

## 6. GONIOLIMON Boissier in A. de Candolle, Prodr. 12: 632. 1848.

驼舌草属 tuo she cao shu

Herbs perennial. Caudex thickened, ± woody, stems usually many from 1 crown near ground. Leaves crowded on caudex or on branch apices of caudex, in a rosette. Inflorescences usually 1 or 2 from rosette, axillary, 1–3 × branched; spikes on apical part or at apex of rachis branches, composed of 2–13 or more spikelets arranged distichously; spikelet 2–5-flowered; bracts and first bractlet with a membranous margin wider than herbaceous parts, apex rigidly and thickly cuspidate; first bractlet shorter than bracts. Calyx funnellform; tube upright or basally oblique, indistinctly herbaceous along ribs, scarious between ribs; limb white, dry membranous, expanded, apically 5- or 10-lobed. Corolla basally fused, apically free and expanded. Stamens adnate to base of corolla. Ovary oblong to ovoid-oblong, apex acute. Styles 5, free, basal half papillate; stigmas depressed capitate. Capsule oblong to ovoid-oblong.

About 20 species: N Africa, Asia, Europe; four species in China.

- 1a. Spikes compactly crowded into 1 or more capitate or conical inflorescences; calyx lobes often irregularly dentate ..... 4. *G. eximium*
- 1b. Spikes loosely arranged, never crowded into a terminal capitate inflorescence; calyx lobes entire.
  - 2a. Bracts 3–5 mm; spikelets loosely arranged, ± distinct from each other ..... 3. *G. callicomum*
  - 2b. Bracts 7–8 mm; spikelets densely arranged, at least near each other.
    - 3a. Leaf blade 2.5–6 cm; petiole with a conspicuous wide green margin; branches of rachis distinctly 2- or 3-edged or narrowly-winged ..... 1. *G. speciosum*
    - 3b. Leaf blade 10–20 cm; petiole without a green margin; branches of rachis terete or slightly compressed, obtusely angled, without wings or edges ..... 2. *G. dschungaricum*

**1. *Goniolimon speciosum*** (Linnaeus) Boissier in A. de Candolle, Prodr. 12: 634. 1848.

驼舌草 tuo she cao

Herbs 10–50 cm tall. Petiole wide, margin greenish; leaf blade obovate, oblong-obovate, or broadly lanceolate, usually 2.5–6 × ca. 3 cm including petiole, rigid, base attenuate, apex short acuminate to acute. Inflorescences corymbose or paniculate; rachis 2 or 3(or 4) × branched, conspicuously longitudinally 2- or 3-edged or winged and becoming 2- or 3-angular; spikes with 2–9(–11) spikelets; spikelets ± crowded, 2–5-flowered; bracts broadly ovate to elliptic-obovate, 7–8 mm, apex 1-cuspidate; first bractlet similar to bracts but usually apically 2- or 3-cuspidate. Calyx (6–)7–8 mm, tube ca. 1 mm in diam.; lobes entire, veins dark purple, sometimes yellowish, and never reaching middle of limb. Corolla purple. Fl. Jun–Jul, fr. Jul–Aug.

Nei Mongol, Xinjiang [Kazakstan, Mongolia, Russia].

- 1a. Inflorescences without a main axis except for peduncle; calyx lobes apically obtuse ..... 1a. var. *speciosum*
- 1b. Inflorescences with a main axis; calyx lobes apically short acuminate to acute ..... 1b. var. *strictum*

**1a. *Goniolimon speciosum* var. *speciosum***

驼舌草(原变种) tuo she cao (yuan bian zhong)

*Statice speciosa* Linnaeus, Sp. Pl. 1: 275. 1753; *Limonium speciosum* (Linnaeus) Kuntze.

Inflorescences without a main axis except for peduncle; rachis dichotomously branched; spikes with 5–9(–11) spikelets. Calyx lobes apically obtuse.

Nei Mongol (Hulongbei Plateau), N Xinjiang [Kazakstan, Mongolia, Russia].

This widespread variety is extremely variable in height, leaf shape, inflorescence type, and bract margin.

**1b. *Goniolimon speciosum* var. *strictum*** (Regel) Peng, Fl. Reipubl. Popularis Sin. 60(1): 24. 1987.

直杆驼舌草 zhi gan tuo she cao

*Statice speciosa* var. *stricta* Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 387. 1880; *Goniolimon strictum* (Regel) Lincevski.

Stem ca. 30 cm tall. Inflorescences with main axis, straight, branches slender; spikes with 2–5(–7) loosely arranged spikelets. Calyx lobes apically short acuminate to acute.

\* Sunny rocky slopes. Xinjiang (Yili Basin).

**2. *Goniolimon dschungaricum*** (Regel) O. & B. Fedtschenko, Consp. Fl. Turkest. 5: 179. 1913.

大叶驼舌草 da ye tuo she cao

*Statice dschungarica* Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 6: 386. 1880; *Goniolimon tarbagataicum* Gamajunova.

Herbs 50–90 cm tall. Petiole without a green margin; leaf blade oblong-lanceolate, broadly lanceolate, or oblanceolate, (6–)10–20(–22) × (2–)3–4(–5) cm including petiole, thin, base attenuate, apex usually acuminate. Inflorescences paniculate, rachis 2 or 3 × branched; branches terete to slightly compressed, obtusely angled, without wings, never conspicuously 2- or 3-angular; spikes with 7–11 densely arranged spikelets; spikelet 3- or 4-flowered; bracts broadly ovate, 7–8 mm, apex 1-cuspidate; first bractlet apically 2- or 3-cuspidate. Calyx 7–8 mm, tube ca. 1 mm in diam.; lobes entire, apex acute, veins dark purple and sometimes yellowish, never reaching middle of limb. Corolla purple. Fl. Jun–Jul, fr. Jul–Aug.

Montane grasslands; 1400–2000 m. NW Xinjiang [Kazakstan].

**3. *Goniolimon callicomum*** (C. A. Meyer) Boissier in A. de Candolle, Prodr. 12: 633. 1848.

疏花驼舌草 shu hua tuo she cao

*Statice callicoma* C. A. Meyer, Mém. Acad. Imp. Sci. St.-Pétersbourg, Sér. 6, Sci. Math., Second Pt. Sci. Nat. 4: 212. 1841; *Limonium callicomum* (C. A. Meyer) Kuntze; *S. argentea* Pallas ex Sievers.

Herbs 10–40(–50) cm tall. Petiole margin green; leaf blade usually lanceolate to oblanceolate, (2–)4–10 × 0.5–1 (–1.8) cm including petiole, thin, base attenuate, apex acuminate. Inflorescences paniculate or subcymose, rachis 2 or 3 × branched; branches and branchlets 2- or 3-angular; spikes loosely arranged, each with (3–)5–7 loosely arranged spikelets, ± distinct from each other; spikelets (1 or)2- or 3-flowered; bracts broadly ovate, 3–5 mm, apex cuspidate; first bractlet similar to bract but slightly wider and with apex 2- or 3-cuspidate. Calyx 6.5–7.5 mm, tube ca. 1 mm in diam.; lobes entire, apex short acuminate, veins dark purple and never reaching middle of limb. Corolla light purple. Fl. Jun–Jul, fr. Jul–Aug.

Dry sandy and rocky flats; 400–500 m. NW Xinjiang [Kazakstan, Mongolia, Russia].

**4. *Goniolimon eximium*** (Schrenk) Boissier in A. de Candolle, Prodr. 12: 634. 1848.

团花驼舌草 tuan hua tuo she cao

*Statice eximia* Schrenk in Fischer & C. A. Meyer, Enum. Pl. Nov. 1: 13. 1841; *Goniolimon orthocladum* Ruprecht; *Limonium eximium* (Schrenk) Kuntze; *S. eximia* var. *turkestanica* Regel; *S. speciosa* Linnaeus var. *crispa* Regel.

Herbs 5–70 cm tall. Petiole margin wide, green; leaf blade oblanceolate, lanceolate, or obovate, (3–)5–14(–16) × (0.6–)1–3.5(–5) cm, thin, base attenuate, apex acuminate. Inflorescences capitate or conical, main rachis stout, sometimes with thick crisped wings; branches 1–5, thick, short; spikes with (3–)7–11(–13) spikelets; spikelets 3–5-flowered; bracts ovate-oblong, 8–9 mm, apex cuspidate; first bractlet similar to bract but apex 1–3-cuspidate. Calyx 7–8 mm, tube 1.2–1.5 mm in diam., lobes irregularly dentate, veins purple and reaching to or extending beyond middle of limb. Corolla light purple. Fl. Jun–Aug, fr. Jul–Sep.

Grassy slopes; 1400–2700 m. Xinjiang (Tian Shan to NW Xinjiang) [Kazakstan, Mongolia].

*Statice speciosa* var. *lepidota* Regel is not included in synonymy because the variety appears to be based on more than one taxon. Collections from the Selimu Lake area may be *Goniolimon speciosum*, but those from Tian Shan may be *G. eximium*.

Further study is needed to determine whether *Goniolimon orthocladum* and *G. eximium* are conspecific or distinct species.

