

## DIAPENSIACEAE

岩梅科 yan mei ke

Qin Haining (覃海宁)<sup>1</sup>; Bruce Bartholomew<sup>2</sup>

Shrublets or perennial herbs, prostrate or decumbent, evergreen, mostly glabrous. Stipules absent. Leaves simple, spirally arranged or alternate, often crowded, subsessile or petiolate, pinnately veined. Flowers bisexual, actinomorphic, solitary or in a capitate raceme. Calyx 5-lobed, persistent; lobes free, imbricate. Corolla basally connate, apically lobed, caducous; lobes 5, spreading. Stamens 5[or 10], epipetalous, alternate with corolla lobes if 5; staminodes 5 if present, epipetalous, opposite corolla lobes, scalelike or spatulate; anthers 1- or 2-celled, dehiscent by slits. Ovary superior, 3[or 5]-locular; ovules numerous, axile, anatropous or amphitropous. Style simple; stigma lobed, capitate, or disciform. Fruit a 3[or 5]-locular capsule, loculicidally dehiscent. Seeds many, small, cylindrical; endosperm copious; embryo straight or slightly curved.

Six genera and ca. 15 species: Asia, Europe, North America; three genera (one endemic) and six species (three endemic) in China.

Chang Cheyung. 1990. Diapensiaceae. *In*: Fang Wenpei & Hu Wenkuang, eds., *Fl. Reipubl. Popularis Sin.* 56: 109–119.

- 1a. Shrublets; leaf blade 0.2–1 cm; scape to 2 cm, often ± absent at flowering ..... 1. *Diapensia*
- 1b. Perennial herbs from a woody rhizome; leaf blade (0.5–)1.5–12(–15) cm; scape 3–10 cm at flowering.
  - 2a. Flowers in a capitate raceme; filaments pubescent; leaf blade margin entire ..... 2. *Berneuxia*
  - 2b. Flowers solitary; filaments glabrous; leaf blade margin serrate or occasionally subentire ..... 3. *Shortia*

### 1. DIAPENSIA Linnaeus, *Sp. Pl.* 1: 141. 1753.

岩梅属 yan mei shu

Shrublets, prostrate, compact, often forming a mat or cushion. Stems slender, many-branched. Leaves subsessile, often crowded, margin entire. Flowers solitary, subsessile or on a short scape. Calyx with 2 or 3 bracts at base. Corolla campanulate, 5-lobed to middle or more basally, caducous. Staminodes minute or absent. Ovary globose, 3-locular. Style erect, filiform; stigma entire, capitate, or slightly 3-lobed. Capsule 3-locular, ellipsoid or globular, surrounded by persistent calyx; scape elongating in fruit.

Four species: Asia, N Europe, North America; three species (one endemic) in China.

The circumpolar *Diapensia lapponica* Linnaeus could possibly be found in the Changbai Shan of S Jilin.

- 1a. Shrublets 10–15 cm tall; leaf blade 6–10 mm; flowers on a 1–2 cm scape ..... 3. *D. wardii*
- 1b. Shrublets usually less than 10 cm tall; leaf blade 2–4(–7) mm; flowers subsessile with scape only elongating in fruit.
  - 2a. Leaf blade adaxially with stomates, generally smooth and shiny ..... 1. *D. himalaica*
  - 2b. Leaf blade adaxially without stomates, generally dull and very finely papillose ..... 2. *D. purpurea*

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**1. *Diapensia himalaica*** J. D. Hooker & Thomson, Hooker's J. Bot. Kew Gard. Misc. 9: 373. 1857.

喜马拉雅岩梅 xi ma la ya yan mei

*Diapensia acutifolia* Handel-Mazzetti; *D. himalaica* var. *acutifolia* (Handel-Mazzetti) W. E. Evans; *D. himalaica* var. *retusa* W. E. Evans.

Shrublets, caespitose, ca. 5 cm tall. Leaves crowded on stem; petiole 1.5–2.5 mm, winged; leaf blade obovate, obovate-spatulate, lanceolate, or obovate-oblong, 2–5 × 1–2.5 mm, leathery, adaxially shiny and with stomates, base sheathing stem, margin entire and sometimes slightly revolute, apex obtuse to acute or sometimes mucronate-apiculate, acuminate, or retuse; midvein adaxially impressed; lateral veins inconspicuous. Flowers subsessile. Sepals 5, free, purplish red, ovate at flowering. Corolla pinkish red to rose-purple, occasionally white or yellow; tube campanulate, 4–8 mm, ca. 2 times longer than sepals; lobes suborbicular, broad-obovate, or oblong, ca. 6 × 4–5 mm. Stamens subsessile; staminodes minute and inconspicuous. Style 4–10 mm; stigma capitate to slightly 3-lobed. Capsule pinkish red, broadly ellipsoid, ca. 8 × 3–4 mm; elongated scape 5–7 cm; fruiting calyx becoming ovate-oblong, leaflike, 2.5–5 × 2–3 mm. Fl. May–Jun, fr. Aug.

Rocky hillsides, cliff ledges, damp rock faces; 3200–5000 m. SE Xizang, NW Yunnan [Bhutan, N Myanmar, Sikkim].

**2. *Diapensia purpurea*** Diels, Repert. Spec. Nov. Regni Veg. 10: 419. 1912.

红花岩梅 hong hua yan mei

*Diapensia bulleyana* Forrest ex Diels; *D. purpurea* f. *rosea* W. E. Evans; *D. purpurea* f. *albida* W. E. Evans.

Shrublets 3–10 cm tall. Leaves crowded on stem; petioles 2–6 mm, semiamplexicaul, persistent; leaf blade spatulate-elliptic to oblong, 3–4(–7) × 1.5–2.5(–3.5) mm, adaxially very finely papillose and without stomates, base gradually narrowed and attenuate into petiole, margin entire and apically slightly revolute, apex rounded to ± obtuse. Flowers subsessile. Sepals spatulate to oblong, 5–6 × 1–3.5 mm, usually with 5 inconspicuous veins. Corolla pinkish red, occasionally white or yellow; tube tubular, 4.5–6 × 10–13 mm; lobes orbiculate, ca. 6–6.5 × 4–4.5 mm, apex acute. Staminodes 5, glabrous. Style 2–15.5 mm, shorter to longer than corolla tube; stigma slightly capitate to obscurely lobed. Capsule globular, ca. 2–3 mm in diam.; persistent calyx papery, green, lobes spatulate; elongated scape thick, 0.5–6 cm, usually with 1 or 2 spatulate bracts. Seeds broadly elliptic, ca. 0.7 × 0.5 mm, testa reticulate. Fl. May–Jun, fr. Jun–Sep.

Mountain summits, bare rock faces; 2600–4500 m. W Sichuan, SE Xizang, NW Yunnan [N Myanmar].

**3. *Diapensia wardii*** W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 15: 233. 1927.

西藏岩梅 xi zang yan mei

Shrublets, 10–15 cm tall. Leaves crowded towards apex of

branchlets; petiole ca. 4 mm, base inflated and semiamplexicaul; leaf blade ovate to broadly elliptic, 6–10 × 4–7 mm, leathery, both surfaces smooth, abaxially surface pale green with a slightly raised midvein, adaxially green with slightly depressed midrib and veins, base broadly cuneate and gradually narrowed and attenuate into petiole, margin entire and slightly revolute, apex rounded to obtuse. Scape 1–2 cm; bracts 1, linear, near apex of scape. Sepals oblong, ca. 5 mm. Corolla purplish red, campanulate, 8–10 × 10–13 mm; lobes broadly ovate, ca. 6 × 6 mm, membranous, apex rounded. Stamens slightly exerted; staminodes membranous. Style purplish black, glabrous; stigma capitate. Capsule dark red, globular, ca. 4 mm in diam., 3-locular; persistent calyx ca. 6 mm, leaflike; elongated scape red, 4.5–8 cm. Fl. Jun–Jul, fr. Aug–Oct.

• Rock faces, under *Rhododendron* shrubs; 3200–3400 m. SE Xizang.

**2. BERNEUXIA** Decaisne, Bull. Soc. Bot. France 20: 159. 1873.

岩匙属 yan chi shu

Perennial herbs, decumbent. Rhizomes woody, elongated, slightly curved, with scales. Leaves basal, spirally arranged, petiolate. Inflorescence a capitate raceme; peduncle nearly equaling leaves in length, elongating in fruit. Flowers pedicellate; bract 1 at base of pedicel; bracteoles 2 at middle of pedicel. Sepals persistent. Corolla caducous. Stamens inserted at corolla base; filaments pubescent at base; anthers 2-locular; staminodes short, ligulate, densely pubescent. Ovary and capsule 3-locular. Style glabrous; stigma disciform.

- One species: China.

**1. *Berneuxia thibetica*** Decaisne, Bull. Soc. Bot. France 20: 159. 1873.

岩匙 yan chi

*Berneuxia yunnanensis* H. L. Li; *Shortia davidii* Franchet.

Perennial herbs, 10–25 cm tall. Rhizomes almost erect, brown or grayish, ca. 3–4 mm in diam., with dense widely ovate scales. Leaves basal; petiole ± as long as leaf blade; leaf blade obovate-spatulate, widest apical to middle, ca. 3–10 × 1.7–4 cm, leathery, glabrous, abaxially pallid or grayish green, adaxially deep green, shiny, and usually smooth, base gradually

narrowed and attenuate into petiole, margin entire, apex obtuse and with an apicula; lateral veins 2–4 on each side of midvein, adaxially inconspicuous or obviously impressed. Inflorescences 5–12-flowered; peduncle elongated after flowering sometimes to 23 cm. Pedicel 3–11 mm. Sepals reddish, broadly elliptic to ovate, 4–5 mm, margin entire. Corolla campanulate, 0.9–1 cm, white or roseate; lobes oblong to ligulate, margin entire. Ovary subglobose. Capsule globose, covered by persistent sepals. Fl. Apr–Jun, fr. Aug–Sep.

- Wet *Abies* forests, broadleaved deciduous forests, thickets; 1700–3500 m. NW Guizhou, Sichuan, SE Xizang, N Yunnan.

**3. SHORTIA** Torrey & A. Gray, Amer. J. Sci. Arts 42: 48. 1842, nom. cons.

岩扇属 yan shan shu

*Schizocodon* Siebold & Zuccarini; *Sherwoodia* House; *Shortiopsis* Hayata.

Perennial herbs, evergreen, glabrous. Rhizomes woody, branched, creeping, with ovate pinnately veined scales. Leaves numerous, radical or rosulately arranged at end of rhizome, long petiolate. Scape solitary or 2–6, in the axil of the upper leaves, elongated after flowering, with several bracts. Flowers solitary, subterminal, erect or nodding. Calyx persistent. Corolla campanulate to funnel-shaped; lobe obtusely toothed to lacinate, undulate to crenate. Stamens adnate to base of corolla tube; filaments short or none; staminodes 5 or absent. Ovary and capsule 3-locular.

- Six species: E Asia, E North America; two species (one endemic) in China.

- 1a. Staminodes present; leaf blade ovate-oblong, 7–12(–15) × 3.5–6(–9) cm; flowers 2–2.5 cm in diam. .... 1. *S. sinensis*  
 1b. Staminodes absent; leaf blade orbiculate, orbiculate-elliptic, or ovate, (0.5–)1.5–5 × (0.3–)1.4–5.5 cm; flowers 1–2 cm in diam. .... 2. *S. rotundifolia*

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### 1. *Shortia sinensis* Hemsley, Hooker's Icon. Pl. 27: t. 2624. 1899.

华岩扇 hua yan shan

*Shortia sinensis* var. *pubinervis* C. Y. Wu.

Perennial herbs. Rhizomes 3–7 mm in diam., ascending. Leaves basal, numerous, tufted apex of rhizome, variable in size, some leaves reduced to scales and covering stem base; petiole ± as long as leaf blade, apically narrowly winged; leaf blade ovate-oblong, 7–12(–15) × 3.5–6(–9) cm, papery, abaxially pale green and glabrous or occasionally white pubescent along veins, adaxially green, base rounded and abruptly narrowed and attenuate into petiole, margin ciliate particularly towards apex, apex acute; secondary veins 5–9 on each side of midvein, conspicuous. Scapes 1–6, slender, ca. 2/3 leaf length in flower but elongating in fruit; bracts 2, lanceolate, ca. 2 cm. Flowers nodding, 2–2.5 cm in diam.; bracteoles 3, directly below calyx. Sepal green or slightly purplish, ovate, ca. 10 × 4–5 mm, apex acute, veined. Corolla white or pink, veined; tube shorter than 1 mm; lobes obovate, ca. 8 mm in diam., apically with small rounded teeth. Stamens slightly exerted from corolla; anthers and filaments ± equal in length; staminodes conspicuous but small, scalelike. Ovary ovoid. Style longer than stamens, elongated after flowering; stigma capitate to slightly 3-lobed. Capsule obovate-oblongate, ca. 7 × 4 mm; covered by persistent calyx; stigma persistent, erect or slightly flexed. Fl. Feb–Mar, fr. Apr–May.

- Wet rock faces in forests; 1000–2000 m. SE Yunnan.

### 2. *Shortia rotundifolia* (Maximowicz) Makino, Bot. Mag. (Tokyo) 9: 327. 1895.

台湾岩扇 tai wan yan shan

*Schizocodon rotundifolius* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 32: 497. 1888; *Sherwoodia rotundifolia* (Maximowicz) House; *Shortia exappendiculata* Hayata; *S. ritoensis* Hayata; *S. rotundifolia* var. *ritoensis* (Hayata) T. C. Huang & A. Hsiao; *S. rotundifolia* var. *subcordata* (Hayata) T. C. Huang & A. Hsiao; *S. rotundifolia* var. *transalpina* (Hayata) Yamazaki; *S. subcordata* Hayata; *S. transalpina* Hayata; *Shortiopsis exappendiculata* (Hayata) Hayata.

Perennial herb, 3–17 cm tall. Rhizome prostrate, woody, apical part branched and ascending. Leaves radical, tufted; peti-

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ole slender, (2–)4–9(–11) cm; leaf blade orbiculate, orbiculate-elliptic, or ovate, variable even on same plant, (0.5–)1.5–5 × (0.3–)1.5–5.5 cm, thinly leathery, abaxially pale green, adaxially dark green, base truncate, subcordate, or attenuate and shortly decurrent into petiole, margin apiculately obtuse-serrate, rarely subentire, and often undulate, apex rounded to truncate and sometimes minutely retuse; secondary veins 3 or 4 on each side of midvein. Scapes 1–3, slender, erect, 4–5 cm at flowering, 6–13 cm at fruiting, glabrous, with many lanceolate acuminate scales crowded at base; bracts 3–5, remotely alternate on scape, linear-lanceolate, 5–6 × 1–1.5 mm, apex acuminate, upper most one at base of calyx. Flowers 1–2 cm in diam. Sepals persistent, membranous, inner two somewhat smaller, ovate, 5–6 mm at flowering, 7–8 mm at fruiting, margin entire, apex obtuse to subacute. Corolla white or pale pink, campanulate, ca. 8 × 10 mm; lobes obovate, ca. 6 × 4–5 mm, irregularly dentate on apical margin. Stamens adnate to apex of corolla tube; filaments ca. 0.2 mm; anthers broadly ovate; staminodes absent. Ovary ovoid-globose, ca. 2 mm. Style ca. 2 mm; stigma capitate. Capsule globose-ovoid, ca. 4 × 3 mm. Fl. Mar–Apr, fr. Apr–May.

Forests, rocky places in evergreen forests, alpine regions; 1000–3000 m. Taiwan [Japan (Ryukyu Islands)].

This is a variable species, particularly in terms of plant size as well as leaf blade size, shape, and margin. Plants from lower elevations are larger with rounder leaf blades that are basally truncate to subcordate and with a serrate margin. These plants agree with the holotype (at LE) of *Schizocodon rotundifolius* from the Ryukyu Islands. At higher elevations the plants are smaller and with smaller leaf blades that in some cases are basally attenuate and with the margin less serrate. The very high elevation plants in the southern alpine regions of Taiwan are very small and have small leaf blades that are subentire. This variation has been treated variously at the specific or varietal level with highest elevation plants given the name *Shortia transalpina*. All of these differences appear to be clinal and probably do not warrant taxonomic recognition.