

## 9. GYMNOSPERMIUM Spach, Hist. Nat. Vég. Phan. 8: 66. 1839.

牡丹草属 mu dan cao shu

Ying Junsheng (应俊生 Ying Tsun-shen); David E. Boufford, Anthony R. Brach

Herbs, perennial, glabrous. Tuber subglobose or irregular; stem erect, herbaceous, branchless. Stem with 1 terminal leaf, bi- or triternate, rarely trifoliolate; leaflets thinly herbaceous, slightly pruinose. Inflorescence simple, racemose, terminal. Pedicel with bract at base. Flowers yellow. Sepals 6, petaloid. Petals 6, nectary-like, much shorter than sepals. Stamens distinct, opposite petals and equal in number; anthers dehiscing by 2 apical flaps. Pistil simple; ovary 1-loculed; ovules 2–4; placentation basal; style short or slender; stigma truncate. Capsule less than 8 mm in diam., valved. Seeds 2–4; aril whitish.  $x = 8$ .

Six to eight species: north temperate zone; three species (one endemic) in China.

- 1a. Leaves bipinnate or tripinnate; inflorescence 13–16-flowered; pedicel 3–4 cm; sepals 7–10 mm ..... 1. *G. kiangnanense*  
1b. Leaves trifoliolate; inflorescence 5–10-flowered; pedicel 1–2.5 cm; sepals 5–8 mm.  
2a. Leaflets 3-divided; ovules 2 or 3; pedicel 2–2.5 cm ..... 2. *G. microrrhynchum*  
2b. Leaflets palmately 5-divided; ovules 4; pedicel ca. 1 cm ..... 3. *G. altaicum*

**1. *Gymnospermium kiangnanense*** (P. L. Chiu) H. Loconte, *Canad. J. Bot.* 67: 2315. 1989.

江南牡丹草 jiang nan mu dan cao

*Leontice kiangnanensis* P. L. Chiu, *Acta Phytotax. Sin.* 18: 96. 1980.

Herbs, 20–40 cm tall. Tuber subglobose, 3–5 cm in diam., sometimes to 8 cm; section of tuber yellow. Stem erect or decumbent, usually black-purple, glabrous, but slightly pruinose. Leaf terminal, 2–3 × ternately compound, 6–10 × 9–18 cm; pinnules adaxially pale green, obovate or ovate-oblong, 2.5–3.5 × 1.5–2.5 cm, abaxially slightly glaucous, 2- or 3-parted, margin entire. Raceme terminal, 13–16-flowered, 13–25 cm; bracts triangular-ovate or reniform, apex acute. Pedicel 3–4 cm. Flowers yellow, 1.1–1.8 cm in diam. Sepals narrowly elliptic or oblong-obovate, 7–10 × 5–6 mm, apically obtuse. Petals ca. 2 mm. Stamens 4–7 mm. Pistil shortly stipitate; ovary rhomboid-ovoid; ovules 2 or 3; style short; stigma truncate. Capsule subglobose, 5-valved. Seeds greenish brown, obovoid. Fl. Mar–Apr, fr. Apr–May.

- Forest margins; 700–800 m. Anhui, Zhejiang.

**2. *Gymnospermium microrrhynchum*** (S. Moore) Takhtajan, *Bot. Zhurn. (Moscow & Leningrad)* 55: 1192. 1970.

牡丹草 mu dan cao

*Leontice microrrhyncha* S. Moore, *J. Linn. Soc., Bot.* 17: 377. 1879; *L. microrrhyncha* f. *venosa* (S. Moore) Kitagawa; *L. microrrhyncha* var. *venosa* S. Moore.

Herbs, ca. 30 cm tall. Tuber ca. 2 cm in diam. Stem erect, stramineous, herbaceous, succulent, with 1 leaf. Stipules 2, large, apex shallowly 2- or 3-lobed; leaf trifoliolate or biternate compound, herbaceous; petiolule ca. 2 cm; leaf blade abaxially pale green, adaxially green, 3-divided, lobes oblong to oblong-lanceolate, 3–4 cm, entire, apex blunt. Raceme terminal, simple, 5–10-flowered; peduncle ca. 8 cm. Pedicel 2–2.5 cm, slender; bracts broadly ovate, ca. 5 × 6 mm. Flowers pale yellow. Sepals 5 or 6, obovate, ca. 5 × 3 mm, apex blunt. Petals ca. 3 mm, apex truncate. Stamens ca. 4 mm. Pistil shortly stipitate or subsessile; ovary ovoid; ovules 2 or 3; style short; stigma truncate. Capsule globose, ca. 6 mm in diam., 5-valved. Seeds usually 2. Fl. Apr–May, fr. May–Jun.

Forests, forest margins; ca. 100 m. Jilin, Liaoning [Korea].

**3. *Gymnospermium altaicum*** (Pallas) Spach, *Hist. Nat. Vég. Phan.* 8: 67. 1839.

阿尔泰牡丹草 a er tai mu dan cao

*Leontice altaica* Pallas, *Acta Acad. Sci. Imp. Petrop.* 2: 255. 1779.

Herbs, ca. 15 cm tall. Tuber subglobose, ca. 1.5 cm in diam. Stem erect, herbaceous, green. Stipules 2, ca. 7 × 4 mm, entire; cauline leaf 1, terminal, trifoliolate, thin in texture; leaflets abaxially pale green, adaxially green, 4- or 5-palmatisect, segments oblong or oblong-lanceolate, 2–2.5 cm × 7–10 mm, margin entire, apex blunt. Raceme terminal, simple, 7–9-flowered, 4–5 cm; peduncle ca. 1.5 cm; bracts broadly elliptic or ovate, 7–9 × 6–7 mm. Pedicel ca. 1 cm, slender. Flowers yellow. Sepals 6, elliptic, ca. 8 × 3 mm. Petals 6, opposite sepals, yellowish brown, longitudinally half-tubular, ca. 2 mm, apex aristate. Stamens opposite petals, ca. 4 mm; filaments thin, ca. 2.2 mm; anthers valved. Pistil ca. 4.5 mm; ovules 4, obovoid, basal; style ca. 2.5 mm. Capsule unknown. Fl. Mar–Apr, fr. unknown.

Foot of mountains, along trails; ca. 200 m. Xinjiang [Russia (Siberia)].

