

Herbs, terrestrial, slender. Tubers subglobose to ovoid, undivided, fleshy, neck with several slender roots. Stem erect, 1- or occasionally 2-leaved, glabrous or occasionally pubescent. Leaves basal or caulescent, usually green and unspotted, rarely with purple-brown blotches, oblanceolate, elliptic, or ovate, base contracted into amplexicaul sheath. Inflorescence at base, 3-lobed; disk often papillose; mid-lobe often divided, forming 2 lobules; spur cylindric to narrowly conic, short to ovate, 1-veined. Petals free, often connivent with dorsal sepal and forming a hood, usually wider than sepals; lip spreading, spurred at base, 3-lobed; disk often papillose; mid-lobe often divided, forming 2 lobules; spur cylindric to narrowly conic, short to elongate. Column very short; anther usually erect, oblong-ellipsoid to obovoid, 2-locular, locules parallel or slightly divergent; pollinia mauve, or purple, rarely yellow; ovary usually straight, twisted, shortly pedicellate, cylindric-fusiform, glabrous. Sepals free, oblong to ovate, 1-veined. Petals free, often connivent with dorsal sepal and forming a hood, usually wider than sepals; lip spreading, spurred at base, 3-lobed; disk often papillose; mid-lobe often divided, forming 2 lobules; spur cylindric to narrowly conic, short to elongate. Column very short; anther usually erect, oblong-ellipsoid to obovoid, 2-locular, locules parallel or slightly divergent; pollinia 2, oblong, sectile, granular-farinaceous; caudicles straplike; viscidia naked, oblong-ovate; rostellum rather small, 3-lobed, base with ± ascending arms on both sides, margin adnate to column; stigma ventral, 3-lobed, lobes confluent, relatively large, flat to somewhat raised; auricles 2, large, stout, placed laterally at base of anther. Capsule suberect.

About 30 species: E Asia and adjacent areas; 22 species (21 endemic) in China.

The generic affinity of several of the entities presently referred to *Amitostigma* remains questionable and in need of re-examination; many of the endemic Chinese taxa are poorly known.

1a. Plants 2-leaved (*A. alpestre* rarely 1-leaved).

2a. Leaves cauline, widely spaced.

3a. Lip obovate, 3-lobed near middle, 4.5–5.5 mm wide, longer than broad; lateral lobes ovate-oblong, ca. 0.5 mm wide; spur 4–4.5 mm ................................................................. 17. *A. alpestre*

3b. Lip orbicular to transversely elliptic, 3-lobed toward apex, ca. 8.5 mm wide, broader than long; lateral lobes quadrate, ca. 2.5 mm wide; spur 5–7 mm ......................................................... 18. *A. yuanum*

2b. Leaves basal, suboppositae.

4a. Rachis 1-flowered ................................................................. 19. *A. papilionaceum*

4b. Rachis 3- to more than 10-flowered.

5a. Leaves usually appressed to substratum; petals ca. 5 × 3 mm; lip ca. 9 mm ................................................. 22. *A. physoceras*

5b. Leaves erect to porrect; petals 3–3.5 × 1.5–2 mm; lip 4.5–6 mm.

6a. Lip 3-lobed below middle; lateral lobeslinear ........................................................... 20. *A. bifoliatum*

6b. Lip 3-lobed above middle; lateral lobes ovate ........................................................... 21. *A. wenshanense*

1b. Plants 1-leaved.

7a. Leaf appressed to substratum, adaxially with purplish brown blotches ................................................. 1. *A. hemipilioides*

7b. Leaf erect or porrect, uniformly green.

8a. Rachis 1- or rarely 2-flowered.

9a. Spur 8–17 mm, ca. as long as to exceeding ovary.

10a. Lip 3-lobed toward apex, 11–15 × 13–19 mm; lateral lobes broadly oblong-ovate, ca. 5 mm wide ................................................................. 6. *A. pinguicula*

10b. Lip 3-lobed below middle, 8–10 × 6–10 mm; lateral lobes linear-oblong or ovate-triangular, 1–3 mm wide.

11a. Dorsal sepal 4–5 mm; spur 11–12 mm ................................................................. 7. *A. dolichocentrum*

11b. Dorsal sepal ca. 7 mm; spur 8–9 mm ................................................................. 8. *A. tibeticum*

9b. Spur 2–4 mm, usually much shorter than ovary.

12a. Stem densely pubescent around leaf base; floral bract much shorter than ovary;

lip 5–6 mm ................................................................. 2. *A. amplexifolium*

12b. Stem glabrous; floral bract nearly as long as to exceeding ovary; lip 7–15 mm.

13a. Flower yellow ................................................................. 3. *A. simplex*

13b. Flower pale purple, pink, or white.

14a. Leaf 0.1–0.4 cm wide; petals broadly ovate, 4.5–5.5 mm wide ......................................................... 4. *A. farreri*

14b. Leaf 0.6–1 cm wide; petals ovate, 1.6–2 mm wide ......................................................... 5. *A. monanthum*

8b. Rachis usually 3- or more flowered (*A. faberi* rarely 1- or 2-flowered).

15a. Mid-lobe of lip 4–7 mm wide, nearly as broad as to broader than long.

16a. Ovary and pedicel 15–25 mm; dorsal sepal ca. 7 mm; lip ca. 13 mm ............................. 16. *A. gonggashanicum*
16b. Ovary and pedicel 6–10 mm; dorsal sepal 2.5–3.5 mm; lip 5–7.5 mm.

17a. Peduncle ebracteate; spur 2–3 mm ................................................................. 14. *A. basifoliatum*

17b. Peduncle with 1 sterile bract; spur 5–6 mm ............................................... 15. *A. faberi*

15b. Mid-lobe of lip 0.5–3.5 mm wide, much longer than broad.

18a. Mid-lobe of lip ca. 3.5 mm wide, deeply divided above middle to form 2 distinct lobules ................................................................. 9. *A. parceflorum*

18b. Mid-lobe of lip 0.5–2 mm wide, apex truncate, obtuse-rounded, occasionally emarginate or shallowly notched.

19a. Lateral lobes of lip oblong-obovate, 1.6–2 mm wide; spur 3.5–6 mm ............... 10. *A. tetralobum*

19b. Lateral lobes of lip lanceolate, linear-oblong, ovate-oblong, or triangular, 0.3–0.8 mm wide; spur 1–2.5(–3.5) mm.

20a. Peduncle ebracteate; flowers white; mid-lobe of lip ca. 1.6 mm ................. 11. *A. capitatum*

20b. Peduncle with 1 or 2 sterile bracts; flowers pink, rose-pink, purplish red, or purple; mid-lobe of lip 2–4 mm.

21a. Plants 7–25 cm tall; leaf usually basal; lip 3-lobed above middle ................. 12. *A. gracile*

21b. Plants 24–36 cm tall; leaf cauline; lip 3-lobed below middle ...................... 13. *A. trifurcatum*


卵叶无柱兰 luan ye wu zhu lan

*Gymnadenia hemipilioides* Finet, Rev. Gén. Bot. 13: 515. 1901; *Amitostigma microhemipilia* Schlechter; *Chusua hemipilioides* (Finet) P. F. Hunt; *Hemipilia silvatica* Kraenzlin; *Orchis microhemipilia* (Schlechter) Soó; *Ponerorchis hemipilioides* (Finet) Soó.

Plants 8–12 cm tall. Tubers oblong, 8–12 × 5–10 mm. Stem with 2 tubular sheaths at base, 1-leaved. Leaf basal, appressed to substratum, adaxially with purplish brown blotches, ovate-orbicular to oblong, 1.5–2.2 × 0.8–2.5 cm, apex acute. Peduncle with 1 or 2 lanceolate sterile bracts; rachis to 5.5 cm, subdensely (2 or)3–12-flowered; floral bracts ovate, much shorter than ovary, apex acute. Flowers pinkish white, with pinkish purple spots on lip; ovary and pedicel ca. 7 mm. Dorsal sepal oblong-ovate, concave, 3–3.5 × 1.5–1.8 mm, 1-veined, apex obtuse; lateral sepals oblong-ovate, slightly oblique, ca. 3.5 × 1.7 mm, apex subobtuse. Petals convolute with dorsal sepal and forming a hood, oblong, slightly oblique, 2.7–3 × 1.2–1.5 mm, 1-veined, margin irregularly serrulate, apex obtuse; lip obovate, 5–7 × 4–4.5 mm, base cuneate, margin 3-lobed above middle, margin irregularly serrulate; disk finely papillate; lateral lobes oblong-quadrate, oblique, ca. 1 × 1 mm, 3- or 4-veined, apex subacute; mid-lobe quadrate, ca. 2 × 2 mm, apex obtuse; spur horizontal and curving downward to pendulous, cylindrical, 3–4 mm, apex obtuse; viscidia subovoid; stigma lobes oblong. Fl. Jun–Jul.

- Rocky soils, moist places in forests, crevices; 2400–2500 m. C. Guizhou, NW Yunnan.


抱茎叶无柱兰 bao jing ye wu zhu lan

Plants 6–10 cm tall. Tubers globose, ca. 5 mm in diam. Stem with 1 tubular sheath at base, 1-leaved, densely pubescent around leaf base. Leaf subbasal to cauline, porrect, elliptic to oblong-elliptic, 1–2 × 0.5–1 cm, apex acute. Rachis 1- or 2-flowered; floral bracts oblong-elliptic, much shorter than ovary, apex obtuse or acute. Flower white, with purplish red spots; ovary and pedicel 8–10 mm. Dorsal sepal elliptic, ca. 3.5 × 2–2.3 mm, apex obtuse; lateral sepals elliptic, slightly oblique, ca. 4 × 2.5 mm, apex obtuse. Petals elliptic, slightly oblique, ca. 3 × 2 mm, apex truncate-obtuse; lip obovate, 5–6 × 4–5 mm, base cuneate, 3-lobed below middle; lateral lobes calcate-oblong, apex obtuse; mid-lobe cuneate-oblancoate, margin erose, shallowly notched near apex to form 2 small lobules, sinus with a small tooth; spur pendulous, cylindrical, curved, ca. 2 mm, much shorter than ovary; viscidia ovate-triangular; stigma lobes oblong. Fl. Jul.

- Forests. W Sichuan.


黄花无柱兰 huang hua wu zhu lan

Plants 5–14 cm tall. Tubers ovoid to subglobose, 4–5 mm in diam. Stem with 1 or 2 tubular sheaths at base, 1-leaved. Leaf basal, porrect, linear to oblong-elliptic, 1.5–4 × 0.3–0.6 cm, apex acute or obtuse. Peduncle ebracteate; rachis 1-flowered; floral bracts lanceolate, 6–10 mm, nearly as long as ovary, apex acute or acuminate. Flower erect, yellow, sometimes spotted with brown, rather large; ovary and pedicel 8–9 mm. Dorsal sepal narrowly oblong, concave, 3.8–6 × 1.3–3 mm, 1-veined, apex obtuse; lateral sepals spreading, narrowly oblong-elliptic, falcate, 4.2–8 × 1.5–4 mm, 1-veined, apex obtuse. Petals convolute with dorsal sepal and forming a hood, ovate, oblique, 3.7–5.5 × 1.8–3.5 mm, 1-veined, apex obtuse; lip broadly obovate, 7–15 × 6–13 mm, deeply 3-lobed near middle; lateral lobes oblong-obovate, falcate, 3–7 × 3–6 mm, apex rounded; mid-lobe obcordate to flabellate, 3–5 × 4–8 mm, margin undulate, apex emarginate or shallowly notched; spur pendulous, cylindrical, 3–4 mm, much shorter than ovary, apex obtuse. Fl. Jul–Aug.

- Grassy slopes; 2300–4400 m. W Sichuan, NW Yunnan.

长苞无柱兰  chang bao wu zhu lan

Orchis farreri (Schlechter) Soó.

Plants 3.5–9 cm tall. Tubers globose, ca. 5 mm in diam. Stem with 2 tubular sheaths at base, 1-leaved. Leaf subbasal, porrect, linear to narrowly oblong, 1.5–5 × 0.1–0.4 cm, apex acute. Rachis 1-flowered; floral bracts narrowly lanceolate, exceeding ovary, apex acute. Flower pink; ovary and pedicel 4–5 mm. Dorsal sepal erect, ovate-oblong, concave, 5–7.5 × 4–5 mm, 3-veined, apex obtuse; lateral sepals ovate-oblong, slightly oblique, 5.5–8 × 4–5 mm, apex subobtuse. Petals connivent with dorsal sepal and forming a hood, broadly ovate, oblique, 5–7 × 4.5–5.5 mm, 3-veined, margin slightly undulate, apex obtuse; lip obovate, 7–12 × 5–8 mm, base broadly cuncate, 3-lobed below middle; lateral lobes triangular, 2–3 × ca. 1 mm, margin crenulate, apex acute; mid-lobe obcordate-obovate, 5–9 × 5–9 mm, margin crenulate, apex notched to form 2 distinct lobules, sinus with a small acute tooth; spur pendulous, straight, cylindric, slightly incurved, 11–12 mm, 3-veined below middle; lateral lobes oblong-ovate, 7–12 × 5–8 mm, 3-veined, apex obtuse; vescidia ellipsoid; stigma lobes oblong. Fl. Aug.

－花无柱兰 yi hua wu zhu lan


Plants 6–10 cm tall. Tubers ovoid to subglobose, ca. 5 mm in diam. Stem with 1 or 2 tubular sheaths at base, 1-leaved, occasionally pubescent. Leaf basal, erect to porrect, lanceolate, narrowly oblong, or obovate-oblanceolate, 2–3 × 0.6–1 cm, apex acute or obtuse. Peduncle ebracteate; dorsal sepal erect, oblong-ovate, concave, 4.4–5.5 × 1.6–1.8 cm, 1-veined, apex obtuse; lateral sepals spreading to reflexed, narrowly oblong-elliptic, 4.5–5 × ca. 1.6 mm, apex subobtuse. Petals loosely connivent with dorsal sepal and forming a hood, ovate, slightly oblique, 3.8–4.4 × 1.6–2 mm, 1-veined, apex obtuse; lip ovate-ovaribicular, 8–10 × 8–10 mm, base shortly clawed, deep 3-lobed below middle; floral bract ovate-lanceolate, 5–7 × 1.5–2 mm, margin slightly undulate, apex obtuse; vescidia oblong-ovate, 6–7.5 × ca. 7 mm, much wider than lateral lobes, margin usually entire or sometimes slightly undulate, apex slightly emarginate to deeply notched to form 2 distinct lobules; spur pendulous, straight, cylindric, 2.5–4 mm, much shorter than ovary, apex obtuse; vescidia ovate; stigma lobes subsquare. Fl. Jul.–Aug.

- 草花无柱兰 chang ju wu zhu lan


Plants 7–16 cm tall. Tubers ovoid, 10–15 mm in diam. Stem with 1 or 2 tubular sheaths at base, 1-leaved. Leaf subbasal, porrect, linear-oblongate, narrowly elliptic, oblong-ovate, or ligulate-oblong, 1.5–8 × 0.6–1.2 cm, apex subacute. Peduncle with 1 or 2 lanceolate sterile bracts; rachis 1- or rarely 2-flowered; floral bract linear-lanceolate, 5–6 mm, much shorter than ovary, apex acuminate. Flower rose-red to purplish red, rather large; ovary 9–17 mm including pedicel, very slender. Dorsal sepal erect, ovate, 5–7 × 3–4 mm, 1-veined, apex acute; lateral sepals spreading to reflexed, ovate-lanceolate, slightly oblique, 6–8 × 3–4 mm, 2- or 3-veined, apex acute. Petals loosely connivent with dorsal sepal and forming a hood, broadly ovate, slightly oblique, 3.5–4.5 × ca. 3 mm, 3-veined, apex obtuse; lip flabellate, 11–15 × 13–19 mm, base cuneate, 3-lobed toward apex; lateral lobes broadly oblong-ovate, ca. 4 × 5 mm, apex truncate; mid-lobe broadly ovate, ca. 4 × 7.5 mm, apex truncate to slightly emarginate; spur horizontal to pendulous, straight to slightly curved, narrowly conic, 15–17 mm, usually exceeding ovary, gradually attenuate, apex acute; vescidia subovate; stigma lobes narrowly oblong. Fl. Apr.–May.

- 岩生无柱兰 yan sheng wu zhu lan

Diplomeris chinensis is tentatively referred to the synonymy of this species.


长距无柱兰 chang ju wu zhu lan

Plants 6–8 cm tall. Tubers ovoid, ca. 5.5 mm. Stem with 2 tubular sheaths at base, 1-leaved, pubescent. Leaf subbasal, porrect, elliptic or ovate, 0.7–2 × 0.3–0.8 cm, apex acute. Peduncle with 1 foliaceous, ovate sterile bract; rachis 1-flowered; floral bract ovate-lanceolate, ca. 5 mm, much shorter than ovary, apex acuminate. Flower erect, color not recorded, rather large; ovary and pedicel 10–12 mm. Dorsal sepal erect, oblong-elliptic, 4–5 × 2.5–3 mm, 3-veined, apex obtuse; lateral sepals reflexed, oblong-ovate, oblique, 5–6 × 2–3 mm, 3-veined, apex obtuse. Petals loosely connivent with dorsal sepal and forming a hood, oblong-ovate, 4–5 × 2.5–3 mm, 3-veined, apex obtuse; lip orbicular-ovate, deeply 3-lobed near base, 8–10 × 8–10 mm; lateral lobes linear-oblong, slightly oblique, 5–6 × 1–1.3 mm, 1- or 2-veined, apex obtuse; mid-lobe spatulate, ca. 7 × 3.5–5 mm, 3-5-veined, margin slightly crenulate, apex obtuse-rounded; spur pendulous, cylindric, slightly incurved, 11–12 mm, ca. as long as to slightly exceeding ovary, neck wide, attenuate toward apex, apex obtuse. Fl. Jul.

- W Sichuan.

西藏无柱兰 xi zang wu zhu lan

Orchis tibetica (Schlechter) Soó.

Plants 6–8 cm tall. Tubers ellipsoid to globose, ca. 5 mm in diam. Stem purple, with 1 or 2 tubular sheaths at base, 1-leaved. Leaf subbasal, erect, purple, ligulate, lanceolate, or oblanceolate, 2.5–3 × 0.5–0.6 cm, apex subacute or subobtuse. Peduncle ebracteate; rachis 1-flowered; floral bract oblong-lanceolate, 8–14 mm, exceeding ovary, apex subacute. Flower suberect, pinkish purple to mauve, rather large; ovary and pedicel 7–10 mm. Dorsal sepal erect, narrowly ovate-oblong, slightly concave, ca. 7 × 2–3 mm, 3-veined, apex obtuse; lateral sepals spreading to reflexed, sometimes twisted, narrowly ovate-oblong, slightly oblique, ca. 7 × 3.5 mm, 3-veined, apex obtuse. Petals loosely connivent with dorsal sepal and forming a hood, narrowly ovate, slightly oblique, ca. 6 × 3 mm, 2-veined; lip obovate to obcordate, 4.5–6 × 4–5 mm, margin irregularly serrate, apex acute or obtuse; mid-lobe obcordate, 4.5–6 × 4–5 mm, margin irregularly serrate, apex slightly emarginate; spur pendulous, cylindric, slightly incurved, 8–9 mm, ca. as long as to slightly exceeding ovary, slightly attenuate, apex obtuse; viscidium ovoid; stigma lobes oblong, ca. 1.8 mm, apex obtuse. Petals loosely connivent with dorsal sepal and forming a hood, broadly ovate, slightly oblique, 2.8–3.5 × ca. 2 mm, apex obtuse; lip rhombic-obovate, 4.5–6(–8) × 3.5–4 mm, 3-lobed near middle; disk finely papillate; lateral lobes oblong-obovate, 2.5–3 × 1.6–2 mm, apex obtuse-truncate; mid-lobe oblong-obovate, 2.5–4 × ca. 2 mm, base attenuate, apex usually obtuse-truncate, or occasionally emarginate to shallowly notched to form 2 small lobules; spur ± pendulous, slightly incurved, cylindric, 3.5–6 mm, slightly dilated toward apex, apex obtuse; viscidium narrowly elliptic; stigma lobes clavate. Fl. Jun.–Aug.

● Alpine meadows; 3600–4400 m. SE Xizang, NW Yunnan.


少花无柱兰 shao hua wu zhu lan


Plants 10–15 cm tall. Tubers subglobose, ca. 8 × 6 mm. Stem with 2 tubular sheaths at base, 1-leaved. Leaf cauline, porrect, linear to elliptic-lanceolate, ca. 3.5 × 0.4 cm, apex acute. Peduncle ebracteate; rachis 2–4 cm, laxly 3–5-flowered; floral bracts lanceolate, ca. 3 mm, much shorter than ovary, apex acute. Flowers rose-red; ovary and pedicel 7–9 mm. Dorsal sepal erect, ovate-oblong, slightly concave, 2–3 × ca. 1.3 mm, 1-veined, apex obtuse; lateral sepals spreading, oblong, slightly oblique, 2.2–3.5 × ca. 1.4 mm, 1-veined, apex obtuse. Petals erect or loosely connivent with dorsal sepal and forming a hood, ovate, oblique, 2–3 × ca. 1.7 mm, 1-veined, apex acute; lip obvate-obovate, 6–8 × ca. 4 mm, 3-lobed below middle; lateral lobes narrowly oblong, slightly falcate, 3–4 × ca. 1 mm, broadening slightly toward apex, apex truncate-obtuse; mid-lobe oblongate, ca. 5 × 3.5 mm, widening gradually from narrow base, deeply divided above middle to form 2 distinct lobules, sinus usually with a small tooth; spur pendulous, straight to slightly incurved, cylindric, 4–6 mm, shorter than ovary, attenuate toward apex, apex acute; viscidium oblong; stigma lobes oblong. Fl. Jul.

● Forests; ca. 2000 m. Chongqing, NE Sichuan.


滇蜀无柱兰 dian shu wu zhu lan

Peristylus tetralobus Finet, Rev. Gén. Bot. 13: 524. 1901; Amitostigma yunnanense Schlechter; Orchis tetraloba (Finet) Schlechter; O. tetraloba var. yunnanensis (Schlechter) Soó.

Plants 7–26 cm tall. Tubers subglobose to oblong, 10–15 × 5–10 mm. Stem with 2 tubular sheaths at base, 1-leaved. Leaf cauline, porrect, linear-lanceolate, 2–8 × 0.3–0.8 cm, apex acute. Peduncle ebracteate or with 1 occasionally foliaceous sterile bract; rachis 1–3.5 cm, laxly to subdensely 3- to more than 10-flowered; floral bracts lanceolate, 3–6 mm, usually shorter than ovary, apex acute. Flowers secund, pink to pale purple; ovary and pedicel 6–9 mm. Dorsal sepal erect, oblong-ovate, concave, 2.5–3.3 × ca. 2 mm, 1-veined, apex obtuse; lateral sepals spreading to reflexed, ovate, slightly oblique, 3–4 × ca. 1.8 mm, 1-veined, apex obtuse. Petals loosely connivent with dorsal sepal and forming a hood, broadly ovate, slightly oblique, 2.8–3.5 × ca. 2 mm, 1-veined, apex obtuse; lip rhombico-obovate, 4.5–6(–8) × 3.5–4 mm, 3-lobed near middle; disk finely papillate; lateral lobes oblong-obovate, 2.5–3 × 1.6–2 mm, apex obtuse-truncate; mid-lobe oblong-obovate, 2.5–4 × ca. 2 mm, base attenuate, apex usually obtuse-truncate, or occasionally emarginate to shallowly notched to form 2 small lobules; spur ± pendulous, slightly incurved, cylindric, 3.5–6 mm, slightly dilated toward apex, apex obtuse; viscidium narrowly elliptic; stigma lobes clavate. Fl. Jun.–Aug.

● Rocky soils in forests, grassy slopes; 1500–2700 m. SW Sichuan, SW and W Yunnan.


头序无柱兰 tou xu wu zhu lan

Plants 8–14 cm tall. Tubers ellipsoid, 6–8 mm. Stem with 1 or 2 tubular sheaths at base, 1-leaved. Leaf cauline, porrect, narrowly elliptic to narrowly oblong, 3.5–5 × 0.5–1.5 cm, apex acute. Peduncle ebracteate; rachis 0.8–1 cm, densely several to more than 10-flowered; floral bracts lanceolate, 3–5 mm, nearly as long as ovary, apex acuminate. Flowers white; ovary and pedicel 4–6 mm. Dorsal sepal ovate-elliptic, concave, 2–2.2 × 1.5–1.7 mm, inner surface finely papillate, 1-veined, apex obtuse; lateral sepal ovate-elliptic, oblique, 2.5–3 × 2–2.2 mm, inner surfaces finely papillate, 1-veined, apex obtuse. Petals broadly ovate, oblique, 1.5–1.8 × 1.8–2 mm, inner surfaces finely papillate, 2-veined, apex obtuse; lip obvate, ca. 5 × 3.3 mm, concave at base, 3-lobed near middle; lateral lobes ovate-oblong, slightly oblique, ca. 1.5 × 0.5 mm, apex obtuse; mid-lobe oblong, ca. 1.6 × 0.5 mm, apex truncate and shallowly notched, sinus with a small, acute tooth; spur pendulous, globose, ca. 1 mm, apex rounded; viscidium oblong; stigma lobes clavate. Fl. Jul.

● Rocky soils and damp places in forests; 2600–3600 m. W Hubei, E and W Sichuan.


无柱兰 wu zhu lan

*Mitosigma gracile* Blume, Mus. Bot. 2: 190. 1856; *Amitostigma chinense* (Rolfe) Schlechter; *A. formosensis* (S. S. Ying) S. S. Ying; *A. yunkianum* Fukuyama; *Cynosorchis chinensis* Rolfe; *C. gracios (Blume) Kraenzlin; *Gymnadenia gracilis* (Blume) Miquel; *G. tryphiiformis* H. G. Reichenbach; *Orchis formosensis* S. S. Ying; *O. gracilis* (Blume) Soó; *O. gracilis var. chinensis* (Rolfe) Soó; *O. sooi* S. S. Ying; *O. yunkiana* (Fukuyama) S. S. Ying; *Ponerorchis formosensis* (S. S. Ying) S. S. Ying.

Plants 7–25 cm tall. Tubers ovoid to oblong-ellipsoid, 8–15 × 5–10 cm. Stem with 1 or 2 tubular sheaths at base, 1-leaved. Leaf usually basal, porrect, oblong to ovate-lanceolate, 3–12 × 0.8–3 cm, apex obtuse or acute. Peduncle with 1 sterile bract; rachis 0.5–4 cm, subdensely 5– to more than 15-flowered; floral bracts ovate-lanceolate, 2–3 mm, much shorter than ovary. Flowers often secund, pink, purplish red, or purple; ovary and pedicel 4–8 cm, usually straight. Dorsal sepal ovate, concave, 2–3 × 1.2–2 mm, 1-veined, apex obtuse; lateral sepal erect, spreading to ovate, slightly oblique, 2–3 × 1.8 mm, 1-veined, apex obtuse. Pedicels connivent with dorsal sepal and forming a hood, elliptic to ovate, oblique, 2–3 × ca. 2 mm, 1-veined, apex acute to obtuse; lip obovate, 3.5–(5–)7 × 2.5–3.2 mm, 5–7(–9)-veined, base cuneate, 3-lobed above middle; lateral lobes linear-oblong to triangular, often falcate, 1–2 × 0.5–0.8 mm, apex truncate or acute; mid-lobe ovate, 2.8 × 1.2–1.8 mm, larger than lateral lobes, apex truncate or obtuse-rounded, sometimes emarginate; spur pendulous, straight to very slightly incurved, cylindric, 1.25–(3.5) mm, much shorter than ovary, apex obtuse; viscidia elliptic; stigma lobes subclavate. Fl. Jun–Jul, fr. Sep–Oct. 2n = 42.

Damp rocky soils in forests, crevices, valleys; 200–3000 m. Anhui, N Fujian, Guangxi, Guizhou, Hebei, Henan, Hubei, Jiangsu, Liaoning, Shaanxi, Shandong, Sichuan, Taiwan, Zhejiang [Japan, Korea].


三叉无柱兰 san cha wu zhu lan

Plants 24–36 cm tall. Tubers globose, 7–10 mm in diam. Stem with 2 tubular sheaths at base, 1-leaved. Leaf cauline, porrect, narrowly oblong-lanceolate, 5.5–7.5 × 0.5–0.7 cm, apex acute. Peduncle with 2 occasionally foliaceous sterile bracts; rachis 2–6 cm, subdensely 6–9-flowered; floral bracts lanceolate, 4–5 mm, shorter than ovary, apex acuminate. Flowers secund, rose-pink with darker spots on lip; ovary and pedicel 6–7 mm. Dorsal sepal erect, narrowly elliptic-lanceolate, 3.4 × 1–1.5 mm, 1-veined, apex subacute; lateral sepal spreading to reflexed, narrowly elliptic-lanceolate, slightly oblique, 3.2–4.2 × 1–1.5 mm, apex subacute. Petals forming a hood to erect, narrowly ovate-lanceolate, slightly oblique, 3–3.8 × ca. 1.5 mm, apex obtuse; lip narrowly elliptic, 5.7–7.5 × 2.4–3.3 mm, with 5 stout, raised veins, 3-lobed below middle; lateral lobes lanceolate to narrowly triangular, 1.5–1.8 cm, apex obtuse or acute; mid-lobe oblong-ligulate, 3.5–4 × 1–1.5 mm, apex obtuse; spur pendulous, subconic to broadly cylindric, 1–1.5 mm, apex obtuse; viscidia narrowly ovate, large; stigma lobes subclavate. Fl. Sep.

● Marshes, wet grasslands; ca. 2900 m. NW Yunnan.


四裂无柱兰 si lie wu zhu lan


Plants 10–23 cm tall. Tubers subglobose, 5–10 mm. Stem with 2 tubular sheaths at base, 1-leaved. Leaf basal or cauline, porrect, narrowly oblong-lanceolate, 3.5–7 × 0.5–1.4 cm, apex acute. Peduncle ebracteate; rachis 0.5–3 cm, ± laxly 4– to densely more than 10-flowered; floral bracts ovate-lanceolate, 3–6 mm, shorter than ovary, apex acute to acuminate. Flowers secund, white often tinged pinkish red, with purple spots on lip; ovary and pedicel 6–10 mm. Dorsal sepal erect, ovate-oblong, concave, 3–3.5 × ca. 1.7 mm, 1-veined, apex obtuse; lateral sepals spreading to reflexed, oblong, oblique, 4–4.5 × ca. 2 mm, 1-veined, apex obtuse. Petals connivent with dorsal sepal and forming a hood, rhombic-ovate, 4.5–4.5 × ca. 2.5 mm, 1-veined, apex acute; lip broadly obovate, 5–7 × 7–9 mm, 3-lobed below middle; lateral lobes oblong, slightly falcate, 3–5 × 2–3 mm, apex irregularly obtsute-toothed; mid-lobe obovate-flabellate, 4–5 × 4–6 mm, base cuneate, apex truncate, irregularly crenulate to slightly notched to form 2 small lobules, sinus often with a short obtuse tooth; spur pendulous, straight to slightly incurved, cylindric, 2–3 mm, apex obtuse; viscidia ovoid; stigma lobes clavate-oblong. Fl. Jun–Jul.

● Damp places in forests, grassy slopes; 2600–3800 m. SW Sichuan, NE and NW Yunnan.


峨眉无柱兰 e mei wu zhu lan


Plants 3.5–15(–21) cm tall. Tubers ovoid, 5–10 mm. Stem with 1 or 2 tubular sheaths at base, 1-leaved. Leaf cauline, porrect, linear-lanceolate to narrowly oblong-elliptic, 3–6 × 0.5–1.3 cm, apex acute or obtuse. Peduncle with 1 sterile bract; rachis 1.5–8 cm, several to more than 10-flowered (rarely 1- or 2-flowered); floral bracts ovate-lanceolate, ca. 3 mm, much shorter than ovary, apex acuminate. Flowers often secund, pinkish purple; ovary and pedicel 8–10 mm. Dorsal sepal broadly oblong-elliptic, concave, 2.5–3.5 × 2–3 mm, 1-veined, apex obtuse; lateral sepals spreading, broadly ovate, slightly oblique, 3–4 × 2–3 mm, 1-veined. Petals connivent with dorsal sepal and forming a hood, broadly ovate-orbicular, slightly oblique, 2.3 × 2–3 mm, 1-veined, margin somewhat undulate, apex obtuse; lip broadly ovate-orbicular, 6.7–7.5 × 6.2–7.5 mm, base cuneate, 3-lobed below middle; disk densely papillose; lateral lobes overlapping mid-lobe, oblong, slightly falcate, 2.5–3.8 × ca. 1.5 mm, apical margin crenate, apex obtuse; mid-lobe obovate, 3.4–2.6 × 6–7 mm, base cuneate and shortly...
clawed, apical margin irregularly crenate, deeply notched toward apex to form 2 distinct lobules, sinus with an obtuse tooth; spur pendulous, slightly incurved, cylindrical, 5–6 mm, slightly dilated toward apex, apex obtuse; viscidia ovate-lanceolate; stigma lobes clavate. Fl. Jul.

- Forests; scrub, valleys, crevices, alpine grasslands, grassy slopes; 600–2300–4300 m. NE Guizhou, Sichuan, NW Yunnan.


贡嗄无柱兰 gongsha wu zhu lan

Plants 16–30 cm tall. Tubers ovoid to globose, 10–15 × ca. 10 mm. Stem with 2 tubular sheaths at base, 1-leaved. Leaf cauline, erect, narrowly oblong-elliptic, 5.5–8 × 0.6–1.6 cm, apex acute. Peduncle ebracteate; rachis 2.5–5 cm, subdensely 3–14-flowered; floral bracts lanceolate or ovate-lanceolate, shorter than ovary, apex acute. Flowers purplish red, 1–1.5 cm in diam.; ovary and pedicel 7–8 mm. Dorsal sepal erect, concave, oblong, ca. 4 × 1.5–2 mm, 1-veined, apex obtuse; lateral sepals reflexed, ovate-oblong, slightly oblique, ca. 5 × 2.5 mm, 1-veined, apex acute. Petals loosely connivent with dorsal sepal and forming a hood; ovate, ca. 3 × 2 mm, 3-veined, margin crenulate; stigma lobes elliptic. Fl. Jun–Aug.

- On moss in Rhododendron thickets, alpine grasslands; 3000–3700 m. SE Xizang, NW Yunnan.


台湾无柱兰 tai wan wu zhu lan

__Orchis alpestre__ (Fukuyama) S. S. Ying.

Plants 5–20 cm tall. Tubers ovoid to subglobose, 5–7 × 3–4 mm. Stem with 2 tubular sheaths at base, (1 or)2-leaved. Leaves cauline, erect to porrect, usually widely spaced, oblanceolate to linear, 3.5–7.5 × 0.5–1 cm, apex acute. Peduncle ebracteate; rachis less than 1 cm, 3-veined, margin crenulate, apex acute. Flowers purplish red, 1–1.5 cm in diam.; ovaries and pedicel ca. 7 mm. Dorsal sepal erect, oblong-ovate, ca. 7 × 3.5 mm, 3-veined, apex obtuse; lateral sepals spreading, oblong-ovate, slightly oblique, ca. 7.2 × 3.5 mm, 3-veined, apex obtuse. Petals connivent with dorsal sepal and forming a hood, ovate, ca. 6 × 4 mm, 3(–5)-veined, apex obtuse; lip broadly ovate, ca. 13 × 13 mm, with a dense cluster of hairs near base, deeply 3-lobed near base; lateral lobes obvate, ca. 4 × 4 mm, margin undulate, apex obtuse; mid-lobe broadly obvate, ca. 7 × 6 mm, margin undulate, deeply notched toward apex to form 2 distinct lobules, sinus with a small obtuse tooth; spur pendulous, cylindrical-conic, ca. 4 mm, apex obtuse; viscidia ovate; stigma lobes elliptic. Fl. Jun–Jul.

- Forests; 2400–3800 m. SW Sichuan.


齿片无柱兰 chi pian wu zhu lan

Plants 7.5–15 cm tall. Tubers globose, 3–5 mm in diam. Stem with 1 or 2 tubular sheaths at base, 2-leaved. Leaves caulinne, erect to porrect, widely spaced, narrowly ovate, oblong-lanceolate, or oblanceolate, 0.6–3.5 × 0.3–0.6 mm, apex acute. Peduncle ebracteate; rachis 1- or 2-flowered; floral bracts narrowly ovate to oblong-lanceolate, 7–8 mm, as long as ovary, apex acute or acuminate. Flowers pink or white, 1–1.5 cm in diam.; ovary and pedicel 7–8 mm. Dorsal sepal erect, concave, oblong, ca. 4 × 1.5–2 mm, 1-veined, apex obtuse; lateral sepals reflexed, ovate-oblong, slightly oblique, ca. 5 × 2.5 mm, 1-veined, apex acute. Petals loosely connivent with dorsal sepal and forming a hood, ovate, ca. 3 × 2 mm, 3-veined, margin crenulate, apex acute; lip orbicular to transversely elliptic, ca. 7 × 8.5 mm, 3-lobed toward apex; disk finely papillate; lateral lobes obvate, oblique, ca. 2 × 2.5 mm, slightly widened toward apex, 3-veined, apical margin crenulate, apex truncate; mid-lobe subquadrate, smaller than lateral lobes, ca. 1.3 × 2 mm, 3-veined, apex truncate and shallowly notched, sinus with a small acute tooth; spur pendulous, straight to slightly incurved, cylindrical, 5–7 mm, slightly shorter than ovary, slightly attenuate toward apex, apex obtuse; viscidia ellipsoid; stigma lobes oblong. Fl. Jul.–Aug.

- On moss in Rhododendron thickets, alpine grasslands; 3000–3700 m. SE Xizang, NW Yunnan.


蝶花无柱兰 die hua wu zhu lan

Plants 2–3.5 cm tall. Tubers oblong, 6–10 × ca. 4 mm. Stem with tubular sheaths at base, 2-leaved. Leaves basal, subopposite, porrect, ovate-orbicular, elliptic, or lanceolate, 0.3–0.7 × 0.1–0.6 cm, slightly fleshy, apex acute. Peduncle ebracteate; rachis 1-flowered; floral bract ovate-lanceolate, ca. 3 mm, much shorter than ovary, apex acute. Flowers pink or white, 1–1.5 cm in diam.; ovaries and pedicel ca. 7 mm. Dorsal sepal erect, ovate-lanceolate, concave, 4.5–5 × 1.3–1.5 mm, 1-veined, apex obtuse; lateral sepals spreading, oblong-lanceolate, slightly oblique, 4.5–5.5 × 2–2.5 mm, 1- or 2-veined, apex obtuse; lip broadly elliptic-obovate, 7–9 × 5–8 mm, deeply 3-lobed below middle; lateral lobes linear-oblong, 3.4–5.5 × 1–2 mm, 1-veined, apex obtuse; mid-lobe spatulate to obovate, 5–5.5 × 4–5 mm, 3-veined, margin denticulate, apex rounded; spur pendulous, globose, 1–2 mm, apex rounded. Fl. Jul.

- Rocky soils, cliffs; ca. 2500 m. NW Sichuan.

**棒距无柱兰** bang ju wu zhu lan

Plants 6.5–17 cm tall. Tubers ovoid to ellipsoid, ca. 10 × 5–6 mm. Stem with 2 tubular sheaths at base, 2-leaved. Leaves basal, subopposite, erect to porrect, broadly ovate to ovate-lanceolate, 1.5–3 × 0.4–0.8 cm, apex acute to acuminate. Peduncle ebracteate; rachis 2–5 cm, subdensely several to more than 10-flowered; floral bracts lanceolate, shorter than ovary, apex acuminate. Flowers mostly secund, pale purple; ovary and pedicel ca. 8 mm. Dorsal sepal elliptic-ovate, concave, ca. 4 × 2 mm, 1-veined, apex acute; lateral sepals reflexed, ovate-lanceolate, slightly oblique, ca. 4 × 2 mm, 1-veined, apex acute. Petals connivent with dorsal sepal and forming a hood, ovate, oblique, ca. 3.5 × 1.5 mm, 1-veined, apex acute; lip rombic, ca. 6 × 5–7 mm, 3-lobed below middle; disk finely papillate; lateral lobes linear; mid-lobe cuneate-oblong, ca. 3 mm, apex slightly dilated and irregularly serrulate; spur pendulous, slightly incurved, cylindric-clavate, ca. 3 mm, neck contracted, apex obtuse; viscidia elliptic; stigma lobes clavate. Fl. Aug–Sep.

● Damp places, shrubby slopes, grasslands; 700–1200 m. S Gansu, N Sichuan.


**文山无柱兰** wen shan wu zhu lan

Plants ca. 20 cm tall. Tubers oblong, ca. 40 × 15 mm. Stem with 1 or 2 tubular sheaths at base, 2-leaved. Leaves basal, subopposite, erect to porrect, oblong-oblanceolate, 6–6.5 × 1–1.6 cm, apex acute. Peduncle ebracteate; rachis 1.5–2.5 cm, subdensely 6–9-flowered; floral bracts ovate-lanceolate, 1.5–2.5 mm, shorter than ovary, apex acute. Flowers not secund; ovary and pedicel ca. 8 mm. Dorsal sepal oblong-lanceolate, ca. 3 × 2 mm, 1-veined, apex obtuse; lateral sepals reflexed, obovate, oblique, ca. 4 × 2.5 mm, 1-veined, apex acute. Petals connivent with dorsal sepal and forming a hood, ovate, oblique, ca. 3 × 2 mm, 1-veined, apex acute; lip ovate, 4.5–5 × ca. 1.5 mm, 3-lobed above middle; disk with 2 short longitudinal lamellae; lateral lobes ovate; mid-lobe lanceolate, ca. 1.8 mm, apex obtuse; spur pendulous, slightly incurved, subglobose, ca. 1.3 mm, apex rounded. Fl. Aug.

● Damp places in forests; ca. 3000 m. Yunnan.


**球距无柱兰** qiu ju wu zhu lan

*Orchis physoceras* (Schlechter) Soó.

Plants 6–11 cm tall. Tubers subglobose, ca. 10 mm in diam. Stem 2-leaved. Leaves basal, subopposite, usually appressed to substratum, ovate to ovate-lanceolate, 1–2 × 0.7–1.4 cm, apex acute to subacuminate. Peduncle ebracteate; rachis to 6 cm, subdensely 3–10-flowered; floral bracts lanceolate, much shorter than ovary, apex acuminate. Flowers secund, pinkish purple; ovary and pedicel 5–9 mm. Dorsal sepal erect, lanceolate to ovate-lanceolate, concave, ca. 5 × 2 mm, 1-veined, apex acuminate; lateral sepals reflexed, lanceolate to ovate-lanceolate, slightly oblique, concave, ca. 5 × 2 mm, 1-veined, apex acuminate; lip rombic, ca. 6 × 5–7 mm, 3-lobed below middle; disk finely papillate; lateral lobes linear; mid-lobe cuneate-oblong, ca. 3 mm, apex slightly dilated and irregularly serrulate; spur pendulous, slightly incurved, cylindric-clavate, ca. 3 mm, neck elongate, apex obtuse; viscidia elliptic; stigma lobes clavate. Fl. Aug–Sep.
acuminate. Petals ovate-lanceolate, ca. 5 × 3 mm, 1-veined, apex acute; lip ovate, ca. 9 × 7–8 mm, base broadly cuneate, deeply 3-lobed; disk finely papillate; lateral lobes slightly diverging, obovate-subrhombic, oblique, ca. 3 mm, apical margin subcrenulate, apex obtuse; mid-lobe suborbicular-ovate, ca. 5 × 4 mm, margin irregularly denticulate, apex obtuse; spur pendulous, with a short, contracted neck and then dilated and globose, ca. 3 mm, much shorter than ovary; viscidia elliptic; stigma lobes clavate. Fl. Jul–Aug.

- Forests, damp places along cliffs, valleys; 2000–2700 m. NW and W Sichuan.