

**113. PHOLIDOTA** Lindley ex Hooker, Exot. Fl. 2: ad t. 138. 1825.

石仙桃属 shi xian tao shu

Chen Xinqi (陈心启 Chen Sing-chi); Jeffrey J. Wood

Herbs, epiphytic or lithophytic, pendulous or erect. Pseudobulbs contiguous or well spaced on creeping rhizomes, ovoid to sub-cylindric, rarely connected to each other at both ends and stemlike or each connected at base by a short rhizome to middle part of another pseudobulb, apex 1- or 2-leaved. Leaves narrowly elliptic, ovate, or oblong, leathery, shortly petiolate. Inflorescence terminal, emerging from apex of pseudobulb, distichous, pendulous, slender, racemose, laxly or densely many flowered; rachis often slightly flexuose; floral bracts persistent or deciduous, distichous, large, concave. Flowers resupinate, often not opening widely, white, small, fleshy. Dorsal sepal concave or convex, broadly ovate to elliptic; lateral sepals ovate to ovate-oblong, concave or convex, often carinate. Petals ovate to linear, often smaller than sepals; lip sessile, with a saccate basal hypochile and subentire or 3- or 4-lobed; epichile deflexed; disk sometimes with thick veins or lamellae. Column short, upper part winged or hooded, foot absent; anther incumbent; pollinia 4, waxy, subequal in size, in 2 pairs, connected by inconspicuous caudicles to sticky material; rostellum rather large. Capsule relatively small, often ribbed.

Thirty species: mainland and SE Asia, Australia, New Guinea, and the Pacific islands; 12 species (two endemic) in China.

The genus *Pholidota* was monographed by de Vogel (Orchid Monogr. 3. 1988).

The following species were described or recorded from China but could not be treated here because no specimens were seen by the present authors:

*Pholidota niana* Y. T. Liu, R. Li & C. L. Long (Ann. Bot. Fenn. 39: 227. 2002), described from SE Yunnan (Xichou, 1300–1400 m).

*Pholidota recurva* Lindley (Gen. Sp. Orchid. Pl. 37. 1830), recorded from S Yunnan (Mengla, ca. 1500 m) by X. H. Jin, H. Li and D. Z. Li (Acta Bot. Yunnan. 29: 394. 2007).

- 1a. Each new young shoot developing from near apex of last developed pseudobulb: stems consisting of superposed pseudobulbs (*P.* sect. *Articulatae* (H. G. Reichenbach) Pfitzer) ..... 1. *P. articulata*
- 1b. Each new young shoot sprouting from base of a pseudobulb (usually last developed one): pseudobulbs arranged along a usually short to very short rhizome.
  - 2a. Rhizome pendulous, only at base attached to substratum by roots; aerial roots often present on pendulous part of rhizome; pseudobulbs turned to all sides of rhizome; inflorescences generally hysteranthous, each borne on a shoot not developing into a leaf-bearing pseudobulb after anthesis (*P.* sect. *Crinonia* (Blume) Butzin) ..... 2. *P. protracta*
  - 2b. Rhizome creeping, along most of its length attached to substratum by roots; aerial roots absent; pseudobulbs turned to one side of rhizome; inflorescences synanthous or proteranthous.
    - 3a. Pseudobulbs 1-leaved (*P.* sect. *Pholidota*).
      - 4a. Mature leaves thick, leathery; floral bracts with numerous dense fine veins; lateral sepals free at base ..... 3. *P. imbricata*
      - 4b. Mature leaves thin, herbaceous; floral bracts with less than 25 relatively coarse veins; lateral sepals connate at base ..... 4. *P. pallida*
    - 3b. Pseudobulbs 2-leaved.
      - 5a. Pseudobulbs crowded to ca. 2.5 cm apart on rhizome; floral bracts persistent at anthesis (caducous in *P. leveilleana*); keels on lip hypochile absent or low and swollen; keels on epichile, if present, at most 2 (*P.* sect. *Chinenses* (H. G. Reichenbach) de Vogel).
        - 6a. Petals ca. equally wide as or only slightly narrower than dorsal sepal.
          - 7a. Floral bracts persistent during anthesis; pseudobulbs very slender, fusiform; petals more than 7.5 mm ..... 5. *P. roseans*
          - 7b. Floral bracts caducous at anthesis; pseudobulbs swollen, ovoid; petals less than 5.5 mm ..... 6. *P. leveilleana*
        - 6b. Petals less than 1/2 as wide as dorsal sepal (see note under *P. chinensis*).
          - 8a. Pseudobulbs usually 1.6–8 × 0.5–2.3 cm, narrowly ovoid-oblong, contracted into a short stalk at base; lip hypochile with 3 basal swollen veins, epichile usually unornamented; leaves ± turning black when dry ..... 7. *P. chinensis*
          - 8b. Pseudobulbs 4–11.5 × 0.3–0.4 cm, subcylindric, not narrowed into a short stalk at base; lip hypochile with 2 basal lamellae, epichile 3-ridged; leaves not turning black when dry ..... 8. *P. longipes*
      - 5b. Pseudobulbs rather widely spaced along rhizome; floral bracts caducous at anthesis, usually falling off but sometimes remaining clasped around flower; base of lip hypochile smooth (*P.* sect. *Repentes* de Vogel).
        - 9a. Lip almost entirely saccate, with a small lateral depression on each side at base; epichile very small.

- 10a. Plants sturdy; flowers opening widely; hypochile with 3 keels at back which are fused at base; column apical hood relatively large, with a rounded top; anther cap inserted ca. halfway between stigma and hood margin; epichile consisting of 2 small lobes that are bent over front opening of hypochile, rarely lobes reduced or absent ..... 9. *P. convallariae*
- 10b. Plants rather small; flowers not opening widely; keels absent; column apical hood abruptly truncate; anther cap inserted on top margin; epichile consisting of a triangular to narrowly triangular concave point ..... 10. *P. cantonensis*
- 9b. Lip consisting of a broad saccate hypochile without lateral depressions and a broad epichile suborbicular in outline when flattened.
- 11a. Roots rather sturdy, "woody," stiff, 1.5–2 mm in diam.; epichile abruptly recurved giving lip a distinctly sigmoid appearance, ecallose, 2.8–4 mm ..... 11. *P. yunnanensis*
- 11b. Roots rather slender and flexuous, herbaceous, 0.5–1 mm in diam.; lip not distinctly curved; hypochile with 3 short keels at back; epichile 1–2 mm ..... 12. *P. missionariorum*

**1. *Pholidota articulata* Lindley, Gen. Sp. Orchid. Pl. 38. 1830.**

节茎石仙桃 jie jing shi xian tao

*Coelogyne articulata* (Lindley) H. G. Reichenbach; *C. khasyana* (H. G. Reichenbach) H. G. Reichenbach; *Pholidota articulata* var. *griffithii* (J. D. Hooker) King & Pantling; *P. articulata* var. *obovata* (J. D. Hooker) Tang & F. T. Wang; *P. griffithii* J. D. Hooker; *P. khasyana* H. G. Reichenbach; *P. lugardii* Rolfe; *P. obovata* J. D. Hooker.

Pseudobulbs connected to each other at both ends and stemlike, subcylindric, (2–)4–12 cm × 5–10(–25) mm, sometimes slightly narrowed, branching or not, sometimes with very short rhizomes between them and producing a few roots. Leaves 2, at apex of new pseudobulb; leaf blade obovate-elliptic, oblong, or narrowly elliptic, 7–17.5 × 2.7–6.2 cm, veins plicate, subacute or obtuse; petiole 1–1.5 cm. Inflorescence at apex of new pseudobulb, 6–18 cm; rachis 10- or more flowered, ± flexuous; floral bracts deciduous during flowering, narrowly ovate-oblong, 1.5–2.5 × 0.5–0.7 cm. Flowers greenish white or white and slightly tinged with reddish; pedicel and ovary 6–7 mm. Dorsal sepal oblong or elliptic, concave, 9–10 × 4–5 mm, dorsally carinate, 5-veined; lateral sepals ovate, oblique, slightly wider than dorsal sepal. Petals oblong-lanceolate or suboblong-lanceolate, ca. 7 × 2–2.5 mm, 5-veined; lip broadly oblong in outline, contracted at apical 1/4–1/3 into epichile and hypochile; hypochile cymbiform, slightly wider than epichile, with 5 longitudinal lamellae near base; epichile transversely elliptic, 3–4 mm wide, margin crisped. Column 2.5–3 mm, ca. 1 mm wide, stout, apex winged; rostellum broadly ovate, 1.4–1.8 mm. Capsule ellipsoid to obovoid-ellipsoid, 1.8–2 cm, slightly 3-ridged; fruiting pedicel ca. 2.5 mm. Fl. Jun–Aug, fr. Oct–Dec.  $2n = 38, 38 + 2B, 40, 40 + 2-6B$ .

Epiphytic on trees in forests, lithophytic on shaded rocks; 800–2500 m. SW Guizhou, SW Sichuan, SE Xizang, NW to SE Yunnan [Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

**2. *Pholidota protracta* J. D. Hooker, Hooker's Icon. Pl. 19: ad t. 1877. 1889.**

尾尖石仙桃 wei jian shi xian tao

Rhizome subcylindric, 2.5–3.5 mm in diam., slender, usually with long internodes, apex producing a pseudobulb and with a new rhizome at its base. Pseudobulbs borne 2–4 cm apart from each other, subcylindric, 1.7–4.5 cm × 2.5–5 mm, attenuate toward apex, ± curved, apex 2-leaved. Leaf blade narrowly

elliptic-lanceolate, 7.3–12.5 × 1.3–2.3 cm, papery, base broadly cuneate, apex acuminate or nearly caudate; petiole 3–12 cm. Inflorescence arising from rhizome near base of last pseudobulb, 1.5–3 cm; rachis 3–7-flowered; floral bracts persistent at least at end of flowering, broadly ovate, ca. 3 mm. Flowers pale yellow, small; pedicel and ovary 5–7 mm. Sepals ovate-oblong, ca. 4 × 2.5 mm, 3-veined; lateral sepals slightly oblique. Petals narrowly obovate, ca. 3 × 1.8 mm; lip subovate-oblong in outline, ca. 4 × 3 mm, shallowly cupular at base, slightly 3-lobed, apex emarginate, without appendages inside. Column ca. 3.5 mm, both sides winged; wings widened toward column apex; rostellum ca. 1.3 mm wide. Capsule obovoid-ellipsoid, ca. 1 cm × 6 mm, 3-ridged; fruiting pedicel 4–5 mm. Fl. Oct.  $2n = 40$ .

Epiphytic on trees in broad-leaved evergreen forests or on cliffs along valleys; 1800–2700 m. SE Xizang, NW Yunnan [Bhutan, NE India, Myanmar, Nepal].

**3. *Pholidota imbricata* Hooker, Exot. Fl. 2: ad t. 138. 1825.**

宿苞石仙桃 su bao shi xian tao

*Coelogyne imbricata* (Hooker) H. G. Reichenbach; *Cymbidium imbricatum* (Hooker) Roxburgh; *Pholidota bracteata* (D. Don) Seidenfaden; *P. henryi* Kraenzlin; *P. imbricata* var. *henryi* (Kraenzlin) Tang & F. T. Wang; *Ptilocnema bracteata* D. Don.

Rhizome creeping, rather robust, 5–7 mm in diam., with many nodes, densely covered with scaly sheaths, with many roots. Pseudobulbs contiguous, suboblong, (2.5–)4–8 × 1–1.5 cm, obscurely obtusely 4-ridged, apex 1-leaved. Leaf blade oblong-oblong-lanceolate, oblong, or nearly broadly oblanceolate, 7–25(–35) × 2–8.5 cm, thinly leathery, base cuneate, apex shortly acuminate or acute; petiole 1.5–5 cm. Inflorescence arising from young pseudobulbs with nearly mature leaf at anthesis, usually 25–50 cm; rachis nodding, 5–30 cm, densely many flowered; floral bracts persistent, often conduplicate, broadly ovate, 4–7 × 4–8 mm, with many dense veins, ± concave. Flowers white or slightly tinged with red; pedicel and ovary 4–5 mm. Dorsal sepal orbicular or broadly elliptic, cymbiform, 3–4.5 × 3–4.5 mm, 5-veined, midvein slightly raised; lateral sepals free, ovate, cymbiform, 4–6 × 3.5–4 mm, dorsally strongly carinate. Petals sublinear-lanceolate, 3–4.5 × 1–1.5 mm, 1-veined; lip saccate, 4–6 mm, slightly 3-lobed; lateral lobes embracing column, erect, nearly broadly oblong, 2.5–3 × ca. 2 mm; mid-lobe suboblong, 3–4 mm wide, margin slightly undulate, apex emarginate; disk with 2 or 3 longitudinal lamellae or thickened veins near base. Column nearly orbicular in ventral

view, 3–4 mm, thick, both sides with wings; rostellum broad. Capsule obovoid-ellipsoid, 1–1.3 cm × 6–7 mm; fruiting pedicel 2–4 mm. Fl. Jul–Sep, fr. Oct–Jan.  $2n = 40$ .

Epiphytic on trees or lithophytic on rocks in forests; 800–2700 m. SW Sichuan, SE Xizang, S and W Yunnan [Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, New Guinea, Pakistan, Sri Lanka, Thailand, Vietnam; Australia, SW Pacific islands].

**4. *Pholidota pallida*** Lindley, Edwards's Bot. Reg. 21: ad t. 1777. 1835.

粗脉石仙桃 cu mai shi xian tao

*Coelogyne pallida* (Lindley) H. G. Reichenbach; *Pholidota schlechteri* Gagnepain; *P. tixieri* Guillaumin; *P. yunnanensis* Schlechter (1924), not Rolfe (1903); *P. yunpeensis* Hu.

Rhizome short, 5–6 mm in diam., densely covered with scaly sheaths, with many roots. Pseudobulbs contiguous, nearly narrowly oblong, 1.8–6 cm × 6–11 mm, slightly obtusely 4-ridged, apex 1-leaved. Leaf blade narrowly elliptic-oblancoolate to narrowly oblong-oblancoolate, 10–23 × 2.3–5.5 cm, papery, apex acute or acuminate and mucronate; petiole 1–4 cm. Inflorescence arising from young pseudobulbs, with nearly mature or immature leaf at anthesis, 10–25 cm; rachis nodding, densely many flowered; floral bracts broadly ovate-sagittate, conduplicate, concave, 3–5 mm, pubescent on margin, with many somewhat loosely arranged veins, acute to obtuse. Flowers white, slightly tinged with reddish; pedicel and ovary 3–4 mm. Dorsal sepal broadly elliptic, concave, 4–5 × 2.5–3 mm, dorsally carinate, apex acute; lateral sepals broadly ovate-oblong, oblique, 5–6 × 3–3.5 mm, dorsally carinate, ± connate at base. Petals ovate-elliptic, ca. 4 × 2–2.5 mm; lip shallowly saccate, 4–6 mm, 3-lobed; lateral lobes ovate, 1.5–2 mm; mid-lobe transversely oblong, ca. 3 × 4 mm, apex emarginate; saccate disk with 2 or 3 thick veins near base. Column ca. 3 mm, both sides with wings; wings above middle broader and nearly orbicular in ventral view. Capsule subobovoid, ca. 1 cm × 6 mm; fruiting pedicel 2–3 mm. Fl. Jun–Jul, fr. Oct.  $2n = 40$ .

Epiphytic on tree trunks in forests; 800–2700 m. S and SW Yunnan [Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam].

**5. *Pholidota roseans*** Schlechter, Repert. Spec. Nov. Regni Veg. 12: 107. 1913.

贵州石仙桃 gui zhou shi xian tao

Rhizome 2–4 mm in diam., ± covered with scaly membranous sheaths. Pseudobulbs cylindrical, 5–7 cm × ca. 4 mm, narrowed toward apex, apex 1-leaved. Leaf blade narrowly elliptic-lanceolate or narrowly oblong-lanceolate, 10–12 × 1.6–1.8 cm, papery, apex acuminate; petiole 2–2.5 cm. Inflorescence arising from young pseudobulbs with an immature leaf enclosed by sheaths, 10–15 cm; rachis 7–10 cm, laxly many flowered; floral bracts persistent, elliptic, concave, 3–4 mm. Flowers pale rose; pedicel and ovary 5–6(–15) mm. Dorsal sepal elliptic, concave, 8–10 × 3.5–4.5 mm, dorsally slightly carinate, apex mucronate; lateral sepals ovate, slightly oblique, nearly as large as dorsal sepal, dorsally carinate. Petals obliquely elliptic, slightly smaller than dorsal sepal; lip 9–11 mm, shallowly cupular near middle, base broadly cuneate; apical part broadly

ovate, 5–6 mm, 3-lobed; lateral lobes nearly orbicular, 1–1.5 mm; mid-lobe subquadrate, apex emarginate and mucronate, adaxially with 3 longitudinal lamellae; lamellae somewhat crested, median short, lateral longer, extending downward into thickened veins. Column ca. 5 mm, upper part with broad wings; rostellum broadly ligulate. Fl. Mar.

Lithophytic on rocks in thickets; 800–1200 m. S Guizhou [N Vietnam].

**6. *Pholidota leveilleana*** Schlechter, Repert. Spec. Nov. Regni Veg. 12: 107. 1913.

单叶石仙桃 dan ye shi xian tao

*Pholidota wenshanica* S. C. Chen & Z. H. Tsi.

Rhizome short, stout, 8–10 mm in diam., with scaly sheaths. Pseudobulbs borne close together, narrowly ovoid, oblong, or subcylindrical, 2.5–8 cm × 6–12 mm, apex 1- or 2-leaved. Leaf blade narrowly elliptic, narrowly elliptic-lanceolate, or oblong-lanceolate, 15–30 × 2–3.5 cm, apex acuminate; petiole 3.5–8 cm. Inflorescence arising from young pseudobulbs, with nearly mature leaf at anthesis, often ± pendulous, 13–25 cm or longer; sheaths 1.5–3 cm; rachis straight, laxly 12–35-flowered; floral bracts deciduous, elliptic or broadly ovate-rhombic, ± conduplicate, membranous. Flowers white and slightly tinged with pink, or yellowish brown, ca. 5 mm in diam., lip white, tinged with pale brown or with yellow blotches, stigma red; pedicel and ovary 3–4 mm. Sepals broadly ovate-elliptic, 5–7 × 3–6 mm, 7-veined, acute; lateral sepals dorsally carinate. Petals ovate-elliptic, 4–5 × 2.5–3 mm, 3–5-veined, obtuse; lip broadly oblong or subovate in outline, 5–6 × 3–3.5 mm, contracted into epichile and hypochile at apical 3/5; hypochile ca. 1 mm wide, shallowly cupular in center, margin spreading horizontally, with 3 or 4 thickened veins extending from base to above middle; epichile transversely oblong or elliptic, 4–5 mm wide, margin slightly undulate, apex emarginate. Column 2.2–3 mm, apex broadly winged. Capsule narrowly obovoid, ca. 2 cm × 5–6 mm; fruiting pedicel 2–3 mm. Fl. May, Dec.

Sparse forests, shaded rocks; 500–1600 m. N and W Guangxi, S Guizhou, SE Yunnan [Vietnam].

De Vogel (Orchid Monogr. 3: 116. 1988) stated in an addendum to his monograph of *Pholidota* that although he had not seen the holotype of *P. wenshanica*, “the description and the line drawings do agree so very well with *Pholidota leveilleana* Schltr. that I am convinced that it is conspecific with that species.”

**7. *Pholidota chinensis*** Lindley, J. Hort. Soc. London 2: 308. 1847.

石仙桃 shi xian tao

*Coelogyne chinensis* (Lindley) H. G. Reichenbach; *C. pholias* H. G. Reichenbach; *Pholidota chinensis* var. *cylindracea* Tang & F. T. Wang.

Rhizome creeping, 3–8 mm in diam. or thicker, with rather dense nodes and many roots. Pseudobulbs borne (3–)5–15 cm apart on rhizome, narrowly ovoid-oblong, variable in size, usually 1.6–8 cm × 5–23 mm; petiole 0.5–2 cm, apex 2-leaved.

Leaf blade turning blackish when dried, obovate-elliptic, oblanceolate-elliptic, or suboblong, 5–22 × 2–6 cm, with 3 rather conspicuous veins, apex acuminate, acute, or shortly caudate; petiole 1–5 cm. Inflorescence arising with young pseudobulb and young leaves from base of last pseudobulb, 12–38 cm; rachis often ± arching, several to 20-flowered, slightly flexuous; floral bracts persistent at least at end of flowering, oblong to broadly ovate, often ± conduplicate, 1–1.7 × 0.6–0.8 cm. Flowers white or tinged yellowish; pedicel and ovary 4–8 mm. Dorsal sepal elliptic or ovate-elliptic, cymbiform, 7–10 × 4.5–6 mm, dorsally slightly carinate; lateral sepals ovate-lanceolate, slightly narrower than dorsal sepal, conspicuously carinate. Petals lanceolate, 9–10 × 1–2.5 mm (see note below); lip ± broadly ovate in outline, slightly 3-lobed, basal half saccate and with 2 suborbicular lateral lobes on both sides; mid-lobe ovate, 4–5 × 4–5 mm, mucronate. Column 4–5 mm, winged above middle; rostellum broadly ligulate. Capsule obovoid-ellipsoid, 1.5–3 × 1–1.6 cm, 6-ridged, with narrow wings on 3 ridges; fruiting pedicel 4–6 mm. Fl. Apr–May, fr. Sep–Jan.  $2n = 38, 40$ .

Epiphytic on trees or lithophytic on rocks in forests or at forest margins, shaded places on cliffs; 900–2100 m. N Fujian, Guangdong, Guangxi, SW Guizhou, Hainan, SE Xizang, W to SE Yunnan, S Zhejiang [Myanmar, Vietnam].

De Vogel (Orchid Monogr. 3: 45. 1988) noted that one specimen from Hainan, *Lau 28054*, has unusually broad petals, ca. 4 mm wide, but in all other aspects fits in the description of *Pholidota chinensis*.

**8. *Pholidota longipes*** S. C. Chen & Z. H. Tsi, Acta Phytotax. Sin. 21: 346. 1983.

长足石仙桃 chang zu shi xian tao

Rhizome 4–8 mm in diam., stout, with scaly sheaths. Pseudobulbs rather dense, cylindrical, 4–11.5 cm × 3–4 mm, attenuate toward apex, apex 2-leaved. Leaf blade narrowly elliptic-lanceolate, 8–16 × 1.5–3 cm, papery, with many veins, long acuminate; petiole 1–3 cm. Inflorescence arising with young pseudobulb and young leaves from base of last pseudobulb, 6–10 cm; rachis 4–5 cm, 7–9-flowered; floral bracts persistent at least at end of flowering, ovate, concave, 5–6 × 2.5–3 mm. Flowers fragrant, white, ca. 1.2 cm in diam.; pedicel and ovary 1–1.2 cm. Sepals ovate, cymbiform, 11–12 × ca. 5 mm, 5-veined, obtuse or mucronate, dorsally carinate. Petals ovate-elliptic, slightly shorter than sepals, obtuse; lip ca. 1 cm, contracted at middle to form epichile and hypochile; hypochile saccate, ca. 5 × 2.5 mm, with 2 longitudinal lamellae near base; epichile oblong, ca. 5 × 3 mm, mucronate, base with 3 thickened ridges ca. 1 mm. Column ca. 3 mm, winged on both sides; rostellum broadly ligulate, ca. 1 mm. Capsule obovoid, ca. 1.8 × 1 cm, 3-ridged, ridges narrowly winged; fruiting pedicel 5–10 mm. Fl. Jan.

• Lithophytic on humid rocks in evergreen broad-leaved forests along limestone valleys; 1000–1400 m. SE Yunnan.

Curiously, this species was omitted from de Vogel's monograph of *Pholidota* (Orchid Monogr. 3. 1988). In FRPS 18 (394–397. 1999), this species was placed in the 2-leaved *P.* sect. *Chinenses* (H. G. Reichenbach) de Vogel.

**9. *Pholidota convallariae*** (E. C. Parish & H. G. Reichenbach)

J. D. Hooker, Hooker's Icon. Pl. 19: ad t. 1880. 1889.

凹唇石仙桃 ao chun shi xian tao

*Coelogyne convallariae* E. C. Parish & H. G. Reichenbach, Flora 55: 277. 1872.

Rhizome creeping, covered with scaly sheaths. Pseudobulbs narrowly ovoid, 2.5–5 × ca. 1.5 cm, apex 2-leaved. Leaf blade narrowly elliptic, 15–20 × 2–2.5 cm, obtuse or shortly acuminate; petiole 1–2 cm. Inflorescence arising with young pseudobulb and young leaves from base of last pseudobulb, 15–20 cm; rachis 10- or more flowered; floral bracts caducous, linear, 1–1.5 cm. Flowers fragrant, white or creamy white, sometimes with a pale green center, 5–6 mm in diam.; pedicel and ovary ca. 5 mm. Dorsal sepal suboblong or elliptic, ca. 5 × 2–2.5 mm, obtuse; lateral sepals obliquely ovate, slightly wider than dorsal sepal. Petals ovate-elliptic, 4–4.5 × ca. 2.5 mm, obtuse; lip shallowly saccate, ca. 4 mm, apex emarginate, base with 3 longitudinal lamellae ca. 1 mm. Column ca. 1.7 mm, stout, apex with a broad wing ca. 1.4 mm high; rostellum nearly transversely oblong, ca. 1.5 mm wide. Fl. unknown.

Epiphytic on trees in forests; ca. 1500 m. SW Yunnan [NE India, Myanmar, Thailand, Vietnam].

*Pholidota convallariae* is represented in China by var. *convallariae*; *P. convallariae* var. *breviscapa* Deori & J. Joseph, from India, is distinguished by an up to 7-flowered inflorescence, floral bracts ca. 7 × 7 mm, and five keels on the lip.

**10. *Pholidota cantonensis*** Rolfe, Bull. Misc. Inform. Kew 1896: 196. 1896.

细叶石仙桃 xi ye shi xian tao

*Pholidota uraiensis* Hayata.

Rhizome creeping, 2.5–3.5 mm in diam., branching, densely covered with scaly sheaths, nodes sparsely rooting. Pseudobulbs borne 1–3 cm apart on rhizome, narrowly ovoid to ovoid-oblong, 1–2 cm × 5–8 mm, embraced by leathery sheaths when young, apex 2-leaved. Leaf blade linear or linear-lanceolate, 2–8 × 0.5–0.7 cm, papery, margin often ± recurved, apex shortly acuminate or subacute; petiole 2–7 cm. Inflorescence arising with young pseudobulb and young leaves from base of last pseudobulb, 3–5 cm; rachis 10- or more flowered, straight; floral bracts caducous, ovate-oblong. Flowers white or yellowish, ca. 4 mm in diam.; pedicel and ovary 2–3 mm. Dorsal sepal ovate-oblong, ± cymbiform, 3–4 × ca. 2 mm, dorsally slightly carinate, apex obtuse; lateral sepals ovate, oblique, slightly wider than dorsal sepal. Petals broadly ovate-rhombic or broadly ovate, 2.8–3.3 × 2.8–3.2 mm; lip broadly elliptic, cymbiform, ca. 3 × 4–5 mm, subtruncate or obtuse; disk without appendages. Column ca. 2 mm, thick, winged on both apical sides; rostellum small. Capsule obovoid, 6–8 × 4–5 mm; fruiting pedicel 2–3 mm. Fl. Apr, fr. Aug–Sep.

• Lithophytic on rocks in forests or shaded places; 200–900 m. N Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Taiwan, Zhejiang.

**11. *Pholidota yunnanensis*** Rolfe, J. Linn. Soc., Bot. 36: 24. 1903.

云南石仙桃 yun nan shi xian tao

*Pholidota kouytcheensis* Gagnepain.

Rhizomes creeping, 4–6 mm in diam., branched, densely covered by leathery sheaths; roots 1.5–2 mm in diam. Pseudobulbs usually spaced 1–3 cm on rhizome, subcylindric, (1.5–)2–5 cm × 6–8 mm, somewhat attenuate toward apex, embraced by leathery sheaths when young, apex 2-leaved. Leaves shortly petiolate, lanceolate, 6–15 × 0.7–1.8(–2.5) cm, papery, veins plicate, subobtuse. Inflorescence arising with young leaves from rhizome near base of last pseudobulb, 7–9(–12) cm; rachis 15–20-flowered, sometimes slightly flexuous toward base; floral bracts deciduous during flowering, ovate-rhombic, 6–8 × 4.5–5.5 mm. Flowers white or pale flesh-colored, 3–4 mm in diam.; pedicel and ovary 3.5–5 mm. Dorsal sepal broadly ovate-elliptic or ovate-oblong, slightly concave, 3.2–3.8 × 2–2.5 mm, dorsally slightly carinate; lateral sepals broadly ovate-lanceolate, slightly narrower than dorsal sepal, concave, dorsally conspicuously carinate. Petals similar to dorsal sepal, neither concave nor carinate; lip sigmoid, oblong-obovate in outline, ca. 4 × 3 mm, apex subtruncate or obtuse and often inconspicuously

emarginate, slightly contracted and concave near base, forming a cupular or subglobose sac, ecallose; epichile 2.8–4 mm, abruptly recurved. Column 2–2.5 mm, apex winged and with 2 small teeth on both sides; rostellum broadly ligulate. Capsule obovoid-ellipsoid, ca. 1 cm × 6 mm, 3-ridged; fruiting pedicel 2–4 mm. Fl. May, fr. Sep–Oct.

Epiphytic on trees in forests or lithophytic on rocks along valleys; 1200–1700 m. Guangxi, Guizhou, W Hubei, W Hunan, NE to S Sichuan, S Yunnan [N Vietnam].

**12. *Pholidota missionariorum*** Gagnepain, Bull. Mus. Natl. Hist. Nat., sér. 2, 3: 146. 1931.

尖叶石仙桃 jian ye shi xian tao

*Pholidota rupestris* Handel-Mazzetti.

Rhizomes creeping, often branched, 2–3 mm in diam., densely covered with scaly sheaths, nodes sparsely rooting; roots 0.5–1 mm in diam. Pseudobulbs usually 5–10 mm apart on rhizome, bright yellowish when dried, ovoid to subcylindric, 1–3 cm × 5–12 mm, base embraced by leathery sheaths, apex 2-leaved. Leaf blade linear-oblong, nearly broadly linear, or lanceolate, 2–8 × 0.6–1 cm, thickly leathery, midvein concave and 2 lateral veins obviously convex adaxially, all 3 veins raised abaxially, margin slightly recurved, apex subacute to long acuminate; petiole 3–10 cm. Inflorescence arising with young leaves from rhizome near base of last pseudobulb, 3–8 cm; rachis straight, 3–9-flowered; floral bracts gradually falling off during flowering, ovate, 6–7 mm. Flowers white, tinged with green or reddish, 5–7 mm in diam.; pedicel and ovary 2–5 mm. Sepals ovate or broadly ovate, 3–5 × 2–2.5 mm, 1-veined; lateral sepals cymbiform, slightly oblique, narrower than dorsal sepal. Petals obovate-orbicular or elliptic, 2.5–3 × ca. 1.8 mm, 3-veined; lip nearly broadly oblong or obovate, ca. 4 × 3 mm, base slightly concave, margin crisped, apex obtusely mucronate or broadly emarginate; hypochile with 3 short keels at back; epichile 1–2 mm. Column 1.2–1.5 mm, thick, apex winged, slightly irregularly toothed; rostellum suberect, suborbicular. Capsule obovoid-ellipsoid, ca. 1 cm × 5 mm, slightly 3-ribbed; fruiting pedicel 1–2 mm. Fl. Jun, Oct–Nov, fr. Nov.

Epiphytic on trees in forests, lithophytic on shaded rocks; 1100–2600 m. C and SW Guizhou, SE Xizang, NW and SE Yunnan [Bhutan, Myanmar, N Vietnam].

