

## 64. TROPIDIA Lindley, Edwards's Bot. Reg. 19: ad t. 1618. 1833.

竹茎兰属 zhu jing lan shu

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*Chloidia* Lindley; *Cnemidia* Lindley; *Govindooia* Wight; *Muluorchis* J. J. Wood; *Schoenomorphus* Thorel ex Gagnepain.

Herbs terrestrial, autotrophic [rarely mycotrophic outside Flora area]. Rhizome ascending, stout; roots wiry, fibrous. Stem erect, rigid, branched or unbranched, noded, with sheaths at nodes. Leaves 2 to many, plicate, ovate to narrowly lanceolate, base contracted into amplexicaul sheaths. Inflorescence a short raceme or panicle, terminal or arising from leaf axils near apex of stem, several or many flowered. Flowers resupinate or not. Dorsal sepal free; lateral sepals free or connate to form a synsepal and embracing base of lip. Petals free, similar to sepals or slightly smaller; lip cymbiform, slightly shorter than sepals, entire, with or without a short spur, sometimes constricted at middle, base loosely embracing column, distally expanded, apex acuminate and reflexed. Column short; anther dorsal, erect; rostellum prominent, erect, bifid after viscidium removed; pollinia 2, granular-farinaceous, sectile, with slender caudicle and peltate viscidium.

About 20 species: mainly in tropical and subtropical Asia, with a few species extending to Australia and the Pacific islands and one in Central and North America; seven species (three endemic) in China.

- 1a. Leaves many, distichous, usually more than 10; lateral sepals connate only at base ..... 1. *T. curculigoides*
- 1b. Leaves 1–5; lateral sepals connate for almost their entire length, forming a synsepal.
  - 2a. Lip spurred at base; spur to 4 mm ..... 2. *T. angulosa*
  - 2b. Lip saccate, concave-saccate, or inconspicuously concave at base.
    - 3a. Synsepal subtruncate at apex; column ca. 2 mm ..... 7. *T. emeishanica*
    - 3b. Synsepal bilobed at apex; column 3–6 mm.
      - 4a. Leaves 3–5; disk bearing a pair of rounded calli toward apex ..... 3. *T. nanhuai*
      - 4b. Leaves 1 or 2; disk without calli.
        - 5a. Leaves linear-lanceolate to narrowly ovate-lanceolate, 1.7–2.1 cm wide, apex acuminate ..... 4. *T. angustifolia*
        - 5b. Leaves ovate, cordate, elliptic, or ovate-lanceolate, 4–8 cm wide, apex acute.
          - 6a. Inflorescence racemose, laxly 10–20-flowered; sheaths on stem less than 2 cm ..... 5. *T. somae*
          - 6b. Inflorescence subglobose, densely 5–10-flowered; sheaths on stem to 4 cm ..... 6. *T. nipponica*

**1. *Tropidia curculigoides*** Lindley, Gen. Sp. Orchid. Pl. 497. 1840.

短穗竹茎兰 duan sui zhu jing lan

*Tropidia assamica* Blume; *T. formosana* Rolfe; *T. graminea* Blume; *T. hongkongensis* Rolfe; *T. squamata* Blume.

Plants 30–70 cm or taller. Rhizome short, rigid; roots 2–3 mm in diam., fleshy. Stem erect, unbranched or occasionally with branches, proximally often naked, distally enclosed in leaf sheaths, internodes 2–4 cm. Leaves many, often more than 10, distichous and well spaced along stem, narrowly elliptic-lanceolate to narrowly lanceolate, (10–)15–25 × (1–)2–4 cm, papery, base contracted into amplexicaul sheath, apex long acuminate-caudate. Inflorescence racemose, terminal or axillary, with several to 10 crowded flowers, 1–2.5 cm; floral bracts imbricate, lanceolate, 4–7(–10) mm, conspicuously with longitudinal veins. Flowers not resupinate, greenish white; pedicel and ovary 5–6 mm. Sepals lanceolate or oblong-lanceolate, 7–10 × 1.5–1.7 mm, apex long acuminate; lateral sepals connate only at base, apex recurved. Petals oblong-lanceolate, 6–8 × ca. 1.3 mm; lip ovate-lanceolate or oblong-lanceolate, cymbiform, 6–8 mm, concave-saccate at base, with 2 inconspicuous lamellae on disk, apex acuminate. Column ca. 3 mm; anther ovoid, ca. 1.5 mm; rostellum erect, obovate, ca. 2 mm, apex 2-lobed-apiculate. Capsule suboblong, ca. 2 cm × 5 mm. Fl. Jun–Aug, fr. Oct.  $2n = 40, 60$ .

Shaded places, along valleys in forests; 200–1000 m. SW Guangxi, Hainan, Hong Kong, Taiwan, SE Xizang, S and SE Yunnan [Cambodia, India, Indonesia, Malaysia, Myanmar, Thailand, Vietnam].

**2. *Tropidia angulosa*** (Lindley) Blume, Coll. Orchid. 122. 1859.

阔叶竹茎兰 kuo ye zhu jing lan

*Cnemidia angulosa* Lindley, Edwards's Bot. Reg. 19: ad t. 1618. 1833; *C. semilibera* Lindley; *Decaisnea angulosa* (Lindley) Wallich; *Govindooia nervosa* Wight; *Tropidia barbeyana* Schlechter; *T. bellii* Blatter & McCann; *T. calcarata* Ames; *T. gowindovii* Blume; *T. semilibera* (Lindley) Blume.

Plants 16–45 cm tall. Rhizome short, rigid; roots 1.5–2.5 mm in diam., fleshy. Stem solitary or 2 arising from same rhizome, erect, unbranched or 1-branched, internodes 3–6.5 cm; proximal nodes naked or with tubular sheaths, distal nodes enclosed in sheaths 1.5–3(–6.5) cm. Leaves 2, apical, subopposite, elliptic or ovate-elliptic, (6–)10–17 × (3–)4.5–9.5 cm, papery, base contracted into amplexicaul sheaths, apex long acuminate. Inflorescence a terminal raceme with more than 10 flowers, 5–8 cm; floral bracts narrowly lanceolate, 6–8 mm, midvein conspicuous. Flowers not resupinate, greenish white; pedicel and ovary 6–9 mm. Dorsal sepal linear-lanceolate, 8–9 × ca. 1.5 mm, apex acuminate or acute; lateral sepals almost completely connate and forming a synsepal; synsepal suboblong, 8–10 × 2–2.5 mm, apex shallowly 2-lobed, embracing lip

and connected to spur at its base. Petals linear-lanceolate, 8–9 × ca. 1.5 mm; lip suboblong, 6–7 × ca. 2 mm, with 2 slightly thickened longitudinal ridges from middle to base, base spurred; spur cylindric, ca. 4 × 1–1.5 mm, apex obtuse. Column ca. 6 mm; anther erect, ovoid-lanceolate, ca. 3.5 mm; rostellum erect, lanceolate, ca. 5 mm. Capsule oblong-ellipsoid, 1–1.5 cm × 6–7 mm. Fl. Sep. fr. Dec–Jan.  $2n = 57$ .

Forests, forest margins; 100–1800 m. Guangxi, Taiwan, SE Xizang, S and SW Yunnan [Bhutan, India, Indonesia, Japan, Malaysia, Myanmar, Thailand, Vietnam].

**3. *Tropidia nanhuae*** W. M. Lin, Kuo Huang & T. P. Lin, *Taiwania* 51: 165. 2006.

南华竹荃兰 *nan hua zhu jing lan*

Plants 25–40 cm tall. Rhizome ascending; roots filiform. Stem erect, slender, branched or unbranched. Leaves 3–5, alternate, widely spaced, lanceolate-oblong, ca. 16 × 2.7 cm, base rounded, apex acuminate. Inflorescence terminal, 5–8 cm, up to 25-flowered; bracts lanceolate, glabrous. Flowers not resupinate, greenish white, glabrous, ca. 6.5 mm; pedicel and ovary ca. 4 mm. Dorsal sepal free, lanceolate, ca. 5 × 2.5 mm, apex acute; lateral sepals connate for ca. 3/5 of length and forming a synsepal, ca. 6 × 3 mm; synsepal bilobed at apex, saccate at base. Petals concave, lanceolate, ca. 5 × 2 mm, keeled abaxially, apex acute; lip oblong, ca. 5.5 × 2 mm, saccate at base, apex recurved; disk bearing a pair of rounded calli toward apex, and with 2 longitudinal ridges toward base. Column ca. 3 mm including rostellum; anther ovate, fleshy, 3–3.3 mm, apex rounded; pollinia clavate, stipe slender; viscidium linear-lanceolate; stigma broadly triangular. Fl. Oct–Nov.

• Bamboo forests; 100–200 m. Taiwan.

**4. *Tropidia angustifolia*** C. L. Yeh & C. S. Leou, *Taiwania* 54: 140. 2009.

狭叶竹荃兰 *xia ye zhu jing lan*

Plants 10–20 cm tall. Rhizome ascending; roots rigid, filiform. Stem erect, slender, unbranched. Leaf usually solitary, occasionally 2, linear-lanceolate to narrowly ovate-lanceolate, 8–10.5 × 1.7–2.1 cm, base cuneate, apex acuminate. Inflorescence terminal, 5–6 cm, 9–12-flowered; bracts lanceolate, glabrous. Flowers not resupinate, whitish, tinged pale green at apex of sepals and petals, tinged orange at apex of lip, glabrous; pedicel and ovary 5–7 mm. Dorsal sepal free, oblong, ca. 6.5 × 2.5 mm, apex subacute; lateral sepals almost completely connate and forming a synsepal; synsepal ca. 8 mm, bilobed at apex, slightly concave at base, apex reflexed. Petals slightly concave, oblong, slightly oblique, 6.5–7 × ca. 2.8 mm, keeled abaxially, apex acute; lip oblong-ovate, ca. 5 × 3 mm, concave-saccate at base, apex recurved; disk with 2 longitudinal ridges toward base. Column ca. 3 mm including rostellum; anther ovate, ca. 1.8 mm, apex rounded; pollinia clavate, ca. 1.7 mm, stipe linear; viscidium ovoid; stigma transversely elliptic. Fl. Jul–Aug.

• Broad-leaved evergreen forests; 600–800 m. S Taiwan.

**5. *Tropidia somae*** Hayata, *Icon. Pl. Formosan.* 6: 85. 1916 [“*somai*”].

台湾竹荃兰 *tai wan zhu jing lan*

Plants usually less than 20 cm tall. Rhizome ascending; roots fibrous. Stem unbranched or 1- or 2-branched, with many sheaths; sheaths less than 2 cm. Leaves 1 or 2, apical, ovate to cordate, ca. 11 × 6.5 cm, 7–13-veined, base rounded, apex acute. Inflorescence a terminal raceme with 10–20 flowers, 4–8 cm; floral bracts lanceolate, 5–6 mm. Flowers not resupinate, white; pedicel and ovary ca. 5 mm. Dorsal sepal free, narrowly lanceolate, 9–10 × ca. 3 mm; lateral sepals almost completely connate and forming a synsepal; synsepal 10–11 mm, bilobed at apex. Petals narrowly ovate, 8–9 × 3–3.5 mm, keeled abaxially; lip narrowly oblong, ca. 9 × 2 mm, saccate at base, with 2 lamellae on adaxial surface of basal half. Column straight, 5–6 mm; anther lanceolate, 3–3.3 mm, apex acuminate; pollinia clavate; caudicle slender; rostellum lanceolate. Fl. Sep.

Forests; low elevations. Taiwan [S Japan (Ryukyu Islands)].

**6. *Tropidia nipponica*** Masamune, *Bot. Mag. (Tokyo)* 43: 249. 1929.

竹荃兰 *zhu jing lan*

*Tropidia angulosa* (Lindley) Blume var. *nipponica* (Masamune) S. S. Ying.

Plants to 60 cm tall. Rhizome ascending; roots filiform, often with small tuberlike nodules. Stem erect, slender, 20–50 cm, 3–4 mm in diam., often branched, proximal nodes enclosed in sheaths; sheaths to 4 cm. Leaves 1 or 2, alternate, elliptic or ovate-lanceolate, 10–16 × 4–8 cm, papery, apex acute. Inflorescence terminal, subglobose, ca. 6 cm, sparsely pubescent, 5–10-flowered; floral bracts lanceolate, 5–6 mm. Flowers not resupinate, off-white. Dorsal sepal ovate-lanceolate, ca. 7 × 3 mm, apex obtuse; lateral sepals almost completely connate and forming a synsepal; synsepal oblanceolate, 7–8 mm, apex 2-lobed. Petals elliptic, ca. 6 × 3 mm, apex acute; lip ovate-lanceolate, ca. 6 mm, base saccate, apex reflexed; disk pale yellow, thickened apically. Column suberect, ca. 3 mm, 3-lobed; anther ovoid, ca. 2.5 mm; caudicle slender; rostellum triangular, apex bifid. Fl. Jul.

Forests; low to mid elevations. Taiwan [S Japan (Ryukyu Islands)].

**7. *Tropidia emeishanica*** K. Y. Lang, *Acta Phytotax. Sin.* 20: 184. 1982.

峨眉竹荃兰 *e mei zhu jing lan*

Plants to 22 cm tall. Rhizome somewhat thickened; roots often with small tuberlike nodules. Stem erect, unbranched, nodes with tubular sheaths; internodes 2–3 cm. Leaves 2, alternate, well spaced along stem, petiolate, ovate or elliptic, 7–10 × 3–4 cm, papery, base subrounded, apex acuminate. Inflorescence terminal, 13-flowered, ca. 5 cm; floral bracts ovate-lanceolate, ca. 3 mm. Flowers not resupinate, green, small; pedicel and ovary ca. 1.2 cm. Dorsal sepal oblong, concave, ca. 5.5 × 1.8 mm, 3-veined, apex obtuse; lateral sepals almost completely connate and forming a synsepal; synsepal obovate-lanceolate,

Flora of China 25: 195–197. 2009.

ca.  $6 \times 2.3$  mm, apex subtruncate. Petals elliptic, concave, ca.  $5 \times 1.6$  mm, apex obtuse; lip obovate, ca.  $3 \times 2$  mm, adaxially with 1 thick longitudinal ridge, base spurless. Column ca. 2 mm; anther erect, cordate; caudicle inconspicuous; rostellum erect, apex 2-lobed. Fl. Jul.

- Forests; 1100–1200 m. SW Sichuan.

