

170. VANDA Jones ex R. Brown, Bot. Reg. 6: ad t. 506. 1820.

万代兰属 wan dai lan shu

Chen Xinqi (陈心启 Chen Sing-chi); Alexandra Bell

Herbs, epiphytic, monopodial. Stems ascending or rarely arching, usually rather long, stout, rigid, with short internodes and many distichous leaves, with thick roots in lower part. Leaves distichous, flat, narrow, often closely spaced, linear to lorate, conduplicate toward base, with amplexicaul-sheathing base, jointed. Inflorescences erect or suberect, racemose, axillary, usually ascending, sparsely few to many flowered. Flowers large or medium-sized, usually colorful and long-lasting. Sepals and petals similar or sepals wider, often narrowed toward base, margins ± twisted or wavy, often tessellated; lip attached to an indistinct column foot, immobile, shortly spurred, 3-lobed; lateral lobes erect, small; mid-lobe large, usually with longitudinal keels or swellings adaxially. Column short, stout; rostellum short; anther cap subglobose; pollinia 2, subglobose, waxy, each strongly cleft or porate, attached by a common short stipe to a large viscidium.

About 40 species: tropical Asia to New Guinea and Australia; ten species (one endemic) in China.

*Vanda testacea* (Lindley) H. G. Reichenbach (Gard. Chron., n.s., 8: 166. 1877; *Aerides testacea* Lindley, Gen. Sp. Orchid. Pl. 238. 1830, "testaceum") was noted from China (without precise locality) by Pearce and Cribb (Orchids Bhutan, 577. 2002). However, the present authors found no relevant specimens and therefore could not substantiate the occurrence of this species in China. *Vanda testacea* otherwise occurs in Bhutan, India, Myanmar, Sri Lanka, and Thailand.

- 1a. Inflorescence taller than leaves, at least 20 cm.
  - 2a. Sepals and petals blue or tinged with blue; mid-lobe of lip oblanceolate or ligulate.
    - 3a. Flowers 1.5–2.5 cm in diam.; sepals and petals not tessellated; sepals 10–17 mm ..... 5. *V. coerulescens*
    - 3b. Flowers 6–9 cm in diam.; sepals and petals tessellated; sepals 35–50 mm ..... 2. *V. coerulea*
  - 2b. Sepals and petals yellowish or greenish, with brown markings; mid-lobe of lip pandurate.
    - 4a. Lip as long as or longer than sepals; lateral lobes of lip ovate or triangular ..... 10. *V. fuscoviridis*
    - 4b. Lip shorter than sepals; lateral lobes of lip suborbicular, apex rounded to truncate ..... 4. *V. lamellata*
- 1b. Inflorescence shorter than leaves, less than 20 cm.
  - 5a. Inflorescence ca. 8 cm or more in length; sepals and petals distinctly tessellated.
    - 6a. Lip shorter than lateral sepals; calli 2 on lip near entrance to spur ..... 1. *V. brunnea*
    - 6b. Lip as long as or longer than sepals; calli absent on lip.
      - 7a. Bracts 3–5 mm; spur 7–8 mm ..... 3. *V. concolor*
      - 7b. Bracts 2.5–3 mm; spur 2.5–3.5 mm ..... 6. *V. subconcolor*
  - 5b. Inflorescence shorter than 8 cm; sepals and petals not tessellated.
    - 8a. Flowers ca. 2 cm in diam. or less, not widely opening; lip spurless ..... 8. *V. alpina*
    - 8b. Flowers medium-sized, more than 2 cm in diam., widely opening; lip with a spur at least ca. 4 mm.
      - 9a. Petals yellow-green; mid-lobe of lip ca. 10 mm or less, apex cleft; column white ..... 9. *V. cristata*
      - 9b. Petals cream-yellow; mid-lobe of lip longer than 10 mm, apex obtuse to acute; column cream-yellow .... 7. *V. pumila*

1. *Vanda brunnea* H. G. Reichenbach, Xenia Orchid. 2: 138. 1868.

白柱万代兰 bai zhu wan dai lan

*Vanda denisoniana* Benson & H. G. Reichenbach var. *hebraica* H. G. Reichenbach; *V. henryi* Schlechter.

Stems ca. 15 cm, 1–1.8 cm in diam. Leaf blade 22–30(–35) × 1.7–3 cm, thick, apex unequally 2-lobed. Inflorescences 1–3, 10–20(–25) cm, sparsely 3–5-flowered; peduncle 7–18 cm; floral bracts broadly ovate, 3–4 × 3–3.5 mm, apex obtuse. Flowers thickly textured, widely opening, 3.5–4 cm in diam.; pedicel and ovary white, 55–90 mm; sepals and petals abaxially white, adaxially yellowish green or yellowish brown tessellated with purplish brown. Sepals subsimilar, lateral sepals slightly wider than dorsal, spatulate, 22–25(–27) × 14–17 mm, base clawed, apex rounded. Petals spatulate, 19–22 × 9–12 mm, base clawed, apex rounded; lip shorter than sepals, fleshy, spurred; lateral lobes erect, white or yellowish white, broadly ovate, 7–9 × 7–8 mm, apex obtuse; mid-lobe yellowish green or pale brown, with white base and 2 brownish red stripes on both

basal sides, pandurate, 16–18 × 7–8 mm, base with a pair of calli, apex broadly emarginate; spur white, broadly conic, 6–7 × 0.5–0.6 mm, apex acute-obtuse. Column white and slightly tinged with pale purple, 5–7 mm; anther cap yellowish white, 5–6 mm wide; pollinia ca. 2 mm in diam.; stipe subovate-triangular, ca. 4 mm; viscidium oblate, 4–5 mm wide. Fl. Mar. 2n = 38, 76.

On tree trunks in open forests or at forest margins; 800–2000 m. S Yunnan [Myanmar, Thailand, Vietnam].

2. *Vanda coerulea* Griffith ex Lindley, Edwards's Bot. Reg. 33: ad t. 30. 1847.

大花万代兰 da hua wan dai lan

Stems 5–23 cm, 0.8–1.5 cm in diam. Leaf blade (7–)14–18 × 1.3–2(–3) cm, thickly leathery, apex unequally 2-lobed. Inflorescences 1–3, 20–42 cm, sparsely (4–)6–14-flowered; peduncle 16–22 cm; rachis weakly zigzag, 9–28 cm; floral bracts broadly ovate, 8–11 × 5–9 mm, apex obtuse-acute. Flowers thinly textured, widely opening, 6–9 cm in diam.; pedicel and

ovary white, tinged blue, 45–60 mm; sepals and petals sky-blue, tessellated. Sepals similar, broadly obovate, 35–50 × 17–35 mm, base contracted into short claw, apex rounded. Petals elliptic-obovate, 30–45 × 18–25 mm, base contracted into a short claw, apex rounded; lip sky-blue, shorter than sepals, fleshy, spurred; lateral lobes erect, narrowly falcate, adaxially white with yellow spots, 3.5–5 × 1–2 mm, apex subacuminate; mid-lobe deep blue, ligulate, 17–25 × 5–8 mm, base with a pair of calli, apex subtruncate and emarginate; disk with 3 longitudinal ridges; spur tubular, slightly conic, 5–7 × 2–3 mm, apex obtuse. Column 4–6 mm; anther cap white, ca. 2 mm wide. Fl. Oct–Nov.  $2n = 38$ .

On tree trunks in open forests or along rivers; 1000–1600 m. S Yunnan [NE India, Myanmar, N Thailand].

**3. *Vanda concolor*** Blume, Rumphia 4: 49. 1849.

琴唇万代兰 qin chun wan dai lan

*Vanda esquirolei* Schlechter.

Stems 4–13 cm, 0.4–1 cm in diam. Leaf blade 15–30 × 1–3 cm, leathery, apex unequally 2-lobed. Inflorescences 1 or 2, 11–17 cm, sparsely 4–8-flowered; peduncle 3–6 cm; rachis not distinctly zigzag, 5–8 cm; floral bracts ovate, 3–5 × 2–3 mm, apex acute. Flowers thickly textured, widely opening, 3–4 cm in diam., fragrant; pedicel and ovary white, 2–4.5 cm; sepals and petals abaxially white, adaxially yellowish brown with yellow stripes, tessellated. Sepals subsimilar, lateral sepals slightly wider than dorsal sepal, oblong-obovate, 16–20 × 6–12 mm, base contracted into a short claw, margin slightly crisped, apex obtuse. Petals subspatulate, 15–19 × 8–10 mm, base clawed, margin slightly crisped, apex rounded; lip ca. as long as or longer than sepals, fleshy, spurred; lateral lobes erect, inner surface white with many purple spots, subfalcate, triangular or lanceolate, 4–5 × 2–3.5 mm, apex obtuse; mid-lobe yellowish brown in apical half, yellow in basal half, pandurate, 12–16 × 5–7 mm, without obvious calli, apex 2-lobed; disk surface with 5 or 6 yellow papillate ridges, base often shortly hairy; spur white, cylindrical, 7–8 × 1.3–2 mm, apex subacute. Column white, 6–7 mm; anther cap yellow, 2–3 mm wide; pollinia ca. 1 mm in diam. Fl. Apr–May.  $2n = 38$ , 76.

On tree trunks or rocks at forest margins; 700–1600 m. Guangxi, SW Guizhou, S Yunnan [Vietnam].

**4. *Vanda lamellata*** Lindley, Edwards's Bot. Reg. 24(Misc.): 66. 1838.

雅美万代兰 ya mei wan dai lan

*Vanda amiensis* Masamune & Segawa.

Stems 7–30 cm, 0.5–1.3 cm in diam. Leaf blade 12–27 × 1–2 cm, thickly leathery, apex unequally 2-lobed. Inflorescences 1 or 2, 20–30 cm, 5–15-flowered; peduncle 10–21 cm; rachis not distinctly zigzag, 6–12 cm; floral bracts ovate-triangular, 1–2 × 1–2 mm, apex acute. Flowers thickly textured, widely opening, 2.5–3 cm in diam., fragrant; pedicel and ovary white, occasionally tinged pink, 2–5 cm; sepals and petals yellowish or greenish with brown spots and irregularly longitudinal stripes, not distinctly tessellated. Dorsal sepal obovate to oblanceolate-spatulate, 16–20 × 7–10 mm, base clawed, apex obtuse to acute or sometimes retuse; lateral sepals falcate-obovate, ca. 20 × 13 mm, base clawed, margin slightly undulate, apex rounded. Petals spatulate, 16–20 × 6–8 mm, base clawed, apex obtuse; lip white or yellowish white, shorter than sepals, spurred; lateral lobes erect, inner surface white spotted with purple, suborbicular, 2–4 × 1–2 mm, apex rounded-truncate; mid-lobe yellowish white, with pink stripes, pandurate-ovate, 6–8 × 3–6 mm, sometimes with small indistinct pair of calli near spur, apex obtuse, rounded, or slightly retuse; disk with 3 ridges, 2 lateral keels dilated at narrowest part of mid-lobe; spur conic, 4–5 × 1–1.5 mm, apex subacute. Column 3–4 mm; anther cap yellow-white, 1.5–2 mm wide. Fl. Apr.  $2n = 38$ .

On sunny tree trunks or rocks. S Taiwan [Japan (Ryukyu Islands), Philippines].

**5. *Vanda coeruleascens*** Griffith, Not. Pl. Asiat. 3: 352. 1851.

小蓝万代兰 xiao lan wan dai lan

Stems 2–8 cm, 1–1.5 cm in diam. Leaf blade 7–12 × 1–1.3 cm, fleshy, apex praemorse. Inflorescences 1 or 2, 14–36 cm, sparsely 10–16-flowered; peduncle 11–35 cm; rachis not distinctly zigzag, 10–25 cm; floral bracts ovate-triangular, 1.5–3 × 1.5–3 mm, apex acute. Flowers thinly textured, widely opening, 1.5–2.5 cm in diam.; pedicel and ovary white, tinged with pale blue, 1.5–3 cm; sepals and petals pale blue or white tinged with pale blue, not tessellated. Sepals similar, obovate or spatulate, 10–17 × 6–8 mm, base cuneate, apex obtuse. Petals oblanceolate-spatulate, 10–17 × 5–7 mm, base cuneate, apex obtuse; lip deep blue, shorter than sepals, spurred; lateral lobes erect, pale blue, suboblong, 3–4 × 1.5–2.3 mm, apex oblique; mid-lobe dark purple or blue, oblanceolate, 7–9 × 4–6 mm, base with a pair of calli, apex rounded and emarginate; disk centrally often with 3–5 thickened ridges and lateral ones thicker and dilated at apex; spur slightly curved, cylindric, ca. 5 mm, apex obtuse. Column blue, 5–7 mm; anther cap pale yellow, ca. 1.5 mm wide. Fl. Mar–Apr.  $2n = 38, 40$ .

On tree trunks in open forests; 300–1600 m. S and SW Yunnan [NE India, Myanmar, N Thailand].

**6. *Vanda subconcolor*** Tang & F. T. Wang, Acta Phytotax. Sin. 12: 48. 1974.

纯色万代兰 chun se wan dai lan

*Vanda subconcolor* var. *disticha* Tang & F. T. Wang.

Stems 15–18 cm, 0.7–1 cm in diam. Leaf blade 14–26 × 1.2–2 cm, slightly fleshy, apex unequally 2-lobed with deep sinus and often a small point in center. Inflorescences 1 or 2, 12–17 cm, sparsely 3–6-flowered; peduncle 6–9 cm; rachis weakly zigzag, 5–8 cm; floral bracts broadly ovate, 2.5–3 × 1.8–2.1 mm, apex acute. Flowers thickly textured, widely opening, 3–4 cm in diam.; pedicel and ovary white, 3–7 cm; sepals and petals abaxially white, adaxially yellowish brown, conspicuously tessellated. Dorsal sepal obovate-spatulate, 18–28 × 9–12 mm, base contracted into short claw, apex obtuse; lateral sepals rhombic-elliptic, 20–28 × 14–15 mm, base contracted, margin slightly crisped. Petals obovate-spatulate, 16–25 × 9–11 mm, base contracted into a short claw, apex rounded; lip white, shorter than sepals, spurred; lateral lobes erect, densely spotted with purple, ovate-triangular, 7–9 × 6–7 mm, apex obtuse; mid-lobe yellowish brown at apex, adaxially with 4–6 purplish brown stripes, pandurate-obovate, apex emarginate; disk centrally often with 3–5 small ridges; spur conic, 2.5–3.5 × 2–3 mm, apex obtuse. Column white, 6–7 mm, ca. 3 mm wide. Fl. Feb–Mar.  $2n = 38^*$ .

• On tree trunks in open forests; 600–1000 m. Hainan, W Yunnan.

**7. *Vanda pumila*** J. D. Hooker, Fl. Brit. India 6: 53. 1890.

矮万代兰 ai wan dai lan

*Trudelia pumila* (J. D. Hooker) Senghas.

Stems 5–23 cm, 0.5–1 cm in diam. Leaf blade 6–24 × 1–2 cm, slightly fleshy or thickly leathery, apex unequally 2- or 3-dentate. Inflorescences 1 or 2, 2–7 cm, sparsely 1–3-flowered; peduncle 1.5–3 cm; rachis ± flexuous, 1–3.5 cm; floral bracts

broadly ovate, 3–5 × 2.5–4 mm, apex obtuse. Flowers thickly textured, widely opening, (2.5–)4–6.2 cm in diam., fragrant; pedicel and ovary 2–4.5 cm; sepals and petals white to cream-yellow, not tessellated. Dorsal sepal oblanceolate, 14–26 × 6–8 mm, base cuneate, apex obtuse; lateral sepals slightly oblique, ovate, 16–26 × 9–11 mm, base cuneate, apex obtuse. Petals oblong-lanceolate, 15–28 × 3–6 mm, base cuneate, apex acute; lip pale cream-colored, streaked with purple to red, thickly fleshy, ca. as long as or longer than sepals, spurred; lateral lobes erect, abaxially cream-yellow, adaxially purplish red, ovate-triangular, 2.5–4 × 2–3 mm, apex obtuse; mid-lobe adaxially cream-yellow with 8 or 9 purplish red longitudinal stripes, ligulate to broadly ovate, 7–10 × 6–8 mm, apex obtuse-acuminate; disk carinate with 3 small ridges; spur conic-obconic, 4–5 mm, apex obtuse. Column cream-yellow to white, 3–5 mm; anther cap cream-yellow, ca. 3 mm wide. Fl. Mar–May.  $2n = 38, 40, 72, 76$ .

On tree trunks in forests; 500–1800 m. W Guangxi, Hainan, S Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, N Thailand, Vietnam].

**8. *Vanda alpina*** (Lindley) Lindley, Fol. Orchid. 4(Vanda): 10. 1853.

垂头万代兰 chui tou wan dai lan

*Luisia alpina* Lindley, Edwards's Bot. Reg. 24(Misc.): 56. 1838; *Stauropsis alpina* (Lindley) Tang & F. T. Wang; *Trudelia alpina* (Lindley) Garay.

Stems 5–18 cm, 0.5–1 cm in diam. Leaf blade 5–16 × 0.7–1.4 cm, slightly fleshy or thickly leathery, apex unequally 2-lobed. Inflorescences 2 or 3, 1.5–2.5 cm, 1–3-flowered; peduncle 1–2 cm; rachis 0.5–1 cm; floral bracts ovate-triangular, 2–3 × 1.5–2 mm, apex obtuse-acute. Flowers thickly textured, not widely opening, 1.5–2 mm in diam., fragrant; pedicel and ovary yellowish green, 1.2–2 cm; sepals and petals green to yellow-green, not tessellated. Dorsal sepal oblong-ovate, 11–15 × 4–6 mm, base cuneate, apex obtuse; lateral sepals ovate-lanceolate, 12–15 × 4–6 mm, base cuneate, apex obtuse-acute. Petals obliquely oblong-lanceolate, 10–13 × 3–5 mm, base clawed, apex obtuse-acute; lip green with a whitish base, basal sac maroon-purple, apical lamina striped violet, shorter than sepals, fleshy, base concave, spurless, deeply gibbous-saccate; lateral lobes suberect, abaxially yellowish green, adaxially reddish purple, suborbicular, 1.5–2.5 × 3–4 mm, apex rounded; mid-lobe abaxially yellowish green, adaxially reddish purple with yellowish stripes, ligulate-ovate, 9–12 × 6–7 mm, apex retuse or obscurely 3-lobed; disk sometimes with a small, short central ridge and 2 smaller central ridges on either side. Column white, 3–4 mm; anther cap white, nearly subglobose, ca. 3 mm wide. Fl. Jun.  $2n = 38$ .

S Yunnan [Bhutan, India, Nepal, N Vietnam].

**9. *Vanda cristata*** Lindley, Gen. Sp. Orchid. Pl. 216. 1833.

叉唇万代兰 cha chun wan dai lan

*Aerides cristata* (Lindley) Wallich ex J. D. Hooker.

Stems 6–18 cm, 0.6–0.8 cm in diam. Leaf blade 7.5–15 × 0.6–1.8 cm, thickly leathery, apex praemorse. Inflorescences 2

or 3, 3–4.5 cm, 1- or 2-flowered; peduncle 2–3.5 cm; rachis weakly zigzag, 0.5–5 cm; floral bracts broadly ovate, 4–6 × 2–4 mm, apex obtuse-acute. Flowers thickly textured, widely opening, 3.5–5 cm in diam.; pedicel and ribbed ovary yellowish green, 1.5–3 cm; sepals and petals yellowish green, not tessellated. Dorsal sepal oblong-spatulate, 20–30 × 5–9 mm, base cuneate, apex obtuse-acute; lateral sepals lanceolate, 20–30 × 5–10 mm, base cuneate, apex obtuse. Petals falcate-oblong, 18–28 × 2–5 mm, base contracted, apex acute; lip golden yellow to white, striped with violet-purple to red-brown, ca. as long as or longer than sepals, fleshy, spurred; lateral lobes erect, abaxially yellowish green, adaxially with dull purple stripes, ovate-triangular, 2–4 × 2–5 mm, apex obtuse; mid-lobe abaxially yellowish green with dull purple margins, adaxially white with dull purple longitudinal stripes, ovate to subpandurate, 11–20 × 4–5 mm, apex cleft sometimes with short point in sinus; disk rugulose with 2 slender elongated processes on apical margin; spur broadly conic, 6–9 mm. Column white, 4–8 mm; anther cap yellow, 3–3.5 mm wide. Fl. May.  $2n = 28, 38, 76$ .

On tree trunks in evergreen broad-leaved forests; 700–1700 m. SE Xizang, SW Yunnan [Bhutan, India, Nepal, N Vietnam].

**10. *Vanda fuscoviridis*** Lindley, Gard. Chron. 1848: 351. 1848.

广东万代兰 *guang dong wan dai lan*

*Vanda kwangtungensis* S. J. Cheng & C. Z. Tang.

Stems ca. 25 cm. Leaf blade ca. 25 × 2.5 cm, thick, apex unequally 2-lobed and erose. Inflorescences 1 or 2, ca. 23 cm, ca. 9-flowered; peduncle ca. 12 cm; rachis weakly zigzag, ca. 11 cm. Flowers thickly textured, widely opening, 3.4–3.9 cm in diam.; pedicel and ovary yellowish green, 3–4 cm; sepals and petals abaxially white, adaxially yellowish with brown tessellations. Dorsal sepal oblanceolate-spatulate, 16–17 × ca. 8 mm, base contracted into a short claw, apex obtuse; lateral sepals obovate-spatulate, 15–16 × 8–10 mm, base contracted into a short claw, apex obtuse. Petals broadly spatulate, 16–17 × 9–10 mm, base clawed, apex obtuse; lip ca. as long as or longer than sepals, spurred; lateral lobes erect, white tinged pink, ovate-triangular, ca. 4 × 2 mm, apex obtuse; mid-lobe white with purple-brown stripes, pandurate, ca. 15 × 5–7 mm, apex retuse; spur conic, 9–10 × ca. 2 mm. Column ivory-white, ca. 7 mm. Fl. unknown.

Limestone slopes. Guangdong [N Vietnam].

