

28. EREMURUS Marschall von Bieberstein, Fl. Taur.-Caucas. 3: 269. 1819.

独尾草属 du wei cao shu

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*Henningia* Karelin & Kirilov.

Herbs perennial, with vertical, short, stout rhizome, surrounded at neck by leaf bases and sometimes also fibers from old, disintegrated leaf bases. Roots numerous, long, thickened, fleshy. Leaves several, all basal, tufted, linear. Scape simple, erect, exceeding leaves, with sterile bracts distally and a terminal raceme. Raceme usually densely many flowered, usually elongate in fruit; bracts membranous, margin often minutely serrulate, fimbriate, or ciliate, apex often long filiform acuminate. Flowers bisexual, 1 per bract axil, pedicellate; pedicel articulate or not. Perianth campanulate, tubular, or cupular; segments 6, free or connate at base, with 1, 3, or 5 veins. Stamens 6, often exserted; filaments filiform or dilated toward base; anthers dorsifixed near base, base with 2 lobes to 0.5 mm. Ovary 3-loculed; seeds several per locule. Style filiform, long, often conspicuously persistent in fruit; stigma very small. Fruit a capsule, globose or subglobose, loculicidal. Seeds irregularly 3-angled, sometimes winged along angles.

About 45 species: C and W Asia, extending E to China and W to Turkey and Ukraine; four species (one endemic) in China.

- 1a. Bract margin entire or densely and minutely serrulate to fimbriate; pedicels spreading or slightly ascending, 1–3.5 cm, slender ..... 4. *E. chinensis*
- 1b. Bract margin sparsely or densely long ciliate; pedicels ascending to suberect, stout (or, if slender, only 1–1.5 cm).
  - 2a. Perianth broadly campanulate, segments ca. 1.5 × 0.8 cm; capsule 1.5–2 cm in diam., valves thick and hard or spongy; pedicels 2–4 cm ..... 3. *E. anisopterus*
  - 2b. Perianth narrowly campanulate or ± tubular, segments 0.8–1.2 × 0.2–0.45 cm; capsule 0.6–1 cm in diam., valves rather thin and soft; pedicels 0.6–1.5 cm.
    - 3a. Perianth narrowly campanulate, segments pale yellow to brownish, obviously involute immediately after anthesis; stamens conspicuously exserted from perianth by up to 8 mm; pedicels ascending, not subappressed to rachis, slender; bract margin sparsely long ciliate ..... 1. *E. altaicus*
    - 3b. Perianth ± tubular, segments pale purple, scarcely or not involute immediately after anthesis; stamens only slightly exserted from perianth by ca. 2 mm; pedicels suberect, subappressed to rachis, stout; bract margin densely long ciliate ..... 2. *E. nderiensis*

1. *Eremurus altaicus* (Pallas) Steven, Bull. Soc. Imp. Naturalistes Moscou 4: 255. 1832.

阿尔泰独尾草 a er tai du wei cao

*Asphodelus altaicus* Pallas, Acta Acad. Sci. Imp. Petrop. 1779(2): 258. 1783.

Leaves 20–35 × 0.5–2(–4) cm, glabrous, margin smooth. Scape 60–120 cm, glabrous or sparsely pubescent. Raceme 20–30 cm at anthesis, densely many flowered; bracts lanceolate, 1–2 cm, midvein dark brown, margin pale, membranous, sparsely long ciliate, apex long filiform acuminate. Pedicels ascending, not subappressed to rachis, 1–1.5 cm, slender. Perianth narrowly campanulate; segments yellow or pale yellow, sometimes turning brownish or yellow-brown, narrowly elliptic-oblong or narrowly oblong-lanceolate, 0.8–1.2 × 0.2–0.25 cm, darker and 3-veined proximally, 1-veined distally, involute immediately after anthesis, persistent and recurved in fruit. Stamens conspicuously exserted from perianth by up to 8 mm. Capsule usually greenish brown, subglobose, 0.6–1 cm in diam., smooth; valves rather thin and soft. Seeds narrowly winged at both ends. Fl. May–Jul, fr. Jul–Aug. 2n = 14.

Barren lands, sunny, gravelly, and rocky slopes; 1300–2200 m. Xinjiang [Kazakstan, Kyrgyzstan, Mongolia, Russia, Tajikistan, Uzbekistan].

Several infraspecific taxa have been described from outside China. The plants in Xinjiang may well belong to f. *fuscus* O. Fedts-

chenko (Zap. Imp. Akad. Nauk Fiz.-Mat. Otd. 23: 44. 1909), which has also been treated at the rank of species (*E. fuscus* (O. Fedtschenko) Vvedensky ex V. V. Nikitin, Fl. Kirghiz. SSR 3: 31. 1951), and is characterized by its yellow or partly brown perianth segments.

2. *Eremurus nderiensis* (Steven) Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 2: 427. 1873.

粗柄独尾草 cu bing du wei cao

*Asphodelus nderiensis* Steven, Bull. Soc. Imp. Naturalistes Moscou 4: 257. 1832.

Leaves 15–30 × 0.5–2 cm, glabrous, margin usually scabrid. Scape 40–80 cm, minutely pubescent. Raceme 20–40 cm at anthesis, usually densely many flowered; bracts narrowly ovate, 0.7–1.2 cm, membranous, midvein brown, margin densely long ciliate, apex obtuse to long filiform acuminate. Pedicels suberect, subappressed to rachis, 0.6–1.2 cm, stout. Perianth ± tubular; segments pale purple, linear-oblong, ca. 1 × 0.2–0.3 cm, with 1 green stripe overlaid by 3 brown veins, scarcely or not involute after anthesis, persistent and reflexed in fruit. Stamens slightly exserted from perianth by ca. 2 mm. Capsule subglobose, 0.7–1 cm in diam., smooth; valves rather thin and soft. Seeds brown, 5–6 × 3–3.5 mm including ca. 1 mm wings along angles. Fl. May, fr. May–Jun. 2n = 14.

Sand hills, deserts, dry water courses; 400–600 m. N Xinjiang [Afghanistan, Kazakstan, Mongolia, Pakistan, Russia, Turkmenistan, Uzbekistan; SW Asia (Iran)].

**3. *Eremurus anisopterus*** (Karelin & Kirilov) Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 2: 429. 1873.

异翅独尾草 yi chi du wei cao

*Hennigia anisoptera* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 517. 1842.

Leaves to  $35 \times 0.4-0.6$  cm, glabrous, margin smooth or minutely and remotely serrulate. Scape 50–100 cm, glabrous. Raceme laxly many flowered; bracts narrowly lanceolate,  $2.5-3.5$  cm  $\times$   $2-5$  mm, membranous, midvein brown, margin long and flexuous ciliate, apex long filiform acuminate. Pedicels ascending, 2–4 cm, stout. Perianth broadly campanulate; segments white or pale rose, yellow-brown at base, ovate-oblong, ca.  $1.5 \times 0.6-0.8$  cm, with 1 dark brown vein from base, persistent and spreading to reflexed in fruit. Stamens ca.  $2/5$  as long as perianth. Capsule globose, 1.5–2 cm in diam., smooth or distally wrinkled; valves thick and hard or spongy, septa conspicuous, golden yellow. Seeds light grayish brown mottled dark brown,  $6-8 \times 4-5$  mm including unequal (to 2 mm) wings along angles. Fl. Apr–May, fr. May–Jun.  $2n = 14$ .

Sand hills. N Xinjiang (Shawan Xian) [Kazakstan].

**4. *Eremurus chinensis*** O. Fedtschenko, Gard. Chron., ser. 3, 41: 199. 1907.

独尾草 du wei cao

Leaves  $15-55 \times 0.3-2.2$  cm, glabrous, margin minutely crenulate or serrulate, sometimes obscurely so. Scape 45–120 cm, glabrous. Raceme 10–40 cm at anthesis, densely many flowered; bracts lanceolate,  $0.4-2(-3.5)$  cm, midvein dark brown, margin pale, membranous, entire or densely and minutely serrulate to fimbriate, apex long filiform acuminate. Pedicels spreading or slightly ascending, 1–3.5 cm, slender. Perianth narrowly campanulate; segments white, narrowly elliptic or oblanceolate-linear,  $1-1.2 \times 0.2-0.45$  cm, with 1 dark vein from base, scarcely involute after anthesis, not persistent in fruit. Stamens shorter than perianth. Capsule erect (pedicel bent at apex), green or greenish yellow to brown, subglobose, 0.6–1 cm in diam., usually wrinkled. Seeds brown,  $4-5.5 \times 2.5-3$  mm including 0.1–0.8 mm wings along angles. Fl. May–Sep, fr. Jul–Sep.

• Scrub, alpine meadows, stony pastures, dry open hillsides, gravelly slopes, among rocks and boulders, crevices and ledges of cliffs, on acidic or limestone substrates; 1000–3800 m. S Gansu, Sichuan, Xizang, Yunnan.

