

28. EREMOSTACHYS Bunge, Fl. Altaic. 2: 414. 1830.

沙穗属 sha sui shu

Herbs perennial, erect. Basal leaves largest, margin coarsely serrate to incised-pinnatifid. Verticillasters many flowered, widely spaced or in long robust spikes, densely lanate-villous or glabrous. Flowers sessile. Calyx tubular-campanulate to broadly funnelform, 5-toothed, sometimes limb dilated, 5-apiculate; teeth short, broadly truncate, rounded, ovate or triangular, apex spiny; sinuses between teeth with ovate-triangular appendages. Corolla 2-lipped; tube mostly included, narrow; upper lip narrow, galeate or falcate, concave, narrowed at base, bearded or villous inside and on margin; lower lip spreading, 3-lobed, middle lobe largest. Stamens 4, anterior 2 longer; some filaments with comblike-fimbriate appendages at base; anther cells 2, divaricate. Style unequally 2-cleft, anterior lobe larger. Nutlets obovoid, triquetrous, subtruncate, densely bearded at apex.

About 60 species (or only five in the strict sense): Kazakhstan, Kyrgyzstan, Mongolia, Russia, Tajikistan, Turkmenistan; SW Asia; five species in China.

Several botanists have recently rearranged the generic placings of *Eremostachys* and *Phlomis* (cf. Adylov, Kamelin, & Makhmedov, *Novosti Sist. Vyssh. Rast.* 23: 110–114, 1986; Vvedensky, *Conspect. Fl. As. Med.* 9: 74–113, 1987). By adopting their concepts species 1 and 2 would be placed in *Phlomoides* along with all but one species of *Phlomis* recorded from China, species 3 and 4 in *Paraeremostachys* and only *E. moluccelloides* would remain in *Eremostachys*.

- 1a. Calyx funnelform, dilated at apex, especially in fruit, membranous 5. *E. moluccelloides*
- 1b. Calyx tubular or tubular-campanulate, not dilated at apex, not membranous.
 - 2a. Basal leaves pinnatifid to bipinnatifid 1. *E. speciosa*
 - 2b. Basal leaves not pinnatifid, irregularly shallow serrate or crenate.
 - 3a. Bracts leaflike, separated at base; leaves irregularly shallow serrate 2. *E. fulgens*
 - 3b. Bracts spinescent, united at base in 3s; leaves crenate.
 - 4a. Plants sparsely white hairy; calyx teeth with long soft spines 3. *E. phlomoides*
 - 4b. Plants densely white hairy; calyx teeth with robust rigid spines 4. *E. desertorum*

1. *Eremostachys speciosa* Ruprecht var. ***viridifolia*** Popov, *Nov. Mem. Moskovsk. Obsc. Imp. Prir.* 19: 100. 1940.

绿叶美丽沙穗 lü ye mei li sha sui

Roots robust, laterals with fusiform segments, crown lanate. Stems 20–25 cm tall, ± purplish when dry, densely white lanate. Petiole 9–10 cm, ± clasping, densely white lanate to villous; basal leaf blade ovate, ca. 10×6 cm, bipinnatifid; segments ovate, sparsely pubescent adaxially, white lanate to villous abaxially, margin irregularly crenate; upper leaves to as long as verticillasters. Spikes oblong-ellipsoid to globose, 6–8 cm, mostly densely white lanate-villous; verticillasters 4- or 5-flowered; floral leaves subsessile, ovate, base cuneate, margin crenate, apex obtuse; bracts linear, ca. 10×1 mm. Flowers sessile. Calyx tubular, ca. 2 cm, lanate outside, glabrous inside; teeth truncate, with spines ca. 1 mm. Corolla yellow, 4–4.5 cm, with equal lips; tube glabrous outside, hairy at middle inside; upper lips ovate, ca. 1.8×1 cm, erect, apically arcuate, concave, white villous outside, bearded inside and on margin; lower lip flabellate, ca. 1.8×2.2 cm, villous outside, glabrous inside, margin undulate; middle lobe reniform, ca. 0.9×1.5 cm; lateral lobes circular, ca. 8 mm in diam. Filaments cobwebby at middle, appendages comblike-fimbriate; anthers oblong. Fl. May - Jun.

- Grassy slopes; 1800 m. Xinjiang.

Variety *speciosa* is native to Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and SW Asia.

2. *Eremostachys fulgens* Bunge, *Mém. Acad. Acad. Imp. Sci. Saint Pétersbourg* 21(1): 80. 1873.

光沙穗 guang sha sui

Lateral roots tuberous. Stems 30–35 cm tall, glabrous or sparsely stellate, glandular hairy. Petiole 2–7 cm, glandular hairy; basal leaf blade oblong-elliptic, 8–20×8–10 cm, stellate, glandular hairy, base cuneate to rounded, margin irregularly shallow serrate, rarely pinnatisect at base. Spikes

dense; verticillasters many flowered; bracts linear to subulate, 8–10 mm, 1/5 as long as calyx, stellate, margin lanate. Flowers sessile. Calyx tubular, slightly dilated at apex, 1.7–1.8 cm, basally stellate, glandular hairy outside; teeth straight, triangular, apex short acuminate. Corolla yellow, 3.5–4 cm, pubescent outside, glabrous inside; upper lip falcate, margin dentate, densely bearded inside; lower lip flabellate, middle lobe obreniform, lateral lobes broadly obovate. Filaments with comblike-fimbriate appendages at base. Fl. May.

Slopes; 1600 m. Xinjiang (Tekes Xian) [Kyrgyzstan; SW Asia].

3. *Eremostachys phlomoides* Bunge, Fl. Altaic. 2: 414. 1830.

糙苏沙穗 cao su sha sui

Paraeremostachys phlomoides (Bunge) Adylov, Kamelin, & Makhmedov.

Roots napiform, crown tomentose-lanate. Stems 15–30 cm tall, densely white pilose especially on nodes, branched above base. Petiole 4–7 cm, dilated at base; basal leaf blade ovate to broadly oblong-ovate, 5–8×3–4 cm, white pilose, base cordate or rounded, margin coarsely crenate, apex obtuse; stem leaves short petiolate, blade smaller than that of basal leaf, base cuneate, margin crenate, apex acuminate. Spikes interrupted at base; verticillasters 2–6(–8)-flowered; bracts subulate, 1–1.4 cm, united at base in 3's, pilose, apex acuminate. Calyx tubular-campanulate, 1.4–1.8 cm, pilose outside; teeth broadly subulate, 4–7 mm, with a rigid apical spine 3–4 mm. Corolla ca. 2 cm; tube included, rarely slightly exerted, villous annulate inside; upper lip white, densely villous inside and at margin; lower lip yellow, middle lobe obcordate, ca. 1 cm wide, lateral lobes ovate. Filaments slightly dilated at base, posterior 2 with short comblike-fimbriate appendages at base, anterior 2 without appendages. Fl. May.

- Slopes; 1100 m. Xinjiang (Toli Xian).

4. *Eremostachys desertorum* Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 9: 563. 1886.

沙生沙穗 sha sheng sha sui

Paraeremostachys desertorum (Regel) Adylov, Kamelin, & Makhmedov.

Roots robust, napiform. Stems 20–30 cm tall, robust, sparsely white pilose, glandular hairy especially on nodes, branched almost from base. Basal and stem leaves sessile to short petiolate; basal leaf blade circular-ovate to ovate, 4–6 cm in diam., white pilose especially on veins abaxially, corrugate adaxially, base rounded, margin irregularly crenate to partly short serrate, apex obtuse. Spikes interrupted toward base; verticillasters many flowered; floral leaves narrowly elliptic, base cuneate, apex acute; bracts subulate, 1.7–1.8 cm, densely pilose, glandular hairy. Calyx campanulate, 1.7–2.4 cm; teeth triangular-lanceolate, 8–11 mm, with a soft apical spine 5–6 mm. Corolla 2.2–2.5 cm; tube included, villous annulate inside; upper lip white, densely white villous inside and on margin, narrowly falcate, as long as lower lip; lower lip yellow, middle lobe obcordate, apex dentate; lateral lobes shorter, broadly ovate. Posterior filaments with broadly lamellate comblike-fimbriate appendages, anterior filaments with dentate appendages at base. Fl. and fr. Jun.

• Slopes; 1100 m. Xinjiang (Toli Xian).

5. *Eremostachys moluccelloides* Bunge, Fl. Altaic. 2: 415. 1830.

沙穗 sha sui

Eremostachys macrophylla Montbret & Aucher-Éloy.

Roots napiform, crown white lanate-villous. Stems robust, 25–30 cm tall; densely glandular lanate, villous, sparsely so on internodes. Petiole 2–4 cm; basal leaf blade elliptic, 5–7×3–3.5 cm, sparsely villous adaxially, densely lanate-villous abaxially, base subrounded, margin acutely serrate, apex obtuse; stem leaf blade ca. 4.5×2.5 cm, margin crenate. Spikes long; verticillasters (2–)4(–6)-flowered; floral leaves sessile, 1.5–3.5 cm×2–4 mm, margin entire or serrate, apex acute; bracteoles linear, 8–10 mm. Calyx funnelform, ca. 2.3 cm in flower, to 3.5 cm in fruit, villous, glandular outside; limb pubescent inside, rotate-dilated, conspicuously net veined in fruit; teeth circular to broadly triangular, 2–2.5 mm, with apical spines ca. 1 mm. Corolla to 2.1 cm, glabrous outside, villous annulate inside; upper lip yellow, ca. 1.5×0.5 cm, falcate, sparsely pilose outside, margin bearded inside; lower lip orange, middle lobe obcordate, ca. 3×10 mm; lateral lobes ovate, ca. 2×3 mm. Filaments cobwebby, posterior appendages comblike-fimbriate, anterior appendages scaly. Style subequally 2-cleft. Nutlets black, apex densely villous-barbate. Fl. Jun-Jul, fr. Jul.

Gravelly and sandy deserts; 400 m. Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia, Tajikistan; SW Asia, Europe].

