

1. TRIPLOSTEGIA Wallich ex Candolle, Prodr. 4: 642. 1830.

双参属 shuang shen shu

Herbs, perennial, erect. Taproots fusiform. Rhizomes horizontal. Basal leaves dense, rosulate; leaf blade serrate or pinnatifid; cauline leaves decussate, otherwise similar. Inflorescence paniculiform, flowers in remote, terminal, simple or compound dichasia, all parts densely white villous and glandular hairy; bracts linear; involucels 2, urceolate, outer involucel 4-lobed, outer surface glandular pubescent, inner involucel 8-ribbed. Flowers nearly actinomorphic. Calyx reduced, 4-lobed. Corolla tubular-funnelform, 5-lobed; lobes subequal, imbricate in bud. Stamens 4, equal in length, alternate with corolla lobes; anthers introrse, versatile. Style solitary; stigma capitate. Achenes enveloped in urceolate involucels. Seeds subglobose, acute at both ends, smooth, with 2 obscure angles; endosperm copious; embryo small.

Two species: from India and Nepal northward to Gansu, southward to Malaysia, and eastward to Taiwan; two species in China.

Triplostegia pinifolia H. Léveillé and *T. mairei* H. Léveillé have been identified respectively as *Sedum fastigiatum* J. D. Hooker & Thomson (Crassulaceae) and *Chrysosplenium macrophyllum* Oliver (Saxifragaceae) by L. A. Lauener (Notes Roy. Bot. Gard. Edinburgh 30: 284, 290. 1970).

- 1a. Corolla 3–5 mm; involucels hooked at apex; leaf blade ovate-lanceolate, petiolate 1. *T. glandulifera*
1b. Corolla 7–12 mm; involucels not hooked at apex; leaf blade obovate to obovate-lanceolate, sessile 2. *T. grandiflora*

1. *Triplostegia glandulifera* Wallich ex Candolle, Prodr. 4: 642. 1830.

双参 shuang shen

Hoeckia aschersoniana Engler & Graebner; *Triplostegia repens* Hemsley.

Herbs, perennial, erect, 15–40 cm tall. Taproots 2-forked, brown, nearly fusiform, 30–50 × 2–3 mm, slightly fleshy. Rhizomes elongate, 4-angular, nodes 4–6, internodes 0.5–2 cm, nodes rooted. Stems angular, glabrous or sparsely puberulent, glandular hairy above. Leaves opposite, petiolate; petiole 1–3 cm; leaf blade obovate-lanceolate, 2–6 × 1.5–4 cm, pinnatifid, more deeply so at base, abaxially puberulent on veins, adaxially sparsely puberulent, ultimately glabrescent, margin irregularly lobed or serrate; upper leaves smaller, lobed, sessile. Inflorescences paniculiform; bracts 2–4 mm, midvein prominent, margin sparsely ciliate; pedicels ca. 1 mm; outer involucel 4-lobed; lobes lanceolate, 1.5–2 mm, abaxially densely covered with purple glandular hairs; inner involucel urceolate, ca. 1.5 mm, 8-ribbed, apex constricted into limb; limb 8-toothed or 8-dentate. Corolla white or rose, funnelform, 3–5 mm; lobes obtuse. Stamens slightly exerted; filaments ca. 5 mm; anthers white. Style slightly longer than stamens. Achenes enveloped by involucels; involucels 3–4 mm in fruit, glandular hairy, 4-lobed; lobes long acuminate, hooked. Fl. and fr. Jul–Oct. $2n = 18$.

Forests, grassy slopes, meadows, by streams; 1500–4000 m. Chongqing, SE Gansu (Xigu), Hubei (Enshi, Jianshi), Shaanxi (Yangxian), W Sichuan, Taiwan (Yushan), SE Xizang, NW Yunnan [Bhutan, India, Malaysia (peninsular), Myanmar, Nepal].

2. *Triplostegia grandiflora* Gagnepain, Bull. Soc. Bot. France 47: 333. 1901.

大花双参 da hua shuang shen

Triplostegia delavayi Franchet ex Diels.

Herbs, perennial, erect, 20–45 cm tall. Taproots often dichotomous, nearly fusiform, 30–40 × ca. 5 mm, slightly fleshy. Rhizomes short, nodes 2–4, internodes ca. 1 cm. Stems solitary, simple, slightly 4-angular, white villous, sometimes glandular

hairy above. Leaves opposite, sessile, slightly amplexicaul, obovate to obovate-lanceolate, 3–8 cm, both surfaces villous, base cuneate, apex rounded, pinnatifid or pinnatilobate; terminal lobe largest, all lobes serrate; upper leaves gradually smaller and becoming bractlike. Inflorescence branches elongate, densely white villous and glandular hairy; bracts leaflike to linear, 5–20 mm, 1-veined, white villous and glandular hairy, margin shallowly serrate or entire, apex obtuse; pedicels 2–3 mm; outer involucel 4-lobed; lobes lanceolate, 2–3 mm, densely covered with black glandular hairs, apex acute; inner involucel ovoid, 8-ribbed; limb 5-dentate, teeth acute at base, hirsute. Calyx reduced. Corolla whitish rose, funnelform, nearly actinomorphic, 1–1.2 cm, outside sparsely puberulent, 5-lobed; lobes ca. 1/3 as long as total length of corolla, apex obtuse. Stamens slightly exerted; anthers yellow, introrse. Ovary enveloped by urceolate involucel; style shorter than stamens; stigma capitate. Achenes enveloped in involucels; lobes not hooked. Fl. and fr. Jul–Oct.

Forests, forest margins, grassy slopes; 2000–3000 m. SW Sichuan, N Yunnan [Bhutan].

