

**73. PACHYPLEURUM** Ledebour, Fl. Altaic. 1: 296. 1829.

厚棱芹属 *hou leng qin shu*

Pu Fading (溥发鼎 *Pu Fa-ting*); Mark F. Watson

*Arpitium* Necker & Sweet.

Herbs, perennial. Taproot stout, usually branched. Stem single or multicapital, usually short, sometimes acaulescent, base densely clothed with fibrous remnant sheaths. Basal leaves 2–3-pinnate or ternate-2–3-pinnate. Umbels compound, terminal sessile, laterals pedunculate; bracts several, lanceolate or linear-lanceolate; rays 5–40; bracteoles lanceolate or linear-lanceolate, entire or 1–2-pinnate. Calyx teeth prominent, triangular or lanceolate. Petals white or purple, oblong-ovate or cordate-ovate, base cuneate or shortly clawed, apex notched with small incurved lobule. Stylopodium conic or subglobose; styles longer than stylopodium. Fruit oblong-ovoid, ovoid or broadly ovoid, dorsally compressed; ribs all winged, subequal; vittae 1(–2) in each furrow, 2(–4) or absent on commissure. Seed face plane.

About six species: Asia, Europe; five species (four endemic) in China.

- 1a. Plants shortly caulescent to acaulescent; bracteoles 2–3-pinnate.
  - 2a. Calyx teeth lanceolate, ca. equaling stylopodium; fruit oblong-ovoid; dorsal ribs adjacent; commissure vittae 2, evident ..... 1. *P. nyalamense*
  - 2b. Calyx teeth linear, several times longer than stylopodium; fruit ovoid; all ribs evenly spaced; commissure vittae absent ..... 2. *P. lhasanum*
- 1b. Plants distinctly caulescent, stems erect, ascending; bracteoles lanceolate or linear-lanceolate, entire.
  - 3a. Bracteoles lanceolate, margins white membranous; leaves 2-pinnate ..... 3. *P. alpinum*
  - 3b. Bracteoles linear-lanceolate, margins scabrous; leaves ternate-2–3-pinnate.
    - 4a. Plants 10–30 cm; rays 20–40; petals white; fruit broadly ovoid; vittae 1 in each furrow ..... 4. *P. xizangense*
    - 4b. Plants 70–120 cm; rays 5–10; petals purple; fruit oblong-ovoid; vittae 2 in each furrow ..... 5. *P. muliense*

**1. *Pachypleurum nyalamense*** H. T. Chang & R. H. Shan, Acta Phytotax. Sin. 18: 376. 1980.

聂拉木厚棱芹 *nie la mu hou leng qin*

Plants, 10–15 cm, short-caulescent or acaulescent. Taproot stout, 1 cm thick or more, branched. Basal leaves only, petiolate; petioles ca. 2 cm, sheathing; blade oblong-lanceolate, 7–10 × 1.5–2 cm, 2–3-pinnate, rachis densely hispid, pinnae 7–9 pairs; ultimate segments linear. Umbels 6–10 cm across, sessile or peduncle very short; rays 13–20, unequal, 8–10 cm, extending after flowering to 20 cm, angular, scabrous; bracteoles 5–8, 5–10 mm, 1–2-pinnate. Calyx teeth lanceolate, ca. 0.3 mm, ca. equaling stylopodium. Petals white, oblong-ovate. Stylopodium conic; styles ca. 2 × stylopodium. Fruit oblong-ovoid, ca. 6 × 4 mm, glabrous; dorsal ribs adjacent; vittae 1 in each furrow, 2 on commissure. Fl. Jun–Jul, fr. Aug–Sep.

• Alpine scrub and meadows; 3500–3600 m. E and S Xizang.

**2. *Pachypleurum lhasanum*** H. T. Chang & R. H. Shan, Acta Phytotax. Sin. 18: 377. 1980.

拉萨厚棱芹 *la sa hou leng qin*

Plants acaulescent, 10–20 cm. Taproot rather thick. Leaves petiolate, petioles 2–3 cm, sheaths inflated at base; blade oblong-lanceolate, 3–6 × 1–2 cm, 2–3-pinnate, pinnae 4–7 pairs, remote; ultimate segments ovate-lanceolate, 2–3 × ca. 1 mm. Umbels 8–10 cm across, sessile; rays 11–14, extremely unequal, 4–20 cm; bracteoles 6–8, 1–2-pinnate. Calyx teeth linear, several times longer than stylopodium. Petals white, oblong-ovate. Stylopodium conic; styles elongate, ca. 2 mm. Fruit ovoid, 3–4 × ca. 2 mm; all ribs evenly spaced; vittae 1 in each

furrow, vittae absent on commissure. Fl. and fr. Jul–Sep.

• Alpine meadows; 4300–4600 m. W Sichuan, S Xizang.

**3. *Pachypleurum alpinum*** Ledebour, Fl. Altaic. 1: 297. 1829.

高山厚棱芹 *gao shan hou leng qin*

*Arpitium alpinum* (Ledebour) Koso-Poljansky.

Plants 12–20 cm. Taproot vertical, slightly thickened, branched. Stem well developed, single or 2–3, erect, striate, usually unbranched. Basal leaves petiolate, petioles 3–5 cm, sheathing, sheaths inflated; blade ovate or oblong-ovate, 3–5 × 1–2 cm, 2-pinnate, pinnae 3–5 pairs; ultimate segments linear or linear-lanceolate, 1–1.5 × 0.5–1 mm. Cauline leaves absent or 1–2, similar to basal, reduced, sessile. Umbels 2–3 cm across; bracts 6–8, lanceolate, margins white membranous; rays 10–15, subequal, 1–1.5 cm; bracteoles 8–10, lanceolate, margins white membranous, ca. equaling umbellules in flower, apex sometimes incised. Calyx teeth triangular. Petals white, cordate-ovate, base shortly clawed. Stylopodium subglobose; styles reflexed after flowering. Fruit oblong-ovoid, ca. 6 × 4 mm; vittae 1 in each furrow, 2 on commissure. Fl. Jun–Jul, fr. Jul–Aug.

Grassy slopes; 2400–2500 m. N Xinjiang [Kazakhstan, Mongolia, Russia (Siberia)].

**4. *Pachypleurum xizangense*** H. T. Chang & R. H. Shan, *Acta Phytotax. Sin.* 18: 376. 1980.

西藏厚棱芹 xi zang hou leng qin

Plants 10–30 cm. Taproot elongate; caudex rather thick, 2–3 cm across, slightly woody. Stem well developed, caespitose, purplish, striate, branched. Basal leaves petiolate, wholly sheathing; sheaths inflated, purplish; blade oblong or oblong-ovate, 10–15 × 3–5 cm, ternate-2–3-pinnate, pinnae 3–4 pairs, remote; ultimate segments lanceolate or oblanceolate, 1–2 × 1–1.5 mm. Cauline leaves few, similar to basal, reduced, shortly petiolate or sessile. Umbels 3–6 cm across, enlarging after flowering up to 10 cm across; bracts 10–15, linear-lanceolate, ca. 15 mm, veins purplish, scabrous; rays 20–40, 3–5 cm, scabrous, slightly recurved in fruit; bracteoles 8–10, linear-lanceolate, 7–8 mm, scabrous; umbellules 15–20-flowered. Calyx teeth lanceolate, unequal, 1–1.5 mm. Petals white, oblong-ovate. Stylopodium conic; styles ca. 2 × stylopodium. Fruit broadly ovoid, 5–7 × 4–5 mm; vittae 1 in each furrow, 2 on commissure. Fl. Jun–Jul, fr. Aug–Sep.

- Alpine meadows, grassy valley slopes; 3700–4600 m. Xizang.

**5. *Pachypleurum muliense*** R. H. Shan & F. T. Pu, *Acta Phytotax. Sin.* 27: 62. 1989.

木里厚棱芹 mu li hou leng qin

*Ostericum muliense* (R. H. Shan & F. T. Pu) Pimenov & Kljuykov.

Plants 70–120 cm. Root cylindrical, ca. 8 mm thick. Stem well developed, single, erect, branching. Basal and lower leaves petiolate, wholly sheathing; blade triangular-ovate, 8–10 × 4–8 cm, ternate-2–3-pinnate, pinnae 4–5 pairs, remote; ultimate segments lanceolate, 5–15 × 1.5–4 mm. Upper leaves reduced, sessile; blade 1–2-pinnate. Umbels 3–7 cm across; bracts 3–5, linear, 0.5–1 cm; rays 5–10, unequal, 1.5–5 cm; bracteoles 3–5, linear-lanceolate, equaling pedicels, scabrous; umbellules 15–20-flowered. Calyx teeth lanceolate, ca. equaling stylopodium. Petals purple, cordate-ovate, base shortly clawed. Stylopodium conic; styles ca. 2 × stylopodium. Fruit oblong-ovoid, 5–6 × 3–4 mm; vittae 2 in each furrow, 4 on commissure. Fl. Jun–Jul, fr. Aug–Sep.

- Low shrubs at streamsides; ca. 2600 m. SW Sichuan (Muli).

This rather poorly known taxon is recorded only from a few collections. Recent research suggests that it is conspecific with *Ostericum maximowiczii* var. *alpinum* C. Q. Yuan & R. H. Shan, and should be included in *Ostericum* at species rank under the name *O. muliense*.

