

**35. DIDYMOCARPUS** Wallich, *Edinburgh Philos. J.* 1: 378. 1819, nom. cons.

长蒴苣苔属 *chang shuo ju tai shu*

*Roettlera* Vahl (1804), not Willdenow (1797).

Herbs, rarely shrubs or subshrubs (outside China), perennial, terrestrial or epipetric, rhizomatous, stemless or simple stemmed. Leaves few to many, along stem, then opposite, whorled, or alternate or basal, equal to subequal in a pair; leaf blade sparsely to densely puberulent to pubescent, rarely nearly glabrous, short strigose, or woolly, base cuneate to cordate, rarely auriculate. Inflorescences axillary, sometimes umbel-like, lax or sometimes dense, 1- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic and 5-fid, or zygomorphic and 2-lipped or 5- or 3-sect from base to shallowly lobed; segments equal to unequal. Corolla blue to wine-red, rarely pink, white, or yellow, zygomorphic, inside glabrous, rarely sparsely puberulent; tube cylindrical to funnelform-tubular, not swollen, rarely saccate at base, longer than limb, 2–13 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, 1.5–3 × shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded, rarely obtuse to acute. Stamens 2, adnate to abaxial side of corolla tube near or above middle, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent at apex, dehiscent longitudinally; connective not projecting; staminodes (absent or) 2 or 3, adnate to adaxial or adaxial and abaxial sides of corolla tube. Disc ringlike, rarely cupular. Ovary linear, 1-loculed; placentas 2, parietal, slightly projecting inward, 2-cleft. Stigma 1, terminal, depressed-globose to disclike or truncate, undivided. Capsule straight in relation to pedicel, usually linear, much surpassing calyx, dehiscent loculicidally to base; valves 2 or 4, straight, not twisted. Seeds unappendaged.

About 180 species: SE Asia; 31 species in China.

The delimitation of *Chirita* and *Didymocarpus* is somewhat problematic. As defined here, the genera are based entirely on stigma shape. Thus, more than a few Chinese taxa described in *Didymocarpus* (see especially Wang et al., *Edinburgh J. Bot.* 49: 54. 1991) and some included here (e.g., *D. cortusifolius* and *D. heucherifolius*) were included in *Chirita* by other recent workers (see D. Wood, *Notes Roy. Bot. Gard. Edinburgh* 33: 123–205. 1974).

*Didymocarpus nigrescens* H. Léveillé & Vaniot and *D. violaceus* H. Léveillé (1912, not Ridley 1896) cannot be placed reliably in any genus because they are only known from fruiting specimens. The senior author suggests that both taxa probably belong in *Didymocarpus*, but Burt suggested that *D. nigrescens* belongs in *Petrocodon* (*Notes Roy. Bot. Gard. Edinburgh* 38: 471. 1980) or *Tengia* (*Notes Roy. Bot. Gard. Edinburgh* 22: 314. 1958).

1a. Herbs stemless.

- 2a. Leaf blade elliptic to oblong, ovate, or oblanceolate, not lobed, base cuneate to rounded, pinnately veined, herbaceous or papery; calyx 5-sect from base.
- 3a. Leaf blade shorter than 5 cm, densely white woolly; calyx segments 2–2.5 mm ..... 24. *D. niveolanosus*
- 3b. Leaf blade 2.2–20 cm (mostly over 5 cm), densely appressed puberulent or short strigose; calyx segments 2.5–7 mm.
- 4a. Leaf blade to 20 × 10.5 cm, densely appressed puberulent; filaments sparsely puberulent and glandular; pistil puberulent; corolla yellow ..... 22. *D. mollifolius*
- 4b. Leaf blade to 10 × 3.6 cm, sparsely short strigose; filaments glabrous; pistil sparsely glandular; corolla pale purple ..... 23. *D. hancei*
- 2b. Leaf blade ovate to orbicular, triangular, oblate, or reniform, often lobed, base cordate to truncate, palmately veined (then leaf blade papery) or rarely pinnately veined (then leaf blade leathery); calyx shallowly 5-lobed (rarely 5-sect from or near base).
- 5a. Calyx divided from or near base; tube to 2 mm.
- 6a. Leaf blade not lobed, margin obtusely dentate or double dentate, apex obtuse; corolla yellow, tube funnelform-cylindric, mouth 3–4 mm in diam. .... 25. *D. subpalmatinervis*
- 6b. Leaf blade distinctly or indistinctly multilobed, margin denticulate to serrate or entire, apex rounded; corolla pink, tube funnelform-tubular to campanulate, mouth 1–1.3 cm in diam.
- 7a. Calyx lobes broadly lanceolate, oblanceolate-linear, or triangular, 3–4 mm, margin sparsely denticulate; corolla 2.5–3.2 cm, puberulent outside; anthers puberulent; staminodes 3; leaf blade 3–9 × 3.5–11 cm, eglandular ..... 26. *D. heucherifolius*
- 7b. Calyx lobes spatulate-linear or narrowly obovate, 6–8 mm, margin entire; corolla 1.5–1.8 cm, glabrous outside; anthers white woolly; staminodes 2; leaf blade 1.8–4.6 × 1.6–4 cm, sparsely yellow glandular ..... 27. *D. sinoprimuminus*
- 5b. Calyx divided from or near middle, tube at least 4 mm.

- 8a. Leaf blade leathery, pinnately veined; calyx slightly zygomorphic, ca. 13 mm, lobes unequal, abaxial lobe ca. 7 mm, others 2.5–3.5 mm; anthers glabrous; staminodes 2 ..... 28. *D. yuenlingensis*
- 8b. Leaf blade papery, palmately veined; calyx actinomorphic, 7–9 mm, lobes equal, 1–3 mm; anthers white woolly or puberulent; staminodes 3.
- 9a. Bracts semiorbicular, adaxially pubescent, abaxially villous; calyx lobes depressed oblong, overlapping; filaments ca. 15 mm; anthers ca. 5 mm; staminodes 2–3 mm; style glabrous..... 31. *D. salviiflorus*
- 9b. Bracts ovate to elliptic or narrowly oblong, abaxially puberulent to sparsely so; calyx lobes ovate-triangular to triangular, not overlapping; filaments 6–10 mm; anthers 2.5–3 mm; staminodes 0.5–0.8 mm; style puberulent or sparsely so.
- 10a. Leaf blade orbicular-ovate to orbicular or triangular, 4.6–10 × 3.2–9 cm; bract margin entire; pedicel 4–10 mm; calyx lobe margin denticulate; corolla white, puberulent outside, adaxial lip 5–6 mm, abaxial lip 7–9 mm; anthers white woolly ... 29. *D. cortusifolius*
- 10b. Leaf blade reniform or orbicular-reniform, 2–4.5 × 3.5–7.5 cm; bract margin few crenate; pedicel 11–18 mm; calyx lobe margin entire; corolla pink, glabrous outside, adaxial lip ca. 1 cm, abaxial lip ca. 1.6 mm; anthers sparsely puberulent ..... 30. *D. reniformis*
- 1b. Herbs with stems (0.7–)3–62 cm.
  - 11a. Calyx divided from base into 3 or 5 segments, without a tube.
  - 12a. Calyx actinomorphic or slightly zygomorphic, 5-sect, segments of same width.
  - 13a. Stems to 5.5 cm; petiole 3–12 cm; leaf blade broadly ovate to orbicular, base cordate to truncate, palmately veined; peduncle 6–15 cm; calyx slightly zygomorphic, segments unequal in length  
3. *D. margaritae*
  - 13b. Stems 10–30 cm; petiole 0.2–5 cm; leaf blade elliptic to ovate or oblong, base rounded to cuneate, pinnately veined; peduncle 2.3–7 cm; calyx actinomorphic, segments equal in length.
  - 14a. Leaf blade 2.5–4.8 cm; lateral veins 6 or 7 on each side of midrib; peduncle glabrous;  
corolla 2.5–3 cm; filaments ca. 7 mm; pistil ca. 2 cm ..... 1. *D. medogensis*
  - 14b. Leaf blade 4–18.5 cm; lateral veins 8–11 on each side of midrib; peduncle sparsely glandular puberulent or pilose; corolla 1.6–2.2 cm; filaments ca. 3.5 mm; pistil ca. 1.1 cm ..... 2. *D. glandulosus*
- 12b. Calyx zygomorphic, 3-sect, adaxial lip 2–3 × wider than abaxial 2 segments.
  - 15a. Calyx 2–3 mm, adaxial segment 3-lobed from near middle, outer surface glabrous 4. *D. zhenkangensis*
  - 15b. Calyx 4–5 mm, adaxial segment shallowly 3-lobed, outer surface puberulent or sparsely glandular puberulent.
  - 16a. Leaf blade to 9 cm wide; cymes 3–15-flowered; peduncle 4–8 cm; adaxial calyx lip ca. 3 mm wide, lobes triangular, 2 abaxial calyx segments oblong, ca. 1.5 mm wide; corolla adaxial lip ca. 3 mm, abaxial lip ca. 7 mm; anthers puberulent; staminodes 2 5. *D. pseudomengtze*
  - 16b. Leaf blade to 4.3 cm wide; cymes 1–3-flowered; peduncle 1.8–3.5 cm; adaxial calyx lip ca. 1.5 mm wide, lobes lanceolate-linear, 2 abaxial calyx segments narrowly lanceolate, 0.8–0.9 mm wide; corolla adaxial lip ca. 1.8 mm, abaxial lip ca. 4 mm; anthers glabrous; staminodes absent ..... 6. *D. stenocarpus*
- 11b. Calyx not divided from base, 2-lipped or 5-lobed, tube 1.5–9 mm.
  - 17a. Calyx actinomorphic, 2–3 mm, 5-lobed nearly from middle; corolla mouth ca. 2.5 mm in diam.; staminodes absent; ovary appressed puberulent ..... 8. *D. silvarum*
  - 17b. Calyx slightly to strongly zygomorphic, 3–12 mm, indistinctly to distinctly 2-lipped; corolla mouth

3–10 mm in diam.; staminodes 1–3 (unknown in *D. nanophyton*); ovary glabrous, rarely densely glandular puberulent, minutely glandular, or sparsely puberulent.

18a. Calyx tuberculate outside; stems 2.5–7 cm; leaf blade 2.5–4.5 × 1.5–3 cm ..... 15. *D. nanophyton*

18b. Calyx smooth outside; stems 3–30(–62) cm; leaf blade 1–15(–26) × 1–10(–16) cm.

19a. Corolla 2.5–4.5 cm.

20a. Calyx 10–12 mm; pistil sparsely puberulent or minutely glandular.

21a. Petiole to 2.5(–5) cm; leaf blade to 5.5 cm wide, adaxially densely appressed puberulent; peduncle glandular puberulent; corolla ca. 3 cm, mouth ca. 3.5

mm in diam.; anthers glabrous; ovary minutely glandular ..... 20. *D. praeteritus*

21b. Petiole to 11 cm; leaf blade to 10.5(–16) cm wide, adaxially sparsely appressed puberulent to glabrous; peduncle glabrous; corolla 3.2–4.5 cm, mouth 9–10 mm in diam.; anthers puberulent; ovary sparsely puberulent

..... 21. *D. purpureobracteatus*

20b. Calyx 3–6 mm; pistil glabrous, eglandular.

22a. Corolla sparsely pubescent outside, mouth 4–6 mm in diam.; adaxial leaf surface eglandular; bracts 2–20 mm, often leaflike, margin crenate to entire

..... 19. *D. yunnanensis*

22b. Corolla glabrous outside, mouth 7–8 mm in diam.; adaxial leaf surface with

yellow or orange glands (at least sparsely); bracts 3–6 mm, never leaflike, margin entire.

23a. Stem leaves in 2 whorls; petiole to 7 cm; leaf blade adaxially sparsely

yellow glandular, base oblique, cuneate to cordate; peduncle to 4 cm; bracts free; calyx 3–4.5 mm; staminodes 3, 1.8–3.6 mm ..... 12. *D. pulcher*

23b. Stem leaves opposite; petiole to 2.5 cm; leaf blade adaxially orange glandular, base oblique, broadly cuneate; peduncle 5.5–9 cm; bracts connate at base; calyx 5–6 mm; staminodes 2, ca. 6 mm ..... 17. *D. leiboensis*

19b. Corolla to 2.4 cm.

24a. Leaves crowded near stem apex, nodes indistinct; leaves sparsely yellow glandular on both surfaces; staminode 1.

25a. Stems spreading villous; lateral veins 3 or 4 on each side of midrib; bracts ca.

2 mm; calyx tube 2.2–2.5 mm ..... 11. *D. villosus*

25b. Stems sparsely appressed puberulent; lateral veins 6–8 on each side of midrib;

bracts 4–7 mm; calyx tube 3.5–4 mm ..... 13. *D. primulifolius*

24b. Leaves spread along stem or sometimes apical nodes dense, opposite, rarely whorled or basal few alternate, nodes 1–5; leaves glandular, sometimes sparsely

yellow, red, or purple glandular; staminodes 2 or 3.

26a. Abaxial leaf surface sparsely red glandular; petiole 0.5–10 cm; leaf blade ovate to reniform; pedicel ca. 2 mm ..... 14. *D. grandidentatus*

26b. Abaxial leaf surface yellow glandular or eglandular; petiole 0.1–3.5(–4.7) cm; leaf blade elliptic to broadly ovate or obovate, rarely triangular, oblong,

or rhombic; pedicel usually over 2 mm.

27a. Adaxial leaf surface sparsely purple glandular; bracts connate basally;

anthers glabrous; ovary ca. 6 mm, densely glandular puberulent 18. *D. adenocalyx*

27b. Adaxial leaf surface eglandular or yellow glandular; bracts free or sometimes connate basally (in some *D. stenanthos*); anthers glabrous, rarely puberulent; ovary 10–15 mm, glabrous.

- 28a. Corolla puberulent outside, tube funnellform, mouth ca. 6 mm in diam.; filaments ca. 6 mm; leaf blade base cordate-auriculate 9. *D. zhufengensis*
- 28b. Corolla glabrous outside, tube cylindric or nearly tubular, mouth 3–4 mm in diam.; filaments 3–4 mm; leaf blade base cuneate to cordate.
- 29a. Leaves mostly opposite, basal 2 often alternate, leaf blade 2–6.8(–11) × 1.3–4.2(–5.6) cm, sometimes yellow glandular; cymes 2–5-flowered; calyx slightly zygomorphic, 5-lobed, lobes nearly equal, sparsely glandular puberulent outside; staminodes 2.5–4 mm 10. *D. aromaticus*
- 29b. Leaves opposite, leaf blade 2–11.5(–15) × 1.8–6.8 cm, adaxial surface eglandular, abaxial surface eglandular or sometimes very sparsely yellow glandular; cymes 5- to many flowered; calyx zygomorphic, 2-lipped from near middle, adaxial lip 3 lobed, abaxial lip 2-lobed, glabrous outside; staminodes 0.3–1.2 mm.
- 30a. Leaf blade abaxial surface sparsely pubescent and very sparsely yellow glandular; bracts free; anthers glabrous ..... 7. *D. mengtze*
- 30b. Leaf blade abaxial surface puberulent along veins, eglandular; bracts connate at base or free; anthers nearly glabrous ..... 16. *D. stenanthos*

**1. *Didymocarpus medogensis*** W. T. Wang, Bull. Bot. Res., Harbin 2(4): 41. 1982.

墨脱长蒴苣苔 mo tuo chang shuo ju tai

Stems 11–13 cm, densely retrorse pubescent. Leaves opposite; petiole 0.2–1.8 cm; leaf blade slightly oblique, ovate to elliptic-ovate, 2.5–4.8 × 1.5–2.2 cm, papery, adaxially densely appressed puberulent, eglandular, abaxially puberulent along veins, eglandular, base rounded to cuneate, margin denticulate, apex acute; lateral veins 6 or 7 on each side of midrib. Cymes 1–8-flowered; peduncle 4.5–7 cm, glabrous; bracts free, orbicular-ovate, ca. 2.5 mm, glabrous, margin entire. Pedicel 0.9–2 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly lanceolate to linear, ca. 3 × 1–1.2 mm, glabrous, margin entire. Corolla purple, 2.5–3 cm, glabrous; tube narrowly funnellform, 1.7–2 cm × 4–5 mm; adaxial lip ca. 4 mm; abaxial lip ca. 1 cm. Stamens glabrous; filaments ca. 7 mm; anthers ca. 2.5 mm; staminodes 2, ca. 3.2 mm. Pistil ca. 2 cm, glabrous; ovary ca. 1.8 cm. Fruit unknown. Fl. Jun.

• Waysides in montane regions; ca. 1600 m. SE Xizang (Medog Xian).

**2. *Didymocarpus glandulosus*** (W. W. Smith) W. T. Wang, Acta Bot. Yunnan. 6: 14. 1984.

腺毛长蒴苣苔 xian mao chang shuo ju tai

Stems 10–30 cm, appressed puberulent. Leaves opposite; petiole 0.2–5 cm; leaf blade slightly to strongly oblique, elliptic to oblong or ovate to narrowly ovate, 4–18.5 × 2.7–7.6 cm, herbaceous, adaxially puberulent, eglandular, abaxially sparsely puberulent,

densely puberulent along veins, eglandular, base oblique, cuneate to rounded, margin denticulate to serrate, apex narrowly to broadly acute; lateral veins 8–11 on each side of midrib. Cymes 5–12-flowered; peduncle 2.3–4.5 cm, sparsely glandular puberulent; bracts free, broadly ovate, ca. 3 mm, glabrous, glandular, margin entire. Pedicel 3–12 mm. Calyx actinomorphic, 5-sect from base; segments equal, lanceolate, 2–2.5 × ca. 1 mm, glabrous, inside glandular, margin entire. Corolla purple-red, 1.6–2.2 cm, glabrous; tube subtubular, 1.2–1.7 cm × ca. 3 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 7 mm. Filaments ca. 3.5 mm, glabrous; anthers ca. 1.8 mm, glabrous to puberulent; staminodes 2, ca. 1.5 mm. Pistil ca. 1.1 cm, glabrous; ovary ca. 9 mm. Capsule 1.6–2.9 cm. Fl. Jul–Aug, fr. Aug–Dec.

• Rocky areas, streamside forests and forest margin in valleys; 500–2200 m. Guangxi, S Guizhou, Sichuan, SE Yunnan.

1a. Anthers glabrous ..... 2a. var. *glandulosus*

1b. Anthers puberulent.

2a. Corolla ca. 2.2 cm ..... 2b. var. *lasiantherus*

2b. Corolla ca. 1.6 cm ..... 2c. var. *minor*

**2a. *Didymocarpus glandulosus* var. *glandulosus***

腺毛长蒴苣苔(原变种) xian mao chang shuo ju tai (yuan bian zhong)

*Didymocarpus silvarum* W. W. Smith var. *glandulosus* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 5: 151. 1912.

Corolla 1.8–2 cm. Anthers glabrous. Fl. Aug, fr. Dec.

• Streamside forests in valleys; 1000–2200 m. SW Sichuan (Mabian Xian), SE Yunnan.

**2b. *Didymocarpus glandulosus* var. *lasiantherus*** (W. T. Wang) W. T. Wang, Acta Bot. Yunnan. 6: 16. 1984.

毛药长蒴苣苔 *mao yao chang shuo ju tai*

*Didymocarpus silvarum* W. W. Smith var. *lasiantherus* W. T. Wang, Bull. Bot. Res., Harbin 2(4): 41. 1982.

Corolla ca. 2.2 cm. Anthers puberulent. Fl. Jun–Oct.

• Rocks by streams, forest margin in valleys; 500–1300 m. Sichuan.

**2c. *Didymocarpus glandulosus* var. *minor*** (W. T. Wang) W. T. Wang, Acta Bot. Yunnan. 6: 17. 1984.

短萼长蒴苣苔 *duan e chang shuo ju tai*

*Didymocarpus silvarum* W. W. Smith var. *minor* W. T. Wang in W. T. Wang & K. Y. Pan, Bull. Bot. Res., Harbin 2(2): 130. 1982.

Corolla ca. 1.6 cm. Anthers puberulent. Fl. Jul, fr. Aug.

• Rocks in valley forests; 800–1200 m. Guangxi (Lingyun Xian, Rongshui Xian), S Guizhou.

**3. *Didymocarpus margaritae*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 5: 151. 1912.

短茎长蒴苣苔 *duan jing chang shuo ju tai*

Stems 0.7–5.5 cm, puberulent near base, glabrous above. Leaves opposite; petiole 3–12 cm; leaf blade broadly ovate to orbicular, 2–9 × 2.7–8.5 cm, herbaceous, adaxially appressed puberulent, eglandular, abaxially nearly glabrous, sparsely puberulent along veins, eglandular, base cordate to truncate, margin serrate to crenate, apex acute to rounded, basal veins 5 or 6; lateral veins 2 or 3 on each side of midrib. Cymes 4–20-flowered; peduncle 6–15 cm, glabrous; bracts free, ovate to elliptic, 2–4 mm, glabrous, glandular abaxially, margin entire. Pedicel 2–4 mm. Calyx slightly zygomorphic, 5-sect from base; segments unequal, lanceolate to linear, 3–5 × 0.6–1 mm, glabrous, margin entire. Corolla orange, drying purplish, ca. 2 cm, glabrous; tube cylindrical, ca. 1.3 cm × 3–4 mm; adaxial lip ca. 3 mm; abaxial lip ca. 7 mm. Stamens glabrous; filaments ca. 2.8 mm; anthers ca. 1.8 mm; staminodes absent. Pistil ca. 1.2 cm, glabrous; ovary ca. 9 mm. Capsule 1.9–2.3 cm.

• Steep, montane cliffs; 1500–1600 m. S Yunnan (Simao Xian).

**4. *Didymocarpus zhenkangensis*** W. T. Wang in W. T. Wang & K. Y. Pan, Bull. Bot. Res., Harbin 2(2): 131. 1982.

镇康长蒴苣苔 *zhen kang chang shuo ju tai*

*Didymocarpus mengtze* W. W. Smith var.

*zhenkangensis* (W. T. Wang) H. W. Li.

Stems 5–22 cm, densely puberulent. Leaves opposite; petiole 0.1–2(–3.8) cm; leaf blade elliptic to broadly ovate or obovate, 1.3–7 × 0.9–3.5 cm, herbaceous, adaxially puberulent, eglandular, abaxially puberulent along veins, glandular, base oblique, cuneate to rounded, margin irregularly crenulate to dentate or serrulate, apex acute to rounded; lateral veins 4–7 on each side of midrib. Cymes 1–15-flowered; peduncle 1.5–3.5 cm, sparsely glandular puberulent; bracts free, broadly ovate to orbicular-ovate, 2.5–5 mm, nearly glabrous,

margin entire. Pedicel 3–11 mm. Calyx zygomorphic, 2–3 mm, 3-sect from base; adaxial lip 3-lobed from near middle, broadly obovate, ca. 3 mm wide, lobes narrowly triangular, ca. 1 mm wide, 2 abaxial segments narrowly elliptic, 1–1.2 mm wide, glabrous, margin entire. Corolla purple to brick red, 1.8–2.4 cm, glabrous; tube nearly tubular, 1.3–1.6 cm × ca. 3 mm; adaxial lip 3–4 mm; abaxial lip 5–7.5 mm. Stamens glabrous; filaments ca. 3.5 mm; anthers ca. 1.5 mm; staminodes 2, ca. 0.3 mm. Pistil ca. 1.5 cm, glabrous; ovary ca. 1.2 mm. Immature capsule ca. 2.3 cm. Fl. Jul–Aug, fr. Aug.

• Rocks in valley forests; 1200–2700 m. SW Yunnan.

**5. *Didymocarpus pseudomengtze*** W. T. Wang, Acta Bot. Yunnan. 6: 19. 1984.

凤庆长蒴苣苔 *feng qing chang shuo ju tai*

Stems 8–18 cm, densely appressed pubescent. Leaves opposite; petiole 0.2–3.8 cm; leaf blade oblique, elliptic to ovate or obovate, 3.5–16 × 2–9 cm, herbaceous, appressed pilose, eglandular, base oblique, cuneate to rounded, margin double dentate to serrate, apex acute to rounded; lateral veins 5–8 on each side of midrib. Cymes 3–15-flowered; peduncle 4–8 cm, sparsely glandular puberulent; bracts free, orbicular to ovate, 3–4 mm, glabrous or with very few short glandular hairs, margin entire. Pedicel 3–10 mm. Calyx zygomorphic, 4.5–5 mm, 3-sect from base; adaxial lip shallowly 3-lobed, broadly obtusely triangular, ca. 3 mm wide, lobes triangular, ca. 1 mm wide, 2 abaxial segments oblong, ca. 1.5 mm wide, outside sparsely glandular puberulent, inside glabrous, margin entire. Corolla purple to purplish red, 2–2.5 cm, glabrous; tube cylindrical, ca. 1.8 cm × 3 mm; adaxial lip ca. 3 mm; abaxial lip ca. 7 mm. Filaments ca. 3.5 mm, glabrous; anthers ca. 1.5 mm, puberulent; staminodes 2, 0.8–1 mm. Pistil ca. 1.6 cm, glabrous; ovary ca. 1.1 cm. Capsule 1.8–3 cm. Fl. Jul, fr. Oct.

• Forests, on rocks in montane regions; 2100–2700 m. SW Yunnan.

**6. *Didymocarpus stenocarpus*** W. T. Wang, Acta Bot. Yunnan. 6: 17. 1984.

细果长蒴苣苔 *xi guo chang shuo ju tai*

Stems 8.5–12 cm, densely pubescent. Leaves opposite; petiole 0.2–3 cm; leaf blade often oblique, elliptic to ovate, 2.4–10.5 × 1.5–4.3 cm, herbaceous, eglandular, adaxially puberulent, abaxially puberulent along veins, base oblique, cuneate, margin denticulate, apex acute to abruptly acuminate; lateral veins 6–10 on each side of midrib. Cymes 1–3-flowered; peduncle 1.8–3.5 cm, glandular puberulent; bracts early deciduous. Pedicel 5–10 mm. Calyx zygomorphic, ca. 4 mm, 3-sect from base; adaxial lip shallowly 3-lobed, obtusely triangular, ca. 1.5 mm wide, lobes lanceolate-linear, ca. 0.5 mm wide, 2 abaxial segments narrowly lanceolate, 0.8–0.9 mm wide, outside appressed puberulent, inside glabrous, margin entire. Corolla blue, ca. 1.8 cm, glabrous; tube cylindrical, ca. 1.4 cm × 2 mm; adaxial lip ca. 1.8 mm;

abaxial lip ca. 4 mm. Stamens glabrous; filaments ca. 3 mm; anthers ca. 1 mm; staminodes absent. Pistil ca. 1.4 cm, glabrous; ovary ca. 1.1 cm. Capsule 2.2–2.8 cm. Fl. Jul–Aug, fr. Aug.

• Dense forests; ca. 1100 m. W Yunnan (Yingjiang Xian).

**7. *Didymocarpus mengtze*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 5: 152. 1912.

蒙自长蒴苣苔 meng zi chang shuo ju tai

Stems 11–20 cm, sparsely to densely appressed puberulent. Leaves opposite; petiole 0.2–3.2 cm; leaf blade elliptic to ovate or obovate, 5.7–11.5 × 4–6.6 cm, herbaceous, adaxially appressed puberulent to pilose, eglandular, abaxially sparsely pubescent, very sparsely yellow glandular, base oblique, broadly cuneate to rounded, margin dentate to serrate or double dentate to serrate, apex acute to obtuse; lateral veins 5–8 on each side of midrib. Cymes 5–11-flowered; peduncle 4–7.2 cm, sparsely glandular puberulent; bracts free, broadly elliptic to obovate, ca. 4 mm, adaxially puberulent, abaxially sparsely glandular puberulent, margin entire. Pedicel 2–8 mm. Calyx zygomorphic, 4–6 mm; limb 2-lipped; tube 1.5–2 mm; adaxial lip 3-lobed, obtrapeziform, 3–4 mm wide, lobes ovate-orbicular, ca. 1 mm wide; abaxial lip 2-lobed, obtrapeziform, ca. 4.5 mm, lobes triangular, 1.5–2 mm wide, glabrous, margin entire. Corolla purple to purplish red, ca. 2 cm, glabrous; tube cylindrical, ca. 1.6 cm × 3 mm; adaxial lip ca. 3 mm; abaxial lip ca. 6 mm. Filaments ca. 3 mm, glabrous; anthers ca. 1.6 mm, nearly glabrous; staminodes apparently absent, ca. 1.2 mm. Pistil ca. 1.7 cm, glabrous; ovary ca. 1.2 cm. Capsule 2–2.5 cm. Fl. Jul, fr. Oct.

• Montane regions; 1200–2700 m. SE Yunnan (Mengzi Xian).

**8. *Didymocarpus silvarum*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 5: 150. 1912.

林生长蒴苣苔 lin sheng chang shuo ju tai

Stems 7–15 cm, densely appressed pubescent. Leaves opposite; petiole 1.5–6.5 cm; leaf blade elliptic to ovate or obovate, 1.5–20 × 1–10.5 cm, herbaceous, adaxially puberulent, eglandular, abaxially puberulent along veins, glandular, base oblique, rounded to cordate, margin dentate to serrate, apex acute to rounded; lateral veins 8–10 on each side of midrib. Cymes to 20-flowered; peduncle 5–7 cm, glabrous; bracts free, orbicular-ovate, ca. 2 mm, glabrous, adaxially glandular, margin entire. Pedicel 5–12 mm. Calyx actinomorphic, 2–3 mm; limb 5-lobed; tube ca. 1.5 mm; segments equal, lobes broadly ovate, ca. 1.5 × 1 mm, glabrous, adaxially glandular, margin entire. Corolla purple to pink, 1.8–2 cm, glabrous; tube cylindrical, ca. 1.4 cm × 2–3 mm; adaxial lip ca. 3 mm; abaxial lip ca. 6 mm. Stamens glabrous; filaments ca. 3.5 mm; anthers ca. 1.5 mm; staminodes absent. Pistil ca. 1.2 cm; ovary ca. 9 mm, appressed puberulent. Style glabrous. Immature capsule ca. 2 cm.

• Forests of montane regions; 1200–1300 m. S Yunnan (Simao Xian).

**9. *Didymocarpus zhufengensis*** W. T. Wang, Bull. Bot. Res., Harbin 4(1): 13. 1984.

珠峰长蒴苣苔 zhu feng chang shuo ju tai

Stems ca. 29 cm, appressed puberulent. Leaves mostly opposite, basal 2 alternate; petiole to 3 cm; leaf blade broadly ovate to elliptic, 4.5–8.5 × 3.4–5.5 cm, herbaceous, adaxially appressed puberulent, eglandular, abaxially puberulent along veins, eglandular, base cordate-auriculate, margin irregularly double denticulate, apex obtuse to rounded; lateral veins ca. 4 on each side of midrib. Cymes 4–6-flowered; peduncle ca. 5 cm, glandular puberulent; bracts free, orbicular-rhombic, ca. 4 mm, ciliate, margin entire. Pedicel 3–7 mm. Calyx zygomorphic, 5–5.5 mm; limb 2-lipped; tube 2–2.5 mm; adaxial lip 3-lobed, broadly trapeziform, ca. 3 mm, lobes deltoid, ca. 1 mm wide; abaxial lip 2-lobed, broadly trapeziform, ca. 3 mm, lobes triangular, ca. 1.5 mm wide, glabrous or sparsely ciliate, margin entire. Corolla purple, ca. 2 cm, outside puberulent, inside glabrous; tube funnelliform, ca. 1.4 cm × 6 mm; adaxial lip ca. 3.5 mm; abaxial lip ca. 7 mm. Stamens glabrous; filaments ca. 6 mm; anthers ca. 1.5 mm; staminodes 3, 0.8–1.5 mm. Pistil ca. 1.5 cm, glabrous; ovary ca. 1.2 cm. Fruit unknown. Fl. Jun.

• Damp cliffs; ca. 2900 m. S Xizang (Zhumulangma Shan, Dinggye Xian).

**10. *Didymocarpus aromaticus*** Wallich ex D. Don, Prodr. Fl. Nepal. 123. 1825, p.p.

互叶长蒴苣苔 hu ye chang shuo ju tai

*Didymocarpus subalternans* Wallich ex R. Brown; *Henckelia aromatica* (Wallich ex D. Don) Sprengel.

Stems 7–12(–25) cm, appressed puberulent. Leaves mostly opposite, basal 2 often alternate; petiole 0.1–3.5 cm; leaf blade ovate to elliptic, rarely triangular, 2–6.8(–11) × 1.3–4.2(–5.6) cm, thin papery to papery, adaxially appressed puberulent, sometimes yellow glandular, abaxially puberulent along veins, sometimes yellow glandular, base broadly cuneate to subcordate, margin dentate to serrate or crenate, apex acute to obtuse; lateral veins 4 or 5 on each side of midrib. Cymes 2–5-flowered; peduncle 2.5–3.5(–7) cm, sparsely glandular puberulent; bracts free, ovate to orbicular-ovate, 2–2.5(–5) mm, sparsely glandular puberulent, margin entire. Pedicel 5–14 mm. Calyx slightly zygomorphic, 3–4 mm; limb indistinctly 2-lipped, 5-lobed; tube ca. 2.5 mm; lobes nearly equal, triangular, 1.5–3 × ca. 1.5 mm, outside sparsely glandular puberulent, inside glabrous, margin entire. Corolla purple-red, ca. 1.6 cm, glabrous; tube nearly tubular, ca. 1.2 cm × 4 mm; adaxial lip ca. 2.2 mm; abaxial lip ca. 5.5 mm. Stamens glabrous; filaments ca. 4 mm; anthers ca. 2 mm; staminodes 3, 2.5–4 mm. Pistil ca. 1.3 cm, glabrous; ovary ca. 1 cm. Capsule 2.5–3 cm. Fl. Aug.

Grassy slopes, on rocks; 2500–2800 m. S Xizang [N India, Nepal].

**11. *Didymocarpus villosus*** D. Don, Prodr. Fl. Nepal. 123. 1825.

长毛长蒴苣苔 *chang mao chang shuo ju tai*  
*Henckelia villosa* (D. Don) Sprengel; *Roettlera villosa* (D. Don) Kuntze.

Stems to 9 cm, spreading villous. Leaves crowded near stem apex; petiole 1–16 mm; leaf blade elliptic to rhombic, ovate, or obovate, 2.5–7.2 × 2–5 cm, herbaceous to papery, adaxially densely villous to appressed puberulent, sparsely yellow glandular, abaxially densely villous to sparsely puberulent, sparsely yellow glandular, base oblique, broadly cuneate to subcordate, margin irregularly double dentate to crenate, apex acute to rounded; lateral veins 3 or 4 on each side of midrib. Cymes 2–5-flowered; peduncle 2–5 cm, glabrous; bracts connate at base, broadly ovate, ca. 2 mm, glabrous, margin entire. Pedicel 5–10 mm. Calyx slightly zygomorphic, ca. 4 mm; limb indistinctly 2-lipped, 5-lobed; tube 2.2–2.5 mm; lobes nearly equal, triangular to orbicular, 1–1.5 mm, glabrous, margin entire. Corolla dark purple, to 2.2 cm, glabrous; tube cylindrical, ca. 1.5 cm × 4 mm; adaxial lip ca. 3 mm; abaxial lip ca. 7 mm. Stamens glabrous; filaments ca. 1.8 mm; anthers ca. 1.2 mm; staminode 1, ca. 0.6 mm. Pistil ca. 1.3 cm, glabrous; ovary ca. 1 cm. Capsule 1.4–2 cm. Fl. Jun–Jul.

Stony cliffs in valleys; 2100–2700 m. S Xizang [Nepal].

**12. *Didymocarpus pulcher*** C. B. Clarke in A. & C. de Candolle, Monogr. Phan. 5: 79. 1883.

美丽长蒴苣苔 *mei li chang shuo ju tai*  
Stems 17–26 cm, densely appressed puberulent. Leaves whorled; petiole to 7 cm; leaf blade ovate to broadly ovate, 2–10(–15) × 2–6.2(–7.8) cm, herbaceous, adaxially sparsely to densely appressed puberulent, sparsely yellow glandular, abaxially sparsely puberulent along veins, sparsely yellow glandular, base oblique, cuneate to cordate, margin crenate to serrate, apex acute; lateral veins 5–7 on each side of midrib. Cymes 7–9-flowered; peduncle (1.6–)3–4 cm, sparsely glandular puberulent; bracts free, broadly ovate, ca. 3 mm, nearly glabrous, margin entire. Pedicel 2–5 mm. Calyx slightly zygomorphic, 3–4.5 mm; limb indistinctly 2-lipped, 5-lobed; tube 2–3 mm; lobes nearly equal, triangular, 1–2 mm, glabrous or outside glandular pubescent, margin entire. Corolla purple, ca. 2.8 cm, glabrous; tube cylindrical, ca. 2.2 cm × 7 mm; adaxial lip ca. 4 mm; abaxial lip 6.5–8 mm. Filaments ca. 7 mm, glabrous; anthers ca. 2.5 mm, puberulent; staminodes 3, 1.8–3.6 mm. Pistil ca. 2.2 cm, glabrous; ovary ca. 1.1 cm. Capsule 2.5–4 cm. Fl. Jul–Aug.

Forests near waysides; 1200–2600 m. SE Xizang [Bhutan, India, Nepal, Sikkim].

**13. *Didymocarpus primulifolius*** D. Don, Prodr. Fl. Nepal. 123. 1825.

藏南长蒴苣苔 *zang nan chang shuo ju tai*  
*Henckelia primulifolia* (D. Don) Sprengel.

Stems 4–16 cm, sparsely appressed puberulent. Leaves crowded near stem apex; petiole 0.6–2 cm; leaf blade ovate to broadly ovate, 3–8(–9.1) × 1.8–6.5 cm, thin papery, adaxially densely appressed puberulent, sparsely yellow glandular, abaxially sparsely appressed puberulent, densely puberulent along veins, sparsely yellow glandular, base oblique, broadly cuneate to cordate, margin irregularly dentate to serrate, apex acute; lateral veins 6–8 on each side of midrib. Cymes 6–15-flowered; peduncle 2.5–5 cm, sparsely pubescent, sometimes glandular; bracts slightly connate at base, red-purple, orbicular-ovate, 4–7 mm, glabrous to pubescent abaxially, margin entire. Pedicel 4–7 mm. Calyx slightly zygomorphic, 4.5–6 mm; limb indistinctly 2-lipped; tube 3.5–4 mm; adaxial lip 3-lobed, depressed trapeziform, 1–1.8 mm, lobes broadly triangular to orbicular, ca. 1.5 mm wide; abaxial lip 2-parted, depressed trapeziform, 1.5–2 mm, lobes broadly triangular, ca. 2 mm wide, glabrous, margin entire. Corolla deep purple, ca. 1.9 cm, glabrous; tube cylindrical, ca. 1.1 cm × 3 mm; adaxial lip ca. 1.6 mm; abaxial lip ca. 8 mm. Stamens glabrous; filaments ca. 2.2 mm; anthers ca. 1.4 mm; staminode 1, ca. 0.6 mm. Pistil ca. 1.1 cm, glabrous; ovary ca. 6 mm. Capsule 1.8–2.1 cm. Fl. Jun.

Rocks or cliffs in forests; 2100–2700 m. S Xizang [Nepal].

**14. *Didymocarpus grandidentatus*** (W. T. Wang) W. T. Wang, Acta Bot. Yunnan. 6: 23. 1984.

大齿长蒴苣苔 *da chi chang shuo ju tai*

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

Stems 10–25 cm, spreading villous. Leaves opposite; petiole 0.5–10 cm; leaf blade ovate to reniform, 4.5–10 × 4–15 cm, herbaceous, adaxially densely puberulent, eglandular, abaxially puberulent along veins, sparsely red glandular, base cordate, margin coarsely double dentate or serrate to crenate, apex rounded; lateral veins 4–6 on each side of midrib. Cymes ca. 8-flowered; peduncle 4.5–7 cm, glandular puberulent; bracts free, ovate to orbicular-ovate, 5–8 mm, glabrous, margin entire. Pedicel ca. 2 mm. Calyx slightly zygomorphic, ca. 5.5 mm; limb indistinctly 2-lipped, 5-lobed; tube ca. 4.6 mm; lobes nearly equal, triangular, ca. 0.8 mm, glabrous, margin entire, glandular ciliate. Corolla purple-red, ca. 2.4 cm, glabrous; tube cylindrical, ca. 1.8 cm × 4 mm; adaxial lip ca. 4 mm; abaxial lip ca. 6 mm. Stamens glabrous; filaments ca. 3.5 mm; anthers ca. 1.8 mm; staminodes 2, ca. 3 mm. Pistil ca. 1.7 cm, glabrous; ovary ca. 1.3 cm. Fruit unknown. Fl. Jun.

• Valley forests; ca. 1300 m. S Yunnan (Menghai Xian).

**15. *Didymocarpus nanophyton*** C. Y. Wu ex H. W. Li, Bull. Bot. Res., Harbin 3(2): 32. 1983.

矮生长蒴苣苔 *ai sheng chang shuo ju tai*

Stems 2.5–7 cm, pubescent. Leaves opposite; petiole 0.2–3 cm; leaf blade oblique, ovate to oblong, 2.5–4.5 ×

1.5–3 cm, herbaceous, adaxially puberulent, eglandular, abaxially puberulent along veins, eglandular, base rounded to broadly cuneate, margin denticulate to double denticulate, apex acute to rounded; lateral veins 7 or 8 on each side of midrib. Cymes 2–4-flowered; peduncle 4–5 cm, glandular puberulent; bracts deciduous, free, orbicular-ovate, ca. 2.5 mm, margin entire. Pedicel 4–6 mm. Calyx zygomorphic, ca. 4 mm; limb 2-lipped; tube ca. 2 mm; adaxial lip 3-lobed, trapezoid, ca. 1.8 mm, lobes triangular to narrowly ovate, ca. 1 mm wide; abaxial lip 2-lobed, trapezoid, ca. 1.8 mm, lobes triangular to narrowly ovate, 1.5–2 mm wide, glabrous; tube tuberculate, margin entire. Corolla, stamens, and pistil unknown. Capsule ca. 3 cm. Fr. Nov.

• Damp rocks in valleys; ca. 1800 m. S Yunnan (Yuanjiang Xian).  
**16. *Didymocarpus stenanthos*** C. B. Clarke, Hooker's Icon. Pl. 18: pl. 1799. 1888.

狭冠长蒴苣苔 *xia guan chang shuo ju tai*  
Stems 3–22 cm, puberulent. Leaves opposite; petiole 0.3–3.3(–4.7) cm; leaf blade slightly oblique, ovate to elliptic or obovate, 2–11.5(–15) × 1.8–6.8 cm, herbaceous, adaxially puberulent, eglandular, abaxially puberulent along veins, eglandular, base oblique, cuneate to cordate, margin double or single denticulate to serrate, apex acute, rarely obtuse to rounded; lateral veins 6–8 on each side of midrib. Cymes 6- to many flowered; peduncle 2.5–8 cm, glandular puberulent to nearly glabrous; bracts connate at base or free, broadly ovate, 3–4 mm, sparsely glandular puberulent, margin entire. Pedicel 2–6(–13) mm. Calyx zygomorphic, 4.2–5 mm; limb 2-lipped; tube ca. 2.6 mm; adaxial lip 3-lobed, depressed trapeziform, ca. 1.2 mm; abaxial lip 2-lobed, depressed trapeziform, ca. 1.8 mm, all lobes broadly ovate, 1–1.5 × 0.8–1 mm, glabrous, margin entire. Corolla purple, 2–2.4 cm, glabrous; tube cylindric, 1.5–1.8 cm × 3–4 mm; adaxial lip ca. 3.5 mm; abaxial lip ca. 4.5 mm. Filaments ca. 3.5 mm, glabrous; anthers ca. 1.5 mm, puberulent; staminodes 3, 0.3–0.8 mm. Pistil ca. 1.9 cm, glabrous; ovary ca. 1.5 cm. Capsule 2.5–4 cm. Fl. Jun–Sep, fr. Aug.

• Rocks and cliffs in valleys; 700–2800 m. Guizhou, W Sichuan, E Yunnan.

- 1a. Stems, petiole, and adaxial leaf surface densely puberulent; bracts and bracteoles connate basally; upper calyx lip 3-lobed from to just above middle ..... 16a. var. *stenanthos*
- 1b. Stems, petiole, and adaxial leaf surface sparsely puberulent; bracts and bracteoles free; upper calyx lip 3-lobed from above middle ..... 16b. var. *pilosellus*

**16a. *Didymocarpus stenanthos* var. *stenanthos***

狭冠长蒴苣苔(原变种) *xia guan chang shuo ju tai*  
(yuan bian zhong)

*Oreocharis micrantha* H. Léveillé.

Stems densely puberulent. Petiole densely puberulent; leaf blade adaxially densely puberulent. Bracts and bracteoles connate at base. Adaxial calyx lip 3-lobed from to just above middle. Fl. Jul–Oct, fr. Jul–Nov.

• Rocks in valleys; 700–2200 m. W Sichuan, E Yunnan.

**16b. *Didymocarpus stenanthos* var. *pilosellus*** W. T. Wang in W. T. Wang & K. Y. Pan, Bull. Bot. Res., Harbin 2(2): 132. 1982.

疏毛长蒴苣苔 *shu mao chang shuo ju tai*

Stems sparsely puberulent. Petiole sparsely puberulent; leaf blade adaxially sparsely puberulent. Bracts and bracteoles free. Adaxial calyx lip 3-lobed from above middle. Fl. and fr. Aug.

• Rocks, cliffs in valley forests; 900–2800 m. Guizhou.

**17. *Didymocarpus leiboensis*** Z. P. Soong & W. T. Wang in W. T. Wang, Bull. Bot. Res., Harbin 4(1): 12. 1984.

雷波长蒴苣苔 *lei bo chang shuo ju tai*

Stems 4–17.5 cm, appressed puberulent and sparsely villous. Leaves opposite; petiole 0.2–2.5 cm; leaf blade oblique, elliptic to ovate, 2.5–8(–11) × 1.2–4(–5.5) cm, papery, adaxially puberulent, orange glandular, abaxially sparsely pubescent, eglandular, base oblique, broadly cuneate, margin irregularly denticulate to double dentate, apex acute to obtuse; lateral veins 6–9 on each side of midrib. Cymes (1 or) 2–6-flowered; peduncle 5.5–9 cm, sparsely glandular puberulent; bracts connate at base, orbicular-ovate, adaxially glabrous, abaxially sparsely puberulent to glabrescent, margin entire. Pedicel 4–8 mm. Calyx zygomorphic, 5–6 mm; limb 2-lipped; tube ca. 3.6 mm; adaxial lip 3-lobed, depressed trapeziform, ca. 1 mm, lobes ovate, 1–2 mm wide; abaxial lip 2-cleft to middle, lobes ovate, 2.2–2.5 mm wide, glabrous, margin entire. Corolla purple, ca. 3.6 cm, glabrous; tube nearly tubular, ca. 2.8 cm × 8 mm; adaxial lip ca. 4 mm; abaxial lip ca. 8 mm. Filaments ca. 8 mm, glabrous; anthers ca. 2.6 mm, puberulent; staminodes 2, ca. 6 mm. Pistil ca. 2.5 cm, glabrous; ovary ca. 1.5 cm. Fruit unknown. Fl. Jun.

• Rocks in valleys; 700–1200 m. SW Sichuan (Leibo Xian).

**18. *Didymocarpus adenocalyx*** W. T. Wang, Guihaia 6: 11. 1986.

腺萼长蒴苣苔 *xian e chang shuo ju tai*

Stems ca. 20 cm, densely puberulent. Leaves opposite; petiole 0.4–1.1 cm; leaf blade elliptic to broadly elliptic, 1.8–4.2 × 1.5–2.4 cm, papery, adaxially densely puberulent, sparsely dark purple glandular, abaxially densely brown puberulent along veins, eglandular, base broadly cuneate to nearly rounded, margin denticulate, apex acute; lateral veins 6–9 on each side of midrib. Cymes ca. 5-flowered; peduncle 1.7–3.2 cm, nearly



glabrous; bracts connate at base, orbicular-ovate, ca. 3 mm, glabrous, margin entire. Pedicel ca. 4 mm. Calyx zygomorphic, 5–6 mm; limb 2-lipped; tube ca. 2.6 mm; adaxial lip 3-lobed, oblong, ca. 4 mm, lobes ovate, 1–1.5 mm wide; abaxial lip 2-lobed, oblong, slightly shorter, lobes deltoid, 2.2–3 mm wide, glabrous, inside densely dark purple glandular below middle, margin entire. Corolla red-purple, ca. 2.2 cm, glabrous; tube cylindric, ca. 1.4 cm × 3 mm; adaxial lip ca. 4 mm; abaxial lip ca. 8 mm. Stamens glabrous; filaments ca. 4 mm; anthers ca. 1.4 mm; staminodes 2, 1.2–1.5 mm. Pistil ca. 1.4 cm; ovary ca. 6 mm, densely glandular puberulent. Style glabrous. Fruit unknown. Fl. Jul.

• Rocks in montane regions; ca. 2300 m. NW Yunnan (Bijiang Xian).  
**19. *Didymocarpus yunnanensis*** (Franchet) W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 14: 337. 1924.

云南长蒴苣苔 *yun nan chang shuo ju tai*  
*Roettlera yunnanensis* Franchet, Bull. Mus. Hist. Nat. (Paris) 5: 250. 1899; *R. yunnanensis* f. *cleistogama* Diels.

Stems 3–26(–48) cm, densely puberulent to glabrescent. Leaves opposite; petiole 0.2–14 cm; leaf blade narrowly ovate to ovate, oblong, or obovate, 1–14 × 1–10 cm, herbaceous, adaxially appressed puberulent, eglandular, abaxially puberulent along veins, eglandular, base oblique, broadly cuneate to cordate, margin crenate to crenulate or nearly entire, apex acute to rounded; lateral veins 5 or 6 on each side of midrib. Cymes 1–15-flowered; peduncle 1–12 cm, sparsely glandular puberulent; bracts free, ovate to orbicular, often leaflike, 0.2–2 cm, glabrous to puberulent, yellow glandular, margin crenate to entire. Pedicel 4–10 mm. Calyx slightly zygomorphic, 3–6 mm; limb indistinctly 2-lipped; tube 2–4 mm; adaxial lip 3-lobed, depressed trapeziform, ca. 2 mm, lobes triangular, 1–2 × ca. 1.2 mm; abaxial lip 2-lobed, depressed trapeziform, ca. 3 mm, lobes triangular, 1–2 × ca. 2 mm, outside sparsely puberulent, inside glabrous, margin entire. Corolla purple to reddish purple with darker stripes, 2.5–3.5 cm, outside sparsely pubescent, inside glabrous; tube narrowly funnelform, 2–2.8 cm × 4–6 mm; adaxial lip ca. 3.5 mm; abaxial lip ca. 7 mm. Filaments ca. 7 mm, glabrous; anthers ca. 2 mm, sparsely pubescent; staminodes 3, 1.2–5 mm. Pistil 2.3–3.2 cm, glabrous; ovary ca. 8 mm. Capsule 3–4.2 cm. Fl. Jun–Sep, fr. Jul–Oct.

Rocks, cliffs in valleys; 1500–3400 m. SW Sichuan, SE Xizang, NW and W Yunnan [NE India].

*Didymocarpus yunnanensis* is very similar to and is probably very closely related to *D. punduanus* Wallich ex R. Brown. The two species may be conspecific, and the former is retained because we have not seen adequate material of the latter.

**20. *Didymocarpus praeteritus*** B. L. Burt & R. Davidson, Notes Roy. Bot. Gard. Edinburgh 21: 213. 1954.

片马长蒴苣苔 *pian ma chang shuo ju tai*  
 Stems 11–15(–30) cm, densely pubescent. Leaves opposite; petiole 0.2–2.5(–5) cm; leaf blade slightly

oblique, narrowly ovate to elliptic, 4.5–10.5 × 2–5.5 cm, papery, adaxially densely appressed puberulent, eglandular, abaxially densely puberulent along veins, eglandular, base broadly cuneate, margin denticulate to serrate, apex acute to acuminate; lateral veins 6–9 on each side of midrib. Cymes 1–5-flowered; peduncle 4.5–7 cm, glandular puberulent; bracts free, orbicular-ovate, 5–7 mm, glabrous to sparsely pubescent, margin entire. Pedicel 3–7 mm. Calyx slightly zygomorphic, 9–10 mm; limb indistinctly 2-lipped; tube ca. 8 mm; adaxial lip 3-lobed, depressed trapeziform, 1.5–2 mm, lobes broadly ovate, ca. 1.8 mm wide; abaxial lip 2-parted, depressed trapeziform, ca. 2 mm, lobes broadly ovate, ca. 2.5 mm wide, outside glabrous, inside minutely puberulent below middle, margin entire. Corolla purple, ca. 3 cm, glabrous; tube cylindric, ca. 2 cm × 3–4 mm; adaxial lip ca. 4 mm; abaxial lip ca. 1 cm. Stamens glabrous; filaments ca. 5 mm; anthers ca. 2 mm; staminodes 3, ca. 2.2 mm. Pistil ca. 2 cm, glabrous, minutely glandular; ovary ca. 1.8 cm. Capsule ca. 4 cm. Fl. Jun–Jul.

Forested slopes; 1800–2200 m. W Yunnan [NE Myanmar].

**21. *Didymocarpus purpureobracteatus*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 5: 153. 1912.

紫苞长蒴苣苔 *zi bao chang shuo ju tai*  
*Didymocarpus purpureobracteatus* var. *veitchianus* (W. W. Smith) H. W. Li; *D. veitchianus* W. W. Smith.

Stems 11–62 cm, puberulent above, sparsely puberulent to glabrescent below. Leaves opposite; petiole 0.3–11 cm; leaf blade ovate to elliptic or obovate, 3–17(–26) × 1.6–10.5(–16) cm, herbaceous, adaxially sparsely appressed puberulent to glabrous, sparsely glandular, abaxially puberulent to nearly glabrous along veins, sparsely glandular, base sometimes oblique, cuneate to cordate, margin single to double serrate, apex acute to acuminate; lateral veins 5–9 on each side of midrib. Cymes 5–12-flowered; peduncle 4–10 cm, glabrous; bracts often connate at base, ovate to elliptic-ovate, 3–8 mm, glabrous, margin entire. Pedicel 1–5 mm. Calyx slightly zygomorphic, 1–1.2 cm; limb indistinctly 2-lipped; tube 8–9 mm; adaxial lip 3-lobed, depressed trapeziform, 2–3 mm, lobes semiorbicular, 2–3 × ca. 3 mm; abaxial lip 2-lobed, lobes semiorbicular, 2–3 × 4–5 mm, glabrous, margin entire. Corolla purple to pinkish purple with darker stripes, 3.2–4.5 cm, glabrous; tube funnelform, 2.9–3.3 × 0.9–1 cm; adaxial lip 3.5–4 mm; abaxial lip 0.9–1.2 cm. Filaments ca. 1 cm, glabrous; anthers ca. 3 mm, puberulent; staminodes 2, 1.5–3 mm. Pistil 2.2–2.4 cm, sparsely puberulent; ovary ca. 2.3 cm. Capsule 3.5–5.5 cm. Fl. Aug–Sep.

• Montane forests; 1400–2200 m. SE Yunnan.

**22. *Didymocarpus mollifolius*** W. T. Wang, Acta Bot. Yunnan. 6: 21. 1984.

柔毛长蒴苣苔 *rou mao chang shuo ju tai*  
 Plants stemless. Leaves basal; petiole 2.2–5 cm; leaf blade ovate to narrowly ovate or ovate-oblong, 5.5–20

× 3.3–10.5 cm, herbaceous, densely appressed puberulent, eglandular, base broadly cuneate, margin denticulate to crenate, apex acute to obtuse; lateral veins 5–7 on each side of midrib. Cymes 7–12-flowered; peduncle 6.5–10.5 cm, villous; bracts free, linear, 1.2–2 cm, densely puberulent, margin entire. Pedicel 0.5–1.5 cm. Calyx actinomorphic, 5-sect from base; segments equal, lanceolate-linear, ca. 5 × 1 mm, outside densely pubescent, inside puberulent, margin entire. Corolla yellow, ca. 2.2 cm, outside puberulent, inside glabrous; tube nearly tubular, ca. 1.2 cm × 4 mm; adaxial lip ca. 4 mm; abaxial lip ca. 1 cm. Filaments ca. 6.5 mm, sparsely puberulent and glandular; anthers ca. 1.5 mm, glabrous; staminodes 2, ca. 0.5 mm. Pistil ca. 1.7 cm, puberulent; ovary ca. 8 mm. Fruit unknown. Fl. Sep.

• Shaded cliffs near rivers; ca. 1000 m. SW Yunnan (Zhenkang Xian).  
**23. *Didymocarpus hancei*** Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 229. 1890.

东南长蒴苣苔 *dong nan chang shuo ju tai*

Plants stemless. Leaves basal; petiole 1.8–8 cm; leaf blade oblong to elliptic or oblanceolate, 2.2–10 × 1–3.6 cm, papery, short strigose, eglandular, abaxially denser along veins, base cuneate to broadly cuneate, margin denticulate to serrate, apex acute to acuminate; lateral veins 5–7 on each side of midrib. Cymes 4- to many flowered; peduncle 7–18 cm, sparsely puberulent to strigose; bracts free, linear, 5–14 mm, short strigose, margin entire. Pedicel 5–12 mm. Calyx actinomorphic, 5-sect from base; segments equal, linear to narrowly triangular, 2.5–7 × 0.5–1.2 mm, outside sparsely short strigose, inside nearly glabrous, margin entire. Corolla pale purple, 1.5–2 cm, outside sparsely puberulent, inside nearly glabrous; tube funnelform, 1.1–1.3 cm × 4–6 mm; adaxial lip 3–5 mm; abaxial lip 4–8.5 mm. Stamens glabrous; filaments 6–7 mm; anthers 1.5–3 mm; staminodes 2, ca. 0.5 mm. Pistil ca. 1.6 cm, sparsely glandular; ovary ca. 5.5 mm. Capsule 2–3.4 cm. Fl. Apr.

• Forests, on rocks, on stony cliffs in valleys; 400–1000 m. Fujian, N Guangdong, S Hunan, Jiangxi.

**24. *Didymocarpus niveolanosus*** D. Fang & W. T. Wang in W. T. Wang & K. Y. Pan, Bull. Bot. Res., Harbin 2(2): 133. 1982.

棉毛长蒴苣苔 *mian mao chang shuo ju tai*

Plants stemless. Leaves basal; petiole to 1 cm; leaf blade narrowly ovate, 3.4–4.6 × 1.7–2 cm, papery, densely white woolly, base broadly cuneate to rounded, margin repand-crenate, apex acute to rounded; lateral veins ca. 5 on each side of midrib. Cymes 5–10-flowered; peduncle 4.5–6 cm, white woolly; bracts free, narrowly triangular to linear, 3–3.5 mm, densely villous, margin entire. Pedicel 3–13 mm. Calyx actinomorphic, 5-sect from base; segments equal, segments linear-lanceolate, 2–2.5 × 0.5–0.7 mm, outside puberulent,

inside nearly glabrous, margin entire. Corolla pink, ca. 1.8 cm, outside sparsely puberulent, inside glabrous; tube nearly tubular, ca. 1.1 cm × 3 mm; adaxial lip ca. 4 mm; abaxial lip ca. 7 mm. Stamens glabrous; filaments ca. 7 mm; anthers ca. 1.5 mm; staminodes 3, central 1 ca. 1 mm, lateral 2 ca. 6 mm. Pistil ca. 9 mm, sparsely puberulent to pubescent; ovary ca. 5.5 mm. Capsule 1–2 cm. Fl. Jul.

• Rocks in shaded areas in valleys; ca. 1100 m. NW Guangxi (Longlin Xian, Napo Xian), SW Guizhou.

**25. *Didymocarpus subpalmatinervis*** W. T. Wang in A. L. Weitzman et al., Novon 7: 428. 1998.

掌脉长蒴苣苔 *zhang mai chang shuo ju tai*

Plants stemless. Leaves basal; petiole 0.4–7.5 cm; leaf blade ovate to obovate, 2–4.5 × 1.8–5.4 cm, papery, adaxially densely appressed puberulent, eglandular, abaxially appressed puberulent, pilose along veins, eglandular, base cordate, margin obtusely to double dentate, apex obtuse, basal veins 3 or 4; lateral veins 2 or 3 on each side of midrib. Cymes 2–10-flowered; peduncle 4.5–11 cm, puberulent; bracts free, narrowly lanceolate to linear, 4–7 mm, puberulent, margin entire. Pedicel 2.5–11 mm. Calyx actinomorphic, 5-sect from base to near base; segments equal, linear-triangular, 5.2–7 × 1–1.2 mm, puberulent, margin entire. Corolla yellow, 2–2.5 cm, outside densely puberulent, inside lobes puberulent; tube funnelform-cylindric, 1.4–1.7 cm × 3–4 mm; adaxial lip 3–4 mm; abaxial lip 5–6 mm. Filaments ca. 5.5 mm, minutely puberulent; anthers ca. 1.5 mm, glabrous; staminodes 2, ca. 0.6 mm. Pistil ca. 1.4 cm; ovary ca. 4 mm, densely puberulent. Style sparsely puberulent. Fruit unknown. Fl. Jul.

• NW Yunnan.

**26. *Didymocarpus heucherifolius*** Handel-Mazzetti, Symb. Sin. 7: 881. 1936.

闽赣长蒴苣苔 *min gan chang shuo ju tai*

*Chirita heucherifolia* (Handel-Mazzetti) D. Wood. Plants stemless. Leaves basal; petiole 2–5(–9.5) cm; leaf blade orbicular-ovate to triangular, multilobed, with lobules triangular, 3–9 × 3.5–11 cm, papery, adaxially pubescent and pilose, eglandular, abaxially pilose, sparsely glandular, base cordate, margin irregularly denticulate to serrate, apex rounded, basal veins 4 or 5; lateral veins 3 or 4 on each side of midrib. Cymes 3- to many flowered; peduncle (6–)10–18 cm, spreading villous; bracts free, elliptic, 5–10 mm, long ciliate, margin entire. Pedicel 0.4–2 cm. Calyx slightly zygomorphic, ca. 6 mm; limb 5-lobed; tube ca. 2 mm; lobes unequal, broadly lanceolate to oblanceolate-linear or triangular, 3–4 × 1–2 mm, outside puberulent to glandular puberulent, inside glabrous, margin sparsely denticulate. Corolla pink, 2.5–3.2 cm, outside puberulent, inside glabrous; tube funnelform-tubular, 1.8–2.2 × 1–1.3 cm; adaxial lip ca. 6.5 mm; abaxial lip ca. 1 cm. Filaments 8–10 mm, glandular; anthers 1.8–2.5 mm,

puberulent; staminodes 3, 0.3–6 mm. Pistil 1.8–2.9 cm, pilose to puberulent; ovary ca. 1.5 cm, pilose to puberulent. Capsule 5.5–8 cm. Fl. May, fr. Jun.

• Waysides, on streamside rocks, forests; 500–1000 m. S Anhui, W Fujian, NE Guangdong, SE Hubei, Jiangxi, W Zhejiang.

**27. *Didymocarpus sinoprimum*** W. T. Wang, Acta Phytotax. Sin. 19: 142. 1981.

报春长蒴苣苔 bao chun chang shuo ju tai

Plants stemless. Leaves basal; petiole 1–4.5 cm; leaf blade triangular to orbicular-ovate, indistinctly multilobed, 1.8–4.6 × 1.6–4 cm, papery, adaxially white villous, sparsely yellow glandular, abaxially sparsely rust-brown villous, densely rust-brown villous along veins, sparsely yellow glandular, base cordate to truncate, lobe margin denticulate with 1 or 2 small teeth to dentate, apex rounded, basal veins 4 or 5; lateral veins ca. 3 on each side of midrib. Cymes 1–5-flowered; peduncle 7–12 cm, rust-brown villous; bracts free, narrowly ovate to linear, 3.5–7 mm, puberulent, margin entire. Pedicel 0.7–2.4 cm. Calyx slightly zygomorphic, 5-sect from near base; adaxial lobe largest, narrowly obovate, ca. 8 mm, other 4 lobes spatulate-linear, 6–7 mm, outside villous, inside glabrous, margin entire. Corolla pink, 1.5–1.8 cm, outside glabrous, inside with 2 lines of hairs above attachment of filaments; tube campanulate, 0.9–1.2 × ca. 1.2 cm; adaxial lip 5–9 mm; abaxial lip 8–10 mm. Filaments ca. 8 mm, sparsely puberulent toward apex; anthers 2.5–3 mm, white woolly; staminodes 2, 0.5–1 mm. Pistil 1.5–2.2 cm; ovary 1–1.6 cm, densely puberulent. Style glabrous. Capsule 6–8 cm. Fl. Mar–May, fr. May.

• Damp, stony, montane cliffs. W Hunan (Qianyang Xian).

**28. *Didymocarpus yuenlingensis*** W. T. Wang, Bull. Bot. Res., Harbin 2(4): 44. 1982.

沅陵长蒴苣苔 yuan ling chang shuo ju tai

Plants stemless. Leaves basal; petiole 2.5–4.5 cm; leaf blade ovate to orbicular, nearly pinnately lobed, 3–5 × 4.2–5.5 cm, leathery, adaxially appressed puberulent, eglandular, abaxially white puberulent and sparsely rust-brown villous along veins, sparsely concave punctate, base cordate, lobes triangular, margin denticulate, apex rounded; lateral veins 2 or 3 on each side of midrib. Cymes 4–8-flowered; peduncle 7–11 cm, densely spreading rust-brown villous and white puberulent; bracts free, nearly rhombic to orbicular-ovate, 6–10 mm, puberulent, margin crenulate. Pedicel 0.9–1.5 cm. Calyx slightly zygomorphic, ca. 1.3 cm; limb unequally 5-lobed; tube ca. 5 mm; abaxial lobe largest, oblong, ca. 7 mm, other 4 lobes broadly trapeziform to obtusely trapeziform, 2.5–3.5 mm, outside puberulent, inside glabrous, margin entire. Corolla ca. 2.1 cm, outside glabrous, inside sparsely puberulent; tube obliquely campanulate, ca. 1.1 cm × 7 mm; adaxial lip ca. 5 mm; abaxial lip ca. 1 cm. Stamens glabrous; filaments ca. 7.5 mm; anthers ca. 3 mm; staminodes 2,

0.2–0.6 mm. Pistil ca. 2.5 cm; ovary ca. 2.1 cm, densely puberulent. Style appressed puberulent with longer rigid brown hairs. Fruit unknown. Fl. May.

• NW Hunan (Xinhuang Xian, Yuanling Xian).

**29. *Didymocarpus cortusifolius*** (Hance) W. T. Wang, Fl. Reipubl. Popularis Sin. 69: 449. 1990.

温州长蒴苣苔 wen zhou chang shuo ju tai

*Chirita cortusifolia* Hance, J. Bot. 21: 324. 1883;

*Roettlera cortusifolia* (Hance) K. Fritsch.

Plants stemless. Leaves basal; petiole 1.4–4.6 cm; leaf blade orbicular-ovate to orbicular or triangular, multilobed, 4.6–10 × 3.2–9 cm, papery, adaxially densely pubescent, sparsely glandular, abaxially sparsely puberulent, rust-brown villous along veins, eglandular, base cordate, lobes triangular, margin irregularly denticulate, apex obtuse to rounded, basal veins 3; lateral veins 2 or 3 on each side of midrib. Cymes 2–10-flowered; peduncle 7.4–10 cm, rust-brown villous and glandular puberulent; bracts free, ovate to elliptic, 3.5–7 mm, adaxially glabrous, abaxially puberulent, margin entire. Pedicel 4–10 mm. Calyx actinomorphic, 7–9 mm, 5-lobed; tube 4–6 mm; lobes equal, ovate-triangular, 1–3 × ca. 2 mm, outside puberulent to villous, inside sparsely puberulent toward apex, margin denticulate. Corolla white, 2.4–3 cm, outside puberulent, inside nearly glabrous; tube funnelliform, 1.8–2.3 × 1–1.2 cm; adaxial lip 5–6 mm; abaxial lip 7–9 mm. Filaments 6–10 mm, nearly glabrous; anthers ca. 3 mm, white woolly; staminodes 3, central ca. 0.5 mm, laterals ca. 0.7 mm. Pistil 1.9–2.2 cm, puberulent; ovary ca. 19 mm. Capsule ca. 3.8 cm. Fl. May–Jun.

• Stony cliffs of montane regions. SE Zhejiang.

Some recent authors place this species in *Chirita*, however based on stigma morphology, it is included in *Didymocarpus* here.

**30. *Didymocarpus reniformis*** W. T. Wang in W. T. Wang & K. Y. Pan, Bull. Bot. Res., Harbin 2(2): 134. 1982.

肾叶长蒴苣苔 shen ye chang shuo ju tai

Plants stemless. Leaves basal; petiole 1–5.5 cm; leaf blade reniform to orbicular-reniform, 2–4.5 × 3.5–7.5 cm, papery, adaxially appressed puberulent, eglandular, abaxially sparsely pubescent along veins, eglandular, base cordate, margin coarsely dentate, teeth triangular, 1- or 2-denticulate to entire, apex rounded, basal veins 5; lateral veins ca. 2 on each side of midrib. Cymes ca. 4-flowered; peduncle ca. 10 cm, spreading pubescent; bracts free, narrowly oblong, ca. 5 mm, sparsely puberulent, margin few crenate. Pedicel 1.1–1.8 cm. Calyx actinomorphic, ca. 7 mm, shallowly 5-lobed; tube ca. 5 mm; lobes equal, triangular, 1.5–2 mm, outside puberulent, inside sparsely puberulent toward apex, margin entire. Corolla pink, ca. 3 cm, outside glabrous, inside sparsely puberulent; tube funnelliform,

ca.  $1.8 \times 0.9$  cm; adaxial lip ca. 1 cm; abaxial lip ca. 1.6 cm. Filaments ca. 8 mm, with small glands; anthers ca. 2.5 mm, puberulent; staminodes 3, 0.6–0.8 mm. Pistil ca. 2.3 cm; ovary ca. 1.4 cm, densely puberulent. Style sparsely puberulent. Capsule 6.8–8.4 cm. Fl. Jun.

• SE Hunan (Chen Xian, Yongxing Xian).

**31. *Didymocarpus salviiflorus*** W. Y. Chun, Sunyatsenia 6: 294. 1946.

迭裂长蒴苣苔 die lie chang shuo ju tai

Plants stemless. Leaves basal; petiole 2.5–5.5 cm; leaf blade triangular-ovate to obovate, multilobed,  $4.5\text{--}7 \times 6\text{--}6.5$  cm, papery, adaxially densely pilose, eglandular, abaxially appressed pubescent, villous along veins, eglandular, base cordate to truncate-cordate, lobes triangular, margin irregularly denticulate, apex obtuse to rounded, basal veins 4 or 5; lateral veins 2 on each side of midrib. Cymes 3–12-flowered; peduncle ca. 12 cm, spreading rust-brown villous and white puberulent; bracts free, semiorbicular, ca. 5 mm, adaxially pubescent, abaxially villous, margin sparsely crenate. Pedicel 2–6 mm. Calyx actinomorphic, 7–9 mm, shallowly 5-lobed, outside ca. 5 mm; lobes equal, depressed oblong, overlapping at margin,  $2\text{--}2.2 \times 4\text{--}4.5$  mm, outside sparsely puberulent, inside glabrous, margin denticulate to entire. Corolla purple, 2.5–3 cm, sparsely puberulent to glabrescent; tube funnelform, ca.  $1.9 \times 1$  cm; adaxial lip ca. 5 mm; abaxial lip ca. 9 mm. Filaments ca. 1.5 cm, sparsely puberulent; anthers ca. 5 mm, white woolly; staminodes 3, 2–3 mm. Pistil 1.3–2.3 cm; ovary ca. 1.8 cm, densely glandular puberulent. Style glabrous. Capsule ca. 5.8 cm. Fl. Apr.

• Rocks in valleys; ca. 500 m. Zhejiang (Lishui Xian, Suichang Xian).

