

12. **CARDARIA** Desvaux, J. Bot. Agric. 3: 163. 1815.

群心菜属 qun xin cai shu

Hymenophysa C. A. Meyer; *Physolepidion* Schrenk.

Herbs perennial, rhizomatous. Trichomes simple. Stems erect or rarely decumbent, branched above. Basal leaves petiolate, rosulate or not, lyrate, sinuate, dentate, or entire. Cauline leaves sessile, auriculate, sagittate, or amplexicaul at base, margin entire or dentate. Racemes ebracteate, corymbose, grouped in panicles, elongated slightly in fruit. Fruiting pedicels slender, divaricate. Sepals ovate or oblong, deciduous, erect or spreading, base of lateral pair not saccate, margin membranous. Petals white; blade obovate or spatulate, apex obtuse; claw subequaling sepals. Stamens 6, tetradynamous; anthers ovate or oblong, obtuse at apex. Nectar glands confluent and subtending bases of all stamens; median glands present. Ovules 2 per ovary; subapical. Fruit indehiscent silicles, ovoid, obovoid, cordate, obcordate, reniform, or globose, terete or strongly angustiseptate, inflated or not, often sessile; distinctly or obscurely veined, sometimes reticulate, glabrous or pubescent, keeled or not, wingless; replum rounded; septum complete or fenestrate, membranous, translucent, veinless; style distinct, cylindrical, exerted from apical notch of fruit; stigma capitate, entire. Seeds wingless, ovoid or ellipsoid, plump; seed coat minutely reticulate, mucilaginous when wetted; cotyledons incumbent.

Two species: native to the Irano-Turanian and Mediterranean regions, widely naturalized elsewhere; two species in China.

The genus *Cardaria* differs from *Lepidium* in having indehiscent instead of dehiscent fruit and confluent instead of separate nectar glands. However, it is highly questionable if these differences justify the recognition of two independent genera. In fact, recent molecular studies clearly show that the nearest relatives of *Cardaria* are the *L. campestre* group. Critical taxonomic studies of the boundaries of these two genera are needed.

- 1a. Fruit cordate, ovoid, or subglobose; valves flattened, sometimes slightly inflated, carinate, glabrous or sparsely pubescent when young 1. *C. draba*
- 1b. Fruit globose; valves semiglobose, inflated, not or only obscurely carinate, often densely puberulent, rarely subglabrous 2. *C. pubescens*

1. ***Cardaria draba*** (Linnaeus) Desvaux, J. Bot. Agric. 3: 163. 1815.

SW Asia, Europe; naturalized in S Africa, Australia, and North and South America].

群心菜 qun xin cai

Herbs perennial, (8–)20–65(–90) cm tall, pubescent with mostly curved simple trichomes, sometimes glabrous or subglabrous at least above. Stems erect or decumbent basally, many branched above. Basal leaves withered by anthesis, petiolate; leaf blade obovate, spatulate, or ovate, (1.5–)3–10(–15) × 1–4 cm, margin sinuate-dentate, apex obtuse. Cauline leaves sessile; leaf blade ovate, elliptic, oblong, or lanceolate, oblanceolate, or obovate, (1–)3–9(–15) × (0.5–)1–2(–5) cm, pubescent or glabrous, base sagittate-amplexicaul or auriculate, margin dentate or entire, apex acute or acuminate. Fruiting pedicels 5–10(–15) mm, divaricate or ascending, slender. Sepals oblong, 1.5–2.5 mm, glabrous, margin white. Petals white, obovate, (2.5–)3–4(–4.5) × (1–)1.3–2(–2.2) mm, shortly clawed, apex rounded. Filaments 2–3 mm; anthers ovate, 0.4–0.5 mm. Fruit cordate, ovoid, or subglobose, (2.5–)3.5–6(–7) mm, base cordate, rounded, obtuse, or truncate, apex obtuse or acute; valves flattened or somewhat inflated, carinate, reticulate or not, glabrous or sparsely minutely pubescent when young; style (0.7–)1–1.8(–2) mm. Seeds dark brown, ovoid, 1.5–2 × 1–1.2 mm. Fl. May–Jun, fr. Jul–Aug.

Mountain slopes, roadsides, fields, agricultural lands, river banks, pastures, waste areas; near sea level to 4200 m. Gansu, Liaoning, Shandong, Xinjiang, Xizang [Afghanistan, Kashmir, Kazakstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan];

- 1a. Fruit base cordate, valves prominently reticulate, glabrous 1a. subsp. *draba*
- 1b. Fruit base rounded, obtuse, or truncate, valves not reticulate or obscurely reticulate, glabrous or sparsely puberulent when young 1b. subsp. *chalepensis*

1a. ***Cardaria draba*** subsp. ***draba***

群心菜(原亚种) qun xin cai (yuan ya zhong)

Lepidium draba Linnaeus, Sp. Pl. 2: 645. 1753.

Fruit cordate at base, usually constricted at septum; valves prominently reticulate, glabrous. $2n = 32, 64$.

Mountain slopes, roadsides, fields, agricultural lands, river banks, pastures, waste areas; near sea level to 1600 m. Liaoning, Shandong, Xinjiang [Kazakstan, Pakistan, Russia, Turkmenistan, Uzbekistan]; SW Asia, Europe; naturalized in S Africa, Australia, and North and South America].

1b. ***Cardaria draba*** subsp. ***chalepensis*** (Linnaeus) O. E. Schulz in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 17b: 417. 1936.

球果群心菜 qiu guo qun xin cai

Lepidium chalepense Linnaeus, Cent. Pl. II, 23. 1756; *C.*

boissieri (N. Busch) Soó; *Cardaria chalepensis*

(Linnaeus) Handel-Mazzetti; *C. draba* subsp.

chalepensis var. *repens* (Schrenk) O. E. Schulz; *C.*

fenestrata (Boissier) Rollins; *C. macrocarpa* (Franchet)

Rollins; *C. propinqua* (Fischer & C. A. Meyer) N.

Busch; *C. repens* (Schrenk) Jarmolenko; *Cochlearia*

draba (Linnaeus) Linnaeus; *Hymenophysa fenestrata* Boissier; *H. macrocarpa* Franchet; *H. persica* Gilli; *L. boissieri* N. Busch; *L. draba* var. *auriculatum* (Boissier) N. Busch; *L. draba* subsp. *chalepense* (Linnaeus) Thellung; *L. draba* subsp. *chalepense* var. *repens* (Schrenk) Thellung; *L. propinquum* Fischer & C. A. Meyer; *L. propinquum* var. *auriculatum* Boissier; *L. repens* (Schrenk) Boissier; *Physolepidion repens* Schrenk.

Fruit rounded, obtuse, or truncate at base, usually not constricted at septum; valves not or obscurely reticulate, glabrous or sparsely pubescent when young. $2n = 48, 80, 128$.

Mountain slopes, roadsides, fields, agricultural lands, river banks, pastures, waste areas; 300–4200 m. Gansu, Shandong, Xinjiang, Xizang [Afghanistan, Kashmir, Kazakstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia; naturalized in Europe and North and South America].

2. *Cardaria pubescens* (C. A. Meyer) Jarmolenko in Keller et al., Weeds USSR 3: 29. 1934.

毛果群心菜 mao guo qun xin cai

Hymenophysa pubescens C. A. Meyer in Ledebour, Fl. Altaic. 3: 181. 1831.

Herbs perennial, (10–)15–35(–50) cm tall, usually densely pubescent or puberulent with often curved trichomes. Stems erect, branched above. Petiole of basal and lower cauline leaves 0.5–1.5 cm; leaf blade oblanceolate or obovate, (1–)2–6(–7) × 0.3–2 cm, pubescent, base attenuate, margin sinuately lobed or dentate, apex obtuse or acute. Upper cauline leaves sessile; leaf blade oblong or lanceolate, 1–5(–8) × (0.3–)0.5–1.5(–3) cm, pubescent, base sagittate, margin dentate or subentire. Fruiting pedicels 3–6(–10) mm, slender, puberulent, divaricate. Sepals oblong, 1.5–2 × 0.7–1 mm, pubescent, margin white. Petals white, obovate, (2.5–)3–4 × 1–5 mm, base clawed, apex rounded. Filaments 2–2.5 mm; anthers ovate, 0.4–0.5 mm. Fruit globose to subglobose, (2–)3–4(–5) mm in diam., rounded at apex and base or slightly cordate basally; valves semiglobose, not keeled, inflated, often densely puberulent, rarely subglabrous, not veined or obscurely veined; style 0.7–1.5 mm, glabrous or sparsely puberulent proximally. Seeds brown or dark brown, ovoid, 1.5–2 × 1–1.5 mm. Fl. and fr. May–Jul. $2n = 16$.

Along ditches, fields, pastures; 400–1600 m. Gansu, Nei Mongol, Ningxia, Qinghai, Shaanxi, Xinjiang [Kazakstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; naturalized in North and South America].

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