

8. ORYCHOPHRAGMUS Bunge, Enum. Pl. China Bor. 7. 1833.

诸葛菜属 zhu ge cai shu

Herbs annual, biennial, or rhizomatous perennial. Trichomes absent or simple. Stems erect or ascending. Basal leaves petiolate, not rosulate, simple or pinnatisect with 1–6 leafletlike lateral lobes on each side. Cauline leaves petiolate or sessile, not auriculate, auriculate, or amplexicaul at base, entire, dentate, crenate, serrate, or sometimes with 1–4 lateral lobes. Racemes ebracteate, elongated in fruit. Fruiting pedicels slender or stout, divaricate or recurved. Sepals oblong or linear, erect or ascending, base of lateral pair slightly to strongly saccate, margin membranous. Petals purple, lavender, or white; blade obovate or narrowly obovate, apex rounded or emarginate; claw obscurely to strongly differentiated from blade, shorter than to as long as sepals. Stamens 6, tetradynamous; filaments dilated at base; anthers oblong or linear, apiculate at apex. Nectar glands 2, lateral, semiannular or annular. Ovules 20–70 per ovary. Fruit dehiscent siliques, linear, terete or somewhat 4-angled, sessile or shortly stipitate, unsegmented; valves leathery, with an obscure or prominent midvein, glabrous or rarely hairy, torulose; replum rounded; septum complete, membranous, opaque, veinless; style distinct; stigma capitate, 2-lobed, lobes free, decurrent. Seeds uniseriate, wingless, oblong, plump; seed coat alveolate-reticulate, not mucilaginous when wetted; cotyledons conduplicate.

Two species: China, Korea; two species (one endemic) in China.

- 1a. Cauline leaves auriculate; sepals linear, erect, (6–)8–13(–16) mm, base of lateral pair strongly saccate; petals deep purple, lavender, or rarely white, (12–)16–25(–32) mm, apex rounded, claw well differentiated and as long as sepals; anthers linear, (3–)4–6(–8) mm; style (0.3–)0.7–3(–5.5) cm ..... 1. *O. violaceus*
- 1b. Cauline leaves not auriculate; sepals oblong, ascending, 2–3.5 mm, base of lateral pair slightly saccate; petals white, (6–)7–9 mm, apex shallowly emarginate, claw obscurely differentiated and shorter than sepals; anthers oblong, 1–1.5 mm; style 0.1–0.3 cm ..... 2. *O. limprichtianus*

1. *Orychophragmus violaceus* (Linnaeus) O. E. Schulz, Bot. Jahrb. Syst. 54(Beibl. 119): 56. 1916.

诸葛菜 zhu ge cai

*Brassica violacea* Linnaeus, Sp. Pl. 2: 667. 1753; *Arabis chanelii* H. Léveillé; *Cardamine potentillifolia* H. Léveillé; *Moricandia sonchifolia* (Bunge) J. D. Hooker; *M. sonchifolia* var. *homaeophylla* Hance; *Orychophragmus diffusus* Z. M. Tan & J. M. Xu; *O. hupehensis* (Pampanini) Z. M. Tan & X. L. Zhang; *O. sonchifolius* Bunge; *O. sonchifolius* var. *hupehensis* Pampanini; *O. sonchifolius* var. *intermedius* Pampanini; *O. sonchifolius* var. *subintegrifolius* Pampanini; *O. taibaiensis* Z. M. Tan & B. Z. Zhao; *O. violaceus* var. *homaeophyllus* (Hance) O. E. Schulz; *O. violaceus* var. *hupehensis* (Pampanini) O. E. Schulz; *O. violaceus* var. *intermedius* (Pampanini) O. E. Schulz; *O. violaceus* var. *lasiocarpus* Migo; *O. violaceus* var. *subintegrifolius* (Pampanini) O. E. Schulz; *Raphanus chanelii* H. Léveillé; *R. courtoisii* H. Léveillé; *R. violaceus* (Linnaeus) Crantz.

Herbs annual or biennial, (6–)15–60(–90) cm tall. Stems erect, simple or branched at base, often branched above, straight, glabrous or sparsely to densely pilose. Basal leaves not rosulate; petiole (1–)2–8(–11) cm; blade or terminal leaf lobe cordate, reniform, broadly ovate, or suborbicular, (0.4–)1.5–10(–14) × (0.3–)1–4(–7) cm, glabrous or pilose, base cordate or rarely obtuse, margin coarsely crenate with teeth ending in apiculae,

apex acute or obtuse; lateral lobes 1–6 on each side, sessile or petiolulate, to 3 × 2 cm, sometimes absent. Uppermost cauline leaves auriculate or amplexicaul, sessile or petiolate, (0.5–)2–9(–15) × (0.2–)1–6(–9) cm, margin coarsely and irregularly dentate, rarely entire, apex acute or acuminate; auricles to 3 × 4 cm; lateral lobes absent or 1–4 on each side, sessile or petiolulate. Fruiting pedicels divaricate, glabrous or pilose, narrower than fruit, (0.6–)0.8–2(–3) cm. Sepals linear, erect, connivent, (0.6–)0.8–1.3(–1.6) cm × 1.5–2.5 mm, base of lateral pair strongly saccate. Petals deep purple, lavender, or white, broadly obovate, (1.2–)1.6–2.5(–3.2) cm × (4–)5–9(–11) mm, apex rounded; claw as long as sepals. Filaments 0.8–1.8 cm; anthers linear, (3–)4–6(–8) mm, distinctly apiculate. Ovules (20–)40–70 per ovary. Fruit narrowly linear, stout, terete or somewhat 4-angled, (3–)4.5–11(–13) cm × 1.5–3 mm; valves glabrous or densely hirsute, torulose, usually with a prominent midvein; style (0.3–)0.7–3(–5.5) cm; stigma slightly to distinctly 2-lobed, lobes decurrent. Seeds oblong, 2–3(–3.5) × 1–2 mm. Fl. Mar–Jun, fr. May–Jul. 2n = 24.

Roadsides, gardens, forests, fields, thickets, valleys, hillsides, sunny slopes; near sea level to 1500 m. Anhui, Gansu, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang [Korea; naturalized in Japan].

An examination of the holotype of *Arabis chanelii* readily reveals that the name is a synonym of *Orychophragmus violaceus*. The former

was recognized as a distinct species of *Arabis* in FRPS and in Fl. Hebei. (1: 538. 1986).

**2. *Orychophragmus limprichtianus* (Pax) Al-Shehbaz & G. Yang, Novon 10: 351. 2000.**

心叶诸葛菜 *xin ye zhu ge cai*

*Cardamine limprichtiana* Pax, Jahresber. Schles. Ges. Vaterl. Cult. 89, Abt. 2: 27. 1911; *Alliaria grandifolia* Z. X. An; *C. hickinii* O. E. Schulz.

Herbs annual or perennial, (12–)25–45(–80) cm tall. Stems erect, simple at base, often branched above, somewhat flexuous, glabrous or sparsely to densely pilose with trichomes to 1.5 mm. Basal leaves not rosulate, simple or with 1–3 lateral lobes on each side; petiole (3–)5–15(–18) cm, flattened at base; blade or terminal leaf lobe cordate to broadly so, (2–)4–8(–10) × (1.5–)2.5–6(–8) cm, glabrous or sparsely to densely subappressed pilose abaxially, glabrous or sparsely pilose adaxially, sometimes ciliate, base cordate or rarely cordate-truncate, margin coarsely crenate with teeth ending in apiculae, apex acute or acuminate; lateral lobes sessile or petiolulate, 0.1–3 × 0.03–2 cm, sometimes absent. Uppermost cauline leaves petiolate, much smaller to much larger than basal ones and up to 18 × 11 cm, base not auriculate, margin coarsely and irregularly dentate, rarely crenate, apex caudate or acuminate. Fruiting pedicels divaricate or recurved, glabrous or pilose, narrower than fruit, (0.5–)1–3(–3.5) cm. Sepals oblong, ascending, 2–3.5 × 1–1.5 mm, base slightly saccate. Petals white, broadly obovate or narrowly obcordate, (6–)7–9 × 3–6 mm, apex shallowly emarginate; claw obscurely differentiated, shorter than sepals. Filaments 2.5–3.5 mm; anthers oblong, 1–1.5 mm, minutely apiculate. Ovules 20–35 per ovary. Fruit narrowly linear, stout, terete, (2–)3–6 cm × 1.5–2 mm; valves glabrous or sparsely pilose, strongly torulose, inconspicuously veined; style terete, 1–3 mm; stigma 2-lobed, slightly decurrent. Seeds oblong, 2–3 × 0.8–1.2 mm. Fl. Mar–May, fr. Apr–Jun.

• Grassy areas along streams, moist slopes, roadsides, rocky slopes; 300–1200 m. Anhui, Zhejiang.

*Cardamine limprichtiana* and *Alliaria grandifolia* were both recognized in FRPS and Fl. Zhejiang (3: 51, 55. 1993) as distinct species in two different tribes (Arabideae and Sisymbrieae, respectively). However, examination of the type collections of both species and ample additional material reveal that they are conspecific and belong to *Orychophragmus* in the tribe Brassiceae.

*Orychophragmus limprichtianus* was recorded from Sichuan in Fl. Sichuan. (14: 87. 1999, as *Cardamine limprichtiana*), but the present authors have seen no material from that province.

