

**48. LYSIONOTUS** D. Don, *Edinburgh Philos. J.* 7: 85. 1822.

吊石苣苔属 diao shi ju tai shu

Evergreen subshrubs or climbing lianas, epiphytic, less frequently epipetric or terrestrial, not rhizomatous. Stems branched or simple. Leaves usually many, along stem, opposite or whorled, rarely alternate, equal to subequal in a pair; leaf blade glabrous, sometimes puberulent to pilose, base cuneate to subcordate or attenuate. Inflorescences lax, axillary, 1- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base or 5-lobed; segments equal. Corolla purple to reddish, white, or yellow, zygomorphic, inside glabrous, sometimes sparsely puberulent or sparsely glandular puberulent; tube funnelform to tubular, not swollen, longer than limb, 0.3–1.5 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near middle, seldom to near base, included; anthers basifixed, coherent, thecae nearly parallel, not confluent, dehiscing longitudinally; connective sometimes appendiculate; staminodes 2 or 3, adnate to adaxial side of corolla tube. Disc ringlike to cupular. Ovary linear, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, depressed globose, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 2 or 4, straight, not twisted. Seeds with 1 hairlike or subulate appendage at each end.

About 25 species: Bhutan, China, N India, S Japan, Laos, Myanmar, Nepal, N Thailand, N Vietnam; 23 species in China.

1a. Calyx lobed from or above middle, tube 5–18 mm.

2a. Leaf blade 0.9–3.1 × 0.3–0.7 cm, leathery or thin leathery, oblanceolate or narrowly oblong; lateral veins obscure; adaxial corolla lip ca. 2 mm; pistil ca. 1.2 cm; capsule to 5.4 cm ..... 22. *L. sangzhiensis*

2b. Leaf blade 4.5–13 × 2.2–6 cm, papery, narrowly elliptic to ovate, or oblong; lateral veins abaxially flat or prominent, obvious; adaxial corolla lip 5.5–6 mm; pistil 2–2.5 cm; capsule at least 6.5 cm.

3a. Flowers 2–11 in cymes; leaf margin serrate to dentate; calyx 0.9–1.2 cm, tube 6–10 mm; staminodes 3, 0.5–6 mm; anther connective appendage hornlike, 1.2–1.8 mm; capsule 9–13 cm; seed appendage 1.5–2 mm; subshrubs to 50 cm ..... 21. *L. gamosepalus*

3b. Flowers solitary; leaf margin entire or denticulate with small glands; calyx 1.6–2.2 cm, tube 12–18 mm; staminodes 2, ca. 2 mm; anther connective unappendaged; capsule 6.5–9 cm; seed appendage 0.3–0.5

mm; prostrate herbs, scandent subshrubs, or lianas, stems sometimes thick corky, to 9 m ..... 23. *L. chingii*

1b. Calyx divided from base, without a tube, or seldom lobed below middle, tube to 3.5 mm.

4a. Seed appendages 0.1–0.25 mm (unknown in *L. gracilis*).

5a. Corolla (2–)2.7–5.5 cm, outer surface glabrous, adaxial lip 3–6 mm, abaxial lip 8–14 mm; staminodes 2; peduncle 3–8 cm; bracts linear, linear-oblong, or lanceolate.

6a. Stamens ca. 12 mm; pedicel 1.5–2.9 cm ..... 1. *L. longipedunculatus*

6b. Stamens 4–5 mm; pedicel 0.6–1 cm.

7a. Leaf blade 2.2–5.7 × 0.8–1.5 cm, leathery; peduncle 3–4.5 cm; calyx segments ca. 7 mm; corolla inner surface glandular puberulent below abaxial lip, tube subtubular, ca. 1.5 cm, mouth ca. 5 mm in diam. .... 12. *L. gracilis*

7b. Leaf blade 8–14 × 2–4 cm, papery; peduncle 5.5–7.5 cm; calyx segments 4–5 mm; corolla

inner surface glabrous, tube funnelform-tubular, ca. 2 cm, mouth ca. 8 mm in diam. 10. *L. atropurpureus*

5b. Corolla 1.7–1.9 cm, outer surface at least sparsely puberulent, adaxial lip 2–3 mm, abaxial lip 5.5–7 mm; staminodes 3; peduncle

8a. Leaf blade margin subentire with small glands or indistinctly denticulate; peduncle 0.2–1 cm; corolla glabrous inside; calyx 6–7 mm ..... 2. *L. oblongifolius*

8b. Leaf blade margin subentire to denticulate; peduncle 1–2.5(–9.5) cm; corolla abaxial lip sparsely puberulent inside; calyx 4–5 mm ..... 3. *L. denticulosus*

4b. Seed appendages at least 0.5 mm long.

9a. Seed appendages 1.5–3.2 mm; capsule 13–21 cm ..... 5. *L. wilsonii*

9b. Seed appendages 0.5–2 mm; capsule to 13 cm.

10a. Anther connective with hornlike appendage.

- 11a. Leaf blade herbaceous, seldom papery, 4–14(–18) cm; bracts ovate to orbicular, 4–8.5 mm wide; corolla sparsely puberulent outside, sparsely glandular puberulent basally inside ..... 20. *L. serratus*
- 11b. Leaf blade leathery, 1.2–10 cm; bracts linear to ovate, obovate, or oblanceolate, 0.4–3 mm wide; corolla glabrous or puberulent basally outside, glabrous inside.
- 12a. Leaf blade apex abruptly acuminate to obtuse; calyx segments 9–12 mm; staminodes 8–10 mm ..... 18. *L. kwangsiensis*
- 12b. Leaf blade apex acute to subtruncate; calyx segments (1–)2–7(–8) mm; staminodes 0.6–5(–8) mm ..... 19. *L. pauciflorus*
- 10b. Anther connective unappendaged.
- 13a. Calyx 12–20 mm, deeply 5-lobed, tube 3–3.5 mm; peduncle ca. 0.8 cm ..... 16. *L. metuoensis*
- 13b. Calyx 1.5–14 mm, 5-sect from base or near base, tube absent or 0.2–1 mm; peduncle (absent or) 1.5–10 cm.
- 14a. Stems glabrous.
- 15a. Bracts orbicular-ovate, nearly as long as wide; leaf blade 4–7 mm wide; ovary with a few short hairs; capsule 2–2.7 cm ..... 8. *L. involucratus*
- 15b. Bracts linear, lanceolate to ovate, or elliptic, at least 2 × as long as wide; leaf blade (0.7–)1–8 cm wide; ovary glabrous; capsule 2.5–12 cm (fruits unknown in *L. atropurpureus*).
- 16a. Calyx segments 11–14 mm; corolla 5–6.5 cm; staminodes ca. 6 mm ..... 7. *L. petelotii*
- 16b. Calyx segments 4–9 mm; corolla 1.7–5 cm; staminodes 0.6–3 mm.
- 17a. Leaf blade margin entire or repand, glandular; corolla 1.7–2.1 cm, sparsely glandular puberulent basally inside, tube 1–1.3 cm ..... 4. *L. aeschynanthoides*
- 17b. Leaf blade margin serrulate to serrate or denticulate, eglandular; corolla 2.6–5 cm, glabrous inside, tube 1.7–3.4 cm.
- 18a. Peduncle 1.5–4.4 cm; bracts 1–1.5 mm; corolla white, purple striate; filaments 8–12 mm; pistil 1.8–2.8 cm ..... 6. *L. heterophyllus*
- 18b. Peduncle 4.5–10 cm; bracts 2–8 mm; corolla purple; filaments 2.5–5 mm; pistil 1.2–1.4 cm.
- 19a. Leaf blade margin serrate; bracts lanceolate to ovate, 1.2–4 mm wide; corolla mouth 4–5 mm in diam., adaxial lip ca. 2.5 mm ..... 9. *L. sessilifolius*
- 19b. Leaf blade margin denticulate; bracts linear, 0.2–0.8 mm wide; corolla mouth ca. 8 mm in diam., adaxial lip ca. 6 mm ..... 10. *L. atropurpureus*
- 14b. Stems puberulent at least near apex.
- 20a. Leaf blade 0.35–2.2 × 0.25–0.9 cm; flowers solitary.
- 21a. Leaf blade 0.35–1.1 cm, apex obtuse; corolla ca. 1.3 cm, inner surface glabrous; staminodes 3; calyx segments 1.5–4 mm; pistil ca. 8 mm ..... 17. *L. microphyllus*
- 21b. Leaf blade 0.8–2.2 cm, apex acute to acuminate; corolla 3.8–5 cm, inner surface sparsely puberulent near base or near filament bases; staminodes 2; calyx segments 4–8.5 mm; pistil 17–32 mm.
- 22a. Leaf blade glabrous, papery, narrowly elliptic to ovate; calyx segments 4–7 mm, glabrous on both sides; corolla outer surfaces glabrous; petiole 1–5 mm; disc ringlike, margin entire ..... 14. *L. sulphureus*

- 22b. Leaf blade densely puberulent, leathery, lanceolate to narrowly lanceolate; calyx segments 7.5–8.5 mm, outside puberulent, inside glabrous; corolla outer surface sparsely puberulent; petiole 0.5–1 mm; disc cupular, margin shallowly dentate ..... 15. *L. levipes*
- 20b. Leaf blade (1–)2–14 × (0.5–)1–4 cm; flowers solitary or in 2–6-flowered cymes.
- 23a. Bracts broadly obovate to ovate or deltoid; calyx segments narrowly ovate to obovate or oblong ovate; leaf blade abaxially sparsely pilose; corolla outer surface pilose; staminodes 5–6 mm ..... 13. *L. pubescens*
- 23b. Bracts linear or linear-oblong; calyx segments lanceolate-linear to triangular-linear; leaf blade abaxially puberulent to glabrous; corolla outer surface glabrous or sparsely puberulent; staminodes 0.6–3 mm.
- 24a. Corolla inner surface glandular puberulent below abaxial lip, tube subtubular, ca. 1.5 cm, mouth ca. 5 mm in diam. .... 12. *L. gracilis*
- 24b. Corolla inner surface glabrous, tube funnellform-tubular to slender funnellform, 1.9–3.4 cm, mouth 6–12 mm in diam.
- 25a. Stems apically sparsely puberulent; calyx segments 4–5 mm; pistil ca. 12 mm ..... 10. *L. atropurpureus*
- 25b. Stems apically puberulent to densely puberulent; calyx segments 4–13 mm; pistil 13–28 mm.
- 26a. Bracts 1–1.5 mm; calyx segments 4–8 mm; corolla mouth 9–12 mm in diam.; seeds 1–1.2 mm, appendages subulate, 0.5–0.8 mm ..... 6. *L. heterophyllus*
- 26b. Bracts 2.2–4.5 mm; calyx segments (6–)8–13 mm; corolla mouth 6–9 mm in diam.; seeds ca. 0.8 mm, appendages hairlike, ca. 2 mm ..... 11. *L. forrestii*

**1. *Lysionotus longipedunculatus*** (W. T. Wang) W. T. Wang, *Guihaia* 3: 261. 1983.

长梗吊石苣苔 *chang geng diao shi ju tai*

*Chirita longipedunculata* W. T. Wang, *Acta Phytotax. Sin.* 13: 104. 1975.

Subshrubs, sometimes twining. Stems erect, 35–80 cm, apically puberulent. Petiole 0.9–2.5 cm; leaf blade narrowly elliptic or oblong lanceolate to oblanceolate, often falcate, 4–21 × 1.6–5.5 cm, papery, appressed pubescent, sometimes glabrescent, base cuneate to narrowly so, margin denticulate or subentire to serrate, apex acuminate; lateral veins 7–12 on each side of midrib, flat to abaxially prominent. Cymes 2–4-flowered; peduncle 4–8 cm, puberulent and sparsely glandular puberulent; bracts linear to lanceolate, 2–3(–8) × 1–2 mm. Pedicel 1.5–2.9 cm. Calyx 5-sect from base; segments 5–6 mm, outside puberulent, inside glabrous. Corolla purple with tube tinged yellow, (2–)2.7–3 cm, glabrous; tube tubular, 1.2–1.5 cm × 5–7 mm; adaxial lip 4–6 mm; abaxial lip 0.8–1.4 cm. Stamens ca. 1.2 cm; filaments ca. 1 cm; anthers subreniform; connective unappendaged; staminodes 2, 2.2–3.4 mm. Disc ringlike, margin entire. Pistil ca. 1.1 cm, glabrous. Capsule 2.8–

3.2 cm. Seed appendages subulate, 0.1–0.25 mm. Fl. Sep–Oct, fr. Oct.

• Streamside, terrestrial or on rocks, stony cliffs near forests in valleys or on limestone; 500–1700 m. SE Yunnan (Pingbian Xian).

**2. *Lysionotus oblongifolius*** W. T. Wang, *Guihaia* 3: 263. 1983.

长圆吊石苣苔 *chang yuan diao shi ju tai*

Subshrubs. Stems erect, to 80 cm, apically densely rust-brown appressed puberulent. Petiole 1–4 cm; leaf blade oblong to obovate-oblong, 9–20 × 2.5–8 cm, papery, adaxially appressed puberulent, glabrescent, abaxially appressed puberulent, appressed pilose along veins, base cuneate, margin subentire with glands or indistinctly denticulate, apex acuminate; lateral veins 7–10 on each side of midrib, abaxially prominent. Cymes 4–7-flowered; peduncle 0.2–1 cm, densely rust-brown glandular pubescent; bracts narrowly triangular, 2–6 × ca. 0.7 mm. Pedicel 0.5–1.5 cm. Calyx 5-sect from base; segments 6–7 mm, outside rust-brown velutinous, inside glabrous. Corolla purple-red, ca. 1.9 cm, outside puberulent, inside glabrous; tube tubular, ca. 1.3 cm × 4–5 mm; adaxial lip ca. 2.2 mm; abaxial lip ca. 5.5 mm. Stamens ca. 5.5 mm; filaments ca. 4.5 mm; anthers ovoid; connective unappendaged; staminodes 3, 1–3

mm. Disc ringlike, margin entire. Pistil ca. 1 cm; ovary glabrous. Style glandular puberulent. Capsule 3–4 cm. Seed appendages subulate, 0.1–0.2 mm. Fl. Sep–Oct, fr. Oct.

• Terrestrial in forests on limestone hills; ca. 300 m. SW Guangxi.

**3. *Lysionotus denticulosus*** W. T. Wang, *Guihaia* 3: 264. 1983.

多齿吊石苣苔 *duo chi diao shi ju tai*

Subshrubs. Stems erect, 60–130 cm, apically densely rust-brown pubescent. Petiole 5–35(–41) mm; leaf blade oblong or lanceolate-oblong to ovate, 5.8–18(–25) × 2–6(–9) cm, papery, rust-brown to golden puberulent, base cuneate to broadly so, margin subentire to denticulate, apex acuminate; lateral veins 7–11 on each side of midrib, abaxially prominent. Cymes 3–7 (–10)-flowered; peduncle 1–2.5(–9.5) cm, rust-brown to golden glandular pubescent to pilose; bracts triangular, ca. 4 × 1.2 mm. Pedicel 0.3–1.8 cm. Calyx 5-sect from base; segments 4–5 mm, outside densely puberulent, inside glabrous. Corolla purple-red to white, ca. 1.7 cm, outside sparsely puberulent, inside sparsely puberulent on abaxial lip; tube subtubular, ca. 10 × 4–5 mm; adaxial lip 2–3 mm; abaxial lip 5.5–7 mm. Stamens ca. 7.2 mm; filaments ca. 6 mm; anthers subglobose; connective unappendaged; staminodes 3, 0.8–1.8 mm. Disc ringlike, margin entire. Pistil ca. 1.4 cm; ovary glabrous. Style sparsely glandular puberulent. Capsule 3.7–7.2 cm. Seed appendages subulate, 0.1–0.2 mm. Fl. Sep–Nov, fr. Nov.

• Forests, terrestrial or on limestone; 700–1800 m. W Guangxi, SE Yunnan (Malipo Xian).

**4. *Lysionotus aeshynanthoides*** W. T. Wang, *Guihaia* 3: 265. 1983.

桂黔吊石苣苔 *gui qian diao shi ju tai*

Subshrubs. Stems erect, to 1 m, glabrous. Petiole 2–35 mm; leaf blade sometimes asymmetric, narrowly elliptic to elliptic-ovate or obovate, 4.5–13.6 × 2.2–8 cm, papery, glabrous, base sometimes oblique, cuneate to rounded, margin entire to repand, glandular, apex acuminate to abruptly acuminate; lateral veins 4–7(–9) on each side of midrib, flat to prominent below. Cymes 2–8-flowered; peduncle 1–2 cm, glabrous; bracts elliptic, ca. 5 × 2.5 mm. Pedicel 2.5–4.5(–6) mm. Calyx 5-sect from base; segments 6–9 mm, glabrous. Corolla yellow to white, 1.7–2.1 cm, outside glabrous, inside sparsely glandular puberulent below; tube funnelform-tubular, 1–1.3 cm × 7 mm; adaxial lip ca. 4 mm; abaxial lip 7–8 mm. Stamens ca. 9 mm; filaments ca. 7.5 mm; anthers subglobose; connective unappendaged; staminodes 2, 2.2–3 mm. Disc ringlike, margin entire. Pistil 0.9–1.4 cm, glabrous. Capsule 5.4–10 cm. Seed appendages hairlike, 0.7–1.2 mm. Fl. Jun–Jul, fr. Jul–Nov.

• Terrestrial or on rocks, forests, thickets, by streams; 600–1200 m. W Guangxi, SW Guizhou, SE Yunnan.

**5. *Lysionotus wilsonii*** Rehder in Sargent, *Pl. Wilson*. 3: 388. 1916.

川西吊石苣苔 *chuan xi diao shi ju tai*

Subshrubs or woody vines. Stems often procumbent at base, at least 20–30 cm, glabrous. Petiole 3–10(–20) mm; leaf blade elliptic to ovate or narrowly obovate, 4.2–12.5 × (1.2–) 2.2–4.6 cm, leathery, glabrous, base cuneate to subrounded, margin entire with glands to denticulate, apex abruptly acuminate to obtuse; lateral veins 5 or 6 on each side of midrib, flat to obscure. Cymes 1- or 2-flowered; peduncle 0.6–2.2(–4) cm, glabrous; bracts linear, ca. 1.2 × 0.3 mm. Pedicel 5–7 mm. Calyx 5-sect from base; segments 5–9 mm, glabrous. Corolla white, 4–5.4 cm, basally sparsely puberulent; tube funnelform-tubular, 3–4.2 × 1–1.5 cm; adaxial lip 4–5 mm; abaxial lip 1–1.5 cm. Stamens ca. 1.5 cm; filaments ca. 1.3 cm; anthers globose; connective unappendaged or sometimes with small basal-abaxial swelling; staminodes 2, 4–7 mm. Disc ringlike, margin entire. Pistil 2–3 cm, glabrous. Capsule 13–21 cm. Seed appendages hairlike, 1.5–3.2 mm. Fl. Jul–Aug, fr. Aug–Nov.

• Rocks in forested valleys; 700–1800 m. W Sichuan, NE Yunnan.

**6. *Lysionotus heterophyllus*** Franchet, *Bull. Mus. Hist. Nat. (Paris)* 5: 249. 1899.

异叶吊石苣苔 *yi ye diao shi ju tai*

Subshrubs. Stems ca. 35 cm, glabrous or puberulent. Petiole 2–10(–20) mm; leaf blade narrowly elliptic to elliptic, oblong, oblong-ovate, lanceolate, to oblanceolate, 1.2–8.2 × 0.7–3.2 cm, leathery to papery, usually glabrous, abaxially sometimes puberulent, base cuneate to rounded, margin denticulate or serrulate to serrate, apex acute to acuminate; lateral veins 3–6 on each side of midrib, flat to obscure. Cymes 1–4-flowered; peduncle 1.5–4.4 cm, glabrous to puberulent; bracts linear, 1–1.5 × ca. 0.8 mm. Pedicel 5–10 mm. Calyx 5-sect from base; segments 4–8 mm, outside glabrous to puberulent, inside glabrous. Corolla white, purple striate, 2.6–5 cm, outside glabrous to puberulent, inside glabrous; tube funnelform-tubular, 1.9–3.4 × 0.9–1.2 cm; adaxial lip 3–7 mm; abaxial lip 0.9–1.5 cm. Stamens 0.9–1.5 cm; filaments 0.8–1.2 cm; anthers subglobose; connective unappendaged; staminodes 2 or 3, 0.6–3 mm. Disc ringlike, margin entire. Pistil 1.8–2.8 cm, glabrous. Capsule 2.5–5.5 cm. Seed appendages subulate, 0.5–0.8 mm. Fl. Jun–Sep, fr. Aug–Oct.

• On trees in forested valleys, rocks in montane regions, valley streamsides; 1100–2800 m. N Guangxi, S and W Sichuan, NE Yunnan.

- 1a. Stems and pedicel glabrous; corolla outside glabrous to puberulent near base 6a. var. *heterophyllus*
- 1b. Stems densely puberulent or apically puberulent; pedicel densely puberulent

or glabrous to sparsely puberulent near apex; corolla outside sparsely puberulent.

2b. Stems densely puberulent; petiole puberulent; leaf blade leathery, adaxially sparsely puberulent, glabrescent, abaxially puberulent; peduncle densely puberulent; pedicel densely puberulent ..... 6b. var. *mollis*

2a. Stems apically puberulent; petiole puberulent adaxially, glabrous abaxially; leaf blade papery, glabrous; peduncle glabrous; pedicel glabrous to sparsely puberulent near apex ..... 6c. var. *lasianthus*

**6a. *Lysionotus heterophyllus* var. *heterophyllus***

异叶吊石苣苔(原变种) *yi ye diao shi ju tai* (yuan bian zhong)

*Lysionotus brachycarpus* Rehder.

Stems glabrous. Petiole puberulent adaxially, glabrous abaxially; leaf blade leathery to papery, glabrous, margin serrulate to serrate or denticulate. Peduncle glabrous. Pedicel glabrous. Corolla outside glabrous to puberulent near base. Fl. Jul–Aug, fr. Aug–Oct.

• On trees in forested valleys; 1700–2800 m. S and W Sichuan, NE Yunnan.

**6b. *Lysionotus heterophyllus* var. *mollis*** W. T. Wang, *Acta Phytotax. Sin.* 13: 69. 1975.

毛叶吊石苣苔 *mao ye diao shi ju tai*

Stems densely puberulent. Petiole puberulent; leaf blade leathery, adaxially sparsely puberulent, glabrescent, abaxially puberulent, margin serrulate, sometimes ciliate. Peduncle and pedicel densely puberulent. Corolla outside sparsely puberulent. Fl. Jul–Sep.

• Rocks in montane regions; 1600–1700 m. W Sichuan (Emei Xian, Hongya Xian).

**6c. *Lysionotus heterophyllus* var. *lasianthus*** W. T. Wang, *Guihaia* 3: 267. 1983.

龙胜吊石苣苔 *long sheng diao shi ju tai*

*Lysionotus pauciflorus* Maximowicz var. *lasianthus* W. T. Wang.

Stems apically puberulent. Petiole puberulent adaxially, glabrous abaxially; leaf blade papery, glabrous, margin denticulate to serrulate. Peduncle glabrous.

Pedicel glabrous to sparsely puberulent near apex. Corolla outside sparsely puberulent. Fl. Jun–Jul.

• Terrestrial or on trees in forests in stream valleys; 1100–1700 m. N Guangxi (Longsheng Xian, Xing'an Xian).

**7. *Lysionotus petelotii*** Pellegrin in Lecomte, *Fl. Indo-Chine* 4: 503. 1930.

细萼吊石苣苔 *xi e diao shi ju tai*

Subshrubs. Stems 12–50 cm, glabrous. Petiole 0.4–1.7(–3) cm; leaf blade lanceolate to lanceolate-oblong, oblong, or ovate, seldom oblanceolate to obovate, 1.5–

9(–11) × 1–2.5(–4.6) cm, leathery to papery, glabrous, base cuneate to rounded, margin serrulate, denticulate, or crenulate to subentire, apex acuminate; lateral veins 4 or 5 on each side of midrib, flat. Cymes 1–3-flowered; peduncle 2–6 cm, glabrous; bracts lanceolate, ca. 3–4 × 0.8–1 mm. Pedicel 0.7–1.7 cm. Calyx 5-sect from base; segments 1.1–1.4 cm, glabrous. Corolla purplish to yellow, 5–6.5 cm, glabrous; tube funnelform-tubular, 3.6–4 × 1.2–1.4 cm; adaxial lip 1–1.1 cm; abaxial lip 1.2–1.8 cm. Stamens ca. 1 cm; filaments ca. 9 mm; anthers broadly ovoid; connective unappendaged; staminodes 2, ca. 6 mm. Disc ringlike, margin entire. Pistil ca. 2.8 cm, glabrous. Capsule 6–12 cm. Seed appendages subulate, 0.9–1 mm. Fl. Sep, fr. Oct.

Terrestrial or epiphytic in forested valleys and montane forests; 1600–2500 m. SE Yunnan [N Vietnam].

**8. *Lysionotus involucratus*** Franchet, *Bull. Mus. Hist. Nat. (Paris)* 5: 249. 1899.

圆苞吊石苣苔 *yuan bao diao shi ju tai*

Subshrubs. Stems at least 20 cm, glabrous. Petiole 2–3.5 mm; leaf blade oblanceolate to narrowly oblong, 1.2–2.4 cm × 4–7 mm, leathery, glabrous, base narrowly cuneate, margin serrate, apex acute to subtruncate; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 1- or 2-flowered; peduncle 2–6 cm, glabrous; bracts orbicular-ovate, ca. 4 × 4 mm.

Pedicel 3–5 mm. Calyx 5-sect from base; segments 6–9.5 mm, glabrous. Corolla purple, 2–2.6 cm, glabrous; tube slender funnelform, 1.3–1.7 cm × ca. 5 mm; adaxial lip ca. 3.5 mm; abaxial lip 7–9 mm. Stamens ca. 9.5 mm; filaments ca. 8 mm; anthers subglobose; connective unappendaged; staminodes 2, ca. 2.5 mm. Disc ringlike, margin entire. Pistil ca. 9 mm; ovary with a few short hairs. Style glabrous. Capsule 2–2.7 cm. Seed appendages subulate, 0.5–0.7 mm. Fl. Jul, fr. Sep.

• Rocks in valleys; ca. 1300 m. NW Hunan, NE Sichuan.

**9. *Lysionotus sessilifolius*** Handel-Mazzetti, *Kais. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz.* 61: 21. 1925.

短柄吊石苣苔 *duan bing diao shi ju tai*

Subshrubs, sometimes climbing. Stems 25–45 cm or more, glabrous. Petiole 1–6 mm or absent; leaf blade oblong to narrowly elliptic, lanceolate, or ovate, 3.5–14 × 2–5.8 cm, thin leathery to papery, glabrous, base broadly cuneate to subcordate, margin serrate, apex acute to acuminate; lateral veins 5–9 on each side of midrib, flat to prominent below. Cymes 2–7-flowered; peduncle 4.5–10 cm, glabrous or with a few hairs; bracts lanceolate to ovate, 3–8 × 1.2–4 mm. Pedicel 4–

10 mm. Calyx 5-sect from base; segments 4–6 mm, glabrous, sometimes margin sparsely ciliate. Corolla purple, 2.8–3.4 cm, glabrous; tube slender funnelform, 1.7–2.8 cm × 4–5 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 9 mm. Stamens 3.5–6 mm; filaments 2.5–5 mm; anthers broadly ovoid; connective unappendaged; staminodes 2, ca. 1 mm. Disc ringlike, margin entire. Pistil ca. 1.4 cm, glabrous. Capsule 5–7.5 cm. Seed

appendages hairlike, ca. 1.5 mm. Fl. Aug–Oct, fr. Sep–Oct.

• Terrestrial, epipetric, or epiphytic in forests and streamsides in valleys; 1200–2800 m. NE Yunnan.

**10. *Lysionotus atropurpureus*** Hara, J. Jap. Bot. 48: 359. 1973.

深紫吊石苣苔 shen zi diao shi ju tai

Subshrubs. Stems ca. 25 cm, glabrous or sparsely puberulent near apex. Petiole 4–10 mm; leaf blade oblong to narrowly elliptic, 8–14 × 2–4 cm, papery, glabrous, base cuneate to broadly cuneate, margin denticulate, apex acuminate to long acuminate; lateral veins 5–8 on each side of midrib, flat. Cymes 2–4-flowered; peduncle 5.5–7.5 cm, glabrous; bracts linear, 2–4 × 0.2–0.8 mm. Pedicel to 10 mm. Calyx 5-sect from base; segments 4–5 mm, glabrous. Corolla purple, ca. 3 cm, glabrous; tube tubular-funnelform, ca. 2 × 0.8 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1 cm. Stamens ca. 5 mm; filaments ca. 4 mm; anthers oblate; connective unappendaged; staminodes 2, ca. 2 mm. Disc ringlike, margin entire. Pistil ca. 1.2 cm, glabrous. Capsule 6–7.5 cm. Seed appendages to 2 mm. Fl. Aug.

On trees in broad-leaved forests; ca. 2000 m. SE Xizang (Medog Xian) [Bhutan, NE India, Nepal, Sikkim].

**11. *Lysionotus forrestii*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 185. 1918.

滇西吊石苣苔 dian xi diao shi ju tai

Subshrubs. Stems 30–60 cm or more, apically puberulent. Petiole 0.3–1.8 cm; leaf blade narrowly elliptic to narrowly ovate or narrowly obovate, 4–11.6 × 1.2–3.6 cm, papery to herbaceous, adaxially glabrous; midrib abaxially puberulent, glabrescent, base cuneate to broadly cuneate, margin denticulate to serrulate, apex acute to acuminate; lateral veins 4–8 on each side of midrib, flat. Cymes 1–4-flowered; peduncle 3–6.4 cm, basally sparsely puberulent to glabrescent; bracts linear, 2.2–4.5 × 0.3–0.5 mm. Pedicel 3–8(–15) mm. Calyx 5-sect from base; segments (0.6–)0.8–1.3 cm, glabrous. Corolla purple, 3.2–4.8 cm, glabrous; tube slender funnelform, 1.9–3 cm × 6–9 mm; adaxial lip ca. 6 mm; abaxial lip 1.2–1.4 cm. Stamens 5–10 mm; filaments 3–8 mm; anthers oblate; connective unappendaged; staminodes 2, ca. 1 mm. Disc ringlike, margin entire. Pistil 1.3–2 cm, glabrous. Capsule 3.8–6.6 cm. Seed appendages hairlike, ca. 2 mm. Fl. Jul–Sep, fr. Oct.

• Terrestrial or epiphytic in forested valleys; 2200–3100 m. SE Xizang, NW and W Yunnan.

**12. *Lysionotus gracilis*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 186. 1918.

纤细吊石苣苔 xian xi diao shi ju tai

Subshrubs. Stems 15–30 cm, apically appressed puberulent. Petiole 3–11 mm; leaf blade narrowly oblong to lanceolate, 2.2–5.7 × 0.8–1.5 cm, leathery, adaxially glabrous, abaxially glabrous, midrib

sometimes puberulent, base cuneate to subrounded, margin repand-denticulate to serrate, apex acuminate to acute; lateral veins 4–6 on each side of midrib, flat. Cymes 1–6-flowered; peduncle 3–4.5 cm, sparsely puberulent to glabrescent; bracts linear-oblong, 2–3 × 0.2–0.5 mm. Pedicel ca. 6 mm. Calyx 5-sect from base; segments ca. 7 mm, glabrous. Corolla white, purplish striate, ca. 2.8 cm, outside glabrous, inside glandular puberulent below abaxial lip; tube subtubular, ca. 1.5 cm × 5 mm; adaxial lip ca. 3 mm; abaxial lip ca. 1.2 cm. Stamens ca. 4 mm; filaments ca. 3 mm; anthers oblate; connective unappendaged; staminodes 2, ca. 0.6 mm. Disc ringlike, margin entire. Pistil ca. 1.1 cm, glabrous. Capsule 6–10 cm. Seeds unknown. Fl. Jul–Aug, fr. Aug.

On trees in evergreen, broad-leaved forests; 2100–2400 m. W Yunnan [N Myanmar].

**13. *Lysionotus pubescens*** C. B. Clarke, J. Linn. Soc., Bot. 25: 5. 1889.

毛枝吊石苣苔 mao zhi diao shi ju tai

*Lysionotus gracilipes* C. E. C. Fischer; *L. wardii* W. W. Smith.

Subshrubs. Stems 15–45 cm or more, apically puberulent. Petiole 1–6 mm; leaf blade oblong to elliptic-ovate or broadly lanceolate, 1–5.2 × 0.5–1.9 cm, papery to herbaceous, adaxially glabrous to sparsely appressed pilose, abaxially sparsely pilose, base cuneate to rounded, margin repand-denticulate to subentire, rarely serrate, apex acuminate to acute; lateral veins 3–5 on each side of midrib, flat. Cymes 1–4-flowered; peduncle 3.2–6.5 cm, glabrous or basally puberulent; bracts broadly obovate to ovate or deltoid, 2.2–4 × 2–4 mm. Pedicel 4–7 mm. Calyx 5-sect from base; segments 2.5–4.5 mm, glabrous. Corolla white to purplish, purple striate, 3.7–4.4 cm, outside pilose, inside glabrous; tube funnelform-tubular, 2.5–2.7 × 0.8–1 cm; adaxial lip 6–7 mm; abaxial lip 0.9–1.2 cm. Stamens 0.9–1.4 cm; filaments 0.8–1.2 cm; anthers oblate; connective unappendaged; staminodes 2, 5–6 mm. Disc ringlike, margin entire. Pistil 2–2.2 cm; ovary glabrous to slightly puberulent. Style glabrous. Capsule 3–6.8 cm. Seed appendages hairlike to subulate, 0.6–1 mm. Fl. Aug–Sep, fr. Oct.

On trees or rocks in forests; 1500–2500 m. SE Xizang (Medog Xian), NW and SE Yunnan [Bhutan, NE India, N Myanmar].

**14. *Lysionotus sulphureus*** Handel-Mazzetti, Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz. 61: 20. 1925.

黄花吊石苣苔 huang hua diao shi ju tai

Subshrubs. Stems 20–30 cm or more, apically puberulent. Petiole 1–5 mm; leaf blade narrowly elliptic to ovate, 0.8–2.2 cm × 4–9 mm, papery, glabrous, base cuneate, margin denticulate to serrulate, apex acute to acuminate; lateral veins obscure. Cymes 1-flowered; peduncle 2.3–4 cm, glabrous or sparsely puberulent; bracts linear, 1–2 × ca. 0.5 mm. Pedicel ca. 5 mm. Calyx 5-sect from base; segments 4–7 mm, glabrous. Corolla yellowish to pale purple with darker markings

and yellow base, 3.8–4.6 cm, outside glabrous, inside sparsely puberulent at filament bases; tube funnellform-tubular, 2.7–3.2 cm × ca. 9 mm; adaxial lip ca. 4 mm; abaxial lip 1.1–1.3 cm. Stamens ca. 1.3 cm; filaments ca. 1 cm; anthers obovate; connective unappendaged; staminodes 2, ca. 5 mm. Disc ringlike, margin entire. Pistil ca. 1.7 cm, glabrous. Capsule 2.8–8 cm. Seed appendages subulate, 0.6–1.1 mm. Fl. Jul–Sep, fr. Sep.

• Forests, on trees or rocks near streams; 2300–2900 m. NW Yunnan. **15. *Lysionotus levipes*** (C. B. Clarke) B. L. Burtt in O. M. Hilliard & B. L. Burtt, *Edinburgh J. Bot.* 52: 220. 1995.

狭萼吊石苣苔 *xia e diao shi ju tai*

*Aeschynanthus levipes* C. B. Clarke in A. & C. de Candolle, *Monogr. Phan.* 5: 28. 1883; *Lysionotus angustisepalus* W. T. Wang.

Subshrubs. Stems 30–60 cm, apically densely spreading puberulent. Petiole 0.5–1 mm; leaf blade lanceolate to narrowly so, 1.2–2.2 cm × 2.5–4 mm, leathery, densely puberulent, base cuneate, margin sparsely denticulate or glandular, apex acuminate to acute; lateral veins obscure. Cymes 1-flowered; bracts apparently absent. Pedicel ca. 6 mm. Calyx 5-sect from base; segments 7.5–8.5 mm, outside puberulent, inside glabrous. Corolla light purple with darker veins, ca. 5 cm, outside sparsely puberulent, inside below sparsely puberulent; tube slender funnellform, ca. 3.6 × 0.9 cm; adaxial lip ca. 3 mm; abaxial lip ca. 1.4 cm. Stamens ca. 1.4 cm; filaments ca. 1.2 cm; anthers broadly ovoid; connective unappendaged; staminodes 2, ca. 5 mm. Disc cupular, ca. 1.2 mm, margin shallowly dentate. Pistil ca. 3.2 cm, glabrous. Capsule 5–8.5 cm. Seed appendages hairlike, 1.2–1.8 mm. Fl. Aug–Sep, fr. Sep.

On trees in forested valleys; 1200–2400 m. SE Xizang (Nyingchi Xian), NW Yunnan (Gongshan Xian) [NE India, Laos, N Myanmar].

**16. *Lysionotus metuoensis*** W. T. Wang, *Acta Phytotax. Sin.* 17: 110. 1979.

墨脱吊石苣苔 *mo tuo diao shi ju tai*

Subshrubs. Stems ca. 34 cm, densely spreading pubescent. Leaves nearly sessile; leaf blade linear-oblong to narrowly elliptic, 2.4–3.5 cm × 4–7 mm, leathery, densely puberulent, base cuneate, margin sparsely denticulate to subentire, apex acuminate to acute; lateral veins obscure. Cymes 1-flowered; peduncle ca. 8 mm, densely puberulent; bracts narrowly elliptic to narrowly ovate, ca. 9 × 2–3.2 mm. Pedicel ca. 1 cm. Calyx 1.2–2 cm, 5-lobed; tube 3–3.5 mm; lobes 0.9–1.7 cm, outside densely puberulent, inside sparsely puberulent. Corolla white, 4.2–5 cm, outside sparsely puberulent, inside glabrous; tube funnellform-tubular, 2.4–3.5 × ca. 1.2 cm; adaxial lip ca. 3 mm; abaxial lip 8–10 mm. Stamens 1.2–1.6 cm; filaments 1–1.4 cm; anthers broadly ovoid; connective unappendaged; staminodes 2, 4–7 mm. Disc ringlike, margin entire. Pistil 2–2.8 cm, sparsely puberulent. Capsule 6.5–13 cm. Seed appendages hairlike, ca. 1.5 mm. Fl. and fr. Aug–Sep.

• On trees in broad-leaved forests; ca. 1300 m. SE Xizang (Medog Xian).

**17. *Lysionotus microphyllus*** W. T. Wang, *Guihaia* 3: 270. 1983.

小叶吊石苣苔 *xiao ye diao shi ju tai*

Subshrubs. Stems 25–30 cm, sparsely puberulent. Petiole 0.3–1.5 mm; leaf blade obovate to elliptic, 3.5–11 × 3–6 mm, leathery, adaxially puberulent near margin or glabrous, abaxially glabrous, base cuneate to rounded, margin 1–3-denticulate to crenate or entire, apex obtuse; lateral veins obscure. Cymes 1-flowered; peduncle 1.8–2.6 cm, glabrous; bracts subulate, ca. 0.8 × 0.2 mm. Pedicel 1–1.2 cm. Calyx 5-sect from base; segments 1.5–4 mm, glabrous. Corolla ca. 1.3 cm, glabrous; tube funnellform-tubular, ca. 9 × 3–4 mm; adaxial lip ca. 2 mm; abaxial lip ca. 4.5 mm. Stamens ca. 7 mm; filaments ca. 5 mm; anthers subglobose; connective unappendaged; staminodes 3, central 1 ca. 0.4 mm, laterals ca. 1.5 mm. Disc ringlike, margin entire. Pistil ca. 8 mm, glabrous. Capsule 6.5–8 cm. Seed appendages subulate, 0.5–0.7 mm. Fl. Jul, fr. Jul, Sep.

• On trees or rocks, valleys, forests by streams; 1300–1500 m. SW Hubei (Xianfeng Xian), NW Hunan (Sangzhi Xian), Sichuan (Emei Xian).

- 1a. Leaf blade 3.5–8.5 × 3–5 mm, margin 1–3-denticulate; calyx ca. 1.5 mm, segments triangular ..... 17a. var. *microphyllus*
- 1b. Leaf blade 4–11 × 3–6 mm, margin 1- or 2-crenate apically to entire; calyx 3–4 mm, segments triangular-linear ..... 17b. var. *omeiensis*

**17a. *Lysionotus microphyllus* var. *microphyllus***

小叶吊石苣苔(原变种) *xiao ye diao shi ju tai* (yuan bian zhong)

Stems ca. 30 cm. Leaf blade 3.5–8.5 × 3–5 mm, margin 1–3-denticulate. Calyx segments triangular, ca. 1.5 mm. Fl. and fr. Jul.

• On trees or rocks in forests by streams; ca. 1300 m. SW Hubei (Xianfeng Xian), NW Hunan (Sangzhi Xian).

**17b. *Lysionotus microphyllus* var. *omeiensis*** (W. T. Wang) W. T. Wang in A. L. Weitzman et al., *Novon* 7: 429. 1998.

峨眉吊石苣苔 *e mei diao shi ju tai*

*Lysionotus omeiensis* W. T. Wang, *Guihaia* 3: 271. 1983.

Stems ca. 25 cm. Leaf blade 4–11 × 3–6 mm, margin 1- or 2-crenate apically to entire. Calyx segments narrowly triangular, 3–4 mm. Fr. Sep.

• On trees in valleys; ca. 1500 m. Sichuan (Emei Xian).

**18. *Lysionotus kwangsiensis*** W. T. Wang, *Acta Phytotax. Sin.* 13: 68. 1975.

广西吊石苣苔 *guang xi diao shi ju tai*

Subshrubs. Stems ca. 30 cm, glabrous. Petiole 0.9–2.1 cm; leaf blade ovate to narrowly elliptic or narrowly oblong, 5–10 × 1.4–4.5 cm, leathery, glabrous, base rounded to broadly cuneate, margin denticulate to

serrate or subentire, apex abruptly acuminate to obtuse; lateral veins 5–7 on each side of midrib, often obscure, flat. Cymes 1–4-flowered; peduncle 1.5–4 cm, glabrous; bracts linear to ovate or obovate, 4–5 × 1.2–3 mm. Pedicel 6–12(–20) mm. Calyx 5-sect from base; segments 0.9–1.2 cm, glabrous. Corolla purplish, ca. 4 cm, glabrous; tube slender funnellform, ca. 3 × 1 cm; adaxial lip ca. 5 mm; abaxial lip 1–1.3 cm. Stamens ca. 1.6 cm; filaments ca. 1.5 cm; anthers oblate; connective appendages hornlike, 0.5–1.5 mm; staminodes 2, 8–10 mm. Disc ringlike, margin entire. Pistil ca. 2.3 cm, glabrous. Capsule 5–6 cm. Seed appendages hairlike, 0.9–1.2 mm. Fl. Jul–Sep, fr. Jul–Oct.

• Forests on trees or rocks in montane regions; 1300–1700 m. N Guangxi (Rongshui Xian, Tiane Xian).

**19. *Lysionotus pauciflorus*** Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 19: 534. 1874.

吊石苣苔 diao shi ju tai

Subshrubs. Stems 7–100 cm, glabrous to puberulent. Petiole 1–4(–15) mm; leaf blade linear to broadly elliptic, oblanceolate to obovate, or rarely lanceolate to ovate, 1.5–6(–9) × (0.4–)0.8–2(–3.8) cm, leathery, glabrous, rarely puberulent, base narrowly to broadly cuneate, rarely rounded, margin apically serrate to crenate, dentate, or subentire, basally subentire, apex acute to subtruncate; lateral veins 3–6 on each side of midrib, often obscure, flat. Cymes 1–3(–12)-flowered; peduncle 0.3–2.6(–5) cm, glabrous; bracts linear to ovate or oblanceolate, 1–4 × 0.4–1 mm. Pedicel 3–10(–17) mm. Calyx 5-sect from to near base; tube to 1 mm; segments (1–)2–7(–8) mm, glabrous, sometimes sparsely puberulent or with a few hairs at tip. Corolla white to light purple or pink, inside with purple lines and sometimes yellow throat, 2.8–5.5 cm, outside glabrous to puberulent basally, inside glabrous; tube slender funnellform, 2.1–3.5 × (0.7–)1.2–1.5 cm; adaxial lip 3–5 mm; abaxial lip (0.7–)0.9–1.5 cm. Stamens 1–1.7 cm; filaments 1–1.6 cm; anthers oblate to broadly ovoid; connective appendage hornlike, ca. 0.5–1(–3) mm; staminodes (2 or)3, 0.6–5(–8) mm. Disc ringlike to cupular, to 4 mm, entire or with few acute to obtuse teeth. Pistil 1.2–2.8 cm, glabrous. Capsule (1.7–)4.5–13 cm. Seed appendages hairlike, 0.7–2 mm. Fl. Jun–Dec, fr. Aug–Jan.

Forests, thickets, rocks, or cliffs, terrestrial, on trees or rocks in hilly or montane regions; 300–2200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, N Vietnam].

1a. Stems and leaf blade puberulent .. 19b. var. *indutus*

1b. Stems glabrous or puberulent at apex; leaf blade glabrous.

2a. Corolla outside basally puberulent 19c. var. *ikedae*

2b. Corolla glabrous ..... 19a. var. *pauciflorus*

**19a. *Lysionotus pauciflorus* var. *pauciflorus***

吊石苣苔(原变种) diao shi ju tai (yuan bian zhong)

*Aeschynanthus apicidens* Hance; *Lysionotus apicidens* (Hance) Yamazaki; *L. carnosus* Hemsley; *L. cavaleriei* H. Léveillé (1911), not H. Léveillé (1909); *L. hainanensis* Merrill & W. Y. Chun; *L. montanus* Kao & Devol; *L. pauciflorus* var. *lancifolius* W. T. Wang; *L. pauciflorus* var. *latifolius* W. T. Wang; *L. pauciflorus* var. *linearis* Rehder; *L. warleyensis* Willmott; *L. wilsonii* Kraenzlin (1928), not Rehder (1916).

Stems glabrous or puberulent at apex. Leaf blade glabrous. Corolla outside glabrous. Fl. Jun–Dec, fr. Aug–Jan.

Forests, rocks, cliffs, on trees in hilly or montane regions; 300–2200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, E Yunnan, Zhejiang [Japan, N Vietnam].

**19b. *Lysionotus pauciflorus* var. *indutus*** W. Y. Chun ex W. T. Wang, Guihaia 3: 275. 1983.

灰叶吊石苣苔 hui ye diao shi ju tai

Stems puberulent. Leaf blade puberulent. Flowers and fruits unknown.

• Hilly regions. W Guizhou (Weining Xian).

**19c. *Lysionotus pauciflorus* var. *ikedae*** (Hatusima) W. T. Wang in A. L. Weitzman et al., Novon 7: 430. 1998.

兰屿吊石苣苔 lan yu diao shi ju tai

*Lysionotus ikedae* Hatusima, Mem. Fac. Agric. Kagoshima Univ. 7: 324. 1970.

Stems glabrous. Leaf blade glabrous. Corolla outside basally puberulent.

• On trees. S Taiwan (Lanyu Island).

**20. *Lysionotus serratus*** D. Don, Edinburgh Philos. J. 7: 85. 1822.

齿叶吊石苣苔 chi ye diao shi ju tai

Subshrubs. Stems 10–100 cm, glabrous. Petiole 1–16(–28) mm; leaf blade elliptic to lanceolate, ovate, or obovate, 4–14 (–18) × 2–4.8(–5.5) cm, herbaceous, seldom papery, glabrous, base cuneate to rounded, margin dentate to serrate or crenulate, apex acuminate to obtuse; lateral veins 5–8(–10) on each side of midrib, flat to prominent. Cymes 3–15-flowered; peduncle 3.5–10 cm, glabrous; bracts ovate to orbicular, 3.5–10 × 4–8.5 mm. Pedicel 3–11 mm. Calyx 5-sect from base; segments 4–8 × 1.5–4 mm, glabrous. Corolla purplish to white, 2.5–4.5 cm, outside sparsely puberulent, inside sparsely glandular puberulent basally; tube slender funnellform, 2.2–3 × 0.8–1 cm; adaxial lip ca. 4 mm; abaxial lip 8–10 mm. Stamens 0.8–1.2 mm; filaments 7–10 mm; anthers subglobose; connective appendage hornlike, ca. 1 mm; staminodes 3, 0.5–6 mm. Disc ringlike, margin entire. Pistil ca. 2.2 mm, glabrous. Capsule 7–11 cm. Seed appendages hairlike, 1–1.2 mm. Fl. Jul–Sep, fr. Aug–Jan.

Terrestrial, on trees or rocks in forests, streamsides, grassy slopes, valleys; 300–2800 m. NW Guangxi, SW Guizhou, SE Xizang, Yunnan [Bhutan, N India, N Myanmar, Nepal, Thailand, N Vietnam].



- 1a. Stems not angled, wingless ..... 20a. var. *serratus*  
1b. Stems longitudinally angled, winged  
along angles ..... 20b. var. *pteroaulis*

**20a. *Lysionotus serratus* var. *serratus***

齿叶吊石苣苔(原变种) *chi ye diao shi ju tai* (yuan bian zhong)

*Didymocarpus esquirolii* H. Léveillé; *Hemiboea himalayensis* H. Léveillé; *Lysionotus himalayensis* (H. Léveillé) W. T. Wang & Z. Y. Li; *L. ternifolius* Wallich. Stems not angled, wingless. Fl. Jul–Sep, fr. Sep–Jan.

On trees or rocks in forests, streamsides, grassy slopes; 900–2200 m. NW Guangxi, SW Guizhou, SE Xizang, S and W Yunnan [Bhutan, N India, N Myanmar, Nepal, Thailand, N Vietnam].

**20b. *Lysionotus serratus* var. *pteroaulis*** C. Y. Wu ex W. T. Wang, *Guihaia* 3: 277. 1983.

翅茎吊石苣苔 *chi jing diao shi ju tai*

*Lysionotus pteroaulis* (C. Y. Wu ex W. T. Wang) H. W. Li.

Stems longitudinally angled, winged along angles. Fl. Jul–Aug, fr. Aug–Oct.

On trees or rocks in valleys; 1100–1700 m. SE Yunnan (Pingbian Xian) [N Vietnam].

**21. *Lysionotus gamosepalus*** W. T. Wang, *Guihaia* 3: 278. 1983.

合萼吊石苣苔 *he e diao shi ju tai*

Subshrubs. Stems 18–50 cm, glabrous. Petiole 5–20 mm; leaf blade narrowly elliptic to ovate, 5–13 × 2.8–6 cm, papery, glabrous, base broadly cuneate to rounded, margin serrate to dentate, apex acuminate to acute; lateral veins 4–6 on each side of midrib, flat. Cymes 2–11-flowered; peduncle 1.5–5 cm, glabrous; bracts broadly ovate, base cordate, ca. 7 × 11 mm. Pedicel ca. 3 mm. Calyx 0.9–1.2 cm, 5-lobed from middle to above middle; tube 6–10 mm; lobes 2–6 × 3–5 mm, glabrous. Corolla white or tinged purple, 3.6–4.2 cm, glabrous; tube funnelform-tubular, 2.6–3 × 0.9–1.2 cm; adaxial lip ca. 5.5 mm; abaxial lip 1–1.2 cm. Stamens ca. 1 cm; filaments 8–10 mm; anthers oblate; connective appendage hornlike, 1.2–1.8 mm; staminodes 3, 0.5–6 mm. Disc ringlike, margin entire. Pistil 2–2.2 cm, glabrous. Capsule 9–13 cm. Seed appendages hairlike, 1.5–2 mm. Fl. Jun–Jul, fr. Aug.

• Evergreen, broad-leaved forests, on stony cliffs, or rocks at waysides; 800–1600 m. SE Xizang (Zayu Xian, Medog Xian).

**22. *Lysionotus sangzhiensis*** W. T. Wang, *Guihaia* 6: 164. 1986.

桑植吊石苣苔 *sang zhi diao shi ju tai*

Subshrubs. Stems ca. 12 cm, glabrous or glabrescent, branches appressed puberulent. Petiole 1.2–4 mm; leaf blade oblanceolate to narrowly oblong, 0.9–3.1 cm × 3–7 mm, leathery to thin leathery, glabrous, base cuneate, margin serrulate to denticulate apically, apex acute to obtuse; lateral veins obscure. Cymes 1- or 2-flowered; peduncle 2–5 cm, glabrous; bracts orbicular-ovate to obovate, 3–6 × 2–4 mm. Pedicel 3–5.4 cm. Calyx 7–10 mm, 5-lobed from above middle; tube 5–8 mm; lobes

2–5 × 1.2–3 mm, glabrous. Corolla pink, ca. 3.7 cm, glabrous; tube funnelform-tubular, ca. 2.6 × 0.9 cm; adaxial lip ca. 2 mm; abaxial lip ca. 1.1 cm. Stamens ca. 1.2 cm; filaments ca. 1.2 cm; anthers oblate; connective abaxial-basal, with appendage protruding, ca. 0.4 mm; staminodes 3, central 1 ca. 1 mm, laterals ca. 7 mm, with 1 small empty anther at apex. Disc ringlike, margin entire. Pistil ca. 12.5 mm, glabrous. Capsule 4–5.4 cm. Seed appendages subulate, 0.2–0.6 mm. Fl. Aug.

• Rocks in forests; 700–1400 m. NW Hunan (Sangzhi Xian), SE Sichuan (Youyang Xian).

**23. *Lysionotus chingii*** W. Y. Chun ex W. T. Wang, *Guihaia* 3: 279. 1983.

攀援吊石苣苔 *pan yuan diao shi ju tai*

Prostrate herbs, climbing subshrubs or lianas. Stems sometimes thick corky, to 9 m, glabrous. Petiole 6–23 mm; leaf blade elliptic to narrowly elliptic or oblong, 4.5–13 × 2.2–5 cm, papery, glabrous, base broadly cuneate to cuneate, margin entire to denticulate with small glands, apex acuminate; lateral veins 4–6 on each side of midrib, abaxially prominent. Cymes 1-flowered; peduncle 1.4–2.8 cm, glabrous; bracts orbicular-ovate to ovate, 4–7 × 7–9 mm. Pedicel 2–7 mm. Calyx 1.6–2.2 cm, 5-lobed from above middle; tube 1.2–1.8 cm; lobes 4–5 × ca. 5 mm, glabrous. Corolla white or tinged greenish, ca. 4 cm, outside glabrous, inside puberulent basally; tube slender funnelform, ca. 3.3 × 1.2–1.4 cm; adaxial lip ca. 6 mm; abaxial lip ca. 7 mm. Stamens ca. 1.3 cm; filaments ca. 1 cm; anthers oblate; connective unappendaged; staminodes 2, ca. 2 mm. Disc ringlike, margin entire. Pistil ca. 2.5 cm, glabrous. Capsule 6.5–9 cm. Seed appendages subulate, 0.3–0.5 mm. Fl. Jul–Sep, fr. Sep.

On trees and rocks in forested valleys; 900–1500 m. S and W Guangxi, SE Yunnan [N Vietnam].

