

74. MALCOLMIA R. Brown in W. T. Aiton, Hortus Kew. 4: 121. 1812, nom. cons.

涩芥属 se jie shu

*Fedtschenkoa* Regel & Schmalhausen ex Regel; *Strigosella* Boissier; *Wilckia* Scopoli, nom. rej.

Herbs annual, biennial, or perennial with a woody caudex. Trichomes a mixture of simple, forked, or stellate, sometimes malpighiaceus. Stems erect or ascending. Basal leaves not rosulate, simple, entire or variously dentate or pinnatifid. Cauline leaves petiolate or sessile, not auriculate, entire, dentate, or rarely lobed. Racemes few to many flowered, ebracteate or rarely bracteate. Fruiting pedicels slender or thickened, ascending or divaricate. Sepals ovate or narrowly oblong, erect, glabrous or pubescent, base of lateral pair saccate or not. Petals white, pink, or purple, longer than sepals; blade obovate, spatulate, oblong, or oblanceolate, apex obtuse or rounded; claw well developed. Stamens 6, erect, tetradynamous; filaments dilated or not at base, free or median 4 connate in 2 pairs; anthers ovate, oblong, or linear, apex apiculate or not. Median glands absent; lateral glands 1 on each side of lateral stamen, or lunar. Ovules 20–90 per ovary. Fruit dehiscent siliques, linear, terete, 4-angled, or latiseptate, sessile; valves glabrous or pubescent, smooth or torulose; replum rounded; septum complete; style obsolete or to 1 mm or longer; stigma conical, 2-lobed, lobes connivent, often connate, opposite replum. Seeds uniseriate, wingless, oblong or ovate, plump or slightly flattened; seed coat reticulate, not mucilaginous when wetted; cotyledons incumbent or rarely accumbent.

About 35 species: C and SW Asia, Mediterranean region; four species in China.

- 1a. Plants densely hispid at least basally with exclusively simple subsetose trichomes to 3 mm; fruit strongly flattened straight ..... 2. *M. hispida*
- 1b. Plants pubescent basally with forked or 3- or 4-rayed trichomes; fruit quadrangular or subterete, if flattened then strongly coiled
  - 2a. Fruit quadrangular, not torulose, straight ..... 1. *M. africana*
  - 2b. Fruit flattened or subterete, torulose, curved or strongly coiled, rarely arcuate or straight.
    - 3a. Fruit subterete, straight or curved near apex, rarely forming a loop, 0.5–0.8(–0.9) mm wide; petals 2–3.5(–4) mm ..... 4. *M. karelinii*
    - 3b. Fruit flattened, strongly coiled to from up to 5 loops, (0.9–)1–1.2 mm wide; petals (4.5–)6–8 mm ..... 3. *M. scorpioides*

**1. *Malcolmia africana*** (Linnaeus) R. Brown in W. T. Aiton, Hortus Kew. 4: 121. 1812.

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*Hesperis africana* Linnaeus, Sp. Pl. 2: 663. 1753; *Cheiranthus taraxacifolius* Balbis (1814), not Stephan (1800); *Fedtschenkoa africana* (Linnaeus) Dvorák; *F. stenopetala* (Bernhardi ex Fischer & C. A. Meyer) Dvorák; *F. taraxacifolia* Dvorák; *Hesperis laxa* Lamarck; *Malcolmia africana* var. *divaricata* Fischer; *M. africana* var. *korshinskyi* Vassilczenko; *M. africana* var. *stenopetala* Bernhardi ex Fischer & C. A. Meyer; *M. africana* var. *trichocarpa* (Boissier & Buhse) Boissier; *M. calycina* Sennen; *M. divaricata* (Fischer) Fischer; *M. laxa* (Lamarck) de Candolle; *M. stenopetala* (Bernhardi ex Fischer & C. A. Meyer) Bernhardi ex Ledebour; *M. taraxacifolia* de Candolle; *M. trichocarpa* Boissier & Buhse; *Strigosella africana* (Linnaeus) Botschantzev; *S. africana* var. *laxa* (Lamarck) Botschantzev; *S. stenopetala* (Bernhardi ex Fischer & C. A. Meyer) Botschantzev; *S. trichocarpa* (Boissier & Buhse) Botschantzev; *Wilckia africana* (Linnaeus) F. Mueller; *W. africana* var. *stenopetala* (Bernhardi ex Fischer & C. A. Meyer) Grossheim; *W. africana* var. *trichocarpa* (Boissier & Buhse) Grossheim; *W. stenopetala* (Bernhardi ex Fischer & C. A. Meyer) N. Busch.

Herbs annual, (4.5–)15–30(–45) cm tall, sparsely to densely pubescent with short-stalked, forked or subdendritic trichomes sometimes mixed with simple subsetose ones, rarely glabrescent. Basal leaves soon withered, not rosulate. Middle and lower cauline leaves petiolate; petiole (0.1–)0.6–2(–3) cm; leaf blade elliptic, oblong, or oblanceolate, (0.5–)1.5–6(–10) × (0.3–)1–2.5(–3.5) cm, base cuneate, margin entire or dentate, rarely sinuate, apex acute; uppermost leaves smaller and sessile. Racemes few to many flowered, elongated considerably in fruit; rachis straight or slightly flexuous. Fruiting pedicels thickened, as wide as fruit, 0.5–2(–4) mm. Sepals (3.5–)4–5 × 0.5–0.7 mm, caducous or persistent. Petals pink or purple, rarely white, narrowly oblanceolate, (6.5–)8–10(–12) × 1–2 mm. Filaments free, 2.5–5 mm; anthers narrowly oblong, 0.9–1.1 mm. Fruit linear, straight, quadrangular, not torulose, (2.5–)3.5–5.5 (–7) cm × 1–1.3 mm; valves not veined, pubescent with coarse, forked trichomes mixed with much smaller, forked and subdendritic ones or subsetose simple ones, rarely glabrous; style obsolete; stigma conical, to 1 mm. Seeds oblong, 1–1.2 × 0.5–0.6 mm. Fl. Apr–Aug, fr. May–Oct.

Fields, disturbed areas, roadsides, deserts; 700–3300 m. Anhui, Gansu, Hebei, Henan, Jiangsu, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang [Afghanistan, India, Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; N Africa, SW Asia, Europe; naturalized elsewhere].

A very highly variable species in pubescence, flower size, and fruit length. Forms with subsetose and branched trichomes on the fruit (var. *trichocarpa*) have been recognized as variety of *Malcolmia africana* or as a distinct species, while those with shorter petals have been recognized as var. *stenopetala*. However, these forms are sporadic throughout most of the range of the species and are often found in the same population with typical plants of *M. africana*.

**2. *Malcolmia hispida*** Litvinov, Trudy Bot. Muz. Imp. Akad. Nauk 1: 37. 1902.

刚毛涩芥 gang mao se jie

*Fedtschenkoa hispida* (Litvinov) Dvorák; *Strigosella hispida* (Litvinov) Botschantzev.

Herbs annual, (5–)10–30 cm tall, densely hispid basally with exclusively simple trichomes to 3 mm, these mixed on other parts with much smaller, short-stalked, forked trichomes. Basal leaves not rosulate. Middle and lower cauline leaves petiolate; petiole 0.5–2 cm; leaf blade oblong, oblong-lanceolate, or linear-lanceolate, 2–5 cm × 3–8 mm, base attenuate or cuneate, margin entire or sparsely denticulate, apex obtuse; midvein whitish and thickened; uppermost leaves smaller and sessile. Racemes several to many flowered, elongated considerably in fruit; rachis straight. Fruiting pedicels thickened, as wide as fruit, 0.5–1.5 mm. Sepals 3.5–4 × 0.5–0.7 mm, persistent. Petals pink, linear, 8–10 × 0.8–1 mm. Filaments free or median pairs connate near base, 2.5–4 mm; anthers narrowly oblong, 0.7–1 mm. Fruit linear, straight, latiseptate, strongly torulose, 4–6 cm × 1–1.7 mm; valves not veined, densely pubescent with setose simple trichomes mixed with much smaller, forked and subdendritic ones; style obsolete; stigma conical, to 1 mm. Seeds oblong, 1.2–1.5 × 0.6–0.8 mm. Fl. Apr–Jun, fr. May–Jul.

Foothills; 1900–2000. Xizang [Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan].

This species was recorded in FRPS from Gansu, Qinghai, and Xinjiang, but the present authors have seen no material from those provinces and autonomous region. It is likely that the records were based on misidentified plants of *Malcolmia africana* that have some simple trichomes on the fruit. The above record from Xizang is based on *Chaffanjon 207* (P).

**3. *Malcolmia scorpioides*** (Bunge) Boissier, Fl. Orient. 1: 225. 1867.

卷果涩芥 juan guo se jie

*Dontostemon scorpioides* Bunge, Arbeiten Naturf. Vereins Riga 1: 150. 1847; *Fedtschenkoa multisiliqua* (Vassilczenko) Dvorák; *F. scorpioides* (Bunge) Dvorák; *Malcolmia contortuplicata* (Stephan) Boissier var. *curvata* Freyn & Sintenis; *M. humilis* Z. X. An; *M. multisiliqua* Vassilczenko; *M. scorpioides* var. *curvata* (Freyn & Sintenis) Vassilczenko; *Strigosella scorpioides* (Bunge) Botschantzev.

Herbs annual, (3–)10–30(–45) cm tall, sparsely pubescent with small, short-stalked, forked or 3-rayed trichomes sometimes mixed with fewer simple ones, rarely glabrescent. Basal leaves soon withered, not rosulate. Middle and lower cauline leaves with petioles

4–14(–22) mm; leaf blade elliptic, oblong, or lanceolate, 1–3(–4) cm × 2–10(–16) mm, base cuneate, margin entire or rarely dentate, apex acute; uppermost leaves smaller and sessile. Racemes few flowered, elongated considerably in fruit; rachis straight. Fruiting pedicels thickened as wide as fruit, 0.5–2 mm. Sepals 2.5–4 × 0.6–1 mm, caducous. Petals pink or rarely white, oblanceolate, (5–)6–8 × ca. 1 mm. Filaments 3.5–4.5 mm; anthers narrowly oblong, ca. 0.8 mm. Fruit linear, strongly coiled to 5 turns, compressed, torulose, (3–)4–6(–7) cm × (0.9–)1–1.2 mm; valves not veined, glabrous or rarely sparsely pubescent with forked and simple trichomes; style obsolete; stigma conical, to 1 mm. Seeds oblong, 0.9–1.2 × 0.4–0.5 mm. Fl. and fr. Apr–Jun.

Sandy deserts, steppe, rocky areas; 400–1400 m. Gansu, Xinjiang [Afghanistan, Kazakistan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

**4. *Malcolmia karelinii*** Lipsky, Trudy Imp. S.-Peterburgsk. Bot. Sada 23: 31. 1904.

短梗涩芥 duan geng se jie

*Sisymbrium brevipes* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 154. 1842, p.p., quoad var.; *Dontostemon brevipes* Bunge; *Malcolmia karelinii* var. *lasiocarpa* Lipsky; *Strigosella brevipes* (Bunge) Botschantzev.

Herbs annual, (3–)10–30(–45) cm tall, sparsely pubescent with small, short-stalked, forked or 3-rayed trichomes sometimes mixed with few simple ones, rarely glabrescent. Basal leaves soon withered, not rosulate. Middle and lower cauline leaves petiolate; petiole 3–12(–20) mm; leaf blade elliptic, oblong, or lanceolate, 1–3(–4) cm × 2–10(–16) mm, base cuneate, margin coarsely dentate, apex acute; uppermost leaves smaller and sessile. Racemes few flowered, elongated considerably in fruit; rachis straight. Fruiting pedicels thickened narrower than or as wide as fruit, 0.5–1 mm. Sepals 1–2(–2.5) × 0.5–0.7 mm, caducous. Petals pink or rarely white, narrowly oblanceolate, 2–3.5(–4) × 0.3–0.7 mm. Filaments free, 1.5–2.5 mm; anthers narrowly oblong, 0.3–0.6 mm. Fruit linear, curved at least near apex, or straight, rarely coiled, subterete, torulose, (1.3–) 1.8–3.2(–5) cm × 0.5–0.8(–0.9) mm; valves not veined, glabrous or rarely sparsely pubescent with forked trichomes; style obsolete; stigma conical, to 1 mm. Seeds oblong, 0.9–1.2 × 0.4–0.5 mm. Fl. and fr. Apr–Jun.

Steppes; deserts, hillsides; 800–2000 m. Nei Mongol, Xinjiang [Afghanistan, Kazakistan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

The protologue of *Sisymbrium brevipes* included two elements, of which *Karelin & Kirilov 106* (LE) is the type of the species name, and it definitely belongs to the taxon currently known as *Neotorularia brevipes* (see below). The other element, *Karelin & Kirilov 1240* (LE), which is a *Malcolmia* with twisted fruit and connivent stigma, was cited by Karelin and Kirilov under an unnamed variety, which is the basis of the name *M. karelinii*.

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