

**64. SOLMS-LAUBACHIA** Muschler, Notes Roy. Bot. Gard. Edinburgh 5: 205. 1912.

丛菝属 *cong fu shu*

Herbs perennial, sometimes pulvinate, with well-developed, thick caudex covered with petioles of previous years. Trichomes absent or simple. Stems absent or rarely present and few leaved. Basal leaves petiolate, rosulate, simple, entire. Cauline leaves absent, if present then sessile, entire. Flowers solitary on long pedicels originating from center of rosette, rarely in few- to several-flowered, ebracteate racemes elongated slightly in fruit. Fruiting pedicels slender, erect or divaricate. Sepals oblong, free or rarely united, usually persistent, erect, equal, base of lateral pair not saccate, margin not membranous. Petals purple, blue, pink, or white, suborbicular, obovate, spatulate, or oblanceolate, apex obtuse or emarginate; claw subequalling or longer than sepals. Stamens 6; filaments not dilated at base; anthers oblong-linear, obtuse at apex. Nectar glands 2, lateral, often annular; median glands absent. Ovules 5–10 per ovary. Fruit dehiscent siliques or silicles, linear, oblong, ovate, or lanceolate, latiseptate, sessile, readily detached from pedicel; valves papery, reticulate veined, with a prominent midvein and marginal veins, glabrous or pubescent, smooth, margin angled, apex persistently united with replum; replum rounded, concealed by connate valve margin; septum complete or rarely perforated, membranous, translucent; style absent, obsolete, rarely to 1 mm; stigma capitate, entire or slightly 2-lobed, lobes not decurrent. Seeds uniseriate or biseriate, wingless, broadly ovate or suborbicular, flattened; seed coat reticulate, rugose, or papillate, not mucilaginous when wetted; cotyledons accumbent.

Nine species: Bhutan, China, Sikkim; nine species (eight endemic) in China.

- 1a. Flowers in racemes; stems often 1- or 2-leaved; seeds papillate ..... 1. *S. platycarpa*
- 1b. Flowers solitary from a basal rosette; scapes leafless; seeds rugose or reticulate.
  - 2a. Leaves gray, densely lanate; seeds rugose.
    - 3a. Leaf blade lanceolate- to oblanceolate-linear, rarely oblanceolate, retrorsely lanate, 1.5–5(–7) mm wide; fruit valves obscurely veined ..... 2. *S. retropilosa*
    - 3b. Leaf blade broadly spatulate, oblong, or obovate, spreading or antrorsely lanate, (5–)7–17 mm wide; fruit valves prominently veined ..... 3. *S. lanata*
  - 2b. Leaves green, glabrous or pilose; seeds reticulate.
    - 4a. Leaf blade 0.3–1(–1.5) mm wide, often grooved adaxially, fleshy, filiform to narrowly linear.
      - 5a. Petioles remaining thickened; longest leaf blades (1.5–)2–4.5(–5.5) cm; fruiting pedicels (1–)1.5–3.5(–4.5) cm; petals (1.5–)1.7–2.2 cm; seeds 2–4 × 2–3 mm ..... 7. *S. xerophyta*
      - 5b. Petioles often becoming papery; longest leaf blades rarely to 1 cm; fruiting pedicels 0.2–0.7(–1) cm; petals 1–1.2 cm; seeds 1–2 mm in diam. .... 8. *S. minor*
    - 4b. Leaf blade (1.5–)2–16(–23) mm wide, not grooved adaxially, not fleshy, variable in shape, never filiform, rarely narrowly linear.
      - 6a. Leaf blade (7–)10–16(–23) mm wide; petiole strongly thickened, subcorky, often purplish ..... 4. *S. eurycarpa*
      - 6b. Leaf blade (1.5–)2–5(–7) mm wide; petiole thin or rarely slightly thickened, papery, often not purplish.
        - 7a. Sepals united, 2.5–3.5 mm; petals white, oblanceolate, 5–6 × 1.5–2 mm ..... 9. *S. gamosepala*
        - 7b. Sepals free, 5–10 mm; petals purple, pink, or deep to turquoise blue, obovate or broadly so, 12–25 × 4–12 mm.
          - 8a. Leaves pilose with straight trichomes; petioles membranous, ciliate; fruit (3–)4.5–6.5(–8) cm; seeds 3.5–5 mm ..... 6. *S. linearifolia*
          - 8b. Leaves glabrous or sparsely pubescent with crisped trichomes; petioles usually slightly thickened, not ciliate; fruit 2.5–3.5(–4.5) cm; seeds 2.5–3.5 mm ..... 5. *S. pulcherrima*

**1. Solms-laubachia platycarpa** (J. D. Hooker & Thomson) Botschantzev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 171. 1955.

总状丛菝 *zong zhuang cong fu*

*Parrya platycarpa* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 5: 136. 1861, not Rydberg (1912); *P. finchiana* Dunn; *Solms-laubachia orbiculata* Y. C. Lan & T. Y. Cheo.

Herbs (2–)4–10(–15) cm tall, glabrous or densely pubescent with straight or crisped, retrorse trichomes to 1.1 mm; caudex covered with petioles of previous years. Petioles of basal leaves (0.5–)1.5–3(–6) cm, ciliate, thickened and subcorky, persistent, often ciliate at least basally; leaf blade lanceolate, elliptic, oblanceolate, or spatulate, rarely broadly obovate, suborbicular, or linear-oblanceolate, (0.5–)1–3.5(–5) cm × 2–7(–10) mm, glabrous or densely pilose, sometimes only sparsely so at leaf apex and petiole base, base cuneate or attenuate, apex acute or rounded. Cauline leaves 1 or 2, much narrower than basal ones, sessile. Racemes 4–10-flowered. Fruiting pedicels divaricate-ascending, 3–10(–15) mm. Sepals oblong to oblong-linear, 4.5–6.5(–8) × 1.5–2 mm, glabrous or pilose. Petals pale blue or purplish, obovate, (1–)1.2–1.5(–1.7) cm × 4–5 mm; claw 6–9 mm. Filaments of median staminal pairs 3–4 mm, those of lateral pair 2–2.5 mm; anthers 1–1.5 mm. Ovules 10–20 per ovary. Fruit elliptic, oblong, or broadly ovate, (1–)1.5–3 × (0.8–)1–1.7 cm; valves glabrous or shortly pilose, prominently reticulate veined; septum complete; style 0.5–3 mm; stigma entire or slightly lobed. Seeds biseriate, broadly ovate or suborbicular, papillate, 2.5–3.5 × 1.7–2.2 mm. Fl. Jun–Jul, fr. Jul–Sep.

Rocky ravines, cliff ledges, beneath boulders, stony hillsides; 4200–5800 m. Xizang [Bhutan, Sikkim].

**2. *Solms-laubachia retropilosa*** Botschantzev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 171. 1955.

倒毛丛蕨 *dao mao cong fu*

*Solms-laubachia* Y. C. Lan & T. Y. Cheo.

Herbs 3–10 cm tall, densely lanate with trichomes to 1.5 mm; caudex covered with petioles of previous years. Petioles of basal leaves (0.3–)1–3(–4) cm, retrorsely lanate, papery, persistent, often ciliate at least basally; leaf blade linear-lanceolate, linear-oblanceolate, or rarely oblanceolate, (0.6–)1.2–4.5(–6) cm × 1.5–5(–7) mm, retrorsely lanate, base attenuate, apex acute or obtuse. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect or ascending, (1.5–)2.5–5(–7) cm. Sepals oblong to oblong-linear, 5–8 × 1.5–2.5 mm, lanate. Petals purplish, broadly obovate, (1–)1.2–1.8 cm × (5–)6–7(–9) mm; claw 5–9 mm. Filaments of median staminal pairs 3.5–5 mm, those of lateral pair 2–3 mm; anthers 1.2–1.5 mm. Ovules 10–20 per ovary. Fruit lanceolate, oblong, or broadly ovate, (1–)2–5.2(–6) × (0.6–)0.9–1.5(–2) cm; valves glabrous or lanate, obscurely reticulate veined; septum complete; style obsolete; stigma entire or slightly lobed. Seeds biseriate, broadly ovate or suborbicular, rugose, 3–4.5(–5) × (2–)2.5–3 mm. Fl. May–Jul, fr. Jul–Aug.

• Scree, open scrub; 4200–5100 m. Sichuan, Xizang, Yunnan.

**3. *Solms-laubachia lanata*** Botschantzev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 171. 1955.

绵毛丛蕨 *mian mao cong fu*

Herbs 2–8 cm tall, densely lanate, with trichomes to 1.5 mm; caudex with some petiolar remains of previous years. Petioles of basal leaves 0.5–2 cm, antrorsely lanate, papery, persistent, often ciliate at least basally; leaf blade broadly spatulate, oblong, or obovate, 1.2–4 × (0.5–)0.7–1.7 cm, antrorsely lanate, base cuneate or attenuate, apex rounded or obtuse. Cauline leaves absent. Flowers not seen. Fruiting pedicels solitary, erect or ascending, 1.5–3.5 cm. Ovules 10–20 per ovary. Fruit lanceolate to lanceolate-oblong, 1.8–3.2 × 0.7–1.5 cm; valves sparsely to densely lanate, prominently reticulate veined; septum complete; style 0.5–2 mm; stigma entire or slightly lobed. Seeds biseriate, broadly ovate or suborbicular, rugose, 2–3.5 × 1.5–3 mm. Fr. Aug–Oct.

• Grasslands, meadows; 4000–5000 m. Xizang.

**4. *Solms-laubachia eurycarpa*** (Maximowicz) Botschantzev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 169. 1955.

宽果丛蕨 *kuan guo cong fu*

*Parrya eurycarpa* Maximowicz, Fl. Tangut. 1: 56. 1889; *Solms-laubachia dolichocarpa* Y. C. Lan & T. Y. Cheo; *S. eurycarpa* var. *brevistipes* Y. C. Lan & T. Y. Cheo; *S. eurycarpa* var. *lasiophylla* R. F. Huang; *S. latifolia* (O. E. Schulz) Y. C. Lan & T. Y. Cheo; *S. pulcherrima* Muschler var. *latifolia* O. E. Schulz.

Herbs 3–12 cm tall, sparsely pilose, with trichomes 0.2–0.5 mm; caudex covered with petioles of previous years. Petioles of basal leaves often purplish, (0.7–)1–5(–8) cm, thickened and subcorky, persistent, shortly ciliate; leaf blade oblanceolate, broadly spatulate, oblong, or lanceolate, (1–)1.5–5(–6.5) × (0.7–)1–1.6(–2.3) cm, somewhat fleshy and drying subleathery, glabrous or sparsely pubescent, base attenuate or cuneate, apex obtuse or rounded. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect or ascending, (0.5–)1–3(–5) cm. Flowers not seen. Ovules 20–32 per ovary. Fruit lanceolate to linear-lanceolate, (3.5–)5–8.5(–11) × (0.7–)0.9–1.4(–1.8) cm; valves glabrous or sparsely pilose, with a prominent midvein and obscure lateral ones; septum complete; style obsolete or to 2 mm; stigma entire or slightly lobed. Seeds biseriate, broadly ovate, reticulate, 3–4.5 × 2–3 mm. Fr. Jul–Sep.

• Scree slopes, gravelly areas, cliffs, rocky slopes, alpine meadows, glacier margins; 3800–4900 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan.

**5. *Solms-laubachia pulcherrima*** Muschler, Notes Roy. Bot. Gard. Edinburgh 5: 206. 1912.

丛蕨 *cong fu*

*Parrya ciliaris* Bureau & Franchet; *Pegaeophyton sinense* (Hemsley) Hayek & Handel-Mazzetti var. *stenophyllum* O. E. Schulz; *Solms-laubachia pulcherrima* f. *angustifolia* O. E. Schulz; *S.*

*pulcherrima* f. *atrichophylla* Handel-Mazzetti; *S. ciliaris* (Bureau & Franchet) Botschantzev.

Herbs 3–9 cm tall, glabrous to sparsely pubescent, with crisped trichomes rarely to 1 mm; caudex covered with petioles of previous years. Petioles of basal leaves 0.7–2 cm, thickened, persistent, not ciliate; leaf blade lanceolate, oblanceolate, or linear, (0.5–)1.5–5.5(–7.5) cm × (1.5–)3–5(–7) mm, glabrous or sparsely pubescent with crisped trichomes, ciliate, base attenuate, apex acute or obtuse. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect or ascending, 1.5–4.5(–5.5) cm. Sepals oblong or oblong-linear, 5–8(–10) × 1.5–2 mm, pubescent. Petals pink, or light to turquoise blue, obovate to broadly so, (1.5–)1.7–2(–2.5) cm × (5–)6.5–8(–10) mm; claw (0.7–)1–1.5 mm. Filaments of median staminal pairs 4–5.5 mm, those of lateral pair 2.5–3.5 mm; anthers 1.4–1.6 mm. Ovules 16–20 per ovary. Fruit lanceolate, 2.5–3.5(–4.5) cm × 7–11 mm; valves glabrous or sparsely pilose along margin, reticulate veined; septum complete; style obsolete; stigma entire or slightly lobed. Seeds biseriate, broadly ovate, reticulate, 2.5–3.5 × 2–2.5 mm. Fl. May–Jul, fr. Jun–Aug.

• Scree, boulders, stony outcrops, limestone gravel or rock, crevices of limestone cliffs, stony moist meadows; 3300–5200 m. Sichuan, Xizang, Yunnan.

**6. *Solms-laubachia linearifolia*** (W. W. Smith) O. E. Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 477. 1926.

线叶丛蕨 *xian ye cong fu*

*Parrya linearifolia* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 11: 219. 1919, not Pavlov (1949); *Solms-laubachia linearifolia* var. *leiocarpa* O. E. Schulz.

Herbs 3–10 cm tall, sparsely to densely pilose, with straight trichomes to 1.5 mm; caudex covered with petioles of previous years. Petioles of basal leaves (0.4–)0.8–2(–3) cm, papery, persistent, ciliate; leaf blade linear, oblanceolate-linear, or rarely lanceolate, (1–)1.8–4.5(–6) cm × (1.5–)2–3.5(–5) mm, sparsely to densely pilose, ciliate, base attenuate, apex acute or obtuse. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect or ascending, 1.5–3.5(–5) cm. Sepals oblong to oblong-linear, 5–8(–10) × 1.5–2 mm, pubescent. Petals purple, pink, or deep or turquoise blue, obovate to broadly so, (1.2–)1.5–2.2(–2.5) cm × (4–)6–8(–12) mm; claw 0.8–1.3 mm. Filaments of median staminal pairs (3–)3.5–5(–6) mm, those of lateral pair 2–3.5 mm; anthers 1.2–1.5 mm. Ovules 14–20 per ovary. Fruit lanceolate to linear-lanceolate, (3–)4.5–6.5(–8) cm × 6–11 mm; valves glabrous or pilose at least along margin, obscurely reticulate veined; septum complete; style obsolete; stigma entire or slightly lobed. Seeds uniseriate, broadly ovate or suborbicular, minutely reticulate, 3.5–5 × 2.5–3.5 mm. Fl. May–Jul, fr. Jul–Sep.

• Scree, stony slopes, moraine, among rocks, sandy slopes, cliff crevices, wet limestone meadows; 3400–4700 m. Sichuan, Xizang, Yunnan.

**7. *Solms-laubachia xerophyta*** (W. W. Smith) Comber, Notes Roy. Bot. Gard. Edinburgh 18: 249. 1934.

旱生丛蕨 *han sheng cong fu*

*Parrya xerophyta* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 12: 217. 1920.

Herbs 3–10 cm tall, subglabrous or pilose, with trichomes (1–)2–3 mm; caudex covered with petioles of previous years. Petioles of basal leaves 0.7–2(–2.5) cm, thickened, persistent, ciliate pilose; leaf blade filiform to narrowly linear, (1.5–)2–5.5(–7.5) cm × 0.3–1(–1.5) mm, long ciliate or glabrous, often grooved adaxially, base attenuate, apex subacute. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect or ascending, (1–)1.5–3.5(–4.5) cm. Sepals oblong to oblong-linear, 6–8 × 1.5–2.5 mm, united or free. Petals pink or blue, obovate, (1.5–) 1.7–2.2 cm × 5–8 mm; claw 7–12 mm. Filaments of median staminal pairs 3.5–5 mm, those of lateral pair 2–3 mm; anthers 1.5–1.8 mm. Ovules 12–20 per ovary. Fruit lanceolate to linear-lanceolate, (1.5–)2–5.5(–7) cm × 5–8 mm; valves glabrous or pilose, obscurely veined; septum complete; style obsolete; stigma entire or slightly lobed. Seeds biseriate, broadly ovate or suborbicular, minutely reticulate, 2–4 × 2–3 mm. Fl. Jun–Aug, fr. Jul–Oct.

• Among rocks, cliff ledges, stony meadows, scree; 3700–5200 m. Sichuan, Yunnan.

**8. *Solms-laubachia minor*** Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 246. 1922.

细叶丛蕨 *zi ye cong fu*

Herbs 1–2.5 cm tall, densely subhirsute, with trichomes 1–2.5 mm; caudex covered with curling leaves of previous years. Petioles of basal leaves 2–5 mm, not thickened, persistent, ciliate; leaf blade filiform to narrowly linear, 2.5–10(–1.5) × 0.3–1 mm, long ciliate, often grooved adaxially, base attenuate, apex subacute. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect or ascending, 2–7(–10) mm. Sepals oblong to oblong-linear, 4.5–5.5 × 1–1.5 mm, free. Petals pinkish mauve, pale lilac, or purple, obovate, 1–1.2 cm × 3.5–5 mm; claw 6–7 mm. Filaments of median staminal pairs 3–4 mm, those of lateral pair 2–2.5 mm; anthers 1.2–1.5 mm. Ovules 12–16 per ovary. Fruit lanceolate, 1.5–2 cm × 4–5 mm; valves densely subhirsute, obscurely veined; septum complete or perforated; style 0.5–1 mm; stigma 2-lobed. Seeds biseriate, suborbicular, minutely reticulate, 1–1.5 mm in diam. Fl. May–Jun, fr. Jul–Aug.

• Rocky crevices, cliff ledges, alpine meadows, scree, sandy areas; 2500–4600. Sichuan, Yunnan.

**9. *Solms-laubachia gamosepala*** Al-Shehbaz & G. Yang, Harvard Pap. Bot. 5: 380. 2001.

合萼丛蕨 *he e cong fu*

Herbs perennial, forming woody cushions ca. 2 cm tall, very sparsely pilose with crisped trichomes to 0.5 mm;

caudex covered with persistent leaves of previous years. Petioles of basal leaves 0.5–1.5 cm, becoming strongly thickened, persistent, ciliate; leaf blade spatulate or oblanceolate, 0.5–1.5 cm × 3–5 mm, subapically pilose, base cuneate, apex subacute. Cauline leaves absent. Flowers solitary. Fruiting pedicels erect ca. 7 mm. Sepals oblong, 2.5–3.5 × ca. 1 mm, united, membranous at apex, subapically sparsely pilose. Petals white, drying pink, oblanceolate, 5–6 × 1.5–2 mm; claw ca. 3 mm. Filaments of median staminal pairs ca. 4 mm, those of lateral pair ca. 3 mm; anthers 0.7–0.9 mm. Fruit lanceolate, 2.5–3 cm × 4–5 mm; valves glabrous, obscurely veined; septum complete; style ca. 1 mm; stigma entire. Seeds uniseriate, oblong, minutely reticulate, ca. 3 × 1.5 mm. Fl. and fr. Jun.

- Limestone scree; ca. 4700 m. Yunnan.

*Solms-laubachia gamosepala* is at present known only from the type collection, ACE 855 (K).

Flora of China 8: 142–144. 2001.