

1. CISTANCHE Hoffmannsegg & Link, Fl. Port. 1: 319. 1809.

肉苁蓉属 rou cong rong shu

Herbs perennial. Stems fleshy, usually unbranched, rarely 2- or 3-branched. Inflorescences spicate; bract 1; bractlets 2, rarely absent. Calyx tubular or campanulate, apex (4 or)5-lobed, rarely 5-parted, lobes usually equal. Corolla tubular-campanulate or funnellform, apex 5-lobed; lobes subequal. Stamens 4, inserted in corolla tube; anthers 2-celled, all fertile, usually pubescent. Ovary 1-locular, parietal placentas 4, rarely 2 or 6. Style slender, persistent; stigma 2-lobed. Capsule ovoid-globose or globose, dehiscent by 2(or 3) valves. Seeds subglobose; testa reticulate.

About 20 species: Asia, Europe; five species in China.

- 1a. Calyx campanulate, 4- or 5-parted, lobes linear or oblong-lanceolate, apex acuminate; corolla base villous adaxially.
  - 2a. Calyx 5-parted, lobes unequal; corolla lobes pale brown-yellow when dry ..... 2. *C. lanzhouensis*
  - 2b. Calyx 4-parted, lobes subequal; corolla lobes dark blue when dry ..... 1. *C. sinensis*
- 1b. Calyx tubular or campanulate, 5-lobed, lobes ovate or subrounded, apex obtuse, rarely acuminate; corolla base glabrous adaxially.
  - 3a. Anther cells obtuse-rounded at base ..... 3. *C. mongolica*
  - 3b. Anther cells acuminate at base.
    - 4a. Bracts subequalling corolla, linear-lanceolate or lanceolate; corolla brown when dry ..... 4. *C. deserticola*
    - 4b. Bracts ca. 1/2 as long as corolla, ovate-lanceolate; corolla yellow-white when dry..... 5. *C. salsa*

1. *Cistanche sinensis* Beck in Engler, Pflanzenr. IV. 261 (Heft 96): 38. 1930.

沙苁蓉 sha cong rong

Plants 15–70 cm tall. Stems 2–4(–6)-branched or simple. Leaves ovate-triangular or ovate-lanceolate, 0.5–2 cm × 4–8 mm. Inflorescences spicate, 5–15 cm, 4–6 cm in diam.; bract ovate-lanceolate or linear-lanceolate, 1.6–2 cm × 3–7 mm, along with bractlets and calyx lobes villous at margin and abaxially; bractlets shorter than calyx. Calyx campanulate, 1.2–2.2 cm, 4-lobed; lobes linear or oblong-lanceolate, 1–1.2 cm, apex acuminate. Corolla pale yellow, becoming dark blue when dry, tubular-campanulate, 2.2–3 cm, villous at base adaxially, apex 5-lobed; lobes 6–8 × 6–12 mm, entire, glabrous abaxially. Filaments 1.4–1.6 cm, villous at base; anthers long ovoid, densely villous, base mucronate. Ovary 6–7 × ca. 3 mm. Style longer than filaments; stigma subglobose. Capsule ovoid-globose or oblong, 1–1.5 × ca. 1 cm. Seeds brown, oblong-globose, ca. 0.4 mm. Fl. May–Jun, fr. Jun–Aug.

• Grasslands, slopes; 1000–2400 m. Gansu, Nei Mongol, Ningxia, NE Xinjiang. Parasitic on *Ammopiptanthus mongolicus* (Maximowicz) Cheng, *Caragana tibetica* Komarov, *Potania mongolica* Maximowicz, *Reaumuria soongarica* (Pallas) Maximowicz, *Salsola passerina* Bunge, *Tetraena mongolica* Maximowicz, and *Zygophyllum xanthoxylum* (Bunge) Maximowicz.

2. *Cistanche lanzhouensis* Z. Y. Zhang, Bull. Bot. Res., Harbin 4(4): 114. 1984.

兰州肉苁蓉 lan zhou rou cong rong

*Cistanche ningxiaensis* D. Z. Ma & J. A. Duan. Plants to 60 cm tall. Stems usually 2- or 3-branched, ca. 35 cm underground. Leaves ovate, 0.5–1.5 cm × (3–)5–7 mm, glabrous on both sides. Inflorescences 9–16 cm; bract long ovate or ovate-lanceolate, ca. 1.5–2.5 cm × 4–8 mm, along with bractlets densely white villous

abaxially; bractlets linear-lanceolate, (1.3–)1.5–2 cm. Pedicel very short to obsolete. Calyx campanulate, 1.8–2.5 cm, irregularly 5-parted; lobes unequal, acuminate. Corolla yellow, becoming pale brown-yellow when dry, tubular-campanulate, (2.5–)3.2–3.8 cm, apex 5-lobed; lobes 6–7 mm × 0.9–1.2 cm. Filaments 1.3–2 cm, along with corolla tube yellow villous adaxially; anthers ovoid, 3–3.5 mm, villous, base mucronate. Ovary subglobose, 6–8 mm in diam. Style (1.2–)1.5–2 cm. Fruit and seeds unknown. Fl. May–Jun.

Slopes. Gansu, S Nei Mongol, Ningxia [S and E Mongolia].

3. *Cistanche mongolica* Beck in Engler, Pflanzenr. IV. 261 (Heft 96): 34. 1930.

管花肉苁蓉 guan hua rou cong rong

Plants 60–100 cm tall. Stems unbranched. Leaves triangular, 2–3 cm × ca. 5 mm. Inflorescences spicate, 12–18 cm, 5–6 cm in diam.; bract ovate-lanceolate, 2–2.7 cm × 5–7 mm, glabrous on both sides, margin pubescent; bractlets linear-lanceolate, 1.5–1.7 cm × ca. 3 mm. Corolla rose- or violet-white, tubular-funnelform, 3.5–4.5 cm, glabrous at base; lobes 5, subrounded, subequal, ca. 8 × 10 mm, glabrous. Filaments 1.5–1.7 cm, base densely yellow-white villous; anthers ovoid, 4–6 mm, densely villous, base obtuse-rounded. Ovary long ovoid. Style 2.2–2.5 cm; stigma compressed globose. Capsule oblong, 1–1.2 cm × ca. 7 mm. Seeds subglobose, dark brown. Fl. May–Jun, fr. Jul–Aug.

Sandy places; ca. 1200 m. S Xinjiang [Afghanistan, India, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

Records of *Cistanche tubulosa* (Schenk) Wight from China represent misidentifications of plants of *C. mongolica*. *Cistanche mongolica* differs by having rose- or violet-white corollas to 4.5 cm, whereas *C. tubulosa* has yellow corollas to 3.6 cm.

4. *Cistanche deserticola* Ma, Acta Sci. Nat. Univ. Intramongol. 1960(1): 63. 1960.

肉苁蓉 *rou cong rong*

Herbs 0.4–1.6 m tall. Stems unbranched or 2–4-branched, 2–10 cm in diam. Leaves on lower part of stem ovate or triangular-ovate, 0.5–1.5 × 1–2 cm; leaves on upper part lanceolate or linear-lanceolate, 2–4 cm × 5–10 mm, glabrous. Inflorescences spicate, 15–50 cm; bract subequalling corolla, ovate-lanceolate or lanceolate, along with bractlets and corolla sparsely pubescent abaxially; bractlets ovate-lanceolate or lanceolate, subequalling calyx. Calyx campanulate, 1–1.5 cm; lobes 5, ca. 2.5 × 3–5 mm. Corolla pale yellow-white or pale purple, becoming brown when dry, tubular-campanulate, 3–4 cm, apex 5-lobed; lobes 4–6 × 6–10 mm. Filaments 1.5–2.5 cm, base villous; anthers long ovoid, 3.5–4.5 mm, densely villous, base mucronate. Ovary ellipsoid, ca. 1 cm. Style glabrous, usually persistent; stigma subglobose. Capsule ovoid-globose, 1.5–2.7 × 1.3–1.4 cm. Seeds ellipsoid or ovoid, 0.6–1 mm. Fl. May–Jun, fr. Jun–Aug.  $2n = 40^*$ .

Sandy places; 200–1200 m. Gansu, Nei Mongol, Ningxia, Xinjiang [Mongolia].

The stems are used medicinally for enriching the blood, invigorating the kidney and strengthening yang sexuality, and relaxing the bowels.

**5. *Cistanche salsa*** (C. A. Meyer) Beck in Engler and Prantl, Nat. Pflanzenfam. 4(3b): 129. 1895.

盐生肉苁蓉 *yan sheng rou cong rong*

*Phelipaea salsa* C. A. Meyer in Ledebour, Fl. Altaic. 2: 461. 1830; *Cistanche salsa* var. *albiflora* P. F. Tu & Z. C. Lou.

Herbs 10–45 cm tall. Stems unbranched, rarely 2- or 3-branched. Leaves ovate-oblong or ovate-lanceolate, 0.6–1.6 cm × 5–8 mm. Inflorescences 8–20 cm; bract ovate or oblong-lanceolate, 1–1.5(–2) cm, margin densely yellow-white villous, sparsely pubescent abaxially; bractlets oblong-lanceolate, subequalling calyx. Calyx pale yellow or white, campanulate, ca. 1/3 as long as corolla; lobes 5, ovate or subrounded, 2.5–3 × 3–3.5 mm. Corolla tubular-campanulate, 2.5–4 cm; tube white or yellow-white; lobes 5, pale purple or purple, subrounded, 5–7 × 5–7 mm. Filaments 1.2–1.4 cm; anthers long ovoid, ca. 2.5 mm, base mucronate, along with filament base densely white villous. Ovary ovoid. Style 1.6–2 cm, glabrous, persistent; stigma subglobose. Capsule ovoid or oblong, 1–1.4 cm × 8–9 mm. Seeds subglobose, ca. 0.5 mm in diam. Fl. May–Jun, fr. Jun–Sep.

Slopes; 700–2700 m. Gansu, Nei Mongol, Qinghai, Xinjiang [Kazakstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

Parasitic on species of the Chenopodiaceae.

