm, with 2 leaves at apex and several

sheaths at base; sheaths ovate-oblong, 2–5 cm, papery. Leaf blade lanceolate or narrowly oblong-lanceolate, 8–14 × 1.3–2.5 cm, adaxially often with dense raised transverse veinlets, apex acuminate; petiole 2–4 cm. Inflorescence hysteranthous, slightly recurved, 8–15 cm; rachis 2–4-flowered; floral bracts caducous, suboblong-lanceolate, 2–3.5 cm; pedicel and ovary 13–17 mm. Flowers white, with deep-colored eyelike blotches on lip. Sepals lanceolate or oblong-lanceolate, 18–20 × 4–5 mm, apex acute. Petals linear, 18–20 × ca. 1.5 mm; lip ovate, 16–18 × ca. 10 mm, 3-lobed; lateral lobes erect, nearly suborbicular, apex rounded; mid-lobe ovate-lanceolate, ca. 7 × 5–6 mm, with 2 longitudinal, dentate lamellae extending from base of lip to mid-lobe and a short median lamella between them. Column slightly arcuate, ca. 12 mm, both sides winged; wings widened from base to apex, upper part 1.5–2 mm wide on one side, apex subtruncate or obtuse. Capsule obovoid-oblong, ca. 2.2 × 0.8–0.9 cm. Fl. Nov, fr. next Apr.  $2n = 38$ .

On trees or rocks in forests; 1300–2900 m. S and SE Xizang, W Yunnan [Bhutan, NE India, Myanmar, Nepal].

**28. *Coelogyne nitida*** (Wallich ex D. Don) Lindley, Gen. Sp. Orchid Pl. 40. 1830.

密茎贝母兰 mi jing bei mu lan

*Cymbidium nitidum* Wallich ex D. Don, Prodr. Fl. Nepal. 35. 1825; *Coelogyne ochracea* Lindley; *C. ochracea* subsp. *conferta* E. C. Parish & H. G. Reichenbach; *C. punctulata* Lindley var. *conferta* (E. C. Parish & H. G. Reichenbach) Tang & F. T. Wang; *Pleione ochracea* (Lindley) Kuntze.

Rhizome stout, rigid, with scaly sheaths. Pseudobulbs contiguous, yellowish brown and strongly wrinkled when dried, lucid, oblong-ellipsoid, 1.5–3 × 1–1.5 cm, deeply sulcate, sheathing at base, with 2 leaves at apex. Leaf blade narrowly elliptic, ca. 7 × 1.5 cm, leathery, base attenuate into petiole ca. 2 cm, apex acuminate. Inflorescence proteranthous, ca. 6 cm, lower part enclosed in leathery sheaths; rachis 2- or 3-flowered; floral bracts caducous; pedicel and ovary ca. 16 mm. Flowers white or slightly tinged yellowish, lip with 2 eyelike colored blotches. Sepals oblong, 17–19 × 4–5 mm, apex acuminate. Petals nearly broadly linear or narrowly oblong, ca. 15 × 2–3 mm; lip ovate, ca. 15 × 10 mm, 3-lobed; lateral lobes erect, subobovate; mid-lobe nearly elliptic, ca. 5 × 4 mm, with 3 longitudinal inconspicuous lamellae extending from base of lip, lateral lamellae thick, median lamella inconspicuous. Column slightly arcuate, ca. 12 mm, both sides winged; wings widened from base to apex, upper side ca. 1 mm wide on one side. Fl. Mar.  $2n = 40$ .

On trees in forests in limestone areas; ca. 3100 m. NW, S, and W Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

**29. *Coelogyne weixiensis*** X. H. Jin, Ann. Bot. Fenn. 42: 135. 2005.

维西贝母兰 wei xi bei mu lan

Rhizome short, ca. 2 mm in diam. Pseudobulbs close together, less than 15 mm apart along rhizomes, conic to cylindrical, when young covered by sheaths, 3–5 × 1–1.5 cm. Leaves 2 per pseudobulb, terminal, convolute, oblanceolate, 20–30 × 2.5–3 cm, leathery. Inflorescence proteranthous, erect, ca. 15 cm, 2- or 3-flowered; floral bracts caducous, linear, ca. 2 cm.

Flowers opening simultaneously, spreading, creamy yellow; pedicel and ovary ca. 2 cm. Dorsal sepal elliptic, ca. 35 × 17 mm, 7-veined, apex acute; lateral sepals tinged with deep yellow, lanceolate, ca. 35 × 12 mm, 7-veined, base oblique, apex acuminate, mucronate. Petals linear, ca. 35 × 6 mm, 5-veined, apex acuminate; lip firmly attached to column, 3-lobed; lateral lobes erect, suborbicular, dentate, veins brown, sometimes with 2 eyelike blots at base; 3 crested lamellae extending from base of lip with lateral lamellae terminating at middle of mid-lobe and median lamella extending toward tip of mid-lobe. Column ca. 20 mm, with 2 yellow wings; pollinia 4, suborbicular. Capsule not seen. Fl. May–Jun.

• On tree trunks in subtropical evergreen forests; 2600–3000 m. W Yunnan.

**30. *Coelogyne corymbosa*** Lindley, Fol. Orchid. 5(Coelogyne): 7. 1854.

眼斑贝母兰 yan ban bei mu lan

*Pleione corymbosa* (Lindley) Kuntze.

Rhizome somewhat rigid, 3–4 mm in diam., with dense, brown, scaly sheaths. Pseudobulbs rather dense, less than 1 cm apart from each other, bright yellow or brownish yellow and strongly wrinkled when dried, oblong-ovoid or nearly rhombic-oblong, (1–)2–4.5 cm × 6–13 mm, with 2 leaves at apex and several sheaths at base; sheaths lucid, ovate, 1.5–2.5 cm, papery. Leaf blade oblong-oblancheolate to obovate-oblong, 4.5–15 × 1–3 cm, subleathery, adaxially with raised transverse veinlets, apex often acuminate; petiole 1–2 cm. Inflorescence proteranthous to synanthous, 7–15 cm (elongated when fruiting), embraced by sheaths below middle; raceme 2- or 3(or 4)-flowered; floral bracts caducous. Flowers white or slightly tinged with yellowish green, with 4 yellow eyelike blotches surrounded by reddish orange. Sepals oblong-lanceolate, 18–22(–35) × 7–8 mm, apex acute or obtuse; lateral sepals somewhat narrower than dorsal sepal. Petals linear-lanceolate, 18–22 × 2.5–4 mm; lip subovate, 16–28 × 12–25 mm, 3-lobed; lateral lobes erect, suborbicular or nearly subovate; mid-lobe ovate or ovate-lanceolate, 6–9 mm; 2 or 3 low lamellae extending from base to mid-lobe. Column slightly arcuate, 10–20 mm, both sides winged; wings widened from base to apex, upper side ca. 1.7 mm wide on one side, apex obtuse. Capsule subobovoid, slightly trigonous, 2.2–5 × 0.9–1.3 cm. Fl. May–Jul, fr. next Jul–Nov.  $2n = 38, 40$ .

On trees at forest margins or on humid cliffs; 1300–3500 m. S and SE Xizang, S and W Yunnan [Bhutan, NE India, Myanmar, Nepal].

**31. *Coelogyne gongshanensis*** H. Li ex S. C. Chen, Fl. Reipubl. Popularis Sin. 18: 412. 1999.

贡山贝母兰 gong shan bei mu lan

Rhizome short, stout, densely covered with broken brown sheaths. Pseudobulbs nearly tufted, subobovoid-globose to subellipsoid, 1.3–1.8 cm × 7–9 mm, ± narrowed at base, grooved or wrinkled when dried, sheathing at base, with 2 leaves at apex. Leaf blade narrowly obovate-lanceolate, oblong-lanceolate, or occasionally subelliptic, (4–)7–13 × 1–2(–3) cm, leathery, base contracted into a short petiole, apex acuminate. Inflorescence synanthous, 8–12.5 cm, lower part enclosed in scaly sheaths; rachis 2–4-flowered; floral bracts caducous; pedicel and ovary 12–22 mm. Flowers creamy yellow. Sepals subelliptic, 32–35 × ca. 15 mm, apex acute; lateral sepals slightly narrower than dorsal sepal. Petals subrhombic-elliptic, 32–35 × ca. 17 mm; lip ca. 22 mm, 3-lobed; lateral lobes nearly suborbicular, entire, with brown veins; mid-lobe ovate, ca. 8 × 6 mm; callus with 3 deep yellow lamellae, lateral lamellae extending to middle of mid-lobe, median keel shorter. Column ca. 13 mm, both sides winged; wings ca. 1.5 mm wide on one side in upper part. Fl. May.

● On branches in thickets or *Picea* forests, on snow not melted at flowering time; 2800–3200 m. NW Yunnan.

