

27. GALEARIS Rafinesque, Herb. Raf. 71. 1833.

盔花兰属 *kui hua lan shu*

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Aceratorchis Schlechter; *Aorchis* Vermeulen; *Galeorchis* Rydberg.

Herbs, terrestrial, small to medium-sized. Rhizome creeping, usually short; roots fibrous to fleshy. Stem erect, terete, with tubular sheaths near base. Leaves basal or cauline, 1 or 2, alternate, rarely subopposite, base contracted into clasping sheath. Inflorescence erect, terminal, racemose, laxly 1- to several flowered, glabrous; floral bracts conspicuous, lanceolate to ovate, leaflike. Flowers resupinate, secund or not, showy, small to medium-sized; ovary twisted, pedicellate, glabrous. Sepals free, glabrous; dorsal sepal erect, often concave; lateral sepals and petals usually connivent with dorsal sepal and forming a hood; lip simple or obscurely 3-lobed, spurred at base or rarely spurless. Column stout; anther erect, base firmly adnate to apex of column, with 2 parallel or divergent locules; pollinia 2, granular-farinaceous, sectile, each attached to a viscidium by a slender caudicle; each viscidium enclosed in a sticky globe, both globes enclosed in a common bursicle formed by folding of rostellar arms; stigma lobes confluent, concave, beneath rostellum; rostellum slightly protruding, with 2 arms; auricles 2, winglike, on each side of column. Capsule erect.

About ten species: mainly in the N temperate zone, extending to alpine areas of subtropical Asia and North America; five species (two endemic) in China.

Galearis huanglongensis Q. W. Meng & Y. B. Luo (Bot. J. Linn. Soc. 158: 690. 2008), recently described from Sichuan (Songpan, 3000–3100 m), could not be treated here because no specimens were seen by the present authors.

- 1a. Lip similar to but shorter than petals, base not contracted or clawed, spurless 1. *G. tschiliensis*
- 1b. Lip distinct from and longer than petals, base contracted or shortly clawed, spurred.
 - 2a. Spur straight, stout, ca. 2 mm, much shorter than ovary 2. *G. spathulata*
 - 2b. Spur curved forward, slender, 6–10 mm, almost as long as to slightly longer than ovary.
 - 3a. Lip deeply 3-lobed near apex 5. *G. roborowskyi*
 - 3b. Lip simple, undivided.
 - 4a. Plants 1-leaved; leaf broadly elliptic, broadly ovate, or suborbicular, base abruptly contracted; rachis 1- or 2-flowered; lip 4–6 mm wide 3. *G. cyclochila*
 - 4b. Plants 2-leaved; leaf elliptic to oblong-lanceolate, base gradually attenuate; rachis 5- to more than 10-flowered; lip 8–9 mm wide 4. *G. wardii*

1. *Galearis tschiliensis* (Schlechter) S. C. Chen, P. J. Cribb & S. W. Gale, **comb. nov.**

河北盔花兰 *he bei kui hua lan*

Basionym: *Aceratorchis tschiliensis* Schlechter, Repert. Spec. Nov. Regni Veg. Beih. 12: 329. 1922; *A. albiflora* Schlechter; *Galeorchis albiflora* (Schlechter) Grubov; *Orchis aceratorchis* Soó; *O. tschiliensis* (Schlechter) Soó.

Plants 6–15 cm tall. Rhizome fleshy. Stem with 2 tubular sheaths at base, 1-leaved. Leaf basal, green, oblong-spatulate to spatulate, 3–5 × 1.2–2.6 cm, base gradually attenuate into conduplicate sheath, apex obtuse. Inflorescence 3–6 cm, slender; rachis 0.5–2.5 cm, with 1–6 secund flowers; floral bracts lanceolate, apex acuminate, basal one often longer than flower. Flowers spreading, pink, small to medium-sized; ovary cylindrical-fusiform, 1–13 mm including pedicel. Sepals rose-purple, oblong, subequal in size, 5–8 × 2.5–4 mm, 3-veined, apex obtuse; dorsal sepal erect, concave; lateral sepals spreading. Petals erect, forming a hood with dorsal sepal, purplish red, pale purple, or white, oblong-lanceolate, oblique, 4–7 × 2–3.5 mm, 1-veined, apex acute; lip similar to petals, spreading, simple, ovate-lanceolate to ovate-oblong, 4–6.8 × 3–3.8 mm, slightly shorter but broader than petals, base slightly concave, spurless, margin entire to slightly undulate, apex obtuse or subacute. Fl. Jun–Aug, fr. Jul–Sep.

• Forests, meadows; 1600–4100 m. Gansu, Hebei, S Qinghai, Shaanxi, Shanxi, NW Sichuan, Xizang, Yunnan.

2. *Galearis spathulata* (Lindley) P. F. Hunt, Kew Bull. 26: 172. 1971.

二叶盔花兰 *er ye kui hua lan*

Gymnadenia spathulata Lindley, Gen. Sp. Orchid. Pl. 280. 1835; *Aorchis spathulata* (Lindley) Vermeulen; *A. spathulata* var. *foliosa* (Finet) Soó; *A. spathulata* var. *wilsonii* (Schlechter) Soó; *Galearis diantha* (Schlechter) P. F. Hunt; *Galeorchis diantha* (Schlechter) Soó; *G. reichenbachii* Nevski; *G. spathulata* (Lindley) Soó; *G. spathulata* var. *wilsonii* (Schlechter) Soó; *Habenaria spathulata* (Lindley) Benth; *Orchis diantha* Schlechter; *O. spathulata* (Lindley) H. G. Reichenbach ex Benth (1881), not Linnaeus (1781); *O. spathulata* var. *foliosa* Finet; *O. spathulata* var. *wilsonii* Schlechter; *Ponerorchis diantha* (Schlechter) Soó.

Plants 8–15 cm tall. Rhizome slender. Stem with 1 or 2 tubular, somewhat membranous sheaths at base, (1 or)2(or)3-leaved. Leaves subopposite, narrowly spatulate-oblong, narrowly spatulate, or elliptic, 2.3–9 × 0.5–3 cm, base gradually attenuate into a long conduplicate sheath, apex obtuse-rounded to acute. Inflorescence 4–10 cm, slender to slightly fleshy; rachis to 2 cm, with 1–5 often secund flowers; floral bracts spreading, suboblong to narrowly elliptic-lanceolate, apex ob-

tuse or acute, basal one often equal to or longer than flower. Flowers spreading, purple, medium-sized to relatively large; ovary fusiform, 7–9 mm including pedicel. Sepals rose-purple, suboblong, 7–10 × 2.5–4 mm, subequal in length, apex obtuse; dorsal sepal erect, concave, 3(or 5)-veined; lateral sepals spreading, slightly oblique, 3-veined. Petals erect, forming a hood with dorsal sepal, purplish pink, ovate-oblong to broadly oblong, 6.5–8 × 2.5–3.5 mm, 3-veined, apex obtuse; lip simple, oblong, elliptic, ovate, or subsquare, 8–11 × 4–6.5 mm, longer than petals, base narrowed into a short claw, spurred, margin entire to slightly undulate, apex obtuse-rounded or subtruncate; disk purplish pink, spotted with dark purple, papillose; spur straight, cylindrical, short, ca. 2 mm, much shorter than ovary, stout. Fl. Jul–Aug, fr. Jul–Sep.

Open forests, scrub, alpine meadows, roadsides; 2300–4300 m. SE Gansu, NE Qinghai, Shaanxi, W Sichuan, E and S Xizang, NW Yunnan [Bhutan, India, Nepal].

3. *Galearis cyclochila* (Franchet & Savatier) Soó, Ann. Univ. Sci. Budapest. Rolando Eötvös, Sect. Biol. 11: 72. 1969.

卵唇盔花兰 luan chun kui hua lan

Habenaria cyclochila Franchet & Savatier, Enum. Pl. Jap. 2: 516. 1879; *Galeorchis cyclochilus* (Franchet & Savatier) Nevski; *Orchis cyclochila* (Franchet & Savatier) Maximowicz.

Plants 9–19 cm tall. Rhizome fleshy. Stem slender, with 1 or 2 tubular, membranous sheaths at base, 1-leaved. Leaf green, broadly elliptic, broadly ovate, or suborbicular, 5–9 × 2.5–5 cm, thickly textured, base abruptly contracted into a conduplicate sheath, apex obtuse or obtuse-rounded. Inflorescence 5–12 cm, slender, ca. 1 mm in diam.; rachis branching at apex of scape, (1 or)2-flowered; floral bracts subopposite, oblong-lanceolate to narrowly ovate, 1–2.5 cm, apex obtuse to subacute. Flowers spreading, pink, relatively large; ovary cylindrical, 9–13 mm including pedicel, slender. Dorsal sepal erect, pink, broadly lanceolate to oblong-ovate, concave, 6–9 × 3–4 mm, 3-veined, apex acuminate; lateral sepals spreading, pink, ovate-lanceolate, oblique, 7–10 × 2.5–3 mm, 3-veined, apex acuminate. Petals erect, forming a hood with dorsal sepal, pale pink to white, narrowly oblong to linear-lanceolate, 6–9 × 1.2–2 mm, 1-veined, apex subobtuse; lip spreading, simple, ovate-orbicular, 7–10 × 4–6 mm, longer than petals, basally contracted into a claw, spurred, margin irregularly wavy-dentate, apex obtuse-rounded; disk pale pink, spotted with purple, papillose; spur pendulous, slightly curved forward, linear-cylindrical, slender, 6–9 mm, almost as long as ovary, attenuate toward end, apex subacute. Fl. May–Jun, fr. Jul–Aug. $2n = 42$.

Forests, scrub; 1000–2900 m. Heilongjiang, Jilin, NE Qinghai [Japan, Korea, Russia].

4. *Galearis wardii* (W. W. Smith) P. F. Hunt, Kew Bull. 26: 172. 1971.

斑唇盔花兰 ban chun kui hua lan

Orchis wardii W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 215. 1921.

Plants 12–25 cm tall. Rhizome stout, fleshy. Stem stout,

with 2 or 3 tubular sheaths at base, 2-leaved. Leaves green, elliptic to oblong-lanceolate, 7–15 × 2.5–4.5 cm, thickly textured, base gradually attenuate into a conduplicate sheath, apex obtuse-rounded or mucronate. Inflorescence 3.5–8 cm, stout, 2–3 mm in diam.; rachis to 3 cm, 5- to more than 10-flowered; floral bracts lanceolate, basal ones to 3.5 cm, much longer than flowers, apex acuminate. Flowers spreading, whitish pink to purple, spotted with dark purple, relatively large; ovary cylindrical, 10–12 mm including pedicel. Sepals pinkish purple, inner surfaces spotted with purple, subequal in length, 8–9 × 3–3.5 mm, 3-veined; dorsal sepal erect, narrowly ovate-lanceolate, apex obtuse; lateral sepals spreading horizontally or reflexed, falcate to narrowly ovate-lanceolate, apex slightly obtuse. Petals erect, forming a hood with dorsal sepal, pinkish purple spotted with deep purple, ovate-lanceolate, ca. 7 × 2.5 mm, 3-veined; lip simple, spreading, pinkish purple spotted with deep purple to purplish black, broadly ovate to suborbicular, 8–9 × 8–9 mm, longer than petals, base contracted, spurred, margin strongly erose and wrinkled, apex obtuse-rounded; spur pendulous, cylindrical, slightly curved forward, 7–10 mm, almost as long as ovary, slender, apex obtuse. Fl. Jun–Jul, fr. Jul–Aug.

• Forests, alpine meadows; 2400–4500 m. W Sichuan, E Xizang, NW Yunnan.

5. Galearis roborowskyi (Maximowicz) S. C. Chen, P. J. Cribb & S. W. Gale, **comb. nov.**

北方盔花兰 bei fang kui hua lan

Basionym: *Orchis roborowskyi* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 31: 104. 1887; *Aorchis roborowskyi* (Maximowicz) Seidenfaden; *Chusua roborowskyi* (Maximowicz) P. F. Hunt; *Galearis paxiana* (Schlechter) P. F. Hunt; *G. stracheyi* (J. D. Hooker) P. F. Hunt; *G. szechenyiana* (H. G. Reichenbach ex Kanitz) P. F. Hunt; *Galeorchis paxiana* (Schlechter) Soó; *G. roborowskyi* (Maximowicz) Nevski; *G. stracheyi* (J. D. Hooker) Soó; *G. szechenyiana* (H. G. Reichenbach ex Kanitz) Soó; *Orchis paxiana* Schlechter; *O. stracheyi* J. D. Hooker; *O. szechenyiana* H. G. Reichenbach ex Kanitz.

Plants 5–15 cm tall. Rhizome fleshy. Stem with 2 or 3 tubular sheaths at base, 1 (or 2)-leaved. Leaves basal, ovate, ovate-orbicular, or narrowly oblong, 3–9 × 1–2.5 cm, base attenuate into a clasping sheath, apex obtuse to subacute. Inflorescence 5–10 cm, somewhat slender; rachis 2–3.5 cm, with 1–5 often secund flowers; floral bracts ovate-lanceolate to lanceolate, apex acuminate, basal one often longer than flower. Flowers spreading, pinkish white or purple, medium-sized; ovary fusiform, 8–10 mm including pedicel. Sepals purplish red, nearly equal in size, 6–7 × ca. 4 mm; dorsal sepal erect, ovate to ovate-oblong, concave, 3-veined, apex obtuse; lateral sepals erect to slightly spreading, ovate-oblong, oblique, 3-veined, apex obtuse. Petals erect, forming a hood with dorsal sepal, purplish red, ovate, 5–6 × ca. 2.5 mm, slightly smaller than sepals, 3-veined, apex obtuse to acute; lip spreading horizontally, purple, deeply 3-lobed near apex, broadly ovate, ca. 7 × 8–9 mm, longer than petals, base contracted, spurred; lateral lobes triangular to obtusely triangular, margin undulate, apex acuminate to obtuse; mid-lobe oblong to triangular, apex obtuse; spur pendulous, curved forward, cylindrical, 6–9 mm, almost as long as to slightly longer than ovary, slender, apex obtuse. Fl. Jun–Jul, fr. Jul–Sep.

Forests, scrub, alpine meadows; 1700–4500 m. Gansu, Hebei, Henan, Qinghai, W Sichuan, Xinjiang, S Xizang [Bhutan, India, Nepal].

