

## 20. SPIRANTHES Richard, De Orchid. Eur. 20, 28, 36. 1817, nom. cons.

绶草属 shou cao shu

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*Aristotelea* Loureiro (1790), not *Aristotela* Adanson (1763), nor *Aristotelia* L'Héritier (1785–1786, nom. cons.); *Gyrostachys* Persoon ex Blume; *Ibidium* Salisbury ex Small; *Monustes* Rafinesque; *Orchiastrum* Séguier.

Herbs, terrestrial, acaulescent. Roots fasciculate, fusiform, fleshy, glabrous. Leaves basal, forming a rosette, linear, elliptic, or broadly ovate, rarely subcylindric, base sheathing. Inflorescence terminal, racemose with many small flowers arranged spirally around rachis. Flowers resupinate, horizontal or nodding, not opening widely, small; ovary twisted, fusiform. Sepals free, narrowly elliptic to lanceolate, subsimilar; dorsal sepal erect, often connivent with petals and forming a hood; lateral sepals dilated or sometimes saccate at base. Petals erect, oblanceolate, recurved; lip entire or obscurely 3-lobed, shortly clawed, apex recurved, undulate, lateral margins embracing column; disk usually papillose, with 2 fleshy glands at base. Column clavate, ventrally pubescent; anther erect, 2-locular, on dorsal surface of column; pollinia 2, each 2-partite, granular-farinaceous, with or without short caudicle and attached to narrow viscidium; rostellum erect, 2-lobed at apex after removal of viscidium; stigma suborbicular to elliptic. Capsule ellipsoid.

About 50 species: mainly in North America, with a few species in Africa, Asia, Australia, Central and South America, and Europe; three species (two endemic) in China.

- 1a. Flowers purplish red or pink; floral bracts, ovary, and sepals glabrous ..... 1. *S. sinensis*
- 1b. Flowers white; floral bracts, ovary, and sepals glandular pubescent.
  - 2a. Dorsal sepal ca. 4 mm, apex obtuse ..... 2. *S. hongkongensis*
  - 2b. Dorsal sepal ca. 6 mm, apex acute ..... 3. *S. sunii*

**1. *Spiranthes sinensis*** (Persoon) Ames, Orchidaceae 2: 53. 1908.

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*Neottia sinensis* Persoon, Syn. Pl. 2: 511. 1807; *Gyrostachys australis* (R. Brown) Blume; *G. stylites* (Lindley) Kuntze; *Monustes australis* (R. Brown) Rafinesque; *N. amoena* M. Bieberstein; *N. australis* R. Brown; *N. australis* var. *chinensis* Ker Gawler; *Spiranthes amoena* (M. Bieberstein) Sprengel; *S. australis* (R. Brown) Lindley; *S. australis* var. *suishaensis* Hayata; *S. sinensis* var. *amoena* (M. Bieberstein) H. Hara; *S. sinensis* var. *australis* (R. Brown) H. Hara & S. Kitamura; *S. stylites* Lindley; *S. suishaensis* (Hayata) Schlechter.

Plants 13–30 cm tall. Roots 2–3 mm in diam. Leaves 2–5, erect and spreading, broadly linear to broadly linear-lanceolate, rarely narrowly oblong, 3–10 × 0.5–1 cm, apex acute or acuminate, with an indistinct petiole-like base. Inflorescence erect, 10–25 cm, glabrous; rachis 4–10 cm, with many spirally arranged flowers; floral bracts ovate-lanceolate, glabrous, apex long acuminate. Flowers purplish red or pink; ovary pale green, 4–5 mm including pedicel, glabrous. Dorsal sepal forming a hood with petals, narrowly oblong, cymbiform, ca. 4 × 1.5 mm, glabrous, apex subacute; lateral sepals lanceolate, slightly oblique, ca. 5 × 2 mm, glabrous, base slightly gibbous, apex subacute. Petals rhombic-oblong, oblique, ca. as long as dorsal sepal, thinly textured, apex obtuse; lip broadly oblong, 4–5.5 × ca. 2.5 mm, shortly clawed, concave base containing 2 clavate glands, lateral margins erect, apical margin with strongly wrinkled teeth, apex obtuse and recurved; disk papillate. Column erect, ca. 2 mm; anther ovoid; pollinia ca. 1 mm; rostellum narrowly triangular-lanceolate; stigma discoid, weakly 3-lobed, slightly raised. Fl. Jul–Aug. *2n* = 24, 30, 32.

Open and moist areas in forests, thickets, wet grasslands, mead-

ows, marshes; 200–3400 m. Almost throughout China [Afghanistan, Bhutan, India, Japan, Kashmir, Korea, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Russia (Siberia), Thailand, Vietnam; Australia].

**2. *Spiranthes hongkongensis*** S. Y. Hu & Barretto, Chung Chi J. 13(2): 2. 1976.

香港绶草 xiang gang shou cao

Plants 11–44 cm tall. Roots 1.5–3.5 mm in diam. Leaves 2–6, erect and spreading, linear to oblanceolate, 4–12 × 0.5–0.9 cm, apex acute. Inflorescence erect, 10–42 cm, becoming densely glandular pubescent distally; rachis 3.5–13 cm, with many spirally arranged flowers; floral bracts lanceolate, sparsely glandular pubescent, apex acuminate. Flowers creamy white; ovary green, ca. 4 mm, glandular pubescent. Dorsal sepal forming a hood with petals, oblong, cymbiform, ca. 4 × 1.5 mm, outer surface glandular pubescent, apex obtuse; lateral sepals oblong-lanceolate, slightly oblique, ca. 4 × 1.5 mm, outer surface glandular pubescent, apex obtuse. Petals sometimes tinged pale pink, oblong, slightly oblique, ca. as long as dorsal sepal, thinly textured, apex obtuse; lip broadly oblong, 4–5 × ca. 2.5 mm, basal portion thickened and with 2 transparent, spherical glands, lateral margins erect and crisped, apex truncate-obtuse and recurved; disk papillate. Column erect, ca. 1 mm; anther ovoid; pollinia ca. 1 mm; rostellum triangular-lanceolate; stigma slightly raised, shield-shaped, distinctly 3-lobed. Fl. Mar–Apr. *2n* = 60\*.

• Open moist to dry hillsides, grasslands, meadows; 800–900 m. Hong Kong.

Since it was first described, this species has largely been ignored by subsequent authors who have referred it to synonymy of *Spiranthes sinensis*. However, Hu and Barretto (Chung Chi J. 13(2): 4–6. 1976) identified the often densely glandular pubescent rachis, glandular pubescent floral bracts and sepals, and the broad, distinctly 3-lobed stigma as

clear morphological characters that distinguish it from *S. sinensis*. More recently, Sun (Amer. J. Bot. 83: 252–260. 1996) demonstrated that *S. hongkongensis* is an allopolyploid probably derived from natural hybridization between *S. sinensis* and *S. spiralis* (Linnaeus) Chevallier. Though *S. hongkongensis* has only been confirmed from Hong Kong to date, it is likely to be more widespread, particularly where the two parental species are sympatric; re-examination of herbarium material may result in the revoking of its endemic status, and synonymy may have to be re-assigned.

**3. *Spiranthes sunii*** Boufford & Wen H. Zhang, Harvard Pap. Bot. 13: 261. 2008.

宋氏绶草 song shi shou cao

Plants 8–20 cm tall. Roots up to ca. 5 mm in diam. Leaves 5–7, spreading, elliptic to narrowly lanceolate, 2–6.5 × 0.5–1.2 cm, apex acute, basally contracted into a distinct petiole-like stalk. Inflorescence erect, 8.5–21 cm, basally sparsely glandular pubescent, distally densely so; rachis 2.5–6 cm, with several to many spirally arranged flowers; floral bracts obovate, elliptic, or rhombic, sparsely glandular pubescent, apex acuminate. Flowers white; ovary green, 4–6 mm, glandular pubescent. Dorsal sepal forming a hood with petals, oblong, ca. 6 × 2 mm, outer surface glandular pubescent, apex acute; lateral sepals narrowly oblong, slightly oblique, 5–6 × ca. 0.8 mm, outer surface glandular pubescent, apex acute. Petals oblanceolate, slightly oblique, 5–6 × ca. 0.8 mm, apex obtuse; lip oblong, 5–6 × ca. 2 mm, basal portion with 2 clavate glands, lateral margins erect and shallowly erose, apex truncate and recurved; disk

glabrous. Column erect, ca. 1.5 mm; anther ovoid; pollinia ca. 1.5 mm; rostellum triangular. Fl. May.

• Open moist soil along streams, grasslands and mixed deciduous forests; 800–900 m. Gansu.

This taxon is clearly very similar to *Spiranthes hongkongensis*. Further comparative studies, including observations of chromosome numbers, are required.

