

10. BRIGGSIA Craib, Notes Roy. Bot. Gard. Edinburgh 11: 236. 1919.

粗筒苣苔属 *cu tong ju tai shu*

Herbs, perennial, epipetric, epiphytic, or terrestrial, rhizomatous, stemmed or stemless. Stems simple, rarely branched. Leaves few to many, basal or on stem and opposite or rarely alternate, crowded near apex or spread along stem, equal to unequal in a pair; leaf blade base cuneate to attenuate or cordate, rarely peltate. Inflorescences lax, axillary, sometimes subumbel-like, 1- to many-flowered cymes; bracts 2 or rarely 3, opposite, rarely whorled. Calyx actinomorphic, 5-sect from base, rarely 5-lobed from middle; segments equal, rarely unequal. Corolla blue, purple, to red or orange to white, usually spotted within, zygomorphic, inside glabrous to pubescent or glandular puberulent; tube narrowly campanulate, gibbous abaxially, 2–3 × longer than limb, (0.7–)1–2(–2.6) cm in diam.; limb 2-lipped; adaxial lip 2-lobed, rarely 2-sect from base, 3 × to slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex obtuse to rounded, truncate, or acute. Stamens 4, adnate to corolla tube near base, rarely to near or above middle, included; anthers basifixed, coherent in pairs at apex, thecae divergent, not confluent or confluent at apex, dehiscing longitudinally; connective not projecting; staminode 1 or absent, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear to narrowly oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, 2-lipped, undivided. Capsule straight in relation to pedicel, narrowly lanceolate-oblong to oblanceolate, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

About 22 species: Bhutan, China, India, Myanmar, Sikkim, Vietnam; 21 species in China.

The delimitations of *Briggsia* and *Loxostigma* are somewhat problematic. Three species in this treatment (*B. kurzii*, *B. longicaulis*, and *B. dongxingensis*) are rather unlike others, and Weitzman and Skog believe that they probably belong in *Loxostigma*. Arguments by Burt (Notes Roy. Bot. Gard. Edinburgh 34: 101–106. 1975), which appeared before the publication of *B. longicaulis*, and *B. dongxingensis*, appear to support this placement. *Loxostigma* is somewhat intermediate between *Briggsia* and *Lysionotus*, which are generally placed in different tribes. These three species of *Briggsia* have stems and herbaceous leaves as in *Loxostigma*, and only the lack of seed appendages supports their placement in *Briggsia*.

- 1a. Leaf blade and petioles glabrous; anthers ovoid.
 - 2a. Leaf blade base peltate or rounded to nearly cuneate, margin entire to shallowly serrate; calyx segments 8–11 × 2–5 mm; peduncle sparsely brownish villous, rarely glabrescent 4. *B. longipes*
 - 2b. Leaf blade base cuneate, margin crenate-serrate; calyx segments 4–7 × 1.5–3 mm; peduncle glabrous to glabrescent 5. *B. mihieri*
- 1b. Leaf blade and petioles puberulent to woolly at least along veins; anthers globose or reniform.
 - 3a. Stems to 60 cm; leaves spread along stem or clustered near stem apex, unequal to equal in a pair; anthers globose.
 - 4a. Leaves mostly clustered near stem apex, equal to subequal in a pair; peduncle 1.2–6.2 cm; corolla glabrous inside; stamens adnate to corolla 4–5 mm above base, 2.5–3 cm 1. *B. kurzii*
 - 4b. Leaves spread along stem, unequal in a pair; peduncle 4–10.5 cm; corolla sparsely pubescent inside on adaxial lip; stamens adnate to corolla 1–2 cm above base, 1.2–1.8 cm.
 - 5a. Calyx segments unequal; petiole 0.5–12 cm; cymes 1–12-flowered; pedicel 0.8–2.5 cm; corolla adaxial lip 4–6 mm, abaxial lip 10–19 mm; style 13–15 mm 2. *B. longicaulis*
 - 5b. Calyx segments equal; petiole 0.5–2.8 cm; cymes 1–4-flowered; pedicel 0.4–0.7 cm; corolla adaxial lip ca. 1.1 cm, abaxial lip 7–9 mm; style 7–11 mm 3. *B. dongxingensis*
 - 3b. Plants stemless; leaves basal; anthers reniform.
 - 6a. Pistil and capsule glabrous.
 - 7a. Adaxial stamens ca. 4.5 mm, abaxial stamens ca. 6.5 mm; leaf blade 1.5–2.2 × 0.8–1.2 cm; corolla ca. 1.8 × 0.7 cm, pilose outside 11. *B. humilis*
 - 7b. Adaxial stamens 8–20 mm, abaxial stamens 12–23 mm; leaf blade 2–19 × 1–6 cm; corolla 1.8–4.2 × 0.9–2 cm, glabrous to pubescent outside.
 - 8a. Bracts 3–5 mm wide, bract and calyx margin subentire or sparsely dentate; staminode ca. 3 mm 13. *B. chienii*
 - 8b. Bracts 0.5–3 mm wide, bract and calyx margin entire; staminode 0.4–1 mm.

- 9a. Calyx segments broadly ovate, 8–10 × 4–5 mm; corolla pubescent outside, adaxial lobes ca. 5 mm wide 12. *B. latisejala*
- 9b. Calyx segments lanceolate to ovate or elliptic, 3–7 × 1–3 mm; corolla glandular puberulent to sparsely pubescent outside, adaxial lobes 2–4 mm wide.
- 10a. Corolla glabrous outside, adaxial lip 6–9 mm, lobes oblong, 4–6 mm; stamens 2–2.3 cm; bracts pubescent to puberulent inside; calyx segments obscurely 3-veined 9. *B. stewardii*
- 10b. Corolla glandular pubescent outside, adaxial lip 2–5 mm, lobes semiorbicular, 1–4 mm; stamens 0.8–1.5 cm; bracts glabrous inside; calyx segments veins indistinct.
- 11a. Corolla purple; leaf blade base cuneate to cordate; adaxial stamens adnate to corolla 1 cm above base, filaments pale yellow villous near base, glabrescent near apex 10. *B. mairei*
- 11b. Corolla yellow to deep orange, rarely bud purple-blue; leaf blade base attenuate to broadly cuneate; adaxial stamens adnate to corolla 2.5–4 mm above base, filaments glabrous to sparsely puberulent.
- 12a. Calyx segments 3–3.5 mm; leaf blade apex obtuse to acute, adaxially densely rust-brown villous, abaxially densely rust-brown woolly and villous; peduncle (3–)6–13 cm; bracts linear to narrowly triangular 6. *B. aurantiaca*
- 12b. Calyx segments 4–7 mm; leaf blade apex acute, adaxially white or gray appressed puberulent or pubescent, abaxially appressed white or gray pubescent, veins and sometimes margin brown villous; peduncle 5.5–23 cm; bracts lanceolate or oblanceolate.
- 13a. Leaf blade base attenuate, margin serrulate; corolla margin sometimes flushed darker, not striate or spotted inside; bracts pubescent outside; filaments glabrous 7. *B. longifolia*
- 13b. Leaf blade base often slightly oblique, narrowly to broadly cuneate, margin serrate to serrate-crenate, sometimes doubly so; corolla inside purple-red to orange or brown spotted or striate; bracts rust-brown villous outside; filaments sparsely puberulent 8. *B. muscicola*
- 6b. Pistil glandular puberulent to glandular pubescent; capsule glabrescent to glandular pubescent.
- 14a. Leaf blade 1–2.2 × 0.7–1.2 cm; corolla adaxial lip 1.5–3.5 mm, abaxial lip 4–7 mm.
- 15a. Leaf blade base shallowly cordate; cymes 1–3-flowered; peduncle 7–9 cm; bracts 3–4 mm; stamens 14–17 mm 11. *B. humilis*
- 15b. Leaf blade base cuneate; cymes 1-flowered; peduncle 5–6.5 cm; bracts 1–2 mm; stamens 4.5–6.5 mm 21. *B. parvifolia*
- 14b. Leaf blade (1.2–)2–15 × (0.8–)1–8 cm; corolla adaxial lip 4–9 mm, abaxial lip 8–20 mm.
- 16a. Bracts 8–14 × 3–5 mm; calyx segments 2–5 mm wide; bract and calyx margin subentire or sparsely dentate; leaf blade adaxially pilose 13. *B. chienii*
- 16b. Bracts 2–10 × 0.6–3 mm, margin entire; calyx segments 1–3 mm wide, margin entire, rarely sparsely dentate; leaf blade appressed pubescent to villous, not pilose.
- 17a. Bracts inside pubescent to sparsely pubescent; calyx segments margin sparsely dentate; leaf blade surfaces appressed puberulent 20. *B. pinfaensis*
- 17b. Bracts inside glabrous; calyx segments margin entire; leaf blade surfaces pubescent to villous.

- 18a. Cymes 1-flowered; leaf blade ovate to rhombic-ovate, margin shallowly serrate;
abaxial corolla lobes 10–12 mm 15. *B. agnesiae*
- 18b. Cymes 1–5(–8)-flowered; leaf blade ovate to narrowly elliptic, lanceolate, or oblanceolate, margin dentate to serrate or crenate, sometime double, but not shallow; abaxial corolla lobes 4–10 mm.
- 19a. Corolla glabrous outside, lobes narrowly triangular; pistil ca. 9 mm;
leaf blade adaxially puberulent and sparsely rust-brown villous;
peduncle sparsely rust-brown villous and glandular pubescent .. 16. *B. acutiloba*
- 19b. Corolla glabrescent to pubescent, lobes semiorbicular to oblong,
narrowly lanceolate, elliptic-ovate, or broadly triangular; pistil 1.6–3.4
mm; leaf blade adaxially pubescent or villous, but only 1 type of hair;
peduncle villous to pubescent, but only 1 type of hair.
- 20a. Petiole 1–3 cm, densely puberulent; peduncle 4–9(–11) cm,
pubescent; bracts and calyx pubescent outside; corolla glabrous
inside 17. *B. speciosa*
- 20b. Petiole 1–8(–13) cm, villous; peduncle 3.5–20 cm, villous; bracts
and
calyx villous outside; corolla sparsely pubescent, glandular
pubescent,
or pubescent inside.
- 21a. Staminode ca. 0.5 mm; leaf blade 2.6–5.5(–8) × 1.5–3(–5.5)
cm, abaxially pubescent; lateral veins adaxially
inconspicuous;
bracts 6–10 mm 19. *B. elegantissima*
- 21b. Staminode 1–3 mm; leaf blade 2–15 × 1.2–8 cm, abaxially
pubescent, villous along veins; lateral veins adaxially
conspicuous or prominent; bracts 2–7 mm.
- 22a. Leaf blade with at least some rust-brown villous hairs on
both surfaces, apex rounded to obtuse; calyx segments
veins indistinct; staminode 2.5–3 mm 14. *B. forrestii*
- 22b. Leaf blade surfaces white pubescent, apex obtuse to
acute; calyx segments obscurely 3–5-veined; staminode
1–2.2 mm 18. *B. rosthornii*

1. *Briggsia kurzii* (C. B. Clarke) W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 16: 133. 1928.

粗筒苣苔 *cu tong ju tai*

Didymocarpus ? *kurzii* C. B. Clarke, Commelyn. Cyrtandr. Bengal. 96. 1874; *Briggsia amabilis* (Diels) Craib; *B. amabilis* var. *taliensis* Craib; *Chirita kurzii* (C. B. Clarke) C. B. Clarke; *Didissandra amabilis* Diels; *Loxostigma kurzii* (C. B. Clarke) B. L. Burt; *Roettlera kurzii* (C. B. Clarke) Kuntze.

Stems 12–30(–40) cm, sparsely pubescent. Leaves mostly opposite at stem apex, basal leaves usually small, equal to subequal in a pair; petiole absent to 1.5(–3) cm, sparsely pubescent to puberulent; leaf blade oblanceolate to obovate or lanceolate to ovate, (0.5–)4–14 × (0.3–)2–6 cm, adaxially sparsely appressed pubescent, abaxially nearly glabrous, sparsely pubescent along veins, base sometimes oblique, narrowly cuneate, to rounded, margin irregularly serrate, apex acuminate to obtuse; lateral veins 5–7 on each side of midrib, conspicuous. Cymes 1- or 2-flowered; peduncle

1.2–6.2 cm, pubescent; bracts 2(or 3), lanceolate to linear, 2–5 × 0.5–1.5 mm, outside sparsely pubescent, inside glabrous, margin entire. Calyx segments lanceolate to narrowly triangular, 1–1.8 cm × 2–3 mm, outside sparsely pubescent, margin entire to sparsely denticulate, veins indistinct. Corolla yellow to orange, rarely white, inside abaxial lip purple to brown spotted, 3.8–5 cm, outside very sparsely pubescent, glabrescent, inside glabrous; tube 2.8–3.8 × 1.5–2 cm; adaxial lip ca. 8 mm, lobes semiorbicular, 4–6 × 5–8 mm, apex rounded; abaxial lip ca. 1 cm, lobes semiorbicular, central lobe 5–10 × 5–8 mm, lateral lobes 2.8–8 × 4–7 mm, apex obtuse to rounded. Adaxial stamens adnate to corolla ca. 4 mm above base, ca. 2.5 cm, abaxial ones adnate to corolla ca. 5 mm above base, ca. 3 cm; filaments glabrous; anthers globose, thecae not confluent or confluent; staminode ca. 2 mm. Pistil 1.8–2.4 cm; ovary pubescent. Style 7–12 mm, sparsely pubescent. Capsule 3.5–4.5 cm, glabrescent. Fl. Jun–Sep, fr. Aug–Oct.

Rocks of grassy slopes, epiphytic in montane forests; 1800–3500 m. SW Sichuan, NW Yunnan [Bhutan, Myanmar, Sikkim].

Briggsia amabilis and *Loxostigma kurzii* were both recognized in FRPS, but this study shows that they are conspecific.

2. *Briggsia longicaulis* W. T. Wang & K. Y. Pan in K. Y. Pan, *Acta Phytotax. Sin.* 26: 450. 1988.

长茎粗筒苣苔 *chang jing cu tong ju tai*

Stems to 60 cm, glabrous to very sparsely puberulent. Leaves opposite, rarely alternate, spread along stem, unequal in a pair; petiole 0.5–1.2 cm, sparsely appressed villous, glabrescent; leaf blade ovate to obovate, rarely lanceolate, 4–15.5 × 2.4–8.4 cm, adaxially sparsely appressed strigose to pubescent, abaxially nearly glabrous, sparsely appressed pubescent along veins base sometimes oblique, cuneate to rounded, margin irregularly serrate, apex acuminate to acute; lateral veins 7–10 on each side of midrib, conspicuous. Cymes 1–12-flowered; peduncle 5.5–10.5 cm, sparsely glandular pubescent; bracts 2(or 3), lanceolate to oblong, 3–8 × 1–2 mm, outside sparsely pubescent, inside glabrous, margin entire to sparsely denticulate. Calyx segments lanceolate to narrowly ovate, 0.7–1.4 cm × 1–4 mm, outside pubescent to villous, margin entire, veins indistinct. Corolla white, inside purple spotted, 3–4.5 cm, outside sparsely pubescent, inside sparsely pubescent on adaxial lip; tube 2.6–3.4 × 1–1.5 cm; adaxial lip 4–6 mm, lobes semiorbicular, 3–4 × ca. 6 mm, apex rounded; abaxial lip 1–1.9 cm, lobes semiorbicular, ca. 4 × 4–5 mm, apex rounded. Adaxial stamens adnate to corolla ca. 1 cm above base, ca. 1.5 cm, abaxial ones adnate to corolla ca. 1.2 cm above base, ca. 1.5 cm; filaments glabrous; anthers globose, thecae not confluent. Pistil 2.6–2.8 cm; ovary pubescent. Style 1.3–1.5 cm, sparsely pubescent to puberulent. Capsule 5.5–7 cm, glabrescent. Fl. Aug, fr. Oct.

• Shady and damp places under forests of slopes; 2200–2500 m. Sichuan (Butuo Xian, Kangding Xian).

3. *Briggsia dongxingensis* W. Y. Chun ex K. Y. Pan, *Acta Phytotax. Sin.* 26: 451. 1988.

东兴粗筒苣苔 *dong xing cu tong ju tai*

Stems 20–60 cm, densely pubescent. Leaves opposite, spread along stem, unequal in a pair; petiole 0.5–2.8 cm, densely villous; leaf blade elliptic to ovate or obovate, 4.5–16 × 2.3–7 cm, adaxially appressed puberulent to pubescent, abaxially pubescent, villous along veins, base oblique, cuneate, sometimes rounded on 1 side, margin denticulate to serrate, apex acuminate to acute; lateral veins 6–10 on each side of midrib, conspicuous. Cymes 1–4-flowered; peduncle 4–10 cm, pubescent; bracts 2, lanceolate to narrowly oblong, 2–4 × 0.5–1.2 mm, pubescent, margin entire. Calyx segments lanceolate to narrowly so, 5–9 × 1–1.5 mm, outside pubescent to villous, margin entire, veins indistinct. Corolla yellow, inside spotted or not, 4–5 cm, outside sparsely pubescent, inside sparsely pubescent only on lobes of adaxial lip; tube 3.1–4.2 × 1.5–1.7 cm; adaxial

lip ca. 1.1 cm, lobes semiorbicular, 5–6 × 5–7 mm, apex rounded; abaxial lip 7–9 mm, lobes semiorbicular, 4–7 × ca. 5 mm, apex rounded. Adaxial stamens adnate to corolla 1.5–2 cm above base, ca. 1.2 cm, abaxial ones adnate to corolla 1.5–1.8 cm above base, ca. 1.8 cm; filaments sparsely glandular pubescent near apex or glabrous; anthers globose, thecae not confluent or confluent; staminode ca. 1.5 mm. Pistil 2.7–3 cm; ovary glabrous. Style 7–11 mm, glandular pubescent. Fruit unknown. Fl. Aug–Oct.

Shaded dense forest near streams. Guangxi (Dongxing Xian) [N Vietnam].

4. *Briggsia longipes* (Hemsley ex Oliver) Craib, *Notes Roy. Bot. Gard. Edinburgh* 11: 262. 1919.

盾叶粗筒苣苔 *dun ye cu tong ju tai*

Didissandra longipes Hemsley ex Oliver, *Hooker's Icon. Pl.* 24: pl. 2379. 1895.

Plants stemless or stems to 6 cm tall, glabrous. Leaves basal or crowded; petiole (1–)3.2–9 cm, glabrous; leaf blade narrowly obovate to elliptic to broadly ovate, (3–)5–13.5 (–15.5) × (1.6–)3–7.2 cm, glabrous, base peltate or rounded to nearly cuneate, margin entire to shallowly serrate, apex obtuse to acute; lateral veins 4 or 5 on each side of midrib, abaxially slightly prominent. Cymes 1–5(–7)-flowered; peduncle (7–)14–23 cm, sparsely brownish villous, rarely glabrescent; bracts 2, linear to narrowly triangular, 2–4 × 0.5–1 mm, glabrous, margin entire. Calyx segments lanceolate to ovate or obovate, 8–11 × 2–5 mm, outside sparsely gray villous to glabrous, margin entire, veins indistinct. Corolla pale purple, inside often spotted, (3.3–)4–5 cm, outside puberulent, inside puberulent; tube 2.2–3.8 × 1.1–1.8 cm; adaxial lip 5–7 mm, lobes semiorbicular, 3–4 × ca. 7 mm, apex rounded; abaxial lip ca. 1 cm, lobes oblong to semiorbicular, ca. 6 × 4 mm, apex obtuse. Adaxial stamens adnate to corolla ca. 9 mm above base, ca. 8 mm, abaxial ones adnate to corolla ca. 8 mm above base, ca. 1.2 cm; filaments glabrous; anthers ovoid, thecae not confluent; staminode ca. 0.8 mm. Pistil ca. 3 cm; ovary pubescent. Style 0.7–2 cm, glabrous. Capsule 3.5–5.5 cm, glabrescent. Fl. Sep–Dec, fr. Dec, May.

• Forests on damp rocks and crevices of rocks; 1000–1800 m. Guangxi (Longlin Xian), SE Yunnan.

5. *Briggsia mihieri* (Franchet) Craib, *Notes Roy. Bot. Gard. Edinburgh* 11: 262. 1919.

革叶粗筒苣苔 *ge ye cu tong ju tai*

Didissandra mihieri Franchet, *Bull. Mens. Soc. Linn. Paris* 1: 450. 1885; *Briggsia fritschii* (H. Léveillé & Vaniot) Craib; *Didissandra fritschii* H. Léveillé & Vaniot; *Didymocarpus fritschii* (H. Léveillé & Vaniot) H. Léveillé; *D. mihieri* (H. Léveillé & Vaniot) H. Léveillé.

Plants stemless or stems to 5 cm tall, glabrous. Leaves basal or crowded; petiole 1–9(–11) cm, glabrous; leaf

blade narrowly obovate to obovate or elliptic, (1–)2.5–6(–12) × 1–3 (–6) cm, glabrous, base cuneate, margin irregularly crenate to serrate, apex rounded to acute; lateral veins 3 or 4 on each side of midrib, inconspicuous on both surfaces. Cymes 1–5-flowered; peduncle (5–)8–17 cm, glabrous to glabrescent; bracts 2, linear to narrowly triangular or lanceolate, 1–3 × 0.5–1.5 mm, glabrous, margin entire. Calyx segments narrowly ovate to narrowly triangular, 4–7 × 1.5–3 mm, outside glabrous to glabrescent, margin entire, obscurely 3-veined. Corolla blue-purple or pale purple to pale yellow, inside usually brownish spotted, (3.2–)4–6 cm, outside glabrous to sparsely glandular pubescent, inside sparsely puberulent; tube 2.1–4 × 1.4–1.8(–2.6) cm; adaxial lip 6–9 mm, lobes semiorbicular, 3–7 × 6–9 mm, apex rounded; abaxial lip ca. 1.4 cm, lobes semiorbicular, 6–7 × 7–8 mm, apex obtuse to rounded. Adaxial stamens adnate to corolla ca. 8 mm above base, ca. 1.6 cm, abaxial ones adnate to corolla ca. 1.2 cm above base, ca. 1.7 cm; filaments sparsely glandular pubescent; anthers ovoid, thecae not confluent; staminode ca. 1 mm. Pistil ca. 2.5 cm; ovary pubescent. Style 1.4–2 mm, glabrescent to sparsely pubescent. Capsule 3.4–7 cm, glabrescent. Fl. Sep–Oct, fr. Nov.

• Shady, damp rocks; 600–1710 m. Guangxi (Longlin Xian), Guizhou, S Sichuan.

6. *Briggsia aurantiaca* B. L. Burt, Notes Roy. Bot. Gard. Edinburgh 21: 237. 1955.

黄花粗筒苣苔 huang hua cu tong ju tai

Plants stemless. Petiole 1.5–4 cm, densely rust-brown woolly and villous; leaf blade elliptic to ovate or obovate, rarely subrhombic, 2–12 × 1.3–5.5 cm, adaxially densely rust-brown villous, abaxially densely rust-brown woolly and villous, base cuneate, margin irregularly crenate to serrate, apex obtuse to acute; lateral veins 5–7 on each side of midrib, conspicuous on both surfaces. Cymes 1–8-flowered; peduncle (3–)6–13 cm, densely rust-brown villous; bracts 2, linear to narrowly triangular, 3–6 × 0.5–1.5 mm, outside rust-brown villous, inside glabrous, margin entire. Calyx segments lanceolate to ovate, 3–3.5 × 1–1.5 mm; tube rust-brown villous, margin entire, veins indistinct. Corolla orange to yellow, inside abaxial lip purple-red to pink, orange, or brown spotted, 1.8–2.5 cm, outside sparsely pubescent, inside glabrous; tube 1.2–1.9 × 0.9–1.4 cm; adaxial lip ca. 4 mm, lobes semiorbicular, ca. 2 × 2 mm, apex rounded; abaxial lip 7–10 mm, lobes oblong, 3–4 × ca. 3 mm, apex obtuse. Adaxial stamens adnate to corolla ca. 4 mm above base, ca. 1 cm, abaxial ones adnate to corolla ca. 2 mm above base, ca. 1.3 cm; filaments glabrous; anthers reniform, thecae not confluent; staminode ca. 0.4 mm. Pistil 1.5–1.8 cm, glabrous. Style 2–4.5 mm. Capsule 2.8–4.3 cm, glabrous. Fl. and fr. Jun–Jul.

• Rock crevices; 2800–3700 m. SE Xizang.

7. *Briggsia longifolia* Craib, Notes Roy. Bot. Gard. Edinburgh 11: 238. 1919.

长叶粗筒苣苔 chang ye cu tong ju tai

Plants stemless. Petiole 2–6 cm, gray to brownish pubescent; leaf blade narrowly elliptic to oblanceolate, 4–19 × 1–3 cm, adaxially gray appressed puberulent, abaxially grayish appressed pubescent, brownish villous along veins, base attenuate, margin serrulate, apex acute; lateral veins 4–7 on each side of midrib, adaxially visible, abaxially slightly prominent. Cymes 2–10-flowered; peduncle 5.5–22 cm, sparsely brownish villous to pubescent; bracts 2, oblanceolate, 2–6(–10) × 1–2 mm, outside pubescent, inside glabrous, margin entire. Calyx segments narrowly ovate, 5–7 × 2–3 mm, outside sparsely brownish pubescent, margin entire, veins indistinct. Corolla yellow to deep orange, margin sometimes flushed darker, not spotted, or bud purple-blue, 2.2–3.6 cm, outside sparsely glandular puberulent, inside sparsely glandular puberulent; tube (1–) 1.8–2.3 × 0.8–1.6 cm; adaxial lip 2–5 mm, lobes semiorbicular, 2–4 × ca. 4 mm, apex obtuse to rounded; abaxial lip 0.8–1.2 cm, lobes semiorbicular, 4–7 × 3.5–4.5 mm, apex obtuse to rounded. Adaxial stamens adnate to corolla ca. 2.5 mm above base, ca. 1.2 cm, abaxial ones adnate to corolla ca. 3 mm above base, ca. 1.5 cm; filaments glabrous; anthers reniform, thecae confluent; staminode ca. 1 mm. Pistil 1.4–1.7 cm, glabrous. Style ca. 5 mm. Capsule 4–6 cm, glabrous. Fl. Aug–Sep, fr. Sep–Oct.

Forests, on trees, under forests on slopes; 1000–3100 m. S Gansu, N Sichuan, W Yunnan [N Myanmar].

- 1a. Cymes 2–5-flowered; pedicel brownish villous and sparsely glandular pubescent; corolla yellow to deep orange, margin sometimes flushed darker, not spotted 7a. var. *longifolia*
- 1b. Cymes ca. 10-flowered; pedicel rust-brown villous, never glandular pubescent; corolla in bud purple-blue 7b. var. *multiflora*

7a. *Briggsia longifolia* var. *longifolia*

长叶粗筒苣苔(原变种) chang ye cu tong ju tai (yuan bian zhong)

Cymes 2–5-flowered. Pedicel brownish villous and sparsely glandular pubescent. Corolla yellow to deep orange, margin sometimes flushed darker, not spotted. Fl. Aug–Sep, fr. Sep–Oct.

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

Specimens from Myanmar frequently have ten or more flowers.

7b. *Briggsia longifolia* var. *multiflora* S. Y. Chen ex K. Y. Pan, Acta Phytotax. Sin. 26: 453. 1988.

多花粗筒苣苔 duo hua cu tong ju tai

Cymes ca. 10-flowered. Pedicel rust-brown villous, never glandular pubescent. Corolla in bud purple-blue.

• Slopes under forests among grasses; 1000–1900 m. S Gansu, N Sichuan.

8. *Briggsia muscicola* (Diels) Craib, Notes Roy. Bot. Gard. Edinburgh 11: 264. 1919.

藓丛粗筒苣苔 xian cong cu tong ju tai

Didissandra muscicola Diels, Notes Roy. Bot. Gard. Edinburgh 5: 225. 1912.

Plants stemless. Petiole 1.5–8(–15) cm, densely rust-brown villous; leaf blade narrowly elliptic to lanceolate, (4.5–) 6–16 × (1.3–) 2–4.2 cm, adaxially densely white appressed pubescent, abaxially appressed white pubescent, rust-brown villous along veins and margin, base often slightly oblique, narrowly to broadly cuneate, margin serrate to serrate-crenate, sometimes doubly so, apex acute; lateral veins 6–10 on each side of midrib, conspicuous on both surfaces. Cymes (2 or) 3–8-flowered; peduncle 8–23 cm, rust-brown villous and glandular pubescent; bracts 2, lanceolate, 0.5–13 × 1–2 mm, outside rust-brown villous, inside glabrous, margin entire. Calyx segments lanceolate, 4–7 × 1–2 mm, outside sparsely white pubescent and rust-brown villous, margin entire, veins indistinct. Corolla yellow to orange, inside purple-red to orange or brown spotted or striate, 1.7–3.4 cm, outside sparsely puberulent, inside glandular pubescent; tube 1.4–2 × (0.9–) 1.2–1.8 cm; adaxial lip 2–4 mm, lobes semiorbicular, 1.5–2 × ca. 3 mm, apex rounded to acute; abaxial lip 7–9 mm, lobes oblong, 2–4 × ca. 5 mm, apex acute to rounded. Adaxial stamens adnate to corolla ca. 3.5 mm above base, 1–1.2 cm, abaxial ones adnate to corolla ca. 5 mm above base, ca. 1.2 cm; filaments sparsely puberulent; anthers reniform, thecae confluent; staminode ca. 1 mm. Pistil 1–2.8 cm, glabrous. Style 2–7 mm. Capsule 4–6.5 cm, glabrous. Fl. May–Aug, fr. May–Dec.

Forests on rocks or trees; 2400–3500 m. SE Xizang, NW Yunnan [Bhutan, N India, Myanmar].

9. *Briggsia stewardii* W. Y. Chun, Sunyatsenia 6: 303. 1946.

广西粗筒苣苔 guang xi cu tong ju tai

Plants stemless. Petiole to 4 cm, densely brownish villous; leaf blade elliptic to ovate or obovate, 5–15 × 2.5–5 cm, pale yellow appressed pubescent and villous, abaxially yellowish to brownish pubescent along veins, base narrowly cuneate to attenuate, margin irregularly, coarsely crenate-serrate, apex rounded to acute; lateral veins 5–9 on each side of midrib, conspicuous on both surfaces. Cymes 3–6-flowered; peduncle 9–13 cm, sparsely pubescent to glabrescent; bracts 2, linear to oblanceolate, 3–4 × 0.7–1 mm, pubescent to puberulent, margin entire. Calyx segments elliptic to lanceolate, 3–3.5 × 1.2–2 mm, outside sparsely pubescent, margin entire, obscurely 3-veined. Corolla blue to pale purple, inside purplish spotted, 3–4 cm, outside glabrous, inside glabrous; tube 2–2.3 × 1.3–1.5 cm; adaxial lip 6–9 mm, lobes oblong, 4–6 × ca. 2.5 mm, apex rounded; abaxial lip 1.2–1.3 cm,

lobes oblong, ca. 6 × 5 mm, apex rounded. Adaxial stamens adnate to corolla ca. 3 mm above base, ca. 2 cm, abaxial ones adnate to corolla ca. 2 mm above base, ca. 2.3 cm; filaments sparsely glandular pubescent; anthers reniform, thecae confluent; staminode ca. 0.5 mm. Pistil 2.2–2.8 cm, glabrous. Style 5–10 mm. Fruit unknown. Fl. Sep.

• Shady, damp forests; ca. 300 m. Guangxi (Sanjiang Xian).

10. *Briggsia mairei* Craib, Notes Roy. Bot. Gard. Edinburgh 11: 239. 1919.

东川粗筒苣苔 dong chuan cu tong ju tai

Plants stemless. Petiole 3.5–9.5 cm, densely brown villous; leaf blade sometimes oblique, ovate to elliptic, 4–8(–14) × 2–4.2 cm, adaxially yellow to gray pilose, abaxially sparsely pubescent, brown villous along veins, base cuneate to cordate, margin dentate to serrate, apex acute; lateral veins 6–8 on each side of midrib, adaxially conspicuous, abaxially prominent. Cymes 1–5-flowered; peduncle 4.5–21 cm, sparsely to densely brownish villous; bracts 2, lanceolate to obovate, 3–6 × 2–3 mm, outside brownish villous, inside glabrous, margin entire. Calyx segments lanceolate to ovate, 4–6 × 1.5–3 mm, outside brownish villous, margin entire, veins indistinct. Corolla purple, inside spotted, 3–4.2 cm, outside glandular puberulent, denser basally, inside glandular puberulent, more densely so on adaxial lip; tube 2–2.8 × 1–1.4 cm; adaxial lip 2–5 mm, lobes semiorbicular, ca. 1 × 3 mm, apex rounded; abaxial lip 1–1.5 cm, lobes semiorbicular, 4–7.5 × 4–6 mm, apex rounded. Adaxial stamens adnate to corolla ca. 1 cm above base, ca. 8 mm, abaxial ones adnate to corolla ca. 5 mm above base, ca. 1.5 cm; filaments pale yellow villous near base, glabrescent near apex; anthers reniform, thecae confluent; staminode unknown. Pistil ca. 2.2 cm, glabrous. Style 7–8 mm. Capsule ca. 5.5 cm, glabrous. Fl. Jul–Oct, fr. Sep.

• Slopes under forests; 2600–3000 m. Yunnan (Dongchuan Xian).

11. *Briggsia humilis* K. Y. Pan, Acta Phytotax. Sin. 26: 453. 1988.

小粗筒苣苔 xiao cu tong ju tai

Plants stemless. Petiole 1.5–3 cm, densely rust-brown villous; leaf blade ovate-elliptic, 1.5–2.2 × 0.8–1.2 cm, adaxially densely pale yellow appressed villous, abaxially densely rust-brown villous, base shallowly cordate, margin serrulate, apex obtuse; lateral veins 5 or 6 on each side of midrib, adaxially immersed, forming channels, abaxially prominent. Cymes 1–3-flowered; peduncle 7–9 cm, sparsely rust-brown puberulent; bracts 2, oblong, 3–4 × ca. 1 mm, densely rust-brown villous, margin entire. Calyx segments lanceolate, ca. 4 × 1 mm, outside rust-brown villous, margin entire, veins indistinct. Corolla pale purple, inside yellow spotted, ca. 1.8 cm, outside pilose, inside pubescent; tube ca. 1.2 × 0.7 cm; adaxial lip ca. 3.5 mm,

lobes suborbicular, ca. 1.6×1.5 mm, apex truncate; abaxial lip ca. 7 mm, lobes ovate, ca. 4×3.3 mm, apex obtuse to rounded. Adaxial stamens adnate to corolla ca. 1.5 mm above base, ca. 4.5 mm, abaxial ones adnate to corolla ca. 2 mm above base, ca. 6.5 mm; filaments glandular pubescent; anthers reniform, thecae confluent; staminode ca. 1 mm. Pistil ca. 8 mm, glabrescent. Style ca. 1.5 mm. Capsule 6–8.5 cm, glabrous. Seeds unknown. Fl. Aug.

• Rocks by streams under forests; ca. 1300 m. W Hubei.

12. *Briggsia latispala* W. Y. Chun ex K. Y. Pan, Acta Phytotax. Sin. 26: 454. 1988.

宽萼粗筒苣苔 kuan e cu tong ju tai

Plants stemless. Petiole 1–5 cm, densely rust-brown woolly; leaf blade elliptic to narrowly ovate, $4.5\text{--}6 \times 2\text{--}3.5$ cm, adaxially brownish appressed puberulent, abaxially pubescent, rust-brown woolly along veins, base broadly cuneate to rounded, margin crenate-serrate to dentate, apex rounded; lateral veins ca. 4 on each side of midrib, inconspicuous. Cymes 1- or 2-flowered; peduncle 9.5–18 cm, rust-brown woolly; bracts 2, oblong, ca. 7×2 mm, outside rust-brown woolly, inside glabrous, margin entire. Calyx segments broadly ovate, $8\text{--}10 \times 4\text{--}5$ mm, outside rust-brown woolly only on midvein, margin entire, veins indistinct. Corolla purple, not spotted, ca. 4 cm, outside pubescent, inside glabrous; tube ca. $3 \times 1\text{--}1.3$ cm; adaxial lip ca. 6.6 mm, lobes orbicular, ca. 3×5 mm, apex rounded; abaxial lip ca. 1 cm, lobes ovate to obovate, $7\text{--}8 \times 6\text{--}8$ mm, apex rounded. Adaxial stamens adnate to corolla ca. 8 mm above base, ca. 1.4 cm, abaxial ones adnate to corolla ca. 5 mm above base, ca. 2 cm; filaments glabrous; anthers reniform, thecae not confluent; staminode ca. 0.9 mm. Pistil ca. 2 cm, glabrous. Style 3.5–4 mm. Fruit unknown. Fl. Sep.

• Shady slopes. Zhejiang (Yunhe Xian).

13. *Briggsia chienii* W. Y. Chun, Sunyatsenia 6: 300. 1946.

浙皖粗筒苣苔 zhe wan cu tong ju tai

Plants stemless. Petiole 1–6 cm, densely rust-brown villous; leaf blade elliptic to ovate, lanceolate, or falcate, $4\text{--}15 \times 2\text{--}6$ cm, adaxially gray pilose, abaxially appressed gray pubescent, densely rust-brown villous along veins, base cuneate to broadly cuneate, margin crenate-serrate, apex obtuse to acute; lateral veins 6–8 on each side of midrib, adaxially inconspicuous, abaxially prominent. Cymes 1–5-flowered; peduncle 11–20 cm, sparsely rust-brown villous; bracts 2, narrowly lanceolate to oblanceolate, $8\text{--}14 \times 3\text{--}5$ mm, outside densely rust-brown villous, inside glabrous, margin subentire or sparsely dentate. Calyx segments ovate to lanceolate, $5\text{--}8 \times 2\text{--}5$ mm, outside rust-brown villous, margin sparsely dentate or subentire, veins indistinct. Corolla purple-red or purple, inside purple spotted, $3.5\text{--}4.2$ cm, outside sparsely pubescent, inside glabrous; tube $(1.8\text{--})2.8\text{--}3 \times 1.7\text{--}2$ cm; adaxial lip 5–6

mm, lobes oblong, $4\text{--}5 \times$ ca. 4 mm, apex obtuse; abaxial lip 1–1.5 cm, lobes oblong, $4\text{--}7 \times$ ca. 5 mm, apex rounded. Adaxial stamens adnate to corolla ca. 4 mm above base, 1.6–2 cm, abaxial ones adnate to corolla ca. 6 mm above base, 1.2–1.7 cm; filaments sparsely puberulent; anthers reniform, thecae not confluent; staminode ca. 3 mm. Pistil 2–2.5 cm; ovary glabrous. Style ca. 8 mm, sparsely puberulent. Capsule 5–6.5 cm, glabrous. Fl. and fr. Sep–Oct.

• Damp rocks and among grasses; 500–1000 m. S Anhui, E Jiangxi, SW Zhejiang.

14. *Briggsia forrestii* Craib, Notes Roy. Bot. Gard. Edinburgh 11: 237. 1919.

云南粗筒苣苔 yun nan cu tong ju tai

Plants stemless. Petiole 1–7 cm, rust-brown villous; leaf blade ovate to broadly elliptic, $5\text{--}15 \times 2.5\text{--}8$ cm, adaxially sparsely rust-brown villous, abaxially sparsely pubescent, rust-brown villous along veins, base oblique, broadly cuneate to rounded, margin dentate to serrate, apex rounded to obtuse; lateral veins 5–8 on each side of midrib, prominent. Cymes 1–3(or 4)-flowered; peduncle 8–17 cm, rust-brown villous, denser and longer near base; bracts 2, lanceolate, $3\text{--}4 \times$ ca. 1 mm, outside rust-brown villous, inside glabrous, margin entire. Calyx segments lanceolate, $4\text{--}5 \times 1\text{--}2$ mm, outside rust-brown villous, margin entire, veins indistinct. Corolla purple-red, inside darker striate, $4.3\text{--}5.2$ cm, outside sparsely glandular pubescent, inside glandular pubescent; tube $2.5\text{--}3.4 \times 1.2\text{--}1.6$ cm; adaxial lip 8–9 mm, lobes oblong, $4\text{--}5 \times 4\text{--}7$ mm, apex rounded to truncate; abaxial lip 1.5–2 cm, lobes elliptic-ovate, $6\text{--}9 \times 5\text{--}7$ mm, apex rounded. Adaxial stamens adnate to corolla ca. 4 mm above base, 1.8–2 cm, abaxial ones adnate to corolla ca. 3 mm above base, 2–2.2 cm; filaments glandular pubescent; anthers reniform, thecae confluent; staminode 2.5–3 mm. Pistil 1.6–3.4 cm, densely glandular pubescent. Style 2–10 mm. Capsule 2.5–5.5 cm, glabrescent. Fl. Jun and Sep, fr. Oct and May.

• Damp, shady rocks; 1600–3000 m. Yunnan (Ruili Xian).

15. *Briggsia agnesiae* (Forrest) Craib, Notes Roy. Bot. Gard. Edinburgh 11: 263. 1919.

灰毛粗筒苣苔 hui mao cu tong ju tai

Didissandra agnesiae Forrest, Notes Roy. Bot. Gard. Edinburgh 8: 334. 1915.

Plants stemless. Petiole 1–3 cm, densely rust-brown puberulent; leaf blade ovate to rhombic-ovate, $1.2\text{--}5 \times 0.8\text{--}2.2$ cm, adaxially densely gray appressed pubescent, abaxially densely gray appressed pubescent, rust-brown pubescent along veins, base cuneate, margin shallowly serrate, apex acute to obtuse; lateral veins 3 or 4 on each side of midrib, adaxially inconspicuous, abaxially conspicuous. Cymes 1-flowered; peduncle 6–8(–15) cm, sparsely rust-brown glandular puberulent; bracts 2, linear, $4\text{--}7 \times$ ca. 1 mm, outside gray puberulent, inside glabrous, margin entire. Calyx segments narrowly

lanceolate to lanceolate, 6–10 × 2–3 mm, outside sparsely rust-brown glandular puberulent, margin entire, veins indistinct. Corolla purple-red, not spotted, 3.5–4.5 cm, outside glandular puberulent, inside glabrous; tube 1.8–2.5 × 1.8–2.4 cm; adaxial lip ca. 9 mm, lobes triangular, ca. 3 × 4 mm, apex acute; abaxial lip 1.2–1.5 cm, lobes triangular, 10–12 × 5–8 mm, apex acute. Adaxial stamens adnate to corolla ca. 3 mm above base, 1.3–1.8 cm, abaxial ones adnate to corolla ca. 3 mm above base, 1.8–2 cm; filaments pubescent; anthers reniform, thecae not confluent; staminode ca. 3.5 mm. Pistil 1.6–2.4 cm, densely glandular pubescent. Style 8–9 mm. Capsule ca. 5 cm, sparsely glandular puberulent to glabrescent. Fl. and fr. Jul.

• Rocks under shrubs; ca. 2500 m. Sichuan (Muli Xian), Yunnan (Yongsheng Xian).

16. *Briggsia acutiloba* K. Y. Pan, Acta Phytotax. Sin. 26: 455. 1988.

尖瓣粗筒苣苔 jian ban cu tong ju tai

Plants stemless. Petiole 2–5 cm, densely rust-brown villous; leaf blade elliptic, 3–6 × 1–2.2 cm, adaxially puberulent and sparsely rust-brown villous, abaxially puberulent to pilose, rust-brown villous along veins, base cuneate, margin crenate-serrate, apex rounded; lateral veins 5–7 on each side of midrib, adaxially conspicuous, abaxially prominent. Cymes ca. 4-flowered; peduncle 5–13 cm, sparsely rust-brown villous and glandular pubescent; bracts 2, lanceolate, 3–6 × ca. 1 mm, outside rust-brown villous, inside glabrous, margin entire. Calyx segments lanceolate, ca. 5 × 2.5 mm, outside sparsely rust-brown villous, margin entire, obscurely 3-veined. Corolla drying yellow, not spotted, ca. 3 cm, outside glabrous, inside glabrous; tube ca. 2 × 1.3 cm; adaxial lip ca. 6 mm, lobes narrowly triangular, ca. 2.5 × 2 mm, apex acute; abaxial lip ca. 1 cm, lobes narrowly triangular, ca. 5 × 3.5 mm, apex acute. Adaxial stamens adnate to corolla 5–6 mm above base, ca. 1 cm, abaxial ones adnate to corolla ca. 5 mm above base, ca. 1.5 cm; filaments sparsely pubescent; anthers reniform, thecae not confluent; staminode ca. 1.5 mm. Pistil ca. 9 mm, glandular puberulent. Style ca. 2 mm. Fruit unknown. Fl. Sep.

• Shady and damp rocks; 2200–2300 m. Yunnan (Yuxi Xian).

17. *Briggsia speciosa* (Hemsley) Craib, Notes Roy. Bot. Gard. Edinburgh 11: 264. 1919.

鄂西粗筒苣苔 e xi cu tong ju tai

Didissandra speciosa Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 228. 1890; *Didymocarpus speciosus* (Hemsley) H. Léveillé.

Plants stemless. Petiole 1–3 cm, densely grayish to brownish puberulent; leaf blade narrowly elliptic to oblanceolate or ovate, 3–6(–8) × 0.8–2.3(–3.2) cm, white appressed pubescent, base often oblique, narrowly cuneate, margin serrate, apex acute; lateral veins 4 or 5 on each side of midrib, adaxially inconspicuous, abaxially slightly more conspicuous.

Cymes 1–5-flowered; peduncle 4–9(–11) cm, brown pubescent; bracts 2, linear to lanceolate, 3–8 × 1–3 mm, outside appressed pubescent, inside glabrous, margin entire. Calyx segments lanceolate to ovate, 3–6 × 1–3 mm, outside brownish pubescent, margin entire, veins indistinct. Corolla purple-red, inside abaxial lip with 2 yellow or purple spots, 3.8–5.3 cm, outside glabrescent to sparsely pubescent, inside glabrous; tube 2.9–3.6 × 1.3–1.9 cm; adaxial lip 5–9 mm, lobes oblong to broadly triangular, 4–8 × 2–7 mm, apex obtuse to acute; abaxial lip 1.2–1.7 cm, lobes oblong to broadly triangular or semiorbicular, 4–10 × 4–7 mm, apex obtuse to acute. Adaxial stamens adnate to corolla ca. 0.5 mm above base, 1.5–2.4 cm, abaxial ones adnate to corolla ca. 1 mm above base, 2–3 cm; filaments sparsely pubescent; anthers reniform, thecae not confluent; staminode 3–4 mm. Pistil 1.6–2.5 cm; ovary glandular pubescent. Style 2–3 mm, glandular puberulent. Capsule 6–6.8 cm, glabrescent. Fl. Jun–Aug, fr. Jul–Sep.

• Shady, damp rocks on slopes; 300–1600 m. W Hubei, SW Hunan, E Sichuan.

18. *Briggsia rosthornii* (Diels) B. L. Burtt, Notes Roy. Bot. Gard. Edinburgh 22: 306. 1958.

川鄂粗筒苣苔 chuan e cu tong ju tai

Plants stemless. Petiole 1–8(–13) cm, densely rust-brown to yellowish villous; leaf blade ovate to lanceolate, rarely elliptic, 2–13 × 1.2–7 cm, white pubescent, abaxially rust-brown villous along veins, base sometimes oblique, cordate to cuneate, margin crenate to serrate, sometimes double so, apex obtuse to acute; lateral veins 3–7 on each side of midrib, conspicuous. Cymes 1–4(–8)-flowered; peduncle 3.5–20 cm, rust-brown glandular villous; bracts 2, lanceolate to linear, 2–7 × 1–3 mm, outside rust-brown villous, inside glabrous, margin entire. Calyx segments lanceolate, rarely elliptic to obovate or lobed, 3–9 × 1.2–3 mm, outside villous, margin entire, obscurely 3–5-veined. Corolla white to pale pink, purple, or purple-red, inside deep red or purple-red spotted, 2.8–5 cm, outside sparsely pubescent, inside sparsely pubescent; tube 2.3–3.3 × 1–2 cm; adaxial lip 4–8 mm, lobes semiorbicular to narrowly lanceolate, 1–6 × (1)–2–6 mm, apex obtuse; abaxial lip 1.1–2 cm, lobes oblong, 7–9 × 5–8 mm, apex obtuse. Adaxial stamens adnate to corolla ca. 4 mm above base, 1–1.5 cm, abaxial ones adnate to corolla 4–5 mm above base, 1.4–2 cm; filaments pubescent; anthers reniform, thecae confluent; staminode 1–2.2 mm. Pistil ca. 2 cm, glandular puberulent. Style 2–5 mm. Capsule 5–6.5 cm, sparsely puberulent to glabrescent. Fl. Aug–Sep, fr. Sep–Oct.

• Shady, damp rocks under bamboo forests; 1000–2300 m. Guizhou, Hubei, Sichuan, Yunnan.

- 1a. Cymes 1-flowered; peduncle 7–9.3 cm
..... 18b. var. *crenulata*
- 1b. Cymes 1–4(–8)-flowered; peduncle 3.5–20 cm.
 - 2a. Corolla ca. 2.8 × 1–1.5 cm, lobe apex acute 18d. var. *xingrenensis*
 - 2b. Corolla 3.2–5 × 1.5–2 cm, lobe apex obtuse.
 - 3a. Leaf blade ovate to lanceolate, rarely elliptic, 2–13 × 1.2–7 cm; peduncle 3.5–20 cm; corolla pale pink to purple or purple-red, inside deep red or purple-red spotted, upper lip 2-lobed, lobes semiorbicular, ca. 2 × 1–1.2 mm 18a. var. *rosthornii*
 - 3b. Leaf blade ovate, 3.3–7.5 × 1.6–2.3 cm; peduncle 16.3–18.6 cm; corolla white, inside purple spotted, upper lip 2-sect from base, lobes suborbicular, 5–6 × ca. 6 mm 18c. var. *wenshanensis*

18a. *Briggsia rosthornii* var. *rosthornii*
川鄂粗筒苣苔(原变种) *chuan e cu tong ju tai* (yuan bian zhong)
Didissandra rosthornii Diels, Bot. Jahrb. Syst. 29: 574. 1900; *Briggsia hians* W. Y. Chun.

Leaf blade ovate to lanceolate, rarely elliptic, 2–13 × 1.2–7 cm. Cymes 1–4(–8)-flowered; peduncle 3.5–20 cm. Corolla pale pink to purple or purple-red, inside deep red or purple-red spotted, 3.2–5 cm; tube 2.3–3.3 × 1.5–2 cm; adaxial lip 4–8 mm, 2-lobed, lobes semiorbicular, ca. 2 × 1–1.2 mm, apex obtuse. Fl. Aug–Sep, fr. Sep–Oct.

• Shady, damp rocks under forests; 1000–2000 m. Guizhou, Hubei, Sichuan.

18b. *Briggsia rosthornii* var. *crenulata* (Handel-Mazzetti) K. Y. Pan, Fl. Reipubl. Popularis Sin. 69: 223. 1990.
贞丰粗筒苣苔 *zhen feng cu tong ju tai*
Briggsia crenulata Handel-Mazzetti, Sinensia 5: 20. 1934.

Leaf blade ovate, 2.8–4.7 × 2.3–3.7 cm. Cymes 1-flowered; peduncle 7–9.3 cm. Corolla pale pink to purple or purple-red, inside deep red or purple-red spotted, ca. 3.3 cm; tube ca. 3 × 1.5–1.6 cm; adaxial lip ca. 6 mm, 2-sect from base, lobes suborbicular, 1–2.5 × (1–)2–3 mm, apex obtuse. Fl. Oct.

• Guizhou (Zhenfeng Xian).

18c. *Briggsia rosthornii* var. *wenshanensis* K. Y. Pan, Acta Phytotax. Sin. 26: 456. 1988.
文山粗筒苣苔 *wen shan cu tong ju tai*
Leaf blade ovate, 3.3–7.5 × 1.6–2.3 cm. Cymes 1–3-flowered; peduncle 16.3–18.6 cm. Corolla white, inside purple spotted, ca. 3.9 cm; tube ca. 3 × 1.5–1.9 cm; adaxial lip ca. 6 mm, 2-sect from base, lobes

suborbicular, 5–6 × ca. 6 mm, apex obtuse. Fl. and fr. Sep.

• Rocks among bamboo; ca. 2300 m. Yunnan (Wenshan Xian).

18d. *Briggsia rosthornii* var. *xingrenensis* K. Y. Pan, Acta Phytotax. Sin. 26: 456. 1988.

锈毛粗筒苣苔 *xiu mao cu tong ju tai*
Leaf blade narrowly ovate, 3.7–6.3 × 1.6–3 cm. Cymes 2–4-flowered; peduncle 10–20 cm. Corolla pale pink to purple or purple-red, inside deep red or purple-red spotted, ca. 2.8 cm; tube ca. 3 × 1–1.5 cm; adaxial lip ca. 6 mm, 2-lobed, lobes narrowly lanceolate, 1–2.5 × (1–)2–3 mm, apex acute.

• Guizhou (Xingren Xian).

19. *Briggsia elegantissima* (H. Léveillé & Vaniot) Craib, Notes Roy. Bot. Gard. Edinburgh 11: 265. 1919.

紫花粗筒苣苔 *zi hua cu tong ju tai*
Didissandra elegantissima H. Léveillé & Vaniot in H. Léveillé, Compt. Rend. Assoc. Franç. Avancem. Sci. 34: 425. 1906; *Didymocarpus elegantissimus* (H. Léveillé & Vaniot) H. Léveillé.

Plants stemless. Petiole 1.5–5.5(–7.5) cm, densely brown villous; leaf blade elliptic to ovate, 2.6–5.5(–8) × 1.5–3(–5.5) cm, adaxially densely brownish gray appressed pubescent, abaxially brownish gray appressed pubescent, base cuneate to rounded, margin crenate-serrate, apex acute to rounded; lateral veins 4 or 5 on each side of midrib, adaxially inconspicuous, abaxially prominent. Cymes 1–4-flowered; peduncle 10–20 cm, brownish villous; bracts 2, lanceolate, 6–10 × 1–2 mm, outside villous, inside glabrous, margin entire. Calyx segments narrowly lanceolate, 4–8 × 1.3–2 mm, outside brownish villous, margin entire, veins indistinct. Corolla purple, inside abaxial lip purple spotted, 2.6–3.4(–4.6) cm, outside pubescent, inside pubescent; tube 2.2–2.7(–3) × 0.7–1(–1.8) cm; adaxial lip 4–5 mm, lobes oblong, 3–4 × ca. 2 mm, apex rounded; abaxial lip 1–1.4 cm, lobes oblong, ca. 7 × 5 mm, apex rounded, shallowly crenulate. Adaxial stamens adnate to corolla ca. 3 mm above base, ca. 1.7 cm, abaxial ones adnate to corolla ca. 1.5 mm above base, ca. 2.3 cm; filaments pubescent; anthers reniform, thecae not confluent; staminode ca. 0.5 mm. Pistil ca. 2 cm, glandular pubescent. Style 4–5 mm. Capsule 6–6.5 cm, glabrescent. Fl. and fr. Aug.

• Damp, rocky cliffs; ca. 600 m. Guizhou (Pingfa Xian, Dushan Xian).

20. *Briggsia pinfaensis* (H. Léveillé) Craib, Notes Roy. Bot. Gard. Edinburgh 11: 264. 1919.

平伐粗筒苣苔 *ping fa cu tong ju tai*
Didissandra pinfaensis H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 328. 1911.

Plants stemless. Petiole 1.5–5.5 cm, densely brownish to rust-brown villous; leaf blade elliptic to ovate, 3.2–9 × 2–4 cm, gray to brown appressed puberulent, base cuneate, margin undulate, crenate-serrate, apex acute to rounded; lateral veins 5–7 on each side of midrib,

adaxially inconspicuous, abaxially prominent. Cymes 1–4-flowered; peduncle 6.5–25 cm, brownish villous; bracts 2, linear to narrowly lanceolate, 4–6 × 0.6–1 mm, outside villous, inside pubescent to sparsely pubescent, margin entire. Calyx segments lanceolate, 5–7 × 1–2 mm, outside puberulent, margin sparsely dentate, veins indistinct. Corolla blue-purple, inside purple spotted, 2.8–4 cm, outside pubescent, inside glabrous; tube 2–2.5 × 1–1.6 cm; adaxial lip 4–5 mm, lobes oblong to broadly triangular, 2–2.5 × 3–3.5 mm, apex rounded to truncate; abaxial lip 0.8–1.2 cm, lobes oblong to suborbicular, 6–7 × 4–6 mm, apex rounded, erose. Adaxial stamens adnate to corolla ca. 6 mm above base, ca. 1.5 cm, abaxial ones adnate to corolla ca. 5 mm above base, ca. 1.8 cm; filaments sparsely glandular pubescent; anthers reniform, thecae not confluent; staminode unknown. Pistil 1.4–2 cm, glandular pubescent. Style 3–4 mm. Immature capsule 4–5 cm, glandular pubescent. Fl. Aug.

• Guizhou (Pingfa Xian).

21. *Briggsia parvifolia* K. Y. Pan, Acta Phytotax. Sin. 26: 457. 1988.

小叶粗筒苣苔 xiao ye cu tong ju tai

Plants stemless. Petiole 0.5–1.8(–2.4) cm, brownish villous; leaf blade elliptic to ovate, 1–2 × 0.7–1.2 cm, densely brownish gray appressed pubescent, base cuneate, margin crenate-serrate, apex acute to rounded; lateral veins 3–5 on each side of midrib, adaxially inconspicuous, abaxially prominent. Cymes 1-flowered; peduncle 5–6.5 cm, rust-brown villous; bracts 2, linear to narrowly lanceolate, 1–2 × 0.7–1 mm, outside sparsely rust-brown puberulent, inside puberulent, margin entire. Calyx segments lanceolate to ovate, 2.5–3 × 0.8–1 mm, outside rust-brown villous, margin entire, veins indistinct. Corolla drying yellow, inside abaxial lip striate, 2–2.8 cm, outside glandular puberulent, inside glabrous; tube 1.5–2.1 × 0.6–1 cm; adaxial lip ca. 1.5 mm, lobes semiorbicular, ca. 1 × 2 mm, apex rounded; abaxial lip 4–5 mm, lobes obovate, 3–4 × ca. 5 mm, apex rounded, entire. Adaxial stamens adnate to corolla ca. 1 mm above base, ca. 1.4 cm, abaxial ones adnate to corolla ca. 0.4 mm above base, ca. 1.7 cm; filaments sparsely glandular pubescent; anthers reniform, thecae not confluent; staminode ca. 1 mm. Pistil 1.1–1.2 cm, glandular pubescent. Style ca. 1.5 mm. Fruit unknown.

• Guizhou.

