GESNERIACEAE
苦苣苔科  ku ju tai ke

Wang Wentsai (王文采)1, Pan Kaiyu (潘开玉)1, Li Zhenyu (李振宇)1;
Anna L. Weitzman2, Laurence E. Skog2

Herbs, shrubs, or rarely trees. Leaves opposite or rarely alternate, whorled or basal, rosette forming; exstipulate; usually simple, rarely shallowly to deeply lobed, pinnately or rarely palmately veined. Inflorescences usually cymes, rarely racemes, axillary, often near apex and appearing terminal; usually pedunculate. Flowers perfect, zygomorphic, seldom actinomorphic. Calyx actinomorphic, rarely zygomorphic; usually (4 or)5-divided. Corolla gamopetalous, zygomorphic, rarely actinomorphic; usually 2-lipped. Fertile stamens 2 or 4, then often didynamous, rarely 5, epipetalous; anthers free or coherent, thecae 2, parallel, divergent, or divaricate; staminodes 1–3 or absent. Disc ringlike to cupular, rarely absent. Ovary superior in all Old World taxa [half inferior, or inferior], 1-loculed; gynophore seldom present; placentas (1 or)2, parietal, rarely 2-loculed, placenta 1 per locule and axile; ovules numerous, anatropous. Style 1; stigmas 1 or 2. Fruit usually capsular, loculicidal, septicidal, or circumscissile, rarely a berry, indehiscent. Seeds numerous, fusiform to ellipsoid or ovoid, minute, sometimes with appendages at 1 or both ends, with or without endosperm; embryo straight, cotyledons equal or unequal after germination.

About 133 genera and 3000 species: Africa, Central and South America, E and S Asia, S Europe, Oceania; 56 genera (25 endemic) and 442 species (354 endemic) in China. A few foreign well-known ornamental species are cultivated in China, including the florist’s gloxinia, Sinningia speciosa (Loddiges) Hiern, and African violet, Saintpaulia ionantha Wendland.

The two ovary carpels may each produce a stigma; these stigmas are ± fused into a single structure. Some students of Gesneriaceae have considered the stigma to be single and either simple (capitate) or 2-lobed, whereas others consider each of the two stigmas as units. We have maintained the latter usage, but a family-wide investigation of stigma development is needed. The distinction can be blurred, however, because the stigmas may be completely fused into one with a capitate apex (as in Didymocarpus) or one of the two carpels or stigmas may be aborted resulting in a single stigma that may or may not be 2-lobed.

Certain characters used in this treatment require some explanation. Disc shape is frequently described as “ringlike,” “cupular,” or rarely “tubular”; ringlike describes a disc that is shorter than or equalling its diameter, and cupular describes one that is longer than its diameter. Tubular describes a disc which is at least twice as long as wide. The corolla tube diameter measurement is for the widest part, usually the mouth.


1a. Inflorescences racemose; seeds with scalelike appendages at both ends; flowers sometimes replaced by propagules

................................................................................................................................. 56. Titanotrichum

1b. Flowers solitary or inflorescences cymose (including umbel-like or paniculate cymes), sometimes racemelike and 1-sided; seeds either not appendiculate or with subulate or hairy appendages at 1 or both ends (unknown in Calcareoboea, Dayaoshania, Gyrogyne, Lagarosolen, Paraisometrum, and Thamnocharis); flowers never replaced by propagules.

2a. Corolla actinomorphic, 4- or 5-lobed; stamens 4 or 5, staminodes absent; seeds unappendaged (unknown in Thamnocharis).

3a. Corolla subcoraceous, tube longer than limb; stamens included, anther thecae divergent, confluent apically; capsule 4-valved ................................................................. 3. Tengia

3b. Corolla rotate or campanulate, tube 1/3–1 × limb; stamens equaling corolla or exerted, anther thecae parallel, not confluent; capsule 2-valved.

4a. Anthers connate into a tube surrounding style, connectives with long apical projections; disc absent; inflorescences umbel-like cymes; leaves 1 to few ......................................................... 4. Conandron

4b. Anthers free, connectives without projections; disc ringlike; inflorescences cymes; leaves few to many.

5a. Bracts 2, opposite; corolla purple to blue, deeply 4- or 5-lobed, tube rotate; stamens adnate to corolla near base, anthers basifix; stigma 1, nearly truncate or punciform; leaf blade base cuneate ................................................................. 1. Thamnocharis

5b. Bracts 6–9 to numerous, crowded, involucrate; corolla white, 4- or 5-lobed, tube campanulate; stamens adnate to corolla tube near or above middle, anthers dorsifix; stigmas 2, equal, oblate to 2-lipped; leaf blade base truncate to cordate ......................................................... 2. Bournea

1 Herbarium, Institute of Botany, Chinese Academy of Sciences, 20 Nanxincun, Xiangshan, Beijing 100093, People’s Republic of China.
2 Department of Botany, Smithsonian Institution, Washington, D.C. 20560, U.S.A.
2b. Corolla zygomorphic, usually distinctly 2-lipped or rarely actinomorphic; fertile stamens (1 or)2 or 4, staminodes absent or 1–3; seeds appended or unappendaged.

6a. Fruit indehiscent berries, fleshy to leathery; plants woody herbs or shrubs.

7a. Calyx divided from base; corolla campanulate-tubular; stamens 4 ................................. 49. Rhynchotechum

7b. Calyx divided only from above middle (in China); corolla funnelform-tubular; stamens 2 (in China) 50. Cyrtandra

6b. Fruit dehiscent capsule; plants herbaceous to shrubby.

8a. Calyx plicate between lobes; corolla tube campanulate, spurred or saccate at base; stamens 4; ovary depressed globose or subglobose.

9a. Leaves slightly unequal in a pair; adaxial corolla lip ca. 1/2 as long as abaxial lip; anthers free, thecae not confluent ....................................................................................................... 51. Gyroyne

9b. Leaves strongly unequal in a pair, smaller much reduced; adaxial corolla lip as long as abaxial lip; anthers coherent laterally to form a shallow cone, thecae confluent at apex ............... 52. Stauranthera

8b. Calyx not plicate; corolla tube funnelform to tubular, cylindric, salverform, urceolate, or campanulate, base usually not swollen, rarely saccate, sometimes gibbous abaxially; stamens (1 or)2 or 4; ovary linear to oblong or ovoid, rarely subglobose or globose.

10a. Capsule ovoid to depressed globose, shorter than calyx; ovary ovoid to depressed globose; inflorescences cymose, sympodial, or scorpionid, racemose; bract apparently absent or 1; stem leaves 1 to few.

11a. Leaves opposite, strongly unequal in a pair, smaller much reduced and sessile; inflorescences apparently without bracts; calyx with many longitudinal secretory canals; staminode 1; ovary 2-loculed; placenta 1, axile .................................................................................................................................. 53. Whytockia

11b. Leaves alternate, or lowest stem leaf only unpaired, adaxial ones usually opposite and equal or nearly so in a pair; bract 1; calyx without secretory canals; staminodes 2, 3, or absent; ovary 1-loculed; placentas 2, parietal.

12a. Leaves few, all alternate; inflorescences lax racemes appearing scorpionid; stamens 2 and abaxial, or 4; capsule loculicidal .................................................................................................................. 54. Rhynchoglossum

12b. Leaves 1 to few, lowest leaf unpaired, those near apex usually opposite; inflorescences scorpionid cymes, dense; stamens 2, adaxial; capsule circumbibiscisile .................................................................................. 55. Epithema

10b. Capsule linear to ovoid, much surpassing calyx, rarely shorter than calyx; then leaves all basal (fruit unknown in Paraisometrum); ovary usually linear to oblong, rarely ellipsoid, linear-lanceolate, conical, or ovoid; flowers solitary or inflorescences cymose including paniculate or umbell-like cymes; bracts 2, rarely apparently absent, 1, or 3; leaves basal or on stem, few to many.


14a. Calyx zygomorphic, 2-lipped, abaxial lip undivided, abaxial lip 4-lobed; disc tubular; capsule narrowly ellipsoid ........................................................................................................ 15. Cathayanthe

14b. Calyx actinomorphic, 5-lobed to 5-sect from base; disc ringlike, rarely cupular or inconspicuous; capsule oblong to linear, rarely conical to ovoid.

15a. Plants stemless.

16a. Adaxial corolla lip 4-lobed, over 2 × longer than abaxial lip, abaxial lip undivided 8. Paraisometrum

16b. Adaxial corolla lip 2-lobed, equalling or much shorter than abaxial lip, abaxial lip 3-lobed or 3-sect.

17a. Stigma 1.

18a. Abaxial corolla lip densely bearded inside; bracts apparently absent; corolla tube tubular; anthers coherent in pairs, thecae divaricate ............................................................ 13. Corallodiscus

18b. Corolla glabrous to puberulent inside; bracts 2, rarely absent or several; corolla tube campanulate to broadly tubular, sometimes oblique, sometimes saccate at base, throat some-
times constricted; anthers free or all 4 coherent together, thecae parallel or subparallel.

19a. Anthers of all 4 stamens coherent together; capsule oblique in relation to pedicel; adaxial corolla lip distinctly shorter than abaxial ............................................. 16. Beccarinda

19b. Anthers free; capsule straight in relation to pedicel; adaxial corolla lip slightly shorter than to as long as abaxial.

20a. Ovary ovoid or conical; anther thecae subparallel, confluent at apex; corolla tube slightly shorter than limb; leaf blade base cuneate to attenuate ........................................ 18. Boeica

20b. Ovary ovoid or conical; anther thecae subparallel, confluent at apex; corolla tube slightly shorter than limb; leaf blade base cuneate to attenuate ........................................ 18. Boeica

17b. Stigmas 2.

21a. Adaxial corolla lip emarginate to nearly entire.

22a. Corolla tube subcampanulate to funnelform-tubular, not swollen; stamens adnate to corolla near base, all or only abaxial ones exserted, anthers free, thecae confluent at apex .......................................................... 6. Tremacron

22b. Corolla tube narrowly funnelform to cylindric, slightly gibbous abaxially; stamens adnate to corolla tube above or rarely below middle, usually included, rarely exserted, anthers coherent in pairs, thecae not confluent ................................................................ 9. Ancylostemon

21b. Adaxial corolla lip 2-lobed to 2-sect from base.

23a. Ovary 2-loculed, only adaxial locule fertile; placenta 1, axile; capsule oblique in relation to pedicel; cymes 1–3-flowered .......................................................... 11. Briggsiopsis

23b. Ovary 1-loculed; placentas 2, parietal; capsule straight in relation to pedicel; cymes 1- to many flowered.

24a. Corolla tube narrowly campanulate, gibbous abaxially, (0.7–)1–2(–2.6) cm in diam., abaxial lip 3-lobed .......................................................... 10. Briggsia

24b. Corolla tube cylindric to funnelform, broadly tubular, campanulate, urceolate, or salverform, not swollen, slightly gibbous abaxially, or slightly ampliate basally, 0.2–1(–1.2) cm in diam., abaxial lip 3-sect, rarely 3-lobed.

25a. Anthers dehiscing longitudinally from arcuate slits; corolla zygomorphic, rarely actinomorphic, tube campanulate, cylindric, or rarely urceolate or salverform, not swollen .......................................................... 7. Isometrum

25b. Anthers dehiscing longitudinally, rarely transversely; corolla zygomorphic, tube campanulate-cylindric to broadly tubular, sometimes ampliate basally, throat sometimes constricted or narrowly funnelform to cylindric, slightly gibbous abaxially.

26a. Corolla purple to blue or white or yellow to red, tube campanulate-cylindric to broadly tubular, sometimes ampliate basally, throat sometimes constricted, adaxial lip 2-lobed; anthers free; calyx 5-sect from base .................. 5. Oreocharis

26b. Corolla orange to yellow or white, rarely pink, tube narrowly funnelform to cylindric, slightly gibbous abaxially, adaxial lip 2-lobed, emarginate, or rarely undivided; anthers coherent in pairs; calyx 5-sect from base to 5-lobed from above middle .......................................................... 9. Ancylostemon

15b. Plants with a distinct stem.

27a. Stigmas 2.

28a. Ovary 2-loculed, only adaxial locule fertile; placenta 1, axile; capsule oblique in relation to pedicel; corolla tube tubular-funnelform; cymes 1–3-flowered ....... 11. Briggsiopsis

28b. Ovary 1-loculed; placentas 2, parietal; corolla tube cylindric to broadly tubular or narrowly campanulate, sometimes ampliate above; capsule straight in relation to
pedicel; cymes 1- to many flowered.
29a. Corolla tube cylindric basally, ampliate above, not swollen ...................... 12. Didissandra
29b. Corolla tube narrowly campanulate to broadly tubular, gibbous abaxially.
30b. Seeds with 1 hairlike appendage at each end ............................................. 46. Loxostigma
27b. Stigma 1.
31a. Calyx zygomorphic, 2-lipped, adaxial lip undivided, abaxial lip 4-lobed; disc tubular; capsule splitting along 1 suture ................................................... 15. Cathayanthe
31b. Calyx actinomorphic, 5-sect from base or 5-lobed, segments equal or unequal; disc ringlike, inconspicuous or absent; capsule 2(or 4)-valved.
32a. Leaves 1(or 2), apical on stem; leaf blade base cordate to auriculate; anthers dehiscing from fissures or cracks; capsule slightly longer than calyx ............. 14. Platystemma
32b. Leaves few to many, opposite, rarely whorled, spread along stem or crowded near stem apex; leaf blade base cuneate to attenuate or rounded, rarelycordate; anthers dehiscing longitudinally, poricidally, or transversely; capsule much longer than calyx.
33a. Seeds with 1 subulate or hairlike appendage at each end, or with up to 50 appendages at hilar end; corolla tube narrowly tubular to funnelform-tubular or subtubular, longer or much longer than limb, 4–17 mm in diam.; ovary linear; stamens adnate to corolla tube near or above middle, anthers usually coherent in pairs.
33b. Seeds unappendaged; corolla tube campanulate, shorter than to slightly longer than limb, 3–9 mm in diam.; ovary ovoid, ellipsoid, or conical; stamens adnate to corolla near or slightly above base, anthers free or all 4 coherent together.
34a. Corolla white to yellowish, tube subtubular, gibbous abaxially near limb, with 2 arcuate projections abaxially inside; stamens included, thecae confluent at apex; seeds with 1 subulate appendage at each end .................................................. 45. Anna
34b. Corolla red to orange, seldom greenish, yellow, or white, tube narrowly tubular to funnelform-tubular, often curved, not swollen, inside sparsely puberulent, sparsely glandular puberulent, glabrous, or with a hair ring; stamens usually exserted, thecae not confluent; seeds with 1 hairlike appendage at each end or up to 50 appendages at hilar end ........................................................................ 47. Aeschynanthus
35a. All anthers coherent together; capsule oblique in relation to pedicel; leaf blade base cordate to cuneate ................................................................. 16. Beccarinda
35b. Anthers free; capsule straight in relation to pedicel; leaf blade base cuneate to attenuate.
36a. Corolla yellowish, tube slightly longer than limb; anther thecae not confluent; ovary ellipsoid; cymes 3–5-flowered ...................................................... 17. Leptoboea
36b. Corolla white to pink or blue to purple, tube slightly shorter than limb; anther thecae confluent at apex; ovary ovoid or conical; cymes 1- to many flowered 18. Boeica
13b. Fertile stamens 2.
37a. Plants with a distinct stem.
38a. Stigmas 2.
39a. Flowers solitary; capsule valves spirally twisted; corolla tube campanulate-tubular, adaxial lip slightly shorter than abaxial ........................................ 44. Rhabdothamnopsis
39b. Inflorescences cymes, sometime spikelike or racemelike, 2–10-flowered; capsule valves straight, not twisted; corolla tube slender funnelform, funnelform, or funnelform-tubular, adaxial lip much shorter than abaxial.
40a. Bracts forming a globose involucre; corolla tube much longer than limb; leaf blade base attenuate to broadly cuneate; stamens adnate to corolla tube below middle, anthers coherent by adaxial surfaces, thecae divaricate, confluent ........................................ 26. Hemiboeopsis
40b. Bracts not forming an involucre; corolla tube longer than limb; leaf blade base cuneate to rounded or cordate; stamens adnate to corolla tube near middle, anthers coherent at apex, thecae parallel, not confluent at apex.
41a. Stigmas equal, oblate or semiobtusely undivided; calyx 5-sect from base; stamens adnate to corolla tube near mouth, slightly exserted .................................................. 21. Didymostigma
41b. Stigmas unequal, smaller 1 truncate or triangular, undivided, larger 1 narrowly obtrapeziform, emarginate; calyx 5-lobed; stamens adnate to corolla tube near middle, included.
42a. Ovary 1-loculed; placentas parietal; corolla abaxial lip lobes unequal ..... 22. Pseudochirita
42b. Ovary 2-loculed; placentas axile; corolla abaxial lip lobes subequal ................ 23. Allostigma
38b. Stigma 1.
43a. Subshrubs or rarely lianas, usually epiphytic, less frequently epipetric or terrestrial; seeds with 1 appendage at each end .................................................. 48. Lysionotus
43b. Herbs, rarely subshrubs (rarely shrubs outside China), always terrestrial or epipetric; seeds unappendaged.
44a. Anthers basifixed, thecae parallel, not confluent at apex; bracts 2, forming a globose to ovoid involucre.
45a. Ovary 1-loculed; placenta parietal; capsule dehiscing on both sides; corolla inside glabrous; tube somewhat gibbous abaxially, adaxial lip inconspicuous, much shorter than abaxial lip .................................................................................................................. 24. Metabriggsia
45b. Ovary 2-loculed, only adaxial locule fertile; placenta axile; capsule dehiscing only adaxially; corolla inside usually with a ring of hairs; tube not swollen, adaxial lip shorter than to nearly as long as abaxial ........................................................................................................ 25. Hemiboea
44b. Anthers dorsifixed, thecae divaricate, confluent at apex; bracts 2, not forming an involucre, rarely up to 7 and whorled, 1, or absent.
46a. Stamens adnate to abaxial side of corolla tube near or above middle; capsule valves straight, not twisted.
47a. Stigma abaxial, 2-lobed to undivided ............................................................. 32. Chirita
47b. Stigma terminal, undivided ....................................................................... 35. Didymocarpus
46b. Stamens adnate to abaxial side of corolla tube near base; capsule valves usually at least slightly twisted.
48a. Anthers dehiscing transversely; disc cupular; stigma ligulate; calyx zygomorphic 43. Trisepalum
48b. Anthers dehiscing longitudinally from straight or arcuate slits; disc inconspicuous or ringlike; stigma capitate, seldom subligulate; calyx actinomorphic, rarely slightly zygomorphic.
49a. Leaf blade adaxially woolly to glabrous, abaxially woolly, pannose, or velutinous, hairs interwoven, usually branched; corolla inside glabrous to glandular puberulent; tube longer than to occasionally nearly equalling limb 40. Paraboea
49b. Leaf blade puberulent to woolly, hairs unbranched; corolla inside bearded, tube shorter than limb ................................................................................................. 42. Ornithoboea
37b. Plants stemless.
50a. Corolla adaxial lip 4-lobed, abaxial lip undivided.
51a. Inflorescences dense umbel-like cymes; corolla tube 4–5 × longer than limb, adaxial lip longer than abaxial; stamens adnate to corolla tube above middle ....................... 38. Calcareoboea
51b. Inflorescences lax cymes; corolla tube shorter than limb, adaxial lip slightly shorter than abaxial; stamens adnate to corolla tube near base ........................................ 39. Allocheilos
50b. Corolla adaxial lip 2-lobed, rarely undivided, abaxial lip 3-lobed, rarely 4-lobed.
52a. Anthers dehiscing transversely; stigma 1, ligulate; capsule valves spirally twisted. 43. *Trisepalum*
52b. Anthers dehiscing longitudinally; stigmas 1 or 2, if 1 then usually capitate, globose, disclike, truncate, lamelliform, oblate, or obtrapeziform, rarely linear or subligulate; capsule valves straight or twisted.

53a. Corolla adaxial lip undivided.
53b. Corolla adaxial lip 2-lobed.

54a. Corolla tube tubular to funnelform-tubular, longer than limb; stamens exserted, anthers basifixed, free or coherent at apex, thecae parallel, not confluent; leaf blade base broadly cuneate to subrounded ................................................. 29. *Deinocheilos*
54b. Corolla tube broadly tubular, nearly equalling limb; stamens included, anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent at apex; leaf blade base cordate ................................................. 36. *Gyrocheilos*

55a. Anthers basifixed or if dorsifixed then stamens slightly exserted, thecae parallel.
55b. Anthers dorsifixed or nearly so, stamens included, thecae divaricate.

56a. Anthers basifixed, stamens slightly exserted; placentas undivided; inflorescences monochasial cymes, 1- or 2-flowered ................................................................. 20. *Dayaoshania*
56b. Anthers basifixed, stamens included; placentas projecting inward, 2-cleft; inflorescences cymes, sometimes umbel-like, 1- to many flowered.

57a. Corolla tube 1.5–4 × longer than limb, 3.5–17 mm in diam.; stamens adnate to adaxial side of corolla tube near middle, rarely near base; ovary and capsule linear 19. *Opithandra*
57b. Corolla tube shorter than limb, 2–5 mm in diam.; stamens adnate to abaxial side of corolla tube near base; ovary conical to broadly ovoid; capsule narrowly ellipsoid to oblong to ovoid .......................................................... 27. *Petrocosmea*

58a. Corolla nearly salverform, tube cylindric, adaxial lip slightly shorter than abaxial woolly, pannose, or velutinous, hairs dense, interwoven, usually branched.
58b. Corolla lobe apex acute ................................................................. 30. *Lagarosolen*

59a. Stigmas 2; corolla lobe apex acute ................................................................. 30. *Lagarosolen*
59b. Stigma 1; corolla lobe apex rounded, seldom obtuse or acute.

60a. Capsule valves spirally twisted or seldom straight, if straight leaf blade abaxially woolly, pannose, or velutinous, hairs dense, interwoven, usually branched.
60b. Capsule valves straight, not twisted; leaf blade abaxially strigose or puberulent to villous, velutinous, or wooby.

61a. Capsule valves 4; leaf blade abaxially woolly, pannose, or velutinous, hairs very dense, interwoven, usually branched ......................................... 40. *Paraboea*
61b. Capsule valves 2; leaf blade villous to puberulent, hairs dense, not interwoven or branched .................................................................................. 41. *Boea*

62a. Corolla slightly shorter than to nearly equalling limb, lobes acute 37. *Dolicholoma*
62b. Corolla tube longer to much longer than limb, lobes rounded, obtuse, or acute.

63a. Ovary ovoid or narrowly ovoid; capsule narrowly ovoid to ellipsoid, equalling to shorter than calyx.
63b. Ovary linear; capsule linear to very narrowly ovoid, much surpassing calyx.
65a. Corolla tube suburceolate-tubular, 1–2.5 mm in diam., limb indistinctly 2-lipped, adaxial lip slightly shorter than abaxial; lobe apex acute; stamens adnate to abaxial side of corolla tube slightly above base ............ 34. Petrocodon

65b. Corolla tube funnelform-tubular to campanulate or cylindric, 2–20 mm in diam., limb 2-lipped; adaxial lip slightly to 1.5–3.5 × shorter than abaxial; lobe apex rounded, rarely obtuse to acute; stamens adnate to abaxial side of corolla tube near or above middle.

66a. Stigma abaxial, 2-lobed to undivided .................................................. 32. Chirita

66b. Stigma terminal, undivided .......................................................... 35. Didymocarpus


辐花苣苔属  fu hua ju tai shu

Herbs, perennial, terrestrial, rhizomatous, stemless. Leaves many, basal; leaf blade appressed puberulent, base cuneate. Inflorescences umbel-like, dense, axillary, few-flowered cymes; bracts 2, opposite. Calyx actinomorphic; 4- or 5-sect from base; segments equal. Corolla purple to blue, actinomorphic, inside glabrous; tube rotate, not swollen, ca. 1/3 length of lobes, ca. 3 mm in diam.; limb deeply 4- or 5-lobed; lobe apex rounded to mucronulate. Stamens 4 or 5, adnate to corolla near base, equaling corolla; anthers basifixied, free, thecae parallel, not confluent, dehiscing longitudinally; connective not projecting; staminodes absent. Disc ringlike. Ovary narrowly ovoid, 1-loculed; placens 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, punctiform to subcapitate, undivided. Capsule straight in relation to pedicel, narrowly ellipsoid, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unknown.

- One species: endemic to China

Thamnocharis, along with Bournea Oliver, Tengia W. Y. Chun, and Conandron Siebold & Zuccarini, belongs to tribe Ramondieae Fritsch as defined by W. T. Wang (Fl. Reipubl. Popularis Sin. 69: 125–140. 1990). The Ramondieae are sometimes considered to be primitive in Gesneriaceae. They share (along with Ramonda L. C. Richard) actinomorphic corollas and all stamens fertile. Most other Gesneriaceae have zygomorphic corollas with at least one sterile stamen.


辐花苣苔  fu hua ju tai


Petiole 0.6–4 cm, white appressed puberulent; leaf blade oblong or elliptic to ovate, (1.2–)2.5–5.5 × (0.7–)1.6–2.8 cm, white appressed puberulent, base broadly to narrowly cuneate, margin shallowly crenulate to serrulate, apex broadly acute to rounded; lateral veins 3 or 4 on each side of midrib. Cymes 5–9-flowered; peduncle 5–9(–10) cm; bracts subulate, 1.5–2 mm. Pedicel (0.6–)4–9(–20) mm. Calyx 4- or 5-sect from base; segments narrowly triangular, 2.2–3 mm. Corolla ca. 8 mm × 1–1.2 cm, outside puberulent; tube ca. 2–3 mm; limb deeply 4- or 5-lobed; lobes lanceolate-oblong, 6–8 × 2–3 mm. Stamens unequal; filaments 2.5–8 mm, sparsely puberulent basally; anthers 1.3–1.8 mm. Ovary ca. 2 mm, puberulent. Style ca. 8 mm, glabrous. Capsule ca. 1.1 cm. Fl. Jul–Aug, fr. Aug.

- Thickets, hilly forests; 1500–1600 m. SW Guizhou (Xingren Xian, Zhenfeng Xian).

2. BOURNEA Oliver, Hooker’s Icon. Pl. 23: pl. 2254. 1893 [1894; ser. 4, vol 3].

四数苣苔属  si shu ju tai shu

Herbs, perennial, epipetric or terrestrial, rhizomatous, stemless. Leaves few to many, basal; leaf blade glabrous to appressed puberulent, base truncate to cordate. Inflorescences umbel-like, lax, axillary, many-flowered cymes; bracts 6 to numerous, crowded, involucrate. Calyx actinomorphic; 4- or 5-lobed; segments equal. Corolla white, actinomorphic, inside glabrous; tube campanulate, not swollen, equaling to 1/2 length of lobes, ca. 3 mm in diam.; limb 4- or 5-lobed from near to slightly below middle; lobe apex rounded. Stamens 4 or 5, adnate to corolla tube near or above middle, exserted; anthers dorsifixied, free, thecae parallel, not confluent, dehiscing longitudinally; connective not projecting; staminodes absent. Disc ringlike. Ovary linear, 1-loculed; placens 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, oblate, undivided or 2-lipped. Capsule straight in relation to pedicel, oblong linear, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

- Two species: endemic to China.

1a. Leaf blade margin irregularly denticulate, glabrous; petiole spreading puberulent; flowers 5-merous; calyx ca. 2.8 mm, lobes entire ............................................................. 1. B. leiophylla
1b. Leaf blade margin entire to repand, appressed puberulent, glabrescent; petiole appressed puberulent; flowers 4-merous; calyx 4–9 mm, lobes sparsely denticulate ................................................................. 2.  

1. Bournea leiophylla (W. T. Wang) W. T. Wang & K. Y. Pan ex W. T. Wang, Fl. Reipubl. Popularis Sin. 69: 135. 1990. 五数苣苔 wu shu ju tai Oreocharis leiophylla W. T. Wang, Acta Phytotax. Sin. 13: 99. 1975. Petiole 3–7.5 cm, densely brownish spreading puberulent; leaf blade elliptic-ovate to ovate, 5–8 × 3.6–5.5 cm, glabrous, base nearly cordate to nearly truncate, margin irregularly denticulate, apex acute; lateral veins 5 or 6 on each side of midrib. Cymes 11–13-flowered; peduncle ca. 11 cm; bracts linear-lanceolate, ca. 6 mm, margin dentate to serrate. Fruiting pedicel ca. 1.2 cm. Calyx ca. 2.8 mm, 5-lobed; tube ca. 0.8 mm; lobes linear-lanceolate, ca. 2 mm, margin entire. Corolla ca. 4.4 mm, outside glabrous, 5-lobed from near middle; tube ca. 2.2 mm; lobes oblong to ovate-oblong, 5–6 × 2–3 mm. Stamens 5, ca. 5.5 mm. Pistil unknown. Capsule ca. 1.5 cm. Fl. Sep, fr. Oct. 
• SW Fujian (Liancheng Xian).

2. Bournea sinensis Oliver, Hooker’s Icon. Pl. 23: pl. 2254. 1893 (1894). 四数苣苔 si shu ju tai Petiole 1–11(–14.5) cm, densely brown appressed puberulent; leaf blade narrowly to broadly ovate or oblong, 4–18 × 2.5–8 cm, appressed puberulent, glabrescent, base oblique, cordate, margin entire to repand, apex abruptly acuminate to acute; lateral veins 5 or 6 on each side of midrib. Cymes 10–20-flowered; peduncle 14–18(–26) cm; bracts linear-lanceolate, 6–12 mm, margin entire or subentire. Pedicel 1–2 cm. Calyx 4–9 mm, 4-lobed; tube 1.5–2(–3) mm; lobes linear-lanceolate, 2.5–7 mm, margin sparsely denticulate. Corolla white, 5–8 mm, outside glabrous, 4-lobed from below middle; tube 2.5–3 mm; lobes oblong to ovate-oblong, 5–6 × 2–3 mm. Stamens 4, 8–11 mm. Pistil glabrous; ovary 4–7 mm. Style 2–3 mm. Capsule (1–)2–3.5 cm. Fl. Sep–Oct, fr. Oct–Nov and May. 
• Streamsien rocks, valley forests; 600–1000 m. Guangdong.

3. TENGIA W. Y. Chun, Sunyatsenia 6: 279. 1946. 世纬苣苔属 shi wei ju tai shu Herbs, perennial, epipetric, rhizomatous, stemless. Leaves few to many, basal; leaf blade sparsely appressed puberulent, base cuneate to subrounded. Inflorescences umbel-like, lax, axillary, few-flowered cymes; bracts 2, subopposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white to pink or purple, actinomorphic, inside glabrous; tube nearly urceolate, not swollen, longer than limb, 2–5 mm in diam.; limb 5-lobed; lobe apex acute to acuminate. Stamens 5, adnate to corolla near base, included; anthers basifixed, free, thecae divergent, confluent at apex, dehiscing longitudinally; connective with short apical projection; staminodes absent. Disc ringlike. Ovary narrowly ovoid to linear, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, punctiform, undivided. Capsule straight in relation to pedicel, fusiform-linear, much longer than calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds unappendaged. 
• One species: endemic to China.

1. Tengia scopulorum W. Y. Chun, Sunyatsenia 6: 281. 1946. 世纬苣苔 shi wei ju tai Petiole 1–6 cm; leaf blade often asymmetric, elliptic to ovate, rarely obovate, (1.5–)3–6 × (1–)1.5–2.5 cm, adaxially appressed puberulent, glabrescent, abaxially densely appressed puberulent, base cuneate to nearly rounded, margin crenate, apex acute; lateral veins 4 or 5 on each side of midrib. Cymes 5–10-flowered; peduncle 4–6.5 cm, brown puberulent; bracts narrowly lanceolate, 2–5 × 0.5–0.8 mm, glabrous to sparsely pubescent, margin entire. Pedicel 4–12 cm. Calyx segments narrowly triangular, 2.5–3 mm. Corolla 5–11.3 mm, outside sparsely puberulent, glabrescent above middle; tube 3.8–10 mm; limb 5-lobed, lobes triangular, 1.2–3 × 0.5–1 mm. Stamens 2.5–3.5 mm. Pistil 5.5–12 mm; ovary sparsely puberulent. Style 4–9 mm, puberulent. Capsule 0.8–1.5 cm. Fl. Aug, fr. Jul–Aug. 
• Shaded, stony cliffs; ca. 300 m. S Guizhou (Pingba Xian), Yunnan. 

1a. Corolla white to pink, 5–7 mm, tube 3.8–4 mm, lobes 1.2–3 mm; style 4–5 mm 1a. var. scopulorum

1b. Corolla purple, 10.3–11.3 mm, tube 9–10 mm, lobes ca. 1.3 mm; style 7–9 mm 1b. var. potiflora

1a. Tengia scopulorum var. scopulorum 世纬苣苔(原变种) shi wei ju tai (yuan bian zhong) Corolla white to pink, 5–7 mm; tube 3.8–4 mm; lobes 1.2–3 mm. Style 4–5 mm. Fl. Aug, fr. Jul–Aug. 
• Shaded, stony cliffs; ca. 300 m. S Guizhou (Pingba Xian), Yunnan.


Herbs, perennial, terrestrial or epipetric, rhizomatous, stemless. Leaves 1 to few, basal; leaf blade glabrous or nearly so, base broadly cuneate to truncate or cordate. Inflorescences lax, axillary, few- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-lobed; segments equal. Corolla purple, actinomorphic, inside glabrous; tube rotate, not swollen, ca. 1/2 length of limb, 5–10 mm in diam.; limb 5-lobed, lobe apex acute to rounded. Stamens 5, adnate to corolla near base, exserted; anthers dorsifixed, connate into a tube surrounding style, thecae parallel, not confluent, dehiscing longitudinally; connective with long apical projection; staminodes absent. Disk absent. Ovary ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, depressed globose, undivided. Capsule straight in relation to pedicel, narrowly ellipsoid to narrowly ovoid, ca. 2.5 × longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

One species: eastern China and Japan.


**Conandron ramondioides** var. taiwanensis Masamune.

1a. Anthers horseshoe-shaped, 1-loculed, transversely dehiscent; cymes umbel-like, 3–7-flowered ...... 27.

About 28 species: southern China, Thailand, Vietnam; 27 species in China.

Oreocharis rhytidophylla C. Y. Wu ex H. W. Li, which is compared to and discussed under *O. benthamii* var. reticulata Dunn, is omitted from this treatment because it is known only from fruiting specimens and thus cannot be placed in Pan’s sectional classification (Acta Phytotax. Sin. 25: 264–293. 1987). Using only vegetative or fruit characters, it cannot be placed definitively in *Oreocharis*, since other genera (e.g., *Tremacron*, *Isometrum*, and *Ancylostemon*) are virtually indistinguishable in those characters.


As noted above, it can be difficult to distinguish these genera, and some species, notably *O. delavayi*, are intermediate between them. *Oreocharis delavayi* has exserted stamens and adaxial corolla lobes much smaller than abaxial ones, characters which relate it to *Tremacron*. However, the stamens that exceed the mouth do not exceed the abaxial lip lobes, and the adaxial lip lobes are larger than those of species of *Tremacron*. Relationships of and limits among these genera need further examination.

1a. Anthers horseshoe-shaped, 1-loculed, transversely dehiscent; cymes umbel-like, 3–7-flowered ...... 27. *O. flavida*
1b. Anthers broadly oblong, 2-loculed, longitudinally dehiscent; cymes cymose, rarely nearly umbel-like, (1–4)– to many flowered.
2a. Leaf blade nearly as broad as long, broadly ovate to orbicular or nearly rhombic, to 4(–6) cm; cymes 1–4-flowered.
3a. Leaf blade abaxially villous to woolly, 2.5–6 × 2–4.8 cm, margin coarsely dentate to coarsely crenate or serrate, sometimes also denticulate, apex acute, rarely rounded; stamens adnate to corolla 10–12 mm above base ......................................................... 7. O. dentata
3b. Leaf blade abaxially sparsely to densely pubescent, 1.2–3.2 × 1.4–2.5 cm, margin shallowly crenate to subentire; stamens adnate to corolla 1–3 mm above base.
4a. Leaf blade orbicular, 1.2–2.4 × 1.4–2.2 cm, base cordate; peduncle ca. 7.5 cm; corolla 2.7–3.8 cm, tube cylindric, narrowing toward throat; stamens 5–5.5 mm; pistil 2–5 mm .......... 11. O. rotundifolia
4b. Leaf blade broadly ovate to suborbicular, 2–3.2 × 1.8–2.5 cm, base slightly oblique, rounded to broadly cuneate; peduncle 10–15(–22) cm; corolla ca. 1.6 cm, tube campanulate-tubular; stamens 15–18 mm; pistil 2–2.5 cm ................................................................. 17. O. cavaleriei
2b. Leaf blade usually at least 1.5 × longer than broad, lanceolate to elliptic, oblong, ovate, or obovate, rarely broadly ovate then (1.7–)3–17 cm and cymes 1–10-flowered.
5a. Corolla tube narrowing toward mouth, usually distinctly 2-lipped, rarely slightly 2-lipped (unknown in O. amabilis and O. obliqua).
6a. Bracts early deciduous, 0.5–2 mm; peduncle translucent to purple-red glandular pubescent, glabrescent.
7a. Leaf blade glabrous adaxially; corolla 1.3–1.6 cm, abaxial lip lobes 3–4.5 mm ............ 9. O. minor
7b. Leaf blade adaxially densely appressed pubescent; corolla 1.6–2.5 cm, abaxial lip lobes 6–8 mm.
8a. Pistil glabrous ........................................................................................................ 6. O. aurantiaca
8b. Pistil glandular pubescent ............................................................................. 8. O. cordatula
6b. Bracts persistent, 1.5–16 mm; peduncle usually brownish pubescent to woolly.
9a. Corolla limb slightly 2-lipped; stamens adnate to corolla 7–10 mm above base, filaments flattened, broadest near apex; indument on most of plant jointed villous ............ 14. O. heterandra
9b. Corolla limb distinctly 2-lipped; stamens adnate to corolla 0.5–6 mm above base, filaments slender or flattened; indument puberulent to woolly, not jointed.
10a. Petiole and leaf blade abaxially villous, at least along veins of young leaves; corolla adaxial lobes 1–4 mm.
11a. Calyx segments 2–5 mm; corolla adaxial lobes 1–3 mm.
12a. Petiole to 9 cm; leaf blade 2–9 × 0.8–3.5 cm; peduncle and bracts rust-brown villous ......................................................................................... 10. O. georgei
12b. Petiole to 4 cm; leaf blade 3–15.5 × 1.5–6.5 cm; peduncle and bracts sparsely to densely rust-brown villous and pubescent .............. 16. O. forrestii
11b. Calyx segments 5–8 mm; corolla adaxial lobes 3.5–4 mm (unknown in O. obliqua).
13a. Stamens ca. 1 cm, filaments glabrous; peduncle 7.5–10 cm; leaf blade apex acute to acuminate ................................................................. 13. O. obliqua
13b. Stamens 4–5 mm, filaments white villous or sparsely pubescent near apex; peduncle 12–40 cm; leaf blade apex acute ................................. 12. O. aurea
10b. Petiole and leaf blade abaxially woolly at least along veins; corolla adaxial lobes 4–10 mm.
14a. Leaf blade lanceolate, 2.5–4 × longer than broad, abaxially densely rust-brown woolly ........................................................................... 5. O. cinnamomea
14b. Leaf blade lanceolate-oblong to oblong, elliptic, ovate, or obovate, less than 2.5 ×
longer than broad, abaxially densely pale brown woolly or glabrescent to pubescent between veins, woolly along veins.

15a. Leaf blade 1.5–5.5 × 1–2.5 cm.
16a. Leaf blade abaxially densely pale brown woolly; bracts 5–12 × 2–6
mm ................................................................. 1. O. amabilis
16b. Leaf blade abaxially densely brown woolly along veins, pubescent between; bracts 3–4 × 0.5–1 mm ........................................ 3. O. nemoralis

15b. Leaf blade 2–15 × 1–7 cm.
17a. Corolla white to pale purple, ca. 1.2 cm, outside sparsely puberulent;
bracts ovate, 1.5–3.5 mm wide; stamens 4.5–6.5 mm; staminode ca.
1.2 mm ................................................................. 4. O. magnidens
17b. Corolla purple, 1.6–2.8 cm, outside sparsely pubescent; bracts linear to narrowly ovate, 0.8–2 mm wide; stamens 7–10 mm; staminode 3–3.5
mm ................................................................. 2. O. auricula

5b. Corolla tube cylindric or gradually ampliate from base to mouth, usually barely to slightly 2-lipped, occasionally distinctly 2-lipped.
18a. Leaf blade adaxially with at least some villous indument.
19a. Leaf blade with only villous indument on both surfaces, apex acute to acuminate; bract margin sometimes sparsely dentate ................................. 13. O. obliqua
19b. Leaf blade both villous and pubescent, at least abaxially, apex acute to rounded; bract margin entire.
20a. Leaf blade margin serrulate or crenate-serrate; bracts 2–3 × 0.5–1 mm; petiole to 14.5 cm; corolla orange-red, outside pubescent; stamens adnate to corolla 4–6 mm above base
19. O. dasyantha
20b. Leaf blade margin coarsely double crenate or dentate to serrate; bracts 3–8 × 1–2
mm; petiole to 6.5 cm; corolla yellow, outside glabrous or glandular puberulent; stamens adnate to corolla 1–3 mm above base.
21a. Leaf blade oblanceolate to narrowly ovate, 3–15.5 × 1.5–6.5 cm, base cuneate to broadly cuneate; lateral veins 7–11 on each side of midrib; bracts 4–8 mm; corolla abaxial lip lobes 3–5 × 2–4 mm; stamens 2.5–4 mm, filaments glabrous; pistil ca. 4 mm ................................................................. 16. O. forrestii
21b. Leaf blade elliptic to ovate, 1.4–6 × 0.6–3.5 cm, base broadly cuneate to cordate;
lateral veins 4 or 5 on each side of midrib; bracts 3–4 mm; corolla abaxial lip lobes 6–9 × 5–7 mm; stamens 10–14 mm, filaments glandular pubescent; pistil ca.
1.4 cm .................................................................. 18. O. delavayi

18b. Leaf blade adaxially pubescent to puberulent or glabrescent.
22a. Leaf blade lanceolate-oblong to oblong, 2.5–5.5 × 1–2.4 cm; bracts 2–6 mm wide 1. O. amabilis
22b. Leaf blade ovate to elliptic, lanceolate, oblanceolate, or ovate-orbicular, rarely narrowly oblong, (1.7–)3–17 × 0.8–8 cm; bracts 1–2 mm wide.
23a. Peduncle red to purple glandular pubescent to villous; leaf blade narrowly oblong to lanceolate, abaxially densely light brown pannose; lateral veins indistinct; corolla limb 2-lipped; stamens ca. 4 mm; pistil 5–8 mm ........................................ 15. O. henryana
23b. Peduncle brown to whitish villous or woolly to pubescent, leaf blade ovate, elliptic, lanceolate, oblanceolate, to ovate-orbicular, abaxially villous or woolly, usually also pubescent; lateral veins adaxially distinct or prominent, rarely indistinct; corolla limb slightly or barely 2-lipped; stamens 5–18 mm; pistil 9–25 mm (unknown in O. obliqua).
24a. Leaf blade adaxially sparsely villous to glabrescent ............................. 13. *O. obliqua*
24b. Leaf blade adaxially pubescent or pubescent and villous.  
   25a. Corolla yellow; disc 2–4 mm, deeply 5-lobed to 5-sect from base;  
   stamens 1.3–1.8 cm, filaments sparsely pubescent, villous basally,  
   anther connective sparsely pubescent to pubescent.  
   26a. Bracts 5–10 mm; calyx segments 6–12 mm ....................... 25. *O. bodinieri*  
   26b. Bracts 2–5 mm; calyx segments 4–7 mm ............................ 26. *O. tubicella*  
25b. Corolla purple to blue, pink, lavender, orange-red, or greenish; disc  
   0.8–1.3 mm, entire to shallowly 5-lobed; stamens 0.5–1.3 cm, filaments  
   glabrous to pubescent, anther connective glabrous, rarely puberulent.  
27a. Leaf blade 3–9 × 1.5–4.5 cm; lateral veins indistinct or distinct;  
   petiole to 4.5 cm.  
   28a. Corolla tube 4–7 mm wide, adaxial lip shallowly 2-lobed,  
   lobes 1.2–3 × 2–3 mm; bracts 1.5–5 mm; calyx segments 2–3 mm 22. *O. tubiflora*  
   28b. Corolla tube 7–10 mm wide, adaxial lip 2-lobed from near  
   base, lobes 3–5 × 4–5 mm; bracts 4–9 mm; calyx segments 4–7  
   mm  .............................................................................. 23. *O. maximowiczii*  
27b. Leaf blade (1.7–)3–17 × 1.5–8 cm; lateral veins distinct to  
   prominent; petiole to 14.5 cm.  
   29a. Bracts 2–3 mm; corolla orange-red, tube campanulate;  
   stigmas 2, equal, suborbicular ........................................... 19. *O. dasyantha*  
   29b. Bracts 4–13 mm; corolla purple to blue, purple red, pinkish,  
   or greenish, tube nearly cylindric or broadly tubular to  
   narrowly funnelform; stigma 1, disc-shaped.  
30a. Leaf blade abaxially ± densely appressed pubescent,  
   apex acute to acuminate; corolla 1.8–2.3 cm  .............. 20. *O. argyreia*  
30b. Leaf blade abaxially sparsely to densely pubescent or  
   densely woolly, veins woolly, apex rounded to acute;  
   corolla 0.7–1.6 cm.  
31a. Bracts 6–12 mm; corolla tube nearly cylindric,  
   gradually slightly ampliate from base to mouth,  
   adaxial lip 2-lobed from near middle  ... 21. *O. xiangguiensis*  
31b. Bracts 4–8 mm; corolla tube broadly tubular to  
   narrowly funnelform, gradually ampliate from base  
   to mouth, adaxial lip 2-lobed from near base 24. *O. benthamii*  

马铃苣苔 ma ling ju tai  
Petiole to 6.5 cm, brown woolly; leaf blade lanceolate-oblong to oblong, 2.5–5.5 × 1–2.4 cm, adaxially densely appressed pubescent, abaxially densely pale brown woolly, base rounded to truncate, margin crenate, apex obtuse to rounded; lateral veins 6 or 7 on each side of midrib, obscure. Cymes 3–8-flowered; peduncle 15–17 cm, woolly, glabrescent; bracts 2, lanceolate, 5–12 × 2–6 mm, densely woolly to pubescent, margin entire. Pedicel 2–2.5 cm. Calyx segments lanceolate to narrowly ovate, 2.5–5.5 mm, margin entire. Corolla purple, drying yellow, 1.4–2.2 cm, outside glabrous; tube cylindric, narrowed at mouth, 0.9–1.4 cm; limb 2-lobed, lobes narrowly ovate, 6–7 × 2–3 mm. Stamens adnate to corolla near base. Style slightly flattened; stigma 1, disc-shaped. Capsule 2.3–3.7 cm, glabrous. Fr. Nov.  
*About 1500 m. Yunnan (Mile Xian).*  

长瓣马铃苣苔 chang ban ma ling ju tai  
Petiole to 7 cm, brown woolly; leaf blade sometimes slightly falcate, narrowly to broadly elliptic to ovate or obovate, 2–12 × 1–5 cm, adaxially woolly or sericeous to glabrescent or sparsely hirsute, abaxially pale brown woolly to glabrescent, densely brown woolly along veins, base sometimes oblique, cuneate to cordate, margin serrate to subentire, serrulate to
Oreocharis auricula

1a. Leaf blade adaxially woolly to glabrescent, margin serrate to subentire; peduncle sparsely brownish woolly; bracts narrowly ovate to narrowly lanceolate, 3–10 × 1–2 mm, brown woolly, calyx segments narrowly triangular to lanceolate, 3–6 mm, outside densely brownish pubescent, apex acuminate .................................................. 2a. var. auricula

1b. Leaf blade adaxially sparsely hirsute, margin crenate-dentate; peduncle pubescent; bracts linear, 3–4 × ca. 0.8 mm, pubescent; calyx segments narrowly ovate, 2.5–3 mm, outside sparsely puberulent, apex obtuse to rounded .................................................. 2b. var. denticulata

2a. Oreocharis auricula var. auricula

Didymocarpus auricula S. Moore, J. Bot. 13: 229. 1875; Chirita sericea H. Lév. & Vaniot (1906), not Ridley (1905); D. sericeus H. Lév. (1906), not Ridley (1896); Oreocharis esquirolii H. Lév. (p. 447, not p. 329); O. leveilleana Fedde; O. sericea H. Lév. Leaf blade sometimes slightly falcate, narrowly to broadly elliptic to ovate or obovate, 2–12 × 1–5 cm, adaxially woolly or sericeous to glabrescent, base sometimes oblique, cuneate to cordate, margin serrate to serrulate or serrate to crenulate. Peduncle sparsely brownish woolly; bracts narrowly ovate to narrowly lanceolate, 3–10 × 1–2 mm, brown woolly. Pedicel glabrescent to sparsely woolly. Calyx segments narrowly triangular to lanceolate, 3–6 mm, outside densely brownish pubescent, apex acuminate. Fl. May–Sep, fr. Aug–Nov.


Shady and damp rocks by streams, in valleys, or under forests on slopes; 200–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan (Xiushan Xian).

Oreocharis auricula has been included by most authors in O. auricula. Pan (Acta Phytotax. Sin. 25: 275–276. 1987) recognized O. sericea, citing geography as well as differences in indument on the adaxial leaf surface (densely appressed puberulent in O. auricula vs. sericeous-villos in O. sericea), the amount of lobing of the adaxial corolla lip, and size of those lobes relative to lobes of abaxial corolla lip (adaxial lip lobes divided from the base to below the middle and equaling or nearly equaling those of the abaxial lip vs. adaxial lip lobes divided only to the middle and shorter than those of the abaxial lip respectively). The distributions of these species overlap throughout most of their ranges, and the characters used form continua as well. Therefore, it is difficult, if not impossible, to distinguish these taxa. The best character for distinguishing them appears to be the corolla lobes; however, fruiting specimens cannot be determined. Because of these difficulties we recognize only one species, O. auricula.

Oreocharis auricula has frequently been cited as a combination; however, it is not a combination because both Chirita sericea H. Lév. & Vaniot and Didymocarpus sericeus H. Lév. are later homonyms.


Different from the above in having the peduncle and bracts pubescent; peduncle 6–10 cm, sparsely brownish woolly to glabrescent; bracts 2, linear, 3–4 × ca. 0.5–1 mm, brown woolly, margin entire. Pedicel 5–10 mm. Calyx segments linear, 3–5 mm, margin entire. Corolla purple, 1.3–1.5 cm, outside sparsely pubescent; tube cylindric, narrowed at mouth, ca. 10 × 3–4 mm; limb 2-lobed; adaxial lip 2-lobed from near base, lobes 4–6 × 1.5–1.6 mm; abaxial lip lobes 2.5–4 × ca. 1.5 mm. Stamens adnate to corolla 4–5 mm above base, ca. 8 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 1.2 mm. Disc ca. 1.5 mm, entire. Pistil...
ca. 1.1 cm, glabrous. Stigma 1, disc-shaped. Capsule 2–2.6 cm.


大齿马铃苣苔 da chi ma ling ju tai
Petiole to 9 cm, densely pale brown woolly; leaf blade obovate to elliptic, 4–15 × 3–7 cm, adaxially villous, abaxially densely pale brown woolly, glabrescent between veins, base sometimes slightly oblique, cuneate to rounded, margin dentate to crenate or serrate, apex obtuse to rounded; lateral veins 5–9 on each side of midrib, distinct. Cymes 2–12-flowered; peduncle 7–20 cm, glandular pubescent to villous; bracts 2, ovate, 5–6 × 1.5–3.5 mm, brown woolly, margin entire. Pedicel 0.7–2.5 cm. Calyx segments ovate, 2.5–3 mm, margin entire. Corolla white to pale purple, ca. 1.2 cm, outside sparsely puberulent; tube cylindric, narrowed at mouth, 7.5–12 × 2–3.5 mm; limb 2-lipped; adaxial lip shallowly 2-lobed, lobes 3–4 × 0.4–0.6 mm. Stamens adnate to corolla 4–10 mm above base, 3–5 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 1.2 mm. Disc ca. 1.5 mm, slightly undulate. Pistil ca. 8 mm, glabrous. Stigma 1, disc-shaped. Capsule 2.6–3.6 cm. Fl. Jul, fr. Oct.


肉色马铃苣苔 rou se ma ling ju tai
Petiole to 11 cm, densely rust-brown woolly; leaf blade lanceolate, 3–16 × 1.2–4 cm, adaxially sparsely short strigose to rarely brown villous, abaxially densely rust-brown woolly, base narrowly cuneate to broadly cuneate, margin irregularly serrate to dentate or crenate, apex acute to acuminate; lateral veins 5–9 on each side of midrib, sometimes indistinct. Cymes 2–16-flowered; peduncle 10–20 cm, brown villous; bracts 2, linear to narrowly triangular, 1.5–5 × 0.5–1 mm, rust-brown villous to sparsely pubescent, margin entire. Pedicel 0.3–3 cm. Calyx segments narrowly oblong to narrowly triangular, 2–4 mm, margin entire. Corolla greenish yellow to deep orange, 1–1.6 cm, outside pubescent; tube cylindric, narrowed at mouth, 7–10 × 3–5 mm; limb 2-lipped; adaxial lip 2-loculed from near base, all lobes 4–5 × 0.2–0.4 mm. Stamens adnate to corolla 0.5–1.5 mm above base, 3.4–4 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 1.2 mm. Disc ca. 1.2 mm, subentire. Pistil 4.5–6 mm, glabrous. Stigma 1, disc-shaped. Capsule 2–3 cm. Fl. Jun–Aug, fr. Aug–Sep.

6. Oreocharis aurantiaca (Franchet) Pellegrin; P. forrestii Craib.

橙黄马铃苣苔 cheng huang ma ling ju tai
Peranthis aurantiaca (Franchet) Pellegrin; P. forrestii Craib.
Petiole to 5(–9) cm, densely pale brown woolly; leaf blade rhombic-ovate to narrowly elliptic or lanceolate, 2.5–6 × 1–2.5–4.5 cm, adaxially densely appressed pubescent, abaxially sparsely to densely pale brown woolly, base sometimes oblique, narrowly cuneate to subcordate, margin coarsely crenate to coarsely dentate or serrate, apex acute to rounded rarely nearly acuminate; lateral veins 3–7 on each side of midrib, frequently indistinct. Cymes 2–10-flowered; peduncle 6–16 cm, translucent to purple-red glandular pubescent, glabrescent; bracts 2, deciduous, ovate to linear, 0.5–1 × 0.2–0.5 mm, pubescent, margin entire. Pedicel 0.7–2.5 cm. Calyx segments subulate to narrowly triangular, 1.5–3.5 mm, margin entire. Corolla deep orange to orange, 1.6–2.5 cm, outside sparsely glandular pubescent; tube cylindric, narrowed at mouth, 1.4–1.7 cm × 4–6(–8) mm; limb 2-lipped; adaxial lip shallowly 2-lobed, lobes 2.5–4 × 2–3 mm; abaxial lip lobes 7–8 × 1–2 mm. Stamens adnate to corolla 4–10 mm above base, 6–10 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 3 mm. Disc ca. 2 mm, slightly undulate. Pistil 1.2–1.7 cm, glabrous. Stigma 1, disc-shaped. Capsule 2.3–3.5 cm. Fl. Jul–Aug, fr. Aug–Sep.


川西马铃苣苔 chuan xi ma ling ju tai
Petiole to 3.7 cm, epidermis green, densely red-brown long villous; leaf blade broadly ovate to nearly rhombic, 2.5–6 × 2–4.8 cm, adaxially densely whitish pubescent to villous, abaxially red-brown villous to woolly, hairs longer along veins, base sometimes slightly oblique, cuneate to cordate, margin coarsely dentate to coarsely crenate or serrate, sometimes also denticulate, apex acute, rarely rounded; lateral veins 5 or 6 on each side of midrib, distinct. Cymes 1–4-flowered; peduncle 4–9 cm, epidermis reddish brown, translucent to golden villous; bracts 2, narrowly triangular, 3–5 × ca. 1 mm, villous to densely pubescent, margin entire. Pedicel 1.1–2 cm. Calyx segments narrowly triangular, 4–6 mm, margin entire. Corolla (dry) orange, with red lobes, 1.9–2.4 cm, outside densely glandular pubescent, especially on lobes; tube cylindric, narrowing slightly toward throat, 1.5–1.8 cm × 4–7 mm; limb 2-lipped; adaxial lip shallowly 2-lobed, lobes 3–4

See notes under Oreocharis cordatula and O. minor.

8. Oreocharis fulva (Franchet) Pellegrin; O. diandra Hayata

川西马铃苣苔 chuan xi ma ling ju tai
Petiole to 3.7 cm, epidermis green, densely red-brown long villous; leaf blade broadly ovate to nearly rhombic, 2.5–6 × 2–4.8 cm, adaxially densely whitish pubescent to villous, abaxially red-brown villous to woolly, hairs longer along veins, base sometimes slightly oblique, cuneate to cordate, margin coarsely dentate to coarsely crenate or serrate, sometimes also denticulate, apex acute, rarely rounded; lateral veins 5 or 6 on each side of midrib, distinct. Cymes 1–4-flowered; peduncle 4–9 cm, epidermis reddish brown, translucent to golden villous; bracts 2, narrowly triangular, 3–5 × ca. 1 mm, villous to densely pubescent, margin entire. Pedicel 1.1–2 cm. Calyx segments narrowly triangular, 4–6 mm, margin entire. Corolla (dry) orange, with red lobes, 1.9–2.4 cm, outside densely glandular pubescent, especially on lobes; tube cylindric, narrowing slightly toward throat, 1.5–1.8 cm × 4–7 mm; limb 2-lipped; adaxial lip shallowly 2-lobed, lobes 3–4
× ca. 2 mm; abaxial lip central lobe ca. 7.5 × 2 mm, lateral lobes ca. 6 × 2.5 mm. Stamens adnate to corolla 1–1.2 cm above base, 7–8 mm; filaments slender, glabrous or pubescent; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous or pubescent; staminode 1, ca. 1.2 mm. Disc ca. 2 mm, 5-lobed, undulate. Pistil ca. 1.3 cm, glabrous. Stigma 1, disc-shaped. Capsule 2.8–4 cm. Fl. Sep.

• W Sichuan.

心叶马铃苣苔 xin ye ma ling ju tai  
Petiole to 8(–13) cm, densely pale brown woolly; leaf blade ovate-lanceolate to narrowly ovate, 3–7.5 × 1.2–2.5 cm, adaxially densely appressed pubescent, abaxially densely pale brown woolly, base sometimes oblique, cuneate to cordate, margin coarsely crenate to coarsely serrate, apex acute to rounded; lateral veins 5 or 6 on each side of midrib, indistinct. Cymes 1–10-flowered; peduncle 5.5–14 cm, translucent to purple-red glandular pubescent; bracts 2, deciduous, ovate to linear, 0.5–1 × 0.2–0.5 mm, pubescent, margin entire. Pedicel 0.7–2 cm. Calyx segments subulate to narrowly triangular, 1.5–3.5 mm, margin entire. Corolla deep orange to yellow, 1.9–2.4 cm, outside sparsely glandular pubescent; tube cylindric, narrowed at mouth, 1.2–1.4 cm × 4–6(–8) mm; limb 2-lipped; adaxial lip shallowly 2-lobed, lobes 3–4 × 3–5 mm; abaxial lip lobes 6–7 × ca. 2 mm. Stamens adnate to corolla 3–6 mm above base, 8–11 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 0.5 mm. Disc 2–2.5 cm, subentire. Pistil 1–1.2 cm, glandular pubescent. Stigma 1, disc-shaped. Capsule 2–3 cm. Fl. Jun–Aug, fr. Jul–Sep.  
• Limestone by streams in valleys and at montane summits; 1900–3200 m. SW Sichuan (Jiulong Xian, Muli Xian, Yanyuan Xian), Yunnan (Zhongdian Xian).  
Oreocharis cordatula is very closely related to O. aurantiaca, from which it is separated only by the pubescent pistils. In the opinion of Weitzman and Skog, O. cordatula deserves, at most, recognition as a variety of O. aurantiaca.

小马铃苣苔 xiao ma ling ju tai  
Petiole to 8 cm, densely pale brown woolly; leaf blade rhombic-ovate to elliptic or lanceolate, 1.6–4.8 × 0.6–1.9 cm, adaxially glabrous, abaxially densely pale brown woolly, base cuneate to subcordate, margin coarsely crenate to coarsely dentate or serrate, apex acute to rounded; lateral veins 4–6 on each side of midrib, indistinct. Cymes 2–8-flowered; peduncle 6–11 cm, translucent to purple-red glandular pubescent; bracts 2, deciduous, ovate to linear, 0.5–2 × 0.2–0.5 mm, pubescent, margin entire. Pedicel 0.6–1.8 cm. Calyx segments triangular to oblanceolate, 2–2.5 mm, margin entire. Corolla yellow, 1.3–1.6 cm, outside sparsely glandular pubescent to glabrescent; tube cylindric, narrowed at mouth, 1–1.3 cm × 4–6 mm; limb 2-lipped; adaxial lip shallowly 2-lobed, lobes 3–4 × 2–3 mm; abaxial lip lobes 3–4.5 × 1.5–2 mm. Stamens adnate to corolla 1.8–4 mm above base, 3.5–7 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 1.5 mm. Disc ca. 2 mm, shallow denticulate. Pistil 0.8–1.2 cm, glabrous. Stigma 1, disc-shaped. Capsule 2.5–2.8 cm. Fl. May–Aug, fr. Jul–Aug.

• Dry shady rocks on cliffs in valleys; 2800–3100 m. SW Sichuan (Muli Xian), Yunnan (Lijiang Xian).  
Oreocharis minor is very closely related to O. aurantiaca. Indeed, the only character which separates them is adaxial leaf surface glabrous in the former. In the opinion of Weitzman and Skog, O. minor deserves, at most, recognition as a variety of O. aurantiaca.

剑川马铃苣苔 jian chuan ma ling ju tai  
Petiole to 9 cm, rust-brown villous; leaf blade narrowly ovate to elliptic or narrowly obovate, 2–9 × 0.8–3.5 cm, adaxially whitish pubescent, with a few rust-brown hairs, abaxially densely rust-brown villous, glabrescent between veins, base cuneate to nearly rounded, margin crenate to dentate or serrate, apex acute to obtuse or acuminate; lateral veins 4–6 on each side of midrib, distinct. Cymes 1–6-flowered; peduncle 3–13 cm, rust-brown villous; bracts 2, linear, 2.5 × 0.5–1 mm, rust-brown villous, margin entire. Pedicel 1–2.4 cm. Calyx segments narrowly lanceolate to ovate or triangular, 2–4 mm, margin entire. Corolla yellow to orange-yellow, 1.4–1.9 cm, outside sparsely glandular pubescent to glabrescent; tube cylindric, narrowed at mouth, ca. 1 × 0.4–0.7 mm; limb 2-lipped; adaxial lip 2-lobed from near base, lobes 2–3 × 1.5–2 mm; abaxial lip lobes 5–6 × 2.5–3 mm. Stamens adnate to corolla 2–3 mm above base, 3–4 mm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 1 mm. Disc ca. 2 mm, 5-lobed. Pistil 5–7 mm, glabrous. Stigma 1, disc-shaped. Capsule 1.5–3 cm. Fl. Mar–Jun, fr. Jun–Jul.

• Rocks in forests, forest margins; 2300–3400 m. SW Sichuan, NW Yunnan.  

圆叶马铃苣苔 yuan ye ma ling ju tai
Petiole to 4 cm, rust-brown villous; leaf blade orbicular, 1.2–2.4 × 1.4–2.2 cm, adaxially appressed pubescent, abaxially sparsely pubescent, base cordate, margin crenulate, apex rounded; lateral veins 4 or 5 on each side of midrib, distinct. Cymes 1–3-flowered; peduncle ca. 7.5 cm, rust-brown villous; bracts 2, oblong, 2.5–4 × 1.5 mm, rust-brown villous, margin entire. Pedicel ca. 2 cm. Calyx segments oblong, ca. 5 mm, margin entire. Corolla yellow, ca. 1.6 cm, outside pubescent; tube cylindrical, narrowing toward throat, ca. 9 × 4 mm; limb 2-lobed; adaxial lip 2-lobed from near base, lobes ca. 3.5 × 2.5 mm; abaxial lip lobes 4.5–5.5 × ca. 3 mm. Stamens adnate to corolla 1.2–1.5 mm above base, 5–5.5 mm; filaments slender, pubescent; anthers broadly oblong, 2-lobed, dehiscing longitudinally, connective glabrous; staminode ca. 1 mm. Disc ca. 1–1.5 mm, 5-lobed from near middle. Pistil 2–5 mm; ovary glabrous. Style pubescent; stigma 1, disc-shaped. Capsule ca. 1.5 cm. Fl. Oct.

- Rocks in forests; ca. 2100 m. Yunnan (Pingbian Xian).


**黄马铃苣苔** huang ma ling ju tai

Petiole to 12 cm, densely brownish villous; leaf blade lanceolate to ovate, 5–15.5 × 3.4–8 cm, adaxially sparsely appressed pubescent and villous or densely pubescent, abaxially appressed pubescent and villous or glabrescent, especially between veins, base sometimes slightly oblique, broadly cuneate to cordate, margin serrate to crenate, often doubly so, apex acute; lateral veins 7–10 on each side of midrib, distinct. Cymes 3–10-flowered; peduncle 12–40 cm, rust-brown villous; bracts 2, lanceolate to narrowly lanceolate, 6–16 × 1–5 mm, rust-brown villous, margin entire or sparsely dentate to serrate. Pedicel 0.5–4.5 cm. Calyx segments lanceolate to linear, 6–10 mm, margin 2- or 3-denticulate or entire. Corolla yellow, ca. 1.6 cm, outside pubescent; tube cylindrical, narrowing toward throat, ca. 9 × 4 mm; limb 2-lobed; adaxial lip 7–9 mm; abaxial lip 2-sect from near base, lobes ca. 3.5 × 2.5–3.5 mm. Stamens adnate to corolla 2–5 mm above base, 4–5 mm; filaments flattened to slender, sparsely pubescent near apex or white villous; anthers broadly oblong, 2-lobed, dehiscing longitudinally, connective glabrous; staminode ca. 0.5–2 mm. Disc 1–2 mm, 5-lobed. Pistil 8–10 mm, glabrous to sparsely glandular puberulent. Stigma 1, disc-shaped. Capsule 2.8–3.7 cm. Fl. Aug–Sep, fr. Sep–Oct.

- Rocks by streams in valleys; 1400–1500 m. Yunnan (Xichou Xian).


**斜叶马铃苣苔** xie ye ma ling ju tai

Petiole to 8 cm, brown villous; leaf blade oblique, ovate to elliptic, (3.5–)5.5–14 × 2–5.5 cm, adaxially sparsely villous to glabrescent, abaxially villous, hairs to 3 mm, glabrescent, especially between veins, base usually oblique, cuneate to rounded, margin serrate, apex acute to acuminate; lateral veins 7–11 on each side of midrib, distinct. Cymes (2–)5–10-flowered; peduncle 7.5–10 cm, brown villous; bracts 2, linear, 5–9 × 1–1.5 mm, brownish villous, margin sometimes sparsely dentate. Fruiting pedicel 0.7–2.5 cm. Persistent fruiting calyx segments linear to narrowly lanceolate, 5–8 mm, margin entire. Corolla 1.7–2.4 cm; tube cylindrical, narrowed at mouth; adaxial lip 7–9 mm; abaxial lip 2.5–3.5 mm. Stamens adnate to corolla 2–6 mm above base, ca. 1 cm; filaments flattened to slender, glabrous; anthers broadly oblong, 2-lobed, dehiscing longitudinally, connective glabrous; staminode ca. 2 mm. Persistent stigma 1, disc-shaped. Capsule 2.5–3 cm, glabrous.

- In shady and damp mixed forest; 1400–2300 m. Yunnan (Magan Xian).


**异蕊马铃苣苔** yi rui ma ling ju tai

Petiole to 4 cm, jointed villous; leaf blade broadly elliptic-ovate to broadly elliptic, 7–10.5 × 4.5–6 cm, abaxially densely appressed jointed villous, abaxially...
sparsely jointed villous and densely so along veins, base broadly cuneate to subrounded, margin serrate, apex obtuse to acute; lateral veins 6–8 on each side of midrib. Cymes 5–9-flowered; peduncle 6–13.5 cm, jointed villous; bracts 2, narrowly lanceolate, 5–8 mm, jointed villous. Calyx segments narrowly lanceolate, 5–7 mm, margin entire. Corolla purple-blue, ca. 2.5 cm, outside sparsely glandular puberulent; tube cylindrical, narrowed slightly at mouth, ca. 1.5 × 0.5 cm; limb slightly 2-lipped, lobes 8–10 × 3–4 mm. Stamens adnate to corolla 7–10 mm above base, 8–11 mm; filaments flattened, broadest near apex, sparsely glandular puberulent; 2-located, dehiscing longitudinally; staminode 1, minute. Disc 4-crenulate. Pistil glabrous. Stigma 1, disc-shaped. Fruit unknown. Fl. Oct.

• Rocks; ca. 1300 m. Guangxi.

Known only from the type collection which was not seen by the authors of this treatment.

15. Oreocharis henryana Oliver, Hooker’s Icon. Pl. 20: pl. 1944. 1890.

川滇马铃苣苔 chuān diān mǎ líng jù tái
Oreocharis squamigera H. Léveillé.

Petiole to 10 cm, densely light brown pannose; leaf blade narrowly oblong to lanceolate, 2–8.3 × 1–3.5 cm, adaxially pubescent to densely pubescent, abaxially densely light brown pannose, base cuneate to auriculate, margin irregularly crenate to serrate or dentate, apex acute to obtuse; lateral veins 5–7 on each side of midrib, indistinct. Cymes 4–10-flowered; peduncle 7–18 cm, red to purple glandular pubescent to villous; bracts 2, linear to subulate, often deciduous, 4–5 × 0.3–0.5 mm, villous, margin entire. Pedicel 0.5–4 cm. Calyx segments linear-lanceolate, 3–5 mm, margin entire. Corolla purple to deep purple, 7–11 mm, outside glabrous; tube campanulate, 5–6 × 4–6 mm; limb 2-lipped; adaxial lip 2-sec from near base, all lobes 2–4 × 1.5–3 mm. Stamens adnate to corolla 1–2 mm above base, ca. 4 mm; filaments flattened, glabrous; anthers broadly oblong, 2-located, dehiscing longitudinally, connective glabrous; staminode 1, ca. 1 mm. Disc ca. 1 mm, entire. Pistil ca. 4 mm, glabrous. Stigma 1, disc-shaped. Capsule 1.5–2.5 cm. Fl. Jul–Aug. fr. Sep–Oct.

• Rocks and tree branches in forests on slopes; 2300–3600 m.

Sichuan (Yanyuan Xian), Yunnan (Lijiang Xian).


贵州马铃苣苔 guì zhōu mǎ líng jù tái

Petiole to 6 cm, brown villous; leaf blade broadly ovate to suborbicular, 2.3–2.2 × 1.8–2.5 cm, pale brown pubescent, abaxially more densely so, sometimes with darker hairs along veins, base slightly oblique, rounded to broadly cuneate, shallowly crenate to subentire, apex rounded; lateral veins ca. 4 on each side of midrib, indistinct. Cymes 1–2-flowered; peduncle 10–15(–22) cm, rust-brown villous; bracts 2, lanceolate, 2–4 × ca. 0.5 mm, rust-brown villous, margin entire. Pedicel 1.4–2 cm. Calyx segments linear-lanceolate, 6–8 mm, margin entire. Corolla yellowish basally to reddish near apex (dry), 2.7–3.8 cm, outside pubescent; tube campanulate-tubular, 1.8–2.4 × 1–1.2 cm; limb strongly 2-lipped; adaxial lip 2-sec from base, lobes ca. 8 × 2 mm; abaxial lip lobes 3–4 × 3–4 mm. Stamens adnate to corolla 1–3 mm above base, 1.5–1.8 cm; filaments slender, sparsely pubescent; stamens broadly oblong, 2-located, dehiscing longitudinally, connective glabrous; staminode apparently absent. Disc 0.6–1 mm, entire. Pistil 2–2.5 cm, pubescent toward apex. Stigmas 2, flabellate. Capsule 3–4 cm. Fl. fr. Sep.

• Guizhou (Longli Xian).


椭圆马铃苣苔 tuǒ yuán mǎ líng jù tái


Petiole to 6.5 cm, rust-brown villous; leaf blade elliptic to ovate, 1.4–6 × 0.6–3.5 cm, gray pubescent and sparsely rust-brown villous, base sometimes oblique, broadly cuneate to cordate, margin coarsely double crenate to serrate, apex obtuse to acute; lateral veins 4 or 5 on each side of midrib, distinct. Cymes 1–7-flowered; peduncle 4–13 cm, sparsely brown villous; bracts 2, linear to lanceolate, 3–4 × ca. 1 mm, brown
1b. Leaf blade adaxially gray pubescent, base sometimes pubescent, oblique, cuneate to subcordate, margin crenate-serrate; petiole to 6 cm, densely brown villous; corolla ca. 1.6 cm, tube 9–1.1 mm

1a. Leaf blade adaxially gray pubescent, base oblique, subrounded to cordate, margin serrulate; petiole to 14.5 cm, densely pale brown villous; cymes 1–3(or 4)-flowered; corolla 1.7–2.4 cm; tube 1.1–2 cm. Fruit unknown. Fl. Feb.

19. Oreocharis dasyantha

Hainan (Baisha Xian).

19a. Oreocharis dasyantha var. dasyantha

Petiole to 14.5 cm, densely pale brown villous; leaf blade adaxially gray pubescent and villous, abaxially densely gray pubescent, pubescent brown villous along veins, base oblique, cuneate to subcordate, margin serrulate. Cymes 3–8-flowered. Corolla ca. 1.6 cm; tube 0.9–1.1 cm. Capsule 3.5–4 cm. Fl. and fr. Oct.

19b. Oreocharis dasyantha var. ferruginosa


Petiole to 6 cm, densely pale brown woolly; leaf blade adaxially gray to brown pubescent and villous, abaxially sparsely gray-brown pubescent, brown villous along veins, base sometimes oblique, cuneate to subcordate, margin crenate-serrate. Cymes 3–8-flowered. Corolla ca. 1.6 cm; tube 0.9–1.1 cm. Capsule 3.5–4 cm. Fl. and fr. Oct.

• Rocks in forests. Hainan (Ding’an Xian).

20. Oreocharis argyreia


毛花马铃苣苔

Petiole to 8–13 cm, densely appressed villous; leaf blade elliptic to ovate or linear-lanceolate to oblanceolate, 3.7–16 × 0.8–6.5 cm, ± densely appressed pubescent, base cuneate to subcordate or narrowly cuneate, margin nearly entire, apex acute to acuminate; lateral veins 5–7 on each side of midrib, distinct. Cymes 2–12-flowered; peduncle 10–20 cm, light brown appressed pubescent; bracts 2, lanceolate, 0.8–1.3 cm × 1.5–2 mm, appressed pubescent or villous, margin entire. Pedicel 0.9–2.5 cm. Calyx segments narrowly lanceolate to narrowly triangular, 6–8 mm, margin entire or several denticulate. Corolla blue-purple to pinkish white or greenish, 1.8–2.3 cm, outside pubescent to glabrescent; tube nearly cylindrical, gradually slightly ampliate from base to mouth, 1.4–2 cm × 3–6 mm; limb slightly 2-lipped; adaxial lip 2-lobed from near middle, lobes 1.5–2 × 1.5–2 mm; abaxial lip lobes 3.5–5.5 × 2.5–3 mm. Stamens adnate to corolla 5–7 mm above base, 6–13 mm; filaments slender, slightly flattened, pubescent, anthers oblong, 2-lobed, dehiscing longitudinally, connective pubescent; staminode 1.5–2 mm. Disc ca. 1.2 mm. Pistil 0.9–1.8 cm; ovary glabrous or pubescent toward style. Style glabrous or pubescent; stigma 1, disc-shaped. Capsule 3–4.5 cm. Fl. Jun–Oct, fr. Aug–Oct.

• Rocks; 500–700 m. Guangdong, Guangxi.
segment margin entire; corolla blue-purple to pinkish white, tube 5–6 mm wide; ovary and style glabrous ......................... 20a. var. argyreia

1b. Leaf blade linear-lanceolate to oblanceolate, 3.7–10.1 × 0.8–2.4 cm, base narrowly cuneate; calyx segment margin several denticulate; corolla green, tube ca. 3 mm wide; ovary distally pubescent; style pubescent ...................... 20b. var. angustifolia

20a. Oreocharis argyreia var. argyreia

紫花马铃苣苔 (原变种) zi hua ma ling ju tai (yuan bian zhong)


• Rocks under forests on slopes. Guangdong.


窄叶马铃苣苔 zhai ye ma ling ju tai

Leaf blade linear-lanceolate to oblanceolate, 3.7–10.1 × 0.8–2.4 cm, base narrowly cuneate. Calyx segments margin entire. Corolla green; tube 3 mm wide. Ovary distally pubescent. Style pubescent. Fl. Jun–Oct.

• Rocks; 500–700 m. Guangxi (Shangsi Xian).


湘桂马铃苣苔 xiang gui ma ling ju tai

Petiole to 14 cm, light brown pannose; leaf blade oblong elliptic to oblanceolate or narrowly ovate, 5–15.5 × 2.5–7 cm, adaxially sparsely puberulent to pubescent, abaxially sparsely pubescent, brownish woolly along veins, base oblique, rounded to cuneate, margin crenate to serrate, apex obtuse to acute; lateral veins 7–10 on each side of midrib, distinct. Cymes (3–)5–15(–20)-flowered; peduncle 10–23 cm, densely pubescent; bracts 2, linear to lanceolate, 1.5–5 × 1–1.5 cm, pubescent to woolly, margin entire to shallowly dentate. Pedicel 0.6–1.5 cm. Calyx segments lanceolate, 2–3 mm, margin entire. Corolla purple, 1.8–2.2 cm, outside glabrous; tube broadly tubular, gradually ampliate from base to mouth, 1.7–1.9 cm × 4–7 mm; limb barely 2-lipped; adaxial lip narrowly 2-lobed, lobes 1.2–3 × 2–3 mm; abaxial lip lobes 5–7 × 3–5 mm. Stamens adnate to corolla 5–6 mm above base, 1–1.4 cm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 0.4 mm. Disc 1–1.3 mm, nearly entire. Pistil 1.5–2 cm, glabrous. Stigma 1, disc-shaped.

Capsule 2.2–3.5 cm. Fl. Apr–Sep.

• Rocks; 500–700 m. Fujian.


大花石上莲 da hua shi shang lian

Oreocharis fokienensis Franchet.

Petiole to 4.5 cm, densely brown woolly; leaf blade ovate to narrowly elliptic, 3.5–9 × 1.9–4 cm, adaxially densely gray pubescent, abaxially light brown woolly, densely brown woolly along veins, base slightly oblique, cuneate to rounded, margin serrulate to serrate or crenate, apex rounded to acute; lateral veins 5–7 on each side of midrib, indistinct. Cymes 3–8-flowered; peduncle 9–16 cm, sparsely glandular pubescent; bracts 2, linear to lanceolate, 1.5–5 × 1–1.5 cm, pubescent to woolly, margin entire to shallowly dentate. Pedicel 0.6–1.5 cm. Calyx segments lanceolate, 2–3 mm, margin entire. Corolla purple, 1.8–2.2 cm, outside glabrous; tube broadly tubular, gradually ampliate from base to mouth, 1.7–1.9 cm × 4–7 mm; limb barely 2-lipped; adaxial lip narrowly 2-lobed, lobes 1.2–3 × 2–3 mm; abaxial lip lobes 5–7 × 3–5 mm. Stamens adnate to corolla 5–6 mm above base, 1–1.4 cm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 0.4 mm. Disc 1–1.3 mm, nearly entire. Pistil 1.5–2 cm, glabrous. Stigma 1, disc-shaped.

Capsule 2.2–3.5 cm. Fl. Apr–Sep.

• Rocks; 500–700 m. Fujian.

Oreocharis xiangguensis is closely related to O. benthamii, from which it differs in having longer bracts (usually), less flared corolla tube, and adaxial lip lobed only from near middle instead of from base. Weitzman and Skog believe that these characters are rather variable and overlap in both taxa, and they would include O. xiangguensis in synonymy with O. benthamii.


筒花马铃苣苔 tong hua ma ling ju tai

Petiole to 4 cm, densely light brown woolly; leaf blade ovate to narrowly elliptic, 3.5–9 × 1.9–4 cm, adaxially densely gray pubescent, abaxially light brown woolly, densely brown woolly along veins, base slightly oblique, cuneate to rounded, margin serrulate to serrate or crenate, apex rounded to acute; lateral veins 5–7 on each side of midrib, indistinct. Cymes 3–8-flowered; peduncle 9–16 cm, sparsely glandular pubescent; bracts 2, linear to lanceolate, 1.5–5 × 1–1.5 cm, pubescent to woolly, margin entire to shallowly dentate. Pedicel 0.6–1.5 cm. Calyx segments lanceolate, 2–3 mm, margin entire. Corolla purple, 1.8–2.2 cm, outside glabrous; tube broadly tubular, gradually ampliate from base to mouth, 1.7–1.9 cm × 4–7 mm; limb barely 2-lipped; adaxial lip narrowly 2-lobed, lobes 1.2–3 × 2–3 mm; abaxial lip lobes 5–7 × 3–5 mm. Stamens adnate to corolla 5–6 mm above base, 1–1.4 cm; filaments slender, glabrous; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 0.4 mm. Disc 1–1.3 mm, nearly entire. Pistil 1.5–2 cm, glabrous. Stigma 1, disc-shaped.

Capsule 2.2–3.5 cm. Fl. Apr–Sep.

• Rocks; 500–700 m. Fujian.


大花石上莲 da hua shi shang lian

Oreocharis fokienensis Franchet.

Petiole to 4.5 cm, densely brown woolly; leaf blade ovate to narrowly elliptic, rarely oblate, 3–9 × 1.5–4.5 cm, adaxially densely pubescent, abaxially densely pubescent, densely brown woolly along veins, base sometimes slightly oblique, cuneate to rounded, margin serrate, apex rounded to acute; lateral veins 6–9 on each side of midrib, distinct or indistinct. Cymes (1–)3–15-flowered; peduncle 4.5–24 cm, sparsely pubescent or brown woolly and glandular pubescent; bracts 2, oblong to lanceolate, 6–12 × 1–2 mm, pubescent to densly pubescent, margin entire. Pedicel 0.5–1.8 cm. Calyx segments lanceolate, 3–5 mm, margin entire. Corolla purple-red, 1.3–1.6 cm, outside puberulent; tube nearly cylindric, gradually slightly ampliate from base to mouth, 0.9–1.3 cm × 4–5 mm; limb slightly 2-lipped; adaxial lip 2-lobed from near middle, lobes 2.2–3 × 1.5–2 mm; abaxial lip lobes 4–4.5 × 3–4 mm. Stamens adnate to corolla 1.5–5 mm above base, 5.5–7.5 mm; filaments slender, slightly flattened, glabrescent; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous; staminode 1, ca. 0.5 mm. Disc ca. 1.2 mm, entire. Pistil ca. 1.2 cm, glabrous. Stigma 1, disc-shaped, slightly concave. Capsule ca. 3.5 cm. Fl. Aug–Sep, fr. Sep–Oct.

• Rocks on slopes, near roads or by streams in valleys; 800–1400 m. NE Guangxi, S Hunan.

- Rocks of slopes, near road and under forests; 200–800 m. Fujian, Jiangxi.


大叶石上莲 da ye shi shang lian

Petiole to 8 cm, densely light brown woolly to pannose; leaf blade elliptic to ovate or ovate-orbicular, (1.7–)3–17 × 1.5–8 cm, adaxially densely pubescent, abaxially densely pubescent to densely woolly, densely brown woolly along veins, base oblique, cordate to cuneate, margin shallowly serrate or crenate to entire, apex rounded to acute; lateral veins 6–9 on each side of midrib, ± prominent. Cymes 8–15-flowered; peduncle 2–22 cm, densely pale brown woolly to pubescent; bracts 2, subulate to linear or narrowly lanceolate, 4–8 × ca. 1 mm, densely pale brown woolly to pubescent; margin entire. Pedicel 0.5–1.5 cm. Calyx segments elliptic-lanceolate to linear, rarely ovate, 4–7 mm, margin entire. Corolla purple to blue, 0.7–1.5 cm, outside pubescent to puberulent; tube broadly tubular to narrowly funneliform, gradually ampiate from base to mouth, 5.5–10 × 3–6 mm; limb slightly 2-lipped; adaxial lip 2-sect from near base, lobes 2.7–4(–5) × 2.4–3.8 mm. Stamens adnate to corolla 0.5–5 mm above base, 5–10 mm; filaments slender, glabrous to pubescent; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective glabrous to puberulent; staminode 1, ca. 0.2 mm. Disc ca. 0.8 mm, entire. Pistil 9–10 mm, glabrous. Stigma 1, disc-shaped. Capsule 2–3.5 cm. Fl. Apr–Oct, fr. Aug–Nov.

- Rocks in valleys and forests or cliffs; 200–1400 m. Guangdong, Guangxi, SW Hunan, SE Jiangxi.

24a. **Oreocharis benthamii** var. **benthamii**

大叶石上莲(原变种) da ye shi shang lian (yuan bian zhong)

**Didymocarpus oreocharis** Hance.

Leaf blade oblong to ovate, 5.5–14 × 3–8 cm; lateral veins less prominent.

- Rocks; 200–1400 m. Guangdong, Guangxi.


石上莲 shi shang lian

Leaf blade ovate-orbicular, 3.9–8 × 2.9–5 cm; lateral veins more prominent.

- Rocks of hilly regions; 300–1000 m. Guangdong, Guangxi.


Because only one specimen without flowers is known, it cannot be included in the key and its systematic position is uncertain.


毛药马铃苣苔 mao yao ma ling ju tai

Dasydesmus bodinieri (H. Léveillé) Craib.

Petiole to 5 cm, densely brown villous; leaf blade broadly ovate to narrowly ovate, often oblique, 3–9 × 2.2–6.5 cm, appressed pubescent, abaxially densely brown villous along veins, base oblique, cordate to rounded, margin double dentate to serrate, apex acute; lateral veins 5–7 on each side of midrib, distinct. Cymes 3–10-flowered; peduncle 9–15 cm, light brown villous; bracts 2, narrowly lanceolate, 5–10 × 1–1.5 mm, pubescent, margin entire. Pedicel 0.4–1.7 cm. Calyx segments narrowly triangular to narrowly lanceolate, 6–12 mm, margin entire or sparsely dentate to serrate. Corolla yellow, 1.5–2.3 cm, outside pubescent; tube nearly cylindric, gradually slightly ampiate from base to mouth, 1.6–1.9 cm × 4–6 mm; limb slightly 2-lipped; adaxial lip 2-lobed from near middle, lobes 1.5–3 × 2–2.2 mm; abaxial lip lobes 3–5 × 3–3.5 mm. Stamens adnate to corolla 2–5.5 mm above base, sometimes slightly exserted, 1.5–1.8 cm; filaments slender, sparsely pubescent, villous basally; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective sparsely pubescent to pubescent; staminode 1, ca. 1 cm. Disc ca. 4 mm, deeply 5-lobed to 5-sect from base. Pistil 1.6–2.3 cm, glabrous. Stigma 1, disc-shaped. Fruit unknown. Fl. Aug–Oct.

- Shady and damp rocks; 1400–3100 m. S Sichuan, NE Yunnan.


管花马铃苣苔 guan hua ma ling ju tai

Petiole to 6.5 cm, densely brown villous; leaf blade oblique, narrowly to broadly ovate, 3.5–9(–15) × 2–5(–7.5) cm, appressed pubescent, abaxially densely brown villous along veins, base oblique, cordate to rounded, margin coarsely serrate to dentate, sometimes double, apex acute to rounded; lateral veins 4–8 on each side of midrib, distinct. Cymes 1–3(–7)-flowered; peduncle 9–15 cm, light brown villous; bracts 2, narrowly lanceolate, 5–10 × 1–1.5 mm, pubescent, margin entire. Pedicel 2.2–6 cm, slightly exserted, 1.5–1.8 cm; filaments slender, sparsely pubescent, villous basally; anthers broadly oblong, 2-loculed, dehiscing longitudinally, connective sparsely pubescent to pubescent; staminode 1, ca. 1 cm. Disc ca. 4 mm, deeply 5-lobed to 5-sect from base. Pistil 1.6–2.3 cm, glabrous. Stigma 1, disc-shaped. Fruit unknown. Fl. Aug–Oct.
sect from base. Pistil 1.6–1.9 cm, glabrous. Stigma 1, disc-shaped. Capsule 2.6–3 cm. Fl. Aug–Sep.

- Shady and damp rocks near roads; ca. 1300 m. SW Sichuan, Yunnan (Yanjin Xian).


**黄花马铃苣苔** huang hua ma ling ju tai

Petiole to 10 cm, densely brown woolly; leaf blade ovate to broadly ovate, rarely elliptic or obovate, 4–10 × 2–7.2 cm, adaxially densely pubescent, abaxially densely brown woolly, more densely along veins, base cordate to rounded, margin nearly entire to shallowly crenate, apex rounded; lateral veins 4–7 on each side of midrib, distinct. Cymes 3–7-flowered; peduncle 6–23 cm, densely pale brown woolly, glabrescent; bracts 2(or 3), lanceolate to triangular, ca. 4–7 × 1–2 mm, sericeous to glabrescent, margin entire. Pedicel 1–2.5 cm. Calyx segments lanceolate, 4–6 mm, margin entire. Corolla pale yellow to orange-yellow, 1.5–1.7 cm, outside sparsely pubescent; tube campanulate, gradually ampliate from base to apex, 1–1.2 cm × 7–8 mm; limb slightly 2-lipped; adaxial lip 2-lobed from near middle, all lobes 3–6 × 3–5 mm. Stamens adnate to corolla 1–5 mm above base, 4–5.5 mm; filaments slender, glabrous; anthers horseshoe-shaped, 1-loculed, dehiscing transversely; staminode 1, ca. 3.2 mm. Disc ca. 2 mm, subentire. Pistil ca. 7 mm, glabrous to sparsely puberulent. Stigmas 2, lobes suborbicular. Capsule 1.5–3(–4) cm × 2–3 mm. Fl. Oct–Dec, fr. Nov–Dec.

- Under forests on slopes; 1000–1900 m. Hainan.


**短檐苣苔属** duan yan ju tai shu

Herbs, perennial, epipetric or terrestrial, rhizomatous, stemless. Leaves many, basal; leaf blade villous to puberulent, base attenuate to cordate. Inflorescences sometimes umbel-like, lax, axillary, 1- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla yellow to red or white, zygomorphic, inside usually glabrous; tube subcampanulate to funnelform-tubular, not swollen, 5–6 × longer than limb, 3–7 mm in diam.; limb 2-lipped; adaxial lip emarginate to nearly entire, extremely short, extending only slightly beyond mouth; abaxial lip 3-lobed, central lobe longer than laterals, apex rounded. Stamens 4, adnate to corolla near base, all or only abaxial ones exerted; anthers basifixied, free, thecae parallel, divergent at base, confluent at apex, dehiscing longitudinally; connective not projecting; staminode 1, rarely absent, adnate to adaxial side of corolla tube. Disc ringlike. Ovary narrowly oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, oblate, undivided, rarely 2-lipped. Capsule straight in relation to pedicel, oblong lanceolate to narrowly oblong, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

- Seven species: endemic to China.

1a. Corolla red; leaf blade length 3–5 × width .......................................................... 7. **T. rubrum**

1b. Corolla yellow to orange or white; leaf blade length usually less than 2 × width, rarely length to 3 × width.

2a. Cymes 1–3-flowered; peduncle puberulent or puberulent and villous, without glandular hairs, 3–8.5 cm. 3a. Petiole to 7 cm; leaf blade adaxially white puberulent, base cordate; pedicel ca. 1 cm; corolla white, abaxial lip purplish, 0.6–0.8 cm, tube subcampanulate, urceolate; pistil ca. 4 mm ...... 5. **T. begoniifolium**

3b. Petiole to 2 cm; leaf blade adaxially white villous, base broadly cuneate; pedicel 2–2.5 cm; corolla orange, ca. 1.2 cm, tube funnelform-tubular; pistil 8.5–10 mm ................................ 6. **T. aurantiacum**

2b. Cymes 3–15-flowered; peduncle villous and glandular puberulent and sometimes pubescent, 4–20 cm. 4a. Leaf blade 3–12(–17) × 2–4(–6) cm, margin serrate or double serrate to deeply crenate-serrate, adaxially white appressed puberulent and sparsely rust-brown villous ........................................ 1. **T. forrestii**

4b. Leaf blade 1–6 × 1–4 cm, margin crenate to serrate or dentate, adaxially densely white to gray villous, puberulent, or sericeous and pubescent, without rust-brown hairs.

5a. Leaf blade adaxially densely white villous; peduncle 8–11 cm; bracts puberulent .... 2. **T. urceolatum**

5b. Leaf blade adaxially densely sericeous and pubescent or white puberulent; peduncle 7–20 cm; bracts villous.

6a. Petiole to 1(–2.5) cm; leaf blade adaxially densely sericeous and pubescent, abaxially pubescent,
adaxially densely sericeous and pubescent, abaxially lanceolate-ovate to broadly ovate, 1–4.5 × 1–2.5 cm, Petiole to 1(–2.5) cm, densely brown villous; leaf blade 

Oreocharis mairei H. Léveillé.

Edinburgh 10: 218. 1918.

3. Tremacron mairei Craib, Notes Roy. Bot. Gard. Edin -

short petiole to 1(–2.5) cm, densely brown villous; leaf blade lanceolate-ovate to broadly ovate, 1–4.5 × 1–2.5 cm, adaxially densely sericeous and pubescent, abaxially pubescent, densely long villous along veins, base cuneate to rounded, margin dentate or crenate-serrate, apex acute to rounded. Cymes 3–10-flowered; peduncle 7–18 cm, sparsely villous and glandular pubescent; bracts 2.5–4 × 1–1.5 mm, villous. Pedicel 0.7–2.3 cm. Calyx segments narrowly lanceolate to narrowly triangular, 2.5–4 mm, outside villous. Corolla white to greenish white, 1–1.2 cm; tube subcampanulate, sometimes urceolate, 8–9 × 4.5–6 mm; adaxial lip 0.5–1 mm; abaxial lip ca. 3 mm, lobes rounded, central lobe 1–1.5 mm, lateral ones 0.4–1 mm. Abaxial 2 or all stamens exserted, 0.7–1.3 cm; staminode 1, 1–2 mm. Pistil ca. 1.4 cm, pubescent to glabrescent; ovary 4–7 mm. Capsule 2–3 cm. Fl. Jul.–Aug. fr. Sep.

• Rocks; 1800–2600 m. Yunnan (Dongchuan Xian).


short petiole to 4 cm; leaf blade appressed white puberulent on both surfaces; corolla yellow; pistil glabrous ................................................................ ................................ ...... 3. T. mairei

petiole to 4 cm; leaf blade appressed white puberulent on both surfaces; corolla yellow; pistil pubescent to glabrescent ................................................................. 4. T. obliquifolium


short petiole to 3(–6) cm, densely rust-brown villous; leaf blade narrowly elliptic to ovate or obovate, 3–12(–17) × 2–4(–6) cm, adaxially densely white appressed pubescent and sparsely rust-brown villous, abaxially white rust-brown pubescent, rust-brown villous along veins, base cuneate to attenuate, margin serrate or double serrate to deeply crenate-serrate, apex obtuse to acute. Cymes 4–15-flowered; peduncle 4–20 cm, sparsely brownish villous and glandular puberulent or pubescent; bracts (2–)5–(6–10) × 1–1.7(–4) mm, pubescent. Pedicel 1–2.8 cm. Calyx segments narrowly triangular or narrowly to broadly lanceolate, 2–4 mm, outside sparsely pubescent and villous. Corolla pale yellow to greenish yellow, (5–)8–11 mm; tube subcampanulate, sometimes urceolate, 6–9 × 4–6 mm; adaxial lip ca. 1 mm; abaxial lip lobes semi-orbicular, central lobe ca. 2 × 2–3 mm, lateral lobes ca. 1.2 × 2–3 mm. Stamens exserted, 8–11 mm; staminode 1, ca. 2 mm. Pistil 1–1.7 cm, glabrous; ovary 3.5–8 mm. Capsule 2.8–3.8 cm. Fl. Jun–Sep, fr. Aug–Sep.

• Rocks in forests; 2600–4300 m. SW Sichuan, C and NW Yunnan.

2. Tremacron urceolatum C. Craib, Notes Roy. Bot. Gard. Edin -

short petiole to 4 cm; leaf blade narrowly elliptic to ovate or obovate, 3–5 × 2.5–4 mm, adaxially densely white appressed pubescent, abaxially white to gray appressed puberulent, base oblique to cuneate, margin crenate to serrate, rarely dentate, apex obtuse to acute. Cymes 6–9–flowered; peduncle 13–20 cm, pale brown villous and glandular puberulent; bracts 2–5 × ca. 1 mm, villous. Pedicel 1–1.5 cm. Calyx segments linear, 2.5–3 mm, outside puberulent. Corolla yellow, 8–9 mm; tube subcampanulate, 6–8 × 3–5 mm; adaxial lip 0.5–1 mm; abaxial lip lobes semi-orbicular, ca. 1 mm. Abaxial stamens exserted, ca. 1.1 cm, adaxial ones equalling corolla, ca. 6 mm; staminode 1, ca. 0.3 mm. Pistil ca. 6 mm, glabrous; ovary ca. 4 mm. Capsule 2–2.5 cm. Fl. Jul.–Aug.

• Rocks; 1500–1800 m. SW Sichuan (Muli Xian, Yanyuan Xian).


short petiole to 4 cm; leaf blade appressed white puberulent on both surfaces; corolla yellow; pistil pubescent to glabrescent ................................................................. 4. T. obliquifolium


short petiole to 4 cm; leaf blade appressed white puberulent on both surfaces; corolla yellow; pistil pubescent to glabrescent ................................................................. 4. T. obliquifolium

Petiole to 3(–6) cm, densely rust-brown villous; leaf blade narrowly elliptic to ovate or obovate, 3–12(–17) × 2–4(–6) cm, adaxially densely white appressed pubescent and sparsely rust-brown villous, abaxially white rust-brown pubescent, rust-brown villous along veins, base cuneate to attenuate, margin serrate or double serrate to deeply crenate-serrate, apex obtuse to acute. Cymes 4–15-flowered; peduncle 4–20 cm, sparsely brownish villous and glandular puberulent or pubescent; bracts (2–)5–(6–10) × 1–1.7(–4) mm, pubescent. Pedicel 1–2.8 cm. Calyx segments narrowly triangular or narrowly to broadly lanceolate, 2–4 mm, outside sparsely pubescent and villous. Corolla pale yellow to greenish yellow, (5–)8–11 mm; tube subcampanulate, sometimes urceolate, 6–9 × 4–6 mm; adaxial lip ca. 1 mm; abaxial lip lobes semi-orbicular, central lobe ca. 2 × 2–3 mm, lateral lobes ca. 1.2 × 2–3 mm. Stamens exserted, 8–11 mm; staminode 1, ca. 2 mm. Pistil 1–1.7 cm, glabrous; ovary 3.5–8 mm. Capsule 2.8–3.8 cm. Fl. Jun–Sep, fr. Aug–Sep.

• Rocks in forests; 2600–4300 m. SW Sichuan, C and NW Yunnan.
Rocks in evergreen broad-leaved forests; 2100–2800 m. Yunnan (Jingdong Xian).

橙黄短檐苣苔 *cheng huang duan yan ju tai*
Petiole to 2 cm, brown villous; leaf blade ovate to suborbicular, 3–4 × 2–3 cm, adaxially white villous, abaxially densely puberulent, densely pale brown villous along veins, base broadly cuneate, margin shallowly crenate to crenate-serrate, apex acute to obtuse. Cymes 1–3-flowered; peduncle 3–5 cm, puberulent and sparsely villous; bracts ca. 1.5 mm, brown villous. Pedicel 2–2.5 cm. Calyx segments narrowly oblong, ca. 2 mm, outside sparsely villous. Corolla orange-yellow, ca. 1.2 cm; tube funnelform-tubular, ca. 9 × 4 mm; adaxial lip ca. 1 mm; abaxial lip ca. 1.5 mm, central lobe ovate-triangular, lateral lobes semiorbicular, apex rounded. Stamens exerted, 1–1.5 cm; staminode 1. Pistil 7–12 mm, sparsely glandular pubescent; ovary 5–9 mm. Immature capsule ca. 3.2 cm. Fl. Sep–Oct.

红短檐苣苔 *hong duan yan ju tai*
Petiole to 4 cm, yellow-brown villous; leaf blade elliptic-lanceolate, 3–15 × 1–3(–5) cm, sericeous-strigose, abaxially pale yellow villous along veins, base narrowly cuneate, margin shallowly crenate-serrate, apex acute to obtuse. Cymes 5–15-flowered; peduncle 7–13 cm, pubescent and glandular pubescent, rust-brown villous; bracts 4–5 × ca. 1 mm, pubescent. Pedicel 0.5–3 cm. Calyx segments lanceolate, 3–4 mm, outside densely pubescent. Corolla red, 7–10 mm; tube funnelform-tubular, 4–6 × 3–5 mm; adaxial lip ca. 1 mm; abaxial lip ca. 1.5 mm, central lobe ovate-triangular, lateral lobes semiorbicular, apex rounded. Stamens exerted, 1–1.5 cm; staminode 1. Pistil 7–12 mm, sparsely glandular pubescent; ovary 5–9 mm. Immature capsule ca. 3.2 cm. Fl. Sep–Oct.

The above description is adapted from the protologue and photographs of type specimens.

金盏苣苔属 *jin zhun ju tai shu*
Herbs, perennial, epipetric or terrestrial, rhizomatous, stemless. Leaves many, basal; leaf blade puberulent to villous, tomentose, or glabrescent, base narrowly cuneate to cordate. Inflorescences cymes, rarely umbell-like, lax or rarely dense, axillary, 2- to many flowered; bracts 2(or 3), opposite, rarely whorled. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white to purple or pink, rarely yellow, zygomorphic, rarely actinomorphic, inside glabrous or sparsely puberulent, rarely pilose on lobes; tube campanulate, cylindric, rarely urceolate or salverform, not swollen, 1–4 × longer than limb, 3–11 mm in diam.; limb slightly 2-lipped; adaxial lip 2-lobed from near middle, shorter than to nearly equaling abaxial lip; abaxial lip 3-sect from base, lobes equal or subequal, apex rounded, sometimes crenulate. Stamens 4, adnate to corolla tube near base, rarely to or above middle, included; anthers basifixed, coherent in pairs, rarely free, thecae divergent at base, not or rarely confluent at apex, dehiscing longitudinally from arcuate slits; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary narrowly oblong to oblong or ovoid, I-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, oblate, undivided. Capsule straight in relation to pedicel, narrowly oblong to oblanceolate, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

*Fourteen species: endemic to China.*

1a. Corolla tube 1–2 × longer than broad; pistil glabrous.

2a. Corolla puberulent outside; leaf blade adaxially densely brown villous, abaxially densely brown long woolly

2b. Corolla glabrous outside; leaf blade adaxially puberulent, puberulent-strigillose, or sparsely brown villous, abaxially puberulent to pubescent or sparsely villous.

3a. Stamens free, anther thecae confluent; leaf blade margin lobed, lobes triangular, deeply serrate to dentate; lateral veins 7–13 on each side of midrib; bract and sepal margin sparsely dentate .. 1. *I. eximium*

3b. Stamens coherent in pairs, anther thecae not confluent; leaf blade margin serrate, at least near apex; lateral veins 3–5 on each side of midrib; bract and sepal margin entire.

4a. Petiole to 1.5 cm; leaf blade base cuneate; peduncle villous, glabrescent; corolla tube campanulate; pistil 6–7 mm .............................................................. 3. *I. fargesii*

4b. Petiole to 8.3 cm; leaf blade base cordate; peduncle puberulent and glandular puberulent; corolla tube urceolate; pistil 3.8–4 mm .............................................................. 4. *I. nanchuanicum*
1b. Corolla tube 1.5–5 × longer than broad; pistil glabrous or puberulent to pubescent.

5a. Leaf blade margin lobulate.

6b. Corolla tube campanulate-tubular to narrowly campanulate; petiole to 2 cm.

7a. Leaf blade 1–1.8 cm wide; corolla 1–1.5 cm, adaxial lip lobes ca. 2 × 5 mm; stamens 6–8.5 mm, filaments sparsely puberulent to glabrous; pistil glabrous ........................................... 6. *I. farreri*

7b. Leaf blade 2–3 cm wide; corolla 1.6–2 cm, adaxial lip lobes 4–6 × 3–4 mm; stamens 3–4 mm, filaments glabrous; pistil pubescent ..................................................... 7. *I. giraldii*

6b. Corolla tube nearly cylindric; petiole to 4 cm.

8a. Leaf blade oblanceolate, 1.5–5 × 0.8–1.5 cm, margin lobes subentire to shallowly crenulate; lateral veins 3–5 on each side of midrib; peduncle 4–6 cm; bract 1.8–2 mm .......... 14. *I. pinnatifolium*

8b. Leaf blade narrowly elliptic to ovate or elliptic, 2.7–10.5 × 2.3–5.5 cm, margin lobes crenate-dentate or crenate; lateral veins 5–8 on each side of midrib; peduncle 4–20 cm; bract 3–5 mm.

9a. Corolla tube 2–2.7 mm in diam., adaxial lip ca. 5 mm, abaxial lip ca. 5.5 mm; stamens 3.5–4 mm; pistil glabrous; leaf blade base cuneate ................................ ..................... 12. *I. primuliflorum*

9b. Corolla tube 3–3.5 mm in diam., adaxial lip ca. 3.5 mm, abaxial lip ca. 3 mm; stamens 5–6 mm; pistil glandular puberulent; leaf blade base narrowly cuneate ............... 13. *I. sichuanicum*

5b. Leaf blade margin subentire or sinuous to coarsely crenate-dentate.

10a. Petiole to 8 cm.

11a. Corolla white, minutely pilose outside; leaf blade 3–4.5 cm .................................... 5. *I. leucanthum*

11b. Corolla pink to purple-red or pale purple to purple, glandular puberulent or sparsely glandular pubescent, sometimes only basally; leaf blade (2–)4–14 cm.

12a. Petiole densely brown villous to lanate; leaf blade abaxially rust-brown villous, base narrowly cuneate to truncate; lateral veins 6–10 on each side of midrib; pedicel 1–2.2 cm; corolla 0.8–2 cm, tube narrowly urceolate, ca. 3 mm in diam., lobes 1–2 mm; stamens 4–5 mm; pistil glabrous ............................................... 9. *I. lancifolium*

12b. Petiole densely white pubescent; leaf blade abaxially pubescent, base rounded to cordate; lateral veins 4–6 on each side of midrib; pedicel 4–7 mm; corolla 2.3–3.7 cm, tube campanulate-tubular, 7–11 mm in diam.; lobes 4–7(–11) mm; stamens 7–10 mm; pistil sparsely pubescent near apex ................................................................. 11. *I. lungshengense*

10b. Leaves sessile or petiole to 2 cm.

13a. Calyx segments 4–6 mm; leaf blade base narrowly cuneate to subtruncate ............... 7. *I. giraldii*

13b. Calyx segments 2–3.5 mm; leaf blade base narrowly cuneate or cuneate.

14a. Leaf blade sessile, 1.5–3.7 × 1–1.8 cm, margin irregularly dentate above middle; pistil ca. 4 mm ........................................................................................................ 10. *I. villosum*

14b. Petiole to 2 cm; leaf blade 3–8 × 1.5–3.5 cm, margin crenate to lobulate; pistil 9–10 mm.

15a. Petiole to 1 cm; leaf blade both surfaces gray pubescent, veins abaxially brown villous; lateral veins abaxially prominent; peduncle 4–17 cm; bracts 3.5–5 mm; adaxial corolla lobes ca. 2 mm, abaxial corolla lobes ca. 4 mm; stamens 6–8.5 mm; pistil glabrous ...................................................... 6. *I. farreri*

15b. Petiole to 2 cm; leaf blade abaxially gray appressed pubescent, abaxially brown villous; lateral veins indistinct; peduncle 5.5–10 cm; bracts ca. 2.5 mm; all corolla lobes 3–5 mm; stamens 3.5–4.5 mm; pistil puberulent to subglabrous 8. *I. crenatum*


多裂金盏苣苔 duo lie jin zhan ju tai

Petiole to 6 cm, brownish villous; leaf blade lanceolate to ovate, obovate, or elliptic, 5–16 × 3–5(–7) cm, sparsely brown villous, base cuneate to rounded, margin lobulate, lobes triangular, deeply serrate to dentate, apex acute; lateral veins 7–13 on each side of midrib, distinct. Peduncle 4–15(–25) cm, brown villous; bracts 6–7 mm, sparsely brown villous, margin sparsely dentate. Pedicel 0.5–3 cm. Calyx segments narrowly triangular to lanceolate, 4–6 mm, margin sparsely dentate. Corolla pale yellow to deep orange, 1.4–1.9 cm,
outside glabrous; tube narrowly campanulate, sometimes urceolate, 7–8 × 3–5 mm; limb 5-lobed, lobes equal, obovate, 6–7 × 3–4 mm. Stamens 4–6 mm; filaments glabrous to sparsely puberulent; anthers free, thecae confluent; staminode ca. 0.2 mm. Pistil 6–8 mm, glabrous; ovary ca. 4 mm. Capsule 1.2–2.7 cm. Fl. Jun–Aug. fr. Aug.

- Rocks under slope forests; 2800–3000 m. SW Sichuan.


*Isometrum* above description is adapted from the protologue. This species differs from others in *Isometrum* in its long petiole and white corolla.

- Rocks under slope forests; 2800–3000 m. SW Sichuan.


Petiole to 1 cm, densely brownish woolly; leaf blade lanceolate-ovate, 1.5–4.5 × 1–1.3 cm, adaxially densely brownish villous, abaxially densely brown long woolly, base cuneate, margin serrate-crenate, apex acute to obtuse; lateral veins 5 or 6 on each side of midrib, obscured by indument. Peduncle ca. 12 cm, brown villous and glandular pubescent; bracts ca. 5 mm, rust-brown villous. Pedicel 1–3.5 cm. Calyx segments lanceolate, entire, ca. 3.5 mm. Corolla pale purple, ca. 1.2 cm, outside glandular pilose; tube tubular to subcampanulate, 8–10 × 3–4.5 mm; limb 5-lobed, lobes subequal, broadly ovate to rounded, 2–4 mm. Stamens 4–5 mm; filaments sparsely glandular pilose; anthers coherent in pairs, thecae not confluent; staminode ca. 0.5 mm. Pistil 5–10 mm, glabrous; ovary 3–7 mm. Style 2–3 mm. Capsule ca. 2 cm. Fl. and fr. Aug.

- Gansu, NW Sichuan.


Petiole to 8.3 cm, brown pubescent; leaf blade ovate, 2.2–6 × 1.2–3.6 cm, adaxially gray puberulent, abaxially brown puberulent, base cordate, margin serrate, apex rounded; lateral veins 3–5 on each side of midrib, distinct. Peduncle 8.8–11.5 cm, brown puberulent and glandular puberulent; bracts 4–5 mm, brown puberulent, margin entire. Pedicel 1.2–3 cm. Calyx segments lanceolate, 3–4 mm, margin entire. Corolla yellow (when dry), 8–9 mm, outside glabrous; tube urceolate, 6–7 × 5–6.5 mm; adaxial lip lobes oblong, ca. 2.2 × 2 mm; abaxial lip lobes broadly ovate, ca. 1.2 × 1.4 mm. Stamens 4–5.5 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode ca. 0.7 mm. Pistil 3.8–4 mm, glabrous; ovary 2.8–3 mm. Capsule ca. 2.7 cm. Fl. Aug.

- Streamside rocks; 700–800 m. Sichuan (Nanchuan Xian).


Petiole to 8 cm, brown villous and white puberulent; leaf blade subovate, 3.4–5 × 2.3–3 cm, appressed puberulent, abaxially brown villous along veins, margin coarsely crenate-dentate. Peduncle 14–18 cm, brown villous and puberulent. Pedicel 2–4 cm. Calyx segments oblong, ca. 4 mm. Corolla white, ca. 2.3 cm, outside minutely pilose; tube ca. 15 × 6–8 mm; lobes triangular-ovate, 5–6 mm. Stamens 4–7 mm; filaments glabrous. Ovary 6–7 mm. Fruit unknown.

- Forests on slopes; ca. 3900 m. W Sichuan (Baiyu Xian, Batang Xian).

We have not seen any specimens of *Isometrum leucanthum*. The above description is adapted from the protologue. This species differs from others in *Isometrum* in its long petiole and white corolla.


Petiole to 1 cm, brown hirsute to villous; leaf blade rhombic-ovate to obovate or elliptic, 1.5–3.7 × 1–1.8 cm, gray pubescent, abaxially brown villous along veins, base cuneate, margin crenate to lobulate, apex rounded to acute; lateral veins 4–6 on each side of midrib, abaxially prominent. Peduncle 4–17 cm, rust-brown villous, glabrescent; bracts 3.5–5 mm, brown villous to pubescent, margin entire. Pedicel 0.5–4 cm. Calyx segments narrowly triangular to oblong, 2.3–5 mm, margin entire to shallowly lobed. Corolla purple-pink to orange-pink, 1–1.5 cm, outside sparsely glandular to sparsely pubescent; tube campanulate-tubular, ca. 9–11 × 3–8 mm; all lobes semi-ovibaric, adaxial lobes ca. 2 × 5 mm; abaxial lobes ca. 4 × 5 mm. Stamens 6–8.5 mm; filaments sparsely puberulent to glabrous; anthers coherent in pairs, thecae not confluent;
staminode 0.5–1 mm. Pistil ca. 9 mm, glabrous; ovary 4–5 mm. Capsule 1.9–2.5 cm. Fl. Aug, fr. Nov.

- Rocks on slopes; ca. 800 m. S Gansu, SW Shaanxi (Mian Xian), N Sichuan (Nanping Xian).


毛蕊金盏苣苔 mao rui jin zhan ju tai


Petiole to 2 cm, densely rust-brown villous; leaf blade oblong ovate, 3–5.5 × 2–3 cm, gray appressed pubescent and rust-brown villous along veins, base narrowly cuneate to subtruncate, margin coarsely dentate-serrate to lobulate, apex acute to rounded; lateral veins 4–5 on each side of midrib, distinct or indistinct. Peduncle 6–15 cm, glandular pubescent and rust-brown villous; bracts 4–7 mm, brown villous, margin entire. Pedicel 1–3 cm. Calyx segments narrowly triangular to lanceolate, 4–6 mm, margin entire. Corolla purple-red to deep pink, 1.6–2 cm, outside glandular puberulent to pubescent; tube narrowly campanulate, 7–9 × 4–5 mm; all lobes oblong, subequal, 4–6 × 3–4 mm. Stamens 3–4 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode ca. 0.4 mm. Pistil 3–10 mm, pubescent; ovary 2–8 mm. Capsule 1.5–2.5 cm. Fl. Jul.

- Rocks near roads; ca. 1100 m. S Shaanxi.


圆齿金盏苣苔 yuan chi jin zhan ju tai

Petiole to 2 cm, densely brown villous; leaf blade elliptic, 2–3 × 1–1.6 cm, adaxially gray appressed pubescent, abaxially brown villous, base cuneate, margin crenulate, apex obtuse to rounded; lateral veins 3–4 on each side of midrib, indistinct. Peduncle 5.5–10 cm, brown villous and glandular puberulent; bracts ca. 1.5 cm. Calyx segments lanceolate, ca. 3 mm, margin entire. Corolla pale purple-red, 1.6–2 cm, outside sparsely puberulent, sometimes only near base; tube narrowly urceolate, 6–11 × ca. 3 mm; adaxial lip lobes oblong, 1–4 × 1.5–2.5 mm; abaxial lip lobes suborbicular, 1.7–4 × 1.5–2.5 mm. Stamens 4–10 mm; filaments glabrous, rarely pubescent; anthers coherent in pairs, thecae not confluent; staminode ca. 1 mm. Pistil 5–10 mm, glabrous; ovary 3–8 mm. Capsule 1.6–3.5 cm. Fl. Jul–Sep, fr. Sep.

- Rocks; ca. 1300 m. Hubei (Zhuxi Xian).


紫花金盏苣苔 zi hua jin zhan ju tai

Petiole to 8 cm, densely brown villous to woolly; leaf blade oblong to narrowly lanceolate or ovate, 2–14 × 0.9–3.7 cm, adaxially pale brown villous and puberulent to glabrescent, abaxially rust-brown villous, base narrowly cuneate to truncate, margin sinuous to irregularly serrate, dentate, sparsely denticulate, or subentire, apex acute to obtuse; lateral veins 6–10 on each side of midrib, distinct or indistinct. Peduncle 5–22 cm, brown villous or glandular puberulent and villous; bracts 4–12 mm, brown villous to pubescent, margin entire. Pedicel 1–2.2 cm. Calyx segments lanceolate, 2–5 mm, margin entire. Corolla pale purple to purple, 0.8–2 cm, outside glandular pubescent, sometimes only near base; tube narrowly urceolate, 6–11 × ca. 3 mm; adaxial lip lobes oblong, 1–4 × 1.5–2.5 mm; abaxial lip lobes suborbicular, 1.7–4 × 1.5–2.5 mm. Stamens 4–10 mm; filaments glabrous, rarely pubescent; anthers coherent in pairs, thecae not confluent; staminode ca. 1 mm. Pistil 5–10 mm, glabrous; ovary 3–8 mm. Capsule 1.6–3.5 cm. Fl. Jul–Sep, fr. Sep.

- Shady, damp rocks in forests; 1100–2800 m. NW Sichuan.

1a. Corolla 1.6–2 cm, adaxial lip nearly as long as abaxial; stamens 8–10 mm; pistil ca. 1 cm; leaf blade adaxially puberulent 9c. var. tsingchengshanicum

1b. Corolla 0.8–1.2 cm, adaxial lip distinctly longer than abaxial; stamens 4–5 mm; pistil 5–6 mm; leaf blade adaxially pale brown villous and puberulent or sparsely brown villous to glabrescent.

2a. Peduncle 5–20 cm; petiole to 8 cm; leaf blade narrowly lanceolate to ovate-elliptic, 3.5–14 × 2–3.7 cm, base cuneate to truncate; lateral veins distinct ......................... 9a. var. lancifolium

2b. Peduncle 6–9 cm; petiole to 2.5 cm; leaf blade oblong to oblanceolate, 2–4 × 0.9–1.5 cm, base narrowly cuneate; lateral veins indistinct .... 9b. var. mucronatum

9a. Isometrum lancifolium var. lancifolium

紫花金盏苣苔(原变种) zi hua jin zhan ju tai (yuan bian zhong)


Petiole to 8 cm; leaf blade narrowly lanceolate to ovate-elliptic, 3.5–14 × 2–3.7 cm, adaxially pale brown villous and puberulent to glabrescent, abaxially brown villous, base cuneate to truncate, margin sinuous to irregularly serrate or dentate; lateral veins distinct. Peduncle 5–22 cm, brown villous. Pedicel glandular
puberulent and rust-brown villous. Corolla 0.8–1.2 cm; tube 6–8 mm; adaxial lip distinctly longer than abaxial; adaxial lip lobes oblong, 1–1.2 × 1.5–2 mm; abaxial lip lobes suborbicular, 1.7–2 × 1–2 mm. Stamens 4–5 mm; filaments glabrous. Pistil 5–6 mm; ovary 3–4 mm. Fl. Jul–Sep, fr. Sep.

• Shady, damp rocks in forests; 1100–1300 m. W Sichuan.


汶川金盏苣苔 wen chuan jin zhan ju tai

Petiole to 2.5 cm; leaf blade oblong to oblanceolate, 2–4 × 0.9–1.5 cm, adaxially sparsely brown villous to glabrescent, abaxially densely brown villous, base narrowly cuneate, margin sparsely denticulate; lateral veins indistinct. Peduncle 6–9 cm, densely brown villous. Pedicel glandular puberulent and rust-brown villous. Corolla 0.8–1.2 cm; tube 6–8 mm; adaxial lip distinctly longer than abaxial; adaxial lip lobes oblong, 1–1.2 × 1.5–2 mm; abaxial lip lobes suborbicular, 1.7–2 × 1–2 mm. Stamens 4–5 mm; filaments glabrous. Pistil 5–6 mm; ovary 3–4 mm. Fl. Jul–Sep, fr. Sep.

• Shady, damp cliffs; 2200–2800 m. Sichuan (Wenchuan Xian).


狭叶金盏苣苔 xia ye jin zhan ju tai

Petiole to 7 cm; leaf blade lanceolate to narrowly oblong, 4–13.5 × 2–4 cm, adaxially puberulent, abaxially rust-brown villous and pubescent, base cuneate to truncate, margin subentire or sinuous to shallowly serrulate or dentate; lateral veins distinct. Peduncle 7–20 cm, glandular puberulent and villous. Pedicel glandular puberulent and villous. Corolla 1.6–2 cm; tube ca. 1.1 cm; adaxial lip nearly as long as abaxial, all lobes oblong, 3–4 × 2–2.5 mm. Stamens 4–5 mm; filaments glabrous. Pistil 7–10 mm; ovary 3–4 mm. Fl. Aug. Sep.

• Steep cliffs; ca. 1200 m. Sichuan (Guan Xian).


柔毛金盏苣苔 rou mao jin zhan ju tai

Leaves sessile; leaf blade obovate to oblanceolate, 3–8 × 1.5–3.5 cm, adaxially sparsely brown villous to glabrescent, abaxially rust-brown villous, brown villous along veins, base narrowly cuneate, margin irregularly dentate in apical half, apex obtuse; lateral veins 4 or 5 on each side of midrib, indistinct. Peduncle 5–8 cm, rust-brown villous; bracts ca. 3 mm, brownish villous, margin entire. Pedicel 5–8 mm. Calyx segments narrowly lanceolate, 4–5 mm, margin entire. Corolla white to purple, 1.3 (–2) cm, outside glabrescent; tube narrowly urceolate, 8(–14) × ca. 3 mm; adaxial lip 4(–6) mm, lobes orbicular, 1.7(–2.5) × ca. 2 mm; abaxial lip 3.2(–4) mm, lobes oblong, 2.5(–3) × ca. 2 mm. Stamens 4–6 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode ca. 0.8 mm. Pistil ca. 4 mm, glabrous; ovary ca. 3 mm. Capsule ca. 3.5 cm. Fl. Apr–May.

• Rocks; 600–1600 m. Sichuan (Shizhu Xian).


龙胜金盏苣苔 long sheng jin zhan ju tai


Petiole to 8 cm, densely white pubescent; leaf blade elliptic-obovate to ovate, (2–)4–8.7 × (1.2–)3–5.7 cm, adaxially white appressed villous, abaxially pubescent, base rounded to cordate, margin shallowly serrate to serrate, apex obtuse; lateral veins 4–6 on each side of midrib, distinct. Peduncle 4–9 cm, spreading villous; bracts 5–6 mm, white villous, margin entire. Pedicel 4–7 mm. Calyx segments narrowly lanceolate to narrowly triangular, 4–9 mm, margin entire. Corolla pink to purple-red, 2.3–3.7 cm, outside sparsely glandular puberulent; tube campanulate-tubular, 1.8–3 × 0.7–1.1 cm; all lobes suborbicular, 4–7(–11) × ca. 6 mm. Stamens 7–10 mm; filaments glandular puberulent near apex; anthers coherent in pairs, thecae not confluent; staminode 0.4–2 mm. Pistil (1.2–)2.5–3.5 cm, sparsely pubescent near apex; ovary (0.7–)1.3–2.5 cm. Capsule 2.8–4.5 cm. Fl. Sep–Oct.

• Rocks near roads and in forests; 700–1500 m. Guangxi (Longsheng Xian, Língguì Xian).


羽裂金盏苣苔 yu lie jin zhan ju tai


Petiole to 4 cm, very densely brown woolly; leaf blade narrowly elliptic to ovate, 5–10.5 × 2.7–5.5 cm, adaxially grayish white pubescent and villous, abaxially gray pubescent and brown villous, especially along veins, base cuneate, margin lobulate, lobes crenate-dentate, apex acute to obtuse; lateral veins 5 or 6 on each side of midrib, indistinct. Peduncle 4–20 cm, glandular puberulent and brown villous; bracts 3–5 mm, villous, margin entire. Pedicel 0.5–2 cm. Calyx segments narrowly lanceolate, 4–5 mm, margin entire. Corolla pale purple, 0.9–1.4 cm, outside glandular puberulent; tube nearly cylindric, 7–10 × 2–2.7 mm;
adaxial lip ca. 5 mm, lobes elliptic, ca. 3 × 1.5–2 mm; abaxial lip ca. 5.5 mm, lobes obovate-spatulate, ca. 5 × 1.5–2 mm. Stamens 3.5–4 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode ca. 1.1 mm. Pistil 6–7 mm, glabrous; ovary 3.5–4.5 mm. Capsule 1.5–2.2 cm. Fl. Jul.

• Shady, damp rocks; 2000–2800 m. NW Sichuan.


四川金盏苣苔 *si chuan jin zhan ju tai*

Petiole to 4 cm, densely rust-brown villous; leaf blade narrowly elliptic to elliptic, 2.7–10 × 2.3–4.5 cm, adaxially appressed pubescent, abaxially pubescent and rust-brown villous, base narrowly cuneate, margin lobulate, lobes crenate, apex acute; lateral veins 5–8 on each side of midrib, distinct. Peduncle 11–14 cm, rust-brown villous and glandular pubescent; bracts 3.5–4 mm, villous, margin entire. Pedicel 1.2–2.5 cm. Calyx segments narrowly lanceolate, 4–5 mm, margin entire. Corolla purple, ca. 1.3 cm, outside glandular puberulent; tube nearly cylindric, ca. 10 × 3–3.5 mm; adaxial lip ca. 3.5 mm; abaxial lip ca. 3 mm, all lobes suborbicular, 2–2.5 mm. Stamens 5–6 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode ca. 1 mm. Pistil 5.5–7 mm, glandular puberulent; ovary 3.5–5.5 mm. Capsule ca. 2.5 cm. Fl. Jun.

• Shady, damp streamside rocks; 2200–2500 m. Sichuan (Maowen Xian, Heishui Xian).


裂叶金盏苣苔 *lie ye jin zhan ju tai*

Petiole to 3.5 cm, brownish villous; leaf blade oblong-lanceolate, 1.5–5 × 0.8–1.5 cm, adaxially grayish white pubescent, abaxially pale brown pubescent, base cuneate, margin lobulate, lobes subentire to shallowly crenulate, apex acute; lateral veins 3–5 on each side of midrib, distinct. Peduncle 4–6 cm, brown villous and glandular puberulent; bracts 1.8–2 mm, brown villous, margin entire. Pedicel 0.8–1.2 cm. Calyx segments lanceolate, 2.5–3 mm, margin entire. Corolla blue-purple, 1.2–1.4 cm, outside sparsely pubescent; tube nearly cylindric, ca. 8 × 3–4 mm; adaxial lip ca. 5 mm, lobes orbicular, ca. 2.5 mm; abaxial lip ca. 4 mm, lobes orbicular, 3–3.5 mm. Stamens 2.5–3 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode 0.8–1.2 mm. Pistil ca. 5.5 mm, glabrous; ovary ca. 3 mm. Fruit unknown. Fl. May.

• Stony cliffs near roads; 500–1200 m. SW Hubei, SE Sichuan.


弥勒苣苔属 *mi le ju tai shu*

Herbs, perennial, rhizomatous, stemless. Leaves many, basal; leaf blade pubescent to woolly, base cuneate to broadly cuneate. Inflorescences lax, axillary, few-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-locular from base; segments equal. Corolla purple, zygomorphic, inside minutely puberulent on lobes; tube funnelform-tubular, not swollen, longer than limb, 3–5 mm in diam.; limb 2-lipped; adaxial lip ca. 3.5 mm; abaxial lip ca. 3 mm, all lobes suborbicular, 2–2.5 mm. Stamens 5–6 mm; filaments glabrous; anthers coherent in pairs, thecae not confluent; staminode ca. 1 mm. Pistil 5.5–7 mm, glandular puberulent; ovary 3.5–5.5 mm. Capsule ca. 2.5 cm. Fl. Jun.

• Shady, damp rocks; 2000–2800 m. NW Sichuan.


直瓣苣苔属 *zhi ban ju tai shu*

Petiole 0.2–4.2 cm, brownish woolly; leaf blade elliptic to oblong elliptic, 2–4.8 × 1.2–1.8 cm, adaxially densely appressed white pubescent, abaxially densely brownish woolly, margin obtusely denticulate, apex obtuse to rounded. Peduncle 6.5–12 cm, densely brownish pubescent; bracts lanceolate-linear, 7–10 × 1.2–3.3 mm. Calyx segments lanceolate-linear, 3–5.3 × 0.8–1 mm, outside densely tomentose. Corolla 1.6–1.8 cm; tube 1.3–1.4 cm; adaxial lip 3–4 × ca. 8.5 mm, lobes triangular, central 2 ca. 1.2 mm, lateral 2 ca. 1.6 × 2 mm; abaxial lip deltoid, ca. 2.2 × 3 mm. Stamens ca. 6 mm, glabrous; staminode ca. 0.8 mm. Pistil ca. 1 cm, glabrous; ovary ca. 9 mm. Fruit unknown. Fl. Feb.

• SE Yunnan (Mile Xian).
Herbs, perennial, epipetric or rarely terrestrial, rhizomatous, stemless. Leaves many, basal; leaf blade puberulent to villous, rarely glabrescent, base cuneate to subcordate. Inflorescences lax, axillary, 1–10-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base to 5-lobed from above middle; segments equal to subequal. Corolla orange to yellow or white, rarely pink, zygomorphic, inside glabrous to puberulent, rarely pilose near base; tube narrowly funnelform to cylindric, slightly gibbous abaxially, longer than limb, 3–8 mm in diam.; limb 2-lipped to slightly 2-lipped; adaxial lip 2-lobed, emarginate, or rarely undivided, shorter than abaxial lip; abaxial lip 3-sect from base, lobes equal or central longer than laterals, apex rounded or rarely acute. Stamens 4, adnate to corolla tube above or rarely below middle, included or rarely exserted; anthers basifixed, coherent in pairs, thecae divergent, not confluent, dehiscing longitudinally; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike or rarely cupular. Ovary narrowly oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, 2-lipped, undivided. Capsule straight in relation to pedicel, oblong lanceolate to oblanceolate, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

- Twelve species: endemic to China.

*Ancylostemon flabellatus* C. Y. Wu ex H. W. Li (Bull. Bot. Res., Harbin 3(2): 16. 8. 1983) is not included in the treatment because it is known only from fruiting specimens and cannot be definitively placed in Pan’s classification (Fl. Reipubl. Popularis Sin. 69: 190–203. 1990). Its placement in *Ancylostemon* is uncertain since other genera (e.g., *Tremacron*, *Isometrum*, and *Oreocharis*) are virtually indistinguishable using vegetative or fruit characters.

1a. Calyx 5-sect from base or near base, tube to 1 mm.

2a. Leaf blade adaxially with only 1 kind of hairs, white puberulent or sparsely brown villous, often glabrescent; corolla 1.1–2 cm.

3a. Leaf blade 1.1–4.4 × 0.7–1.8 cm; lateral veins 3–5 on each side of midrib; peduncle 3–8 cm; bracts 2–4 mm, glabrous to sparsely villous ................................................................. 1. *A. humilis*

3b. Leaf blade 3–12 × 1–3.2 cm; lateral veins 7 or 8 on each side of midrib; peduncle 12–27 cm; bracts 6–18 mm, brownish pannose ................................................................. 2. *A. notochlaenus*

2b. Leaf blade adaxially with at least 2 kinds of hairs, both villous and puberulent to pubescent or villous; corolla 1.5–3 cm.

4a. Corolla pink; leaf blade margin serrate, base usually oblique, cuneate; peduncle sparsely puberulent; bracts apparently absent ................................................................. 4. *A. ronganensis*

4b. Corolla orange to yellow; leaf blade margin coarsely dentate-serrate or crenate to lobulate, base cuneate to cordate; peduncle brown villous, sometimes also puberulent; bracts 2–8 mm.

5a. Corolla adaxial lip 2-lobed; bracts linear to oblong, 2–5 × 0.7–1.2 mm; calyx segment margin entire; disc ca. 2.5 mm, subentire ................................................................. 3. *A. mairei*

5b. Corolla adaxial lip emarginate; bracts narrowly oblong to lanceolate or oblanceolate, 3–8 × 1.5–3 mm; calyx segment margin dentate, rarely subentire; disc 1–1.5 mm, 5-lobed ...... 9. *A. saxatilis*

1b. Calyx 5-lobed from below to above middle, tube at least 2 mm.

6a. Petiole to 1 cm; leaf blade rhombic to rhombic-ovate; lateral veins 2 or 3 on each side of midrib, inconspicuous, margin shallowly crenate to denticulate ................................................................. 10. *A. rhombifolius*

6b. Petiole to 2–12(–14) cm; leaf blade ovate to broadly ovate, elliptic, lanceolate, or oblanceolata, rarely ovate-rhombic; lateral veins 3–7 on each side of midrib, conspicuous, margin coarsely to double serrate, crenate, or dentate to lobulate, rarely merely crenate to dentate or serrate.

7a. Leaf blade adaxially densely puberulent; peduncle spreading pubescent ........................................... 8. *A. bullatus*

7b. Leaf blade adaxially both puberulent and villous, at least sparsely so along veins; peduncle villous, sometimes also pubescent.

8a. Corolla limb slightly 2-lipped, all lobes subequal; petiole, peduncle, and calyx segments bristly-villous, sometimes also puberulent.

9a. Leaf blade ovate, ca. 3.5 × 2 cm; pediole ca. 2 cm; calyx 10–11 mm ......................... 11. *A. vulpinus*

9a. Leaf blade broadly ovate, 4–5.5 × 3–4.8 cm; pediole to 7.5 cm; calyx 5–8 mm .. 12. *A. trichanthus*
8b. Corolla limb 2-lipped, abaxial lip at least 2 × longer than adaxial lip; petiole, peduncle, and calyx segments villous, sometimes also pubescent or puberulent.

10a. Corolla adaxial lip 2-lobed; petiole to 4 cm; leaf blade 2.2–4 × 2–3 cm, margin crenate to dentate or serrate, not lobulate; peduncle 4–7 cm, brown villous ........................... 7. *A. gamosepalus*

10b. Corolla adaxial lip undivided to emarginate; petiole to 12(–14) cm; leaf blade 2.5–16 × 1.5–9 cm, margin coarsely dentate to serrate or to nearly lobulate; peduncle 2.4–15(–22) cm, brown villous and pubescent or puberulent.

11a. Leaf blade margin coarsely dentate-serrate or crenate to nearly lobulate; corolla adaxial lip 1–3 mm wide, abaxial lip ca. 1 cm, lobes ovate-orbicular or broadly ovate .... 9. *A. saxatilis*

11b. Leaf blade margin coarsely double dentate to double serrate or lobulate, lobes dentate to serrate; corolla adaxial lip 4–7 mm wide, abaxial lip 7–8 mm, lobes oblong to obovate.

12a. Stamens 6–15 mm, filaments sparsely puberulent; disc ca. 1 mm, entire; calyx lobes 2–5 × 1–2 mm; bracts linear to narrowly triangular, 4–7 × 0.7–1.5 mm . 5. *A. convexus*

12b. Stamens 5–6 mm, filaments glabrous; disc 2–5 mm, 5-lobed; calyx lobes 1–2.5 × 1.5–3 mm; bracts narrowly oblong to obovate, 4–7 × 1–2 mm ......... 6. *A. aureus*


矮直瓣苣苔 ai zhi ban ju tai


Petiole to 5.5 cm, rust-brown villous; leaf blade elliptic to lanceolate, 1.1–4.4 × 0.7–1.8 cm, adaxially sparsely brown villous, glabrescent, abaxially pubescent, densely rust-brown villous abaxially along veins, base cuneate to subcordate, margin crenate to serrate; lateral veins 3–5 on each side of midrib, adaxially indistinct, abaxially conspicuous. Peduncle 3–8 cm, brown villous and sometimes glandular pubescent; bracts linear to oblong or elliptic, 2–4 × ca. 1 mm, glabrous to sparsely villous. Calyx 5-lobed from base; segments oblong to triangular, 1.5–2 mm, outside sparsely pubescent, glabrescent, margin entire. Corolla yellow-white, 1.1–1.5 cm; limb 2-lobed; adaxial lip ca. 2 mm, 2-lobed, lobes thickened at apex; central lobe of abaxial lip subovate, ca. 3.5 mm, lateral ones narrowly ovate, ca. 1.8 mm. Adaxial stamens included, ca. 9 mm, abaxial ones exserted, 5–8 mm; filaments glabrous; staminode ca. 3.5 mm. Disc ca. 1.3 mm, subentire. Pistil 8–10.5 mm, glabrous. Capsule 2–4 cm. Fl. Jul.

- Stones in forests and damp limestone hills; ca. 2100 m. W Hubei, SE Sichuan.


贵州直瓣苣苔 gui zhou zhi ban ju tai


Petiole to 8 cm, densely brownish pannose; leaf blade lanceolate to narrowly oblong, 3–12 × 1–3.2 cm, adaxially white puberulent, abaxially densely brownish pannose, base often oblique, subrounded to subcordate, margin crenulate to serrate; lateral veins 7 or 8 on each side of midrib, inconspicuous. Peduncle 12–27 cm, brownish pannose; bracts lanceolate, 6–18 × 1–3 mm, brownish pannose. Calyx 5-lobed from near base; segments triangular, ca. 4 mm, outside densely pubescent, margin entire. Corolla orange to yellow, 1.5–2 cm; limb 2-lipped; adaxial lip 0.5–1 mm, 2-lobed, lobes orbicular, ca. 1 × 1 mm; abaxial lip ca. 3 mm, lobes oblong, 2–5 × ca. 4 mm. Stamens included, 6–7 mm; filaments glabrous; staminode ca. 2 mm. Disc 1–1.7 mm, 5-lobed. Pistil 7–11 mm, glabrous. Fruit unknown. Fl. Sep–Oct.

- Shady, damp cliffs in forests. Guizhou (Guiyang Xian).


滇北直瓣苣苔 dian bei zhi ban ju tai

Petiole to 6 cm, rust-brown villous and pubescent; leaf blade elliptic to oblong, 1.5–8 × 1.1–3 cm, adaxially densely gray villous and sparsely brown villous and pubescent or sparsely villous to puberulent, abaxially white pubescent and densely brown villous or villous to...
puberulent, base cuneate to cordate, margin crenate to lobulate with lobes crenate; lateral veins 4 or 5 on each side of midrib, inconspicuous or conspicuous abaxially. Peduncle 4–10 cm, brown villous; bracts linear to oblong, 2.5–5 × 0.7–1.2 mm, brown villous. Calyx 5-sect from base; segments oblong to narrowly lanceolate, 3–6 mm, outside brown villous, margin entire. Corolla orange to yellow, 1.5–2.5 cm; limb 2-lipped; adaxial lip ca. 4 mm, 2-lobed, lobes suborbicular, 1.5–3 × 1.5–2 mm; abaxial lip 6–7 mm, lobes obovate, 4.5–6 × 2–3.5 mm. Stamens included, 0.8–1.3 cm; filaments glabrous; staminode ca. 3 mm. Disc ca. 2.5 mm, subentire. Pistil 0.7–1.4 cm, glabrous. Capsule 2–3.4 cm. Fl. Jun–Jul. 2.2–2.8 cm; limb 2-lipped; adaxial lip rounded, 1.5–3 × 0.7–1.4 cm, glabrous. Capsule 2–3.4 cm. Fl. Jun–Jul.

1a. Leaf blade elliptic to ovate, 1.2–5 × 1–2.7 cm, margin crenate to lobulate with lobes crenate, adaxially densely gray villous and sparsely brown villous and pubescent, abaxially white pubescent and densely brown villous; lateral veins conspicuous abaxially and densely brown villous, base often oblique, cuneate to cordate, margin crenate to lobulate. Fl. Jun–Jul.

1b. Leaf blade ovate or obovate to elliptic, 2–8 × 1.1–3 cm, margin crenate, adaxially sparsely villous to puberulent, abaxially villous to puberulent; lateral veins conspicuous abaxially ..................... 3b. var. emeiensis

3a. Ancylostemon mairei var. mairei Athean bian zhong (yuan bian zhong)


Petiole to 6 cm; leaf blade ovate or obovate to elliptic, 2.5–7.5 × 1.8–4.2 cm, appressed villous and puberulent, base oblique, cuneate, margin serrate; lateral veins 5–7 on each side of midrib, conspicuous. Peduncle 10–11 cm, sparsely puberulent; bracts apparently absent. Calyx 5-sect from base; segments narrowly lanceolate, ca. 2.5 mm, outside pubescent, margin entire. Corolla pink, 2.8–3 cm; limb 2-lipped; adaxial lip 6–7 mm, 2-lobed, lobes oblong, ca. 6.5 × 4 mm; abaxial lip 1–1.2 cm, lobes oblong, 5.7–4–5 mm. Stamens included, 5–9 mm; filaments glabrous; staminode ca. 1 mm. Disc ca. 1 mm, entire. Pistil 1.5–2.3 cm, glabrous. Fruit unknown. Fl. Jul.

3b. Ancylostemon mairei var. emeiensis

E mei zhi ban ju tai 1a. Leaf blade elliptic to ovate, 1.2–5 × 1–2.7 cm, margin crenate to lobulate with lobes crenate, adaxially densely gray villous and sparsely brown villous and pubescent, abaxially white pubescent and densely brown villous, base often oblique, cuneate to cordate, margin crenate to lobulate. Fl. Jun–Jul.


峨眉直瓣苣苔 e mei zhi ban ju tai

Petiole to 6 cm; leaf blade ovate or obovate to elliptic, 2.5–7.5 × 1.8–4.2 cm, appressed villous and puberulent, base oblique, cuneate, margin serrate; lateral veins 5–7 on each side of midrib, conspicuous. Peduncle 10–11 cm, sparsely puberulent; bracts apparently absent. Calyx 5-sect from base; segments narrowly lanceolate, ca. 2.5 mm, outside pubescent, margin entire. Corolla pink, 2.8–3 cm; limb 2-lipped; adaxial lip 6–7 mm, 2-lobed, lobes oblong, ca. 6.5 × 4 mm; abaxial lip 1–1.2 cm, lobes oblong, 5.7–4–5 mm. Stamens included, 5–9 mm; filaments glabrous; staminode ca. 1 mm. Disc ca. 1 mm, entire. Pistil 1.5–2.3 cm, glabrous. Fruit unknown. Fl. Jul.

3a. Ancylostemon mairei var. mairei

滇北直瓣苣苔 dian bei zhi ban ju tai (yuan bian zhong)


Petiole to 5 cm; leaf blade elliptic to ovate, 1.2–5 × 1–2.7 cm, adaxially densely gray villous and sparsely brown villous and pubescent, abaxially white pubescent and densely brown villous, margin crenate to lobulate with lobes crenate; lateral veins inconspicuous. Fl. Jun–Jul.

3a. Ancylostemon mairei var. mairei

峨眉直瓣苣苔 e mei zhi ban ju tai

Petiole to 6 cm; leaf blade ovate or obovate to elliptic, 2–8 × 1.1–3 cm, adaxially sparsely villous to puberulent, abaxially villous to puberulent, margin crenate; lateral veins conspicuous abaxially. Fl. Jun.


峨眉直瓣苣苔 e mei zhi ban ju tai

Petiole to 6 cm; leaf blade ovate or obovate to elliptic, 2–8 × 1.1–3 cm, adaxially sparsely villous to puberulent, abaxially villous to puberulent, margin crenate; lateral veins conspicuous abaxially. Fl. Jun.


融安直瓣苣苔 rong an zhi ban ju tai

Petiole to 2.8 cm, densely brownish villous; leaf blade elliptic to elliptic-ovate, 2.5–7.5 × 1.8–4.2 cm,
4–4.5 mm, emarginate to undivided; abaxial lip ca. 7 mm, lobes oblong to obovate-oblong, central lobe 5–7 × 5–5.5 mm, lateral lobes 4–5 × 4–5 mm. Stamens included, 5–6 mm; filaments glabrous; staminode 1–3 mm. Disc 2–5 mm, 5-lobed. Pistil 1.3–2.1 cm, glabrous or pubescent. Capsule (1.3–)2.5–5 cm. Fl. May–Oct, fr. Aug–Oct.

- Rocks and on trees in moist shady forests; 2800–3600 m. Yunnan.


1b. Leaf blade elliptic, 4–10 × 1.5–4 cm; pistil pubescent; cymes 1- or 2-flowered


6b. Ancylostemon aureus var. angustifolius

黄花直瓣苣苔 huang hua zhi ban ju tai

Petiole to 4 cm, densely brown villous; leaf blade ovate, 2.2–4 × 2–3 cm, adaxially puberulent and white to pale brown villous, abaxially puberulent, brown villous along veins, base cuneate to rounded, margin crenate to dentate or serrate; lateral veins 4 or 5 on each side of midrib, conspicuous. Peduncle 4–7 cm, brown villous; bracts linear to narrowly triangular, ca. 3 × 1 mm, brown villous. Calyx 5–6 mm, 5-lobed from to above middle; lobes ovate-triangular, 2–2.5 mm, outside brown villous, margin dentate. Corolla orange, 2.5–3.5 cm; limb 2-lipped; adaxial lip 3–5 mm, 2-lobed, lobes subsemiorbicular, 1–2 × 1–2 mm; abaxial lip 6–9 mm, lobes obovate, 5–8 × 5–6.5 mm. Stamens included, 6–7 mm; filaments glabrous; staminode ca. 1.5 mm. Disc ca. 1.5 mm, entire. Pistil 1.5–2.5 cm, glabrous. Capsule ca. 3.2 cm. Fl. Jul.

- Shady, damp rocks; 1700–2500 m. S and C Sichuan.


池叶直瓣苣苔 pao ye zhi ban ju tai

Petiole to 3 cm, densely deep brown villous; leaf blade ovate to ovate-rhombic, 2–3.4 × 1.5–2.9 cm, adaxially densely puberulent, abaxially densely white puberulent, deep brown villous along veins, base broadly cuneate to rounded, margin double dentate, teeth obtuse; lateral veins 4 or 5 on each side of midrib, conspicuous. Peduncle 3.5–6.5 cm, spreading pubescent; bracts linear to narrowly triangular, 2.8–3.2 × ca. 0.7 mm, puberulent. Calyx ca. 4 mm, 5-lobed from middle; lobes triangular, ca. 2 mm, outside puberulent, margin denticulate. Corolla orange, ca. 2.4 cm; limb 2-lipped; adaxial lip ca. 4.5 × 5 mm, indistinctly 2-lobed, lobes subsemiorbicular, ca. 0.8 × 1 mm; abaxial lip ca. 6.5 × 5.6 mm, central lobe obovate-oblong, ca. 6.5 × 2.5 mm, lateral lobes oblong, ca. 5 × 2.5 mm. Stamens included, adaxial ones ca. 8.5 mm, abaxial ones ca. 4.5 mm; filaments glabrous; staminode ca. 0.6 mm. Disc ca. 1.8 mm, entire. Pistil ca. 1.9 cm, glabrous. Fruit unknown. Fl. Jun.

- Rocks in forests; 3100–3600 m. NW Yunnan.


直瓣苣苔 zhi ban ju tai

Petiole to 6(–10) cm, densely brown villous; leaf blade lanceolate to broadly ovate or oblong, 2.5–9 × 1.5–5.5 cm, adaxially densely white puberulent and sparsely rust-brown villous, abaxially white puberulent and pubescent, rust-brown villous along veins, base often oblique, cordate to cuneate, margin coarsely dentate-serrate or crenate to nearly lobulate; lateral veins 4–7 on each side of midrib, conspicuous. Peduncle 4–11 cm, brown villous and pale brown puberulent; bracts narrowly oblong to lanceolate or oblongulate, 3–8 × 1.5–3 mm, brown villous and pubescent. Calyx 4–7 mm, 5-lobed from below to near middle, rarely 5-sect from near base; lobes ovate to lanceolate, 2–3 mm, outside sparsely puberulent and rust-brown villous to glabrescent, margin dentate, rarely subentire. Corolla yellow, 1.9–3.5 cm; limb 2-lipped; adaxial lip rounded, 1–3 × 1–3 mm, emarginate; abaxial lip ca. 10 × 8 mm, central lobe ovate-orbicular, 4.5–10 × 3–6.5 mm, lateral lobes broadly ovate, 4–6 × ca. 3 mm. Stamens included, 4–8 mm; filaments glabrous to puberulent; staminode ca. 4 mm. Disc 1–1.5 mm, 5-lobed. Pistil 1.5–2.2 cm, pubescent. Capsule (2–)3–5(–7) cm. Fl. Jun–Aug, fr. Jul–Aug.

- Shady, damp rocks in forests; 1600–3100 m. S Gansu, NW Hubei, SE Sichuan.


菱叶直瓣苣苔 ling ye zhi ban ju tai

Petiole to 1 cm, rust-brown villous; leaf blade rhombic to rhombic-ovate, 1.5–3 × 1.2–1.8 cm, adaxially densely gray pubescent, abaxially puberulent, rust-brown villous along veins, base broadly cuneate to...
rounded, margin shallowly crenate to denticulate; lateral veins 2 or 3 on each side of midrib, inconspicuous. Peduncle 3.5–4 cm, rust-brown villous and puberulent; bracts oblong lanceolate, 3–3.5 × ca. 1 mm, rust-brown villous. Calyx ca. 4 mm, 5-lobed from below middle to 5-lobed from near base; lobes ovate-lanceolate, ca. 2.2 mm, outside rust-brown villous, margin entire. Corolla yellow, ca. 2.1 cm; limb slightly 2-lipped, all lobes subequal, oblong, ca. 4 × 2.8 mm. Stamens included, 3.5–5 mm; filaments glabrous; staminode ca. 1 mm. Disc ca. 1.5 mm, 5-lobed. Pistil ca. 1.3 cm, glabrous. Capsule ca. 2.5 cm. Fl. Jul.

- Rocks near roads; ca. 2700 m. Sichuan (Meigu Xian).


狐毛直瓣苣苔 hu mao zhi ban ju tai
Petiole ca. 2 cm, densely bristly-villous; leaf blade ovate, ca. 3.5 × 2 cm, adaxially densely white puberulent and villous, sparsely brown villous along veins, abaxially white puberulent, densely brown villous along veins, base rounded to cordate, margin irregularly lobulate; lateral veins 3–5 on each side of midrib, conspicuous. Peduncle 5–7 cm, densely brown bristly-villous; bracts lanceolate to ovate-lanceolate, 5–8 × 1–2 mm, brown villous. Calyx 1–1.1 cm, 5-lobed from above middle; lobes triangular, 3–4 mm, outside sparsely brown bristly-villous, margin sometimes sparsely dentate. Corolla ca. 1.7 cm; limb slightly 2-lipped, all lobes subequal, oblong to obovate, 1.5–5 × 2–4 mm. Stamens included, 4–5 mm; filaments glabrous; staminode 1–2 mm. Disc 2.5–3 mm, 2–5-lobed. Pistil 1.3–1.5 cm, glabrous. Capsule ca. 1.2 cm.

- Yunnan (Dayao Xian).

The above description is based on the protologue and a photograph of the holotype.


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 petlate. Inflorescences lax, axillary, sometimes subumbell-like; 1- to many-flowered cymes; bracts 2 or rarely 3, opposite, rarely whorled. Calyx actinomorphic, 5-lobed 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-lobed from base, 3 × to slightly shorter than abaxial lip; adaxial 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 basifixited, 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 oblong-lanceolate, 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 Burtt (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.

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. latisepala
   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
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 obtlong, 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. Stamina 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


粗筒苣苔 cu tong ju tai
Didymocarpus ? kurzii C. B. Clarke, Commelyn. Cytandr. 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. Burtt; 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 sparingly pubescent 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 1–2-flowered; peduncle 4.5–16 × 2.3–7 cm, adaxially appressed puberulent; bracts 2(3 or 2), lanceolate to oblone, 3–8 × 1–2 mm, outside sparsely pubescent, inside glabrous, margin entire to sparsely denticate. Calyx segments lanceolate to narrowly triangular, 1–1.8 cm × 2–3 mm, outside sparsely pubescent, margin entire to sparsely denticate, 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 semiobicular, 4–6 × 5–8 mm, apex rounded; abaxial lip ca. 1 cm, lobes semiobicular, 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.


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 0.5–12 cm, sparsely appressed villous, glabrescent; leaf blade ovate to obovate, rarely lanceolate, 4–15.5 × 2.4–8.4 cm, adaxially sparingly appressed strigose to pubescent, abaxially nearly glabrous, sparingly 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(3 or 2), lanceolate to oblone, 3–8 × 1–2 mm, outside sparsely pubescent, inside glabrous, margin entire to sparsely denticate. 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 semiobicular, 3–4 × ca. 6 mm, apex rounded; abaxial lip 1–1.9 cm, lobes semiobicular, 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, sparingly 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).


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 denticate 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 oblone, 2–4 × 0.5–1.2 cm; ovary pubescent. Style 7–18 mm, sparsely pubescent. Capsule 3–5 cm, glabrescent. Fl. Jun–Sep, fr. Aug–Oct.
Briggsia fritschii

Paris 1: 450. 1885;

Didissandra mihieri

革叶粗筒苣苔

Edinburgh 11: 262. 1919.

5. Briggsia mihieri


fr. Dec, May.

glabrous. Capsule 3.5–5.5 cm, glabrescent. Fl. Sep–Dec, 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


革叶粗筒苣苔

dun ye cu tong ju tai

Didissandra mihieri


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–(–)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 cm, 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, Sichuan.

6. Briggsia aurantiaca


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, inconspicuous on both surfaces. Cymes 1–8-flowered; peduncle 1–8(–12) 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

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–(–)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, Sichuan.
adaxial ones 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.


- 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, abaxially visible, abaxially slightly prominent. Cymes 2–10-flowered; peduncle 5.5–22 cm, sparsely brownish pubescent, 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 chang ye cu tong ju tai


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

Specimens from Myanmar frequently have ten or more flowers.


- 多花粗筒苣苔 duo hua cu tong ju tai


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


- 腐丛粗筒苣苔 xian cong cu tong ju tai


- 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-crete, 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 1.2–2.8 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].


- 广西粗筒苣苔 guang xi cu tong ju tai


- 植丛粗筒苣苔 guang xi cu tong ju tai

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).


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 corolla, 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 rust-brown 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 glabrous, margin entire, veins indistinct. Corolla purple, not spotted, ca. 4 cm, outside puberulent, inside glabrous; tube ca. 3 × 1–1.3 cm; adaxial lip. 6.6 mm, lobes orbicular, ca. 3 × 5 mm, apex rounded; abaxial lip ca. 1 cm, lobes ovate to obovate, 7–8 × 6–8 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. 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.

- Shady slopes. Shuixi (Yunhe Xian).


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 pubescent villous, abaxially densely rust-brown villous, base shallowly cuneate, margin serrulate, apex obtuse; lateral veins 5 or 6 on each side of midrib, abaxially immersed, forming channels, abaxially prominent. Cymes 1–3–flowered; peduncle 7–9 cm, sparsely rust-brown puberulent; bracts 2, oblong, 3–4 × ca. 1 cm, 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 puberulent; tube ca. 1.2 × 0.7 cm; adaxial lip ca. 3.5 mm, lobes suborbulic, 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 cm, 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.


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, 4.5–6 × 2–3.5 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 1–2-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, 8–10 × 4–5 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 × 1–1.3 cm; adaxial lip ca. 6.6 mm, lobes orbicular, ca. 3 × 5 mm, apex rounded; abaxial lip ca. 1 cm, lobes ovate to ovate-obovate, 7–8 × 6–8 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 slope. Zhejiang (Yunhe Xian).


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, 4–15 × 2–6 cm, densely pubescent to 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 puberulent; tube ca. 1.2 × 0.7 cm; adaxial lip ca. 3.5 mm, lobes suborbulic, 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 cm, glabrescent. Style ca. 1.5 mm. Capsule 6–8.5 cm, glabrous. Seeds unknown. Fl. Aug.
Plants stemless. Petiole 1–3 cm, densely rust-brown puberulent; leaf blade ovate to rhombic-ovate, 1.2–5 × 0.8–2.2 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, 4–7 × 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).


Plants stemless. Petiole 2–5 cm, densely rust-brown villous; leaf blade elliptic, 3–6 × 1.2–2.2 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, 4–5 × 1–2 mm, outside rust-brown villous, margin entire, veins indistinct. Corolla purple-red, inside darker striate, 4.3–5.2 cm, outside sparsely glandular pubescent, inside glandular pubescent; tube 2.5–3.4 × 1.2–1.6 cm; adaxial lip 8–9 mm, lobes oblong, 4–5 × 4–7 mm, apex rounded to truncate; abaxial lip 1.5–2 cm, lobes elliptico-ovate, 6–9 × 5–7 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.


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


Plants stemless. Petiole 1–3 cm, densely rust-brown puberulent; leaf blade ovate to rhombic-ovate, 1.2–5 × 0.8–2.2 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, 4–7 × 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).


Plants stemless. Petiole 1–3 cm, densely rust-brown villous; leaf blade ovate to rhombic-ovate, 1.2–5 × 0.8–2.2 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, 4–7 × 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).
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, inside glabrous, 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 2–3 mm, glabrous. Style 2–3 mm, glandular puberulent. Capsule 6–6.8 cm, glabrescent. Fl. Jun–Aug, fr. Jul–Sep.

18a. Briggsia rosthornii var. rosthornii
川鄂粗筒苣苔 (原变种) chuan e cu tong ju tai (yuan bian zhong)


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, upper lip 2-lobed, lobes semiorbicular, ca. 2 × 1–1.2 mm. Capsule 5–6.8 cm, sparsely puberulent to glabrescent. Fl. Aug–Sep, fr. Sep–Oct.

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

18b. Briggsia rosthornii var. crenulata
川鄂粗筒苣苔 chuan e cu tong ju tai (yuan bian zhong)


Vesali粗筒苣苔 zhen feng cu tong ju tai


Briggsia rosthornii 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
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-lobed from base, lobes suborbicular, 5–6 × ca. 6 mm 18c. var. wenshanensis

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

1c. Cymes 1–3-flowered; peduncle 4–9 cm.
2a. Corolla ca. 2.8 × 1–1.5 cm, lobe apex acute .......................... 18e. var. rosthornii
3b. Leaf blade ovate or obovate to 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.

18a. Briggsia rosthornii var. crenulata
川鄂粗筒苣苔 (原变种) chuan e cu tong ju tai (yuan bian zhong)


Vesali粗筒苣苔 zhen feng cu tong ju tai


Briggsia rosthornii 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
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-lobed from base, lobes suborbicular, 5–6 × ca. 6 mm 18c. var. wenshanensis

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

1c. Cymes 1–3-flowered; peduncle 4–9 cm.
2a. Corolla ca. 2.8 × 1–1.5 cm, lobe apex acute .......................... 18e. var. rosthornii
3b. Leaf blade ovate or obovate to 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.

18b. Briggsia rosthornii var. crenulata
川鄂粗筒苣苔 chuan e cu tong ju tai (yuan bian zhong)


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.


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; leaf blade elliptic to ovate, 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.


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.


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, 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 (Zhenfeng Xian).
- Guizhou (Pingfa Xian).
- Guizhou (Xingren Xian).

筒花苣苔属 tong hua ju tai shu

Herbs, perennial, epipetric, rhizomatous, stemless or short and simple stemmed. Leaves few, basal or crowded above; leaf blade villous, base rounded to cordate. Inflorescences lax, axillary, 1–3-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white, zygomorphic, inside glabrous; tube tubular-funnelform, slightly gibbous abaxially toward limb, much longer than limb, 1.2–1.5 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 4, adnate to corolla tube below middle, included; anthers basifixed, coherent in pairs, thecae subparallel, not confluent, dehiscing longitudinally; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary oblong, 2-loculed, only adaxial locule fertile; placenta 1, axile. Stigmas 2, equal, obovate, undivided. Capsule oblique in relation to pedicel, oblong, much longer than calyx, dehiscing loculicidally to above base; valves 2, straight, not twisted. Seeds unappendaged.

- One species: endemic to China.


筒花苣苔 tong hua ju tai


Plants stemless or stems to 4 cm. Petiole 2.5–14 cm, densely gray appressed villous; leaf blade ovate to suborbicular, 4–12 × 3.2–7.5 cm, gray villous, base rounded to cordate, margin entire to repand, apex rounded. Peduncle 6–12 cm, gray villous; bracts linear to lanceolate, 3–6 mm. Calyx segments linear to lanceolate, 5–13 × 1–2 mm, outside gray villous. Corolla white, inside purple striate, 4–4.5 cm, outside white villous; tube 2.5–3.5 × 1.2–1.5 cm; adaxial lip ca. 7 mm; abaxial lip ca. 1.1 cm, all lobes suborbicular, 4–5 mm. Adaxial stamens ca. 1 cm, abaxial ones ca. 1.3 cm; staminode ca. 1.8 mm. Pistil ca. 2.3 cm, glabrous. Style ca. 1.5 cm. Capsule ca. 1.2 cm. Fl. Aug.

- Shady, damp rocks in montane regions; 200–1500 m. Guizhou (Xishui Xian), S Sichuan, NE Yunnan (Yanjin Xian).


漏斗苣苔属 lou dou ju tai shu

Raphiocarpus W. Y. Chun.

Herbs, rarely shrubs or subshrubs, perennial, epipetric or terrestrial, rhizomatous. Stems simple or branched. Leaves 2 to few, on stem, opposite, often crowded at stem apex, equal to strongly unequal in a pair; leaf blade puberulent to villous or glabrous, base cuneate to cordate. Inflorescences lax or dense, axillary, 1–10-flowered cymes; bracts 2 or apparently absent, opposite. Calyx actinomorphic, 5-sect from base to 5-lobed; segments equal. Corolla white to yellow, orange-red, purple, or blue-purple, zygomorphic, inside glabrous to sparsely glandular pubescent; tube narrowly cylindric to cylindric basally, ampliate above, not swollen, 4–5 × longer than limb, 0.6–1.5 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, longer than to much shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded. Stamens 4, adnate to corolla tube near or above middle, included; anthers basifixed, coherent in pairs, thecae subparallel, not confluent, dehiscing longitudinally; connective not projecting; staminode absent or 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed, placenta 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal or unequal, oblong to deltoid, undivided or 2-lobed. Capsule straight in relation to pedicel, linear to narrowly oblong, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

About 31 species: China, Indonesia, Malaysia, Thailand, Vietnam; five species in China.

1a. Leaves 1 pair, strongly unequal; petiole absent to 3 mm; calyx 5-lobed from below to above middle, tube at least 3 mm; stigmas unequal, adaxial undivided, oblong, ca. 2 mm, abaxial 2-lobed, obovate, ca. 3 mm .......................................................................................................................................................... 5. D. sesquifolia

1b. Leaves 2 or more pairs, equal to slightly unequal in each pair; petiole 0.3–6 cm; calyx 5-sect from base or near base, tube to 1 mm; stigmas equal, oblong to deltoid.

2a. Stem and peduncle glabrous to pubescent, glabrescent; calyx 2.5–6 mm; corolla yellow or white, often flushed purple, 1–4.9 cm.
3a. Corolla white, often flushed purple, 1.2–1.5 cm; bracts 1–2 × ca. 0.5 mm; calyx 2.5–3 × ca. 1 mm; stems glabrous to very sparsely puberulent; leaf blade with both surfaces glabrous ....... 1. D. sinica
3b. Corolla yellow, 3.5–4.9 cm; bracts ca. 3–6 × 1–3 mm; calyx 4–6 × 1–3 mm; stems pubescent to puberulent, glabrescent, leaf blade adaxially sparsely puberulent to strigose, abaxially glabrous to sparsely puberulent, veins sparsely pubescent to sparsely villous ......................... 2. D. longipedunculata
2b. Stem and peduncle villous to woolly, sometimes also puberulent or glabrescent; calyx 6–15 mm; corolla purple, purple-blue, or orange-red to yellow, 3–7 cm.
4a. Cymes 5–10-flowered; peduncle 3–10(–12) cm; bracts deciduous, broadly ovate to orbicular, 15–25 × 15–30 mm, margin irregularly dentate to subentire; corolla pale-purple or rusty lilac to purple; ovary pubescent, style glandular puberulent ................................ ................................ .... 4. D. begoniifolia
4a. Cymes 1–3-flowered; peduncle 1.5–4.3 cm; bracts persistent, lanceolate to oblong or oblanceolate, 2–4 × ca. 1 mm, margin entire; corolla orange-red to yellow; ovary and style glabrous 3. D. macrosiphon


无毛漏斗苣苔 wu mao lou dou ju tai


 Shrubs to subshrubs. Stems 1–1.5 m, glabrous to very sparsely puberulent. Leaves spread along stem, equal to unequal in a pair; petiole 3–13 mm; leaf blade narrowly elliptic to obovate, 5–17 × 1.4–6.3 cm, glabrous, base slightly oblique, cuneate to rounded, margin indistinctly to distinctly serrulate, apex acuminate to caudate-acuminate. Cymes 1–5-flowered; peduncle 2–6 mm, sparsely puberulent to sparsely pubescent; bracts 2, persistent, oblanceolate to linear-lanceolate, 1–2 × ca. 0.5 mm, margin entire. Calyx 5-sect from base; segments lanceolate, 2.5–3 × ca. 1 mm. Corolla white, often flushed purple, 1.2–1.5 cm; tube ca. 8 mm; adaxial lip ca. 3 mm; abaxial lip ca. 6 mm. Adaxial stamens 4–5.5 mm, abaxial ones 5–6.5 mm; anther thecae not confluent; staminode absent. Pistil 1.5–2 mm, sparsely glandular puberulent: stigmas deltoid, ca. 0.2 mm. Capsule 2–5 cm. Fl. Jul–Aug, fr. Jul–Oct.

• Fertile soil in shady and damp places under forests; 400–2400 m. S Guangxi.

Many specimens of Didissandra sinica are labelled as having come from Guangdong, but that part of Guangdong is now in Guangxi.


长梗漏斗苣苔 chang geng lou dou ju tai

Herbs to subshrubs. Stems to 1 m, pubescent to puberulent, glabrescent. Leaves mostly near stem apex, equal, rarely unequal in a pair; petiole 0.5–2.5 cm; leaf blade lanceolate to obovate or obovate, 7–17 × 3–6.5 cm, adaxially sparsely puberulent to strigose, abaxially glabrous to sparsely puberulent, sparsely pubescent to sparsely villous along veins, base slightly oblique, cuneate to subcordate, margin serrulate to entire, apex acuminate. Cymes 3–7-flowered; peduncle 1.5–6.5 cm, glandular puberulent to pubescent; bracts 2, persistent, lanceolate to ovate, ca. 3–6 × 1–3 mm, margin entire. Calyx 5-sect from base; segments ovate to lanceolate or oblong, 4–6 × 1–3 mm. Corolla yellow, 3.5–4.9 cm; tube 3–3.5 cm; adaxial lip 5–7 mm; abaxial lip 1–1.3 cm. Adaxial stamens 6–9 mm, abaxial ones 1.2–1.5 cm; anther thecae confluent; staminode absent. Pistil 2.4–3.5 cm, sparsely pubescent to glandular puberulent. Style 1.2–1.7 cm; stigmas oblong, 1–2 mm. Capsule 3–4.5 cm. Fl. Sep–Oct, fr. Oct.

• Shady and damp places under forests or by streams; 1400–1700 m. SE Yunnan (Pingbian Xian).


长筒漏斗苣苔 chang tong lou dou ju tai

Chirita macrosiphon Hance, Ann. Sci. Nat. Bot., sér. 5, 5: 231. 1866; Didissandra aurea (Dunn) B. L. Burtt; Loxostigma aureum Dunn; Didymocarpus microsiphon (Hance) H. Léveillé; Roettlera macrocephalia (Hance) Kunze.

Herbs. Stems to 30 cm, densely villous to woolly. Leaves mostly spread along stem, equal to unequal in a pair; pediole 0.5–6 cm; leaf blade ovate to broadly ovate, rarely elliptic or obovate, 5–17 × 3–8(–10.8) cm, villous to pubescent, base oblique, broadly cuneate to subcordate, margin serrate to serrulate, apex obtuse to acuminate. Cymes 1–3-flowered; peduncle 1.5–4.3 cm, villous, glabrescent; bracts 2, persistent, lanceolate to oblong or oblanceolate, 2.5–4 × ca. 1 mm, margin entire. Calyx 7–10 mm, 5-sect from near base; segments narrowly lanceolate, 6–9 × 1–1.5 mm. Corolla orange-red to yellow, 5.5–7 cm; tube 4–4.5 cm; adaxial lip 0.8–1.5 cm; abaxial lip 1.2–2.5 cm. Adaxial stamens 1.1–1.3 cm, abaxial ones 1.4–1.6 cm; anther thecae confluent; staminode absent. Pistil 4–5 cm,

- Shady and damp rocks under forests; 200–800 m. SW Guangdong, SE Guangxi.


大苞漏斗苣苔 da bao lou dou ju tai

Chirita chlamydata W. W. Smith; Loxostigma begoniifolium (H. Léveillé) J. Anthony.

Herbs. Stems to 1.7 m, densely villous and puberulent. Leaves mostly spread along stem, equal to unequal in a pair; petiole 0.6–6.5 cm; leaf blade ovate, rarely obovate, 6–23 × 2.5–11.5 cm, densely villous to pubescent, base oblique, narrowly cuneate to cordate, margin serrate to dentate-serrate, often doubly so, apex obtuse to acuminate. Cymes 5–10-flowered; peduncle 3–10(–12) cm, villous; bracts 2, deciduous, broadly ovate to orbicular, 1.5–2.5 × 1.5–3 cm, margin irregularly dentate to subentire. Calyx 5-sect from base; segments lanceolate to narrowly oblong, 0.7–1.5 cm × ca. 1–2 mm. Corolla pale-purple or rusty lilac to purple, 3–6 cm; tube 2.5–4 cm; adaxial lip 5–8 mm; abaxial lip 0.9–2 cm. Adaxial stamens 8–10 mm, abaxial ones ca. 1.5 cm; anther thecae confluent; staminode absent. Pistil 3.2–3.6 cm; ovary pubescent. Style ca. 1 cm, glandular puberulent; stigmas oblong, 1–2.4 mm. Capsule (3–)6.5–7.5 cm. Fl. Aug–Sep, fr. Sep–Oct.

- Crevices of rocks under thickets on slopes; 1200–2100 m. W Guangxi, Guizhou, W Hubei, SE Yunnan.

5. Didissandra sesquifolia C. B. Clarke, Hooker’s Icon. Pl. 18: pl. 1797. 1888.

大叶箩 da ye luo

Didymocarpus sesquifolius (C. B. Clarke) H. Léveillé.

Herbs. Stems 12–38 cm, sparsely villous, glabrescent. Leaves 2, at stem apex, strongly unequal; petiole absent to 3 mm; leaf blade ovate to very broadly ovate, 8.5–29 × 5.2–21 cm and (1–)3–6.5 × (0.6–)2–4.6 cm, pubescent to villous, base rounded to cordate, margin serrate to dentate-serrate, often doubly so, apex obtuse to acuminate. Cymes 1- or 2–(4)-flowered; peduncle 0.5–1(–3.5) cm, densely villous; bracts 2, often deciduous, lanceolate to oblanceolate, 4–5 × 0.5–2, margin entire. Calyx 1–2 cm, 5-lobed from below to above middle; lobes lanceolate to broadly triangular, 3–14 × 2–3 mm. Corolla purple to purple-blue, 4.8–7 cm; tube 3.5–5.7 cm; adaxial lip 8–10 mm; abaxial lip ca. 1.2–1.5 cm. Adaxial stamens 0.9–1.1 cm, abaxial ones 1.2–1.6 cm; anther thecae confluent; staminode 1, ca. 0.6 mm. Pistil 2.8–3.4 cm; ovary sparsely villous to puberulent. Style 6–7 mm, sparsely pubescent, glabrescent; adaxial stigma oblong, ca. 2 mm, abaxial stigma obvolute, ca. 3 mm, 2-lobed. Capsule 5.5–7 cm. Fl. Jul–Aug, fr. Aug–Oct.

- Under forests, near roads, cliffs in montane regions; 900–1600 m. SW Sichuan.


珊瑚苣苔属 shan hu ju tai shu

Herbs, perennial, epipetric, rhizomatous, stemless. Leaves many, basal; leaf blade glabrous to densely woolly, base narrowly to broadly cuneate, rarely subrounded. Inflorescences lax or dense, axillary, rarely subumbell-like, 1- to many-flowered cymes; bracts apparently absent. Calyx actinomorphic, 5-sect from near base to 5-lobed from near middle; segments equal. Corolla blue to purple, seldom yellow to white, zygomorphic, inside densely bearded on abaxial lip; tube tubular, not swollen, much longer than limb, 1–7 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, usually distinctly shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, rarely unequal, apex rounded to obtuse. Stamens 4, adnate to corolla tube above base or rarely above middle, included or rarely slightly exserted; anthers dorsifixed, coherent in pairs, thecae divergent, confluence, dehiscing longitudinally; connective not projecting; staminode absent. Pistil 3.2–3.6 cm; ovary pubescent. Style ca. 1 cm, glandular puberulent; stigmas oblong, 1–2.4 mm. Capsule (3–)6.5–7.5 cm. Fl. Aug–Sep, fr. Sep–Oct.

Three to five species: Bhutan, China, N India, Nepal, Sikkim, Thailand; three species in China.

1a. Cymes 1-flowered; leaf blade abaxially densely white to grayish woolly; peduncle 1–6 cm; capsule ovoid ................................ ................................................................ ............................................ 3. C. conchifolius

1b. Cymes (1–)4–15(–30)-flowered, if 1-flowered, then leaf blade abaxially only along veins rust-brown woolly; peduncle (1–)3–17 cm; capsule ovoid to narrowly linear, if ovoid, then leaf blade abaxially densely rust-brown woolly.

2a. Capsule ovoid to oblong, rarely narrowly oblong; leaf blade rhombic-lanceolate to lanceolate, rarely ovate, 1.6–11 × 0.8–4 cm, adaxially glabrous, rarely rust-brown woolly near base of midrib; peduncle densely rust-brown woolly ........................................................................................................ 1. C. kingianus
2b. Capsule narrowly oblong; leaf blade broadly obovate to elliptic, rhombic, ovate, flabellate, or oblong.

(0.5–)1–5(–8) × (0.4–)0.8–3(–3.7) cm, adaxially glabrous to densely villous; peduncle glabrescent to brownish woolly, glabrescent ................................................................. 2. C. lanuginosus


2. Corallodiscus lanuginosus (Walllich ex R. Brown) B. L. Burtt; D. grandis Craib; D. rufa King ex J. D. Hooker, not C. B. Clarke.

Petiole to 5.5 cm, adaxially glabrous, rarely rust brown centrally, abaxially densely rust-brown woolly; leaf blade rhombic-lanceolate to lanceolate, rarely ovate, 1.6–11 × 0.8–4 cm, flat to bullate, adaxially glabrous, rarely rust-brown woolly near base of midrib, abaxially densely rust-brown woolly, margin subentire to crenulate, rarely serrulate, apex narrowly acute to acute, seldom obtuse or acuminate; lateral veins 4 or 5 on each side of midrib, adaxially impressed, abaxially prominent. Cymes (5–)7–20-flowered; peduncle (3.5–)4.5–17 cm, densely rust-brown woolly. Calyx 4–5 mm, outside densely rust-brown woolly. Corolla purplish to blue and white, inside with 2 deep brown spotted striae on abaxial lip, (1–)1.3–16 (–1.8) cm; staminode 0.5–2.2 mm. Pistil glabrous; ovary ca. 1.5 mm. Style 3–6 mm. Capsule ovoid to oblong, rarely narrowly oblong, 6–10(–20) mm. Fl. Jun–Sep, fr. Jun–Sep.

Rocks on slopes or in forests; 2800–4800 m. S Qinghai, SW Sichuan, Xizang, NW Yunnan [Bhutan, Sikkim].

Corallodiscus kingianus and C. grandis are treated as a single species because the large number of specimens now available shows that the variation between them is continuous and correlates with elevation throughout their range. Corolla and pedicel length and number of flowers per inflorescence tend to decrease with increasing elevation. Calyx indumentum becomes denser with greater elevation.


Didymocarpus lanuginosus Walllich ex R. Brown, On Cytandreae 118. 1839; Corallodiscus bullatus (Crab) B. L. Burtt; C. cordatula (Crab) B. L. Burtt; C. flabellatus (Crab) B. L. Burtt; C. labordei var. leiocalyx W. T. Wang; C. flabellatus var. luteus (Crab) K. Y. Pan; C. flabellatus var. puberulus K. Y. Pan; C. flabellatus var. sericeus (Crab) K. Y. Pan; C. mengtezanns (Crab) B. L. Burtt; C. patens (Crab) B. L. Burtt; C. plicatus (Franchet) B. L. Burtt; C. plicatus var. lineatus (Crab) K. Y. Pan; C. sericeus (Crab) B. L. Burtt; C. taliensis (Crab) B. L. Burtt; Didissandra bullata Craib; D. cordatula Craib; D. flabellata Craib; D. labordei Craib; D. lanuginosa (Walllich ex R. Brown) C. B. Clarke; D. lineata Craib; D. lutea Craib; D. mengtezanns (Crab) B. L. Burtt; D. plicata Franchet; D. sericea Craib; D. taliensis Craib; D. taliensis f. robusta Craib.

Petiole to 4(–5.5) cm, adaxially glabrous to woolly, abaxially gray to brownish woolly to pannose; leaf blade broadly obovate to elliptic, rhombic, ovate, flabellate, or oblong, (0.5–)1–5(–8) × (0.4–)0.8–3(–3.7) cm, flat to plicate or bullate, adaxially glabrous to densely villous, abaxially brownish pubescent to white to brownish woolly or puberulent to glabrous, margin subentire to crenulate, denticulate, or serrate, apex acute to rounded; lateral veins 3–5(or 6) on each side of midrib, adaxially flat to impressed, abaxially prominent to strongly prominent. Cymes (1–)4–15(–30)-flowered; peduncle (1–)3–17 cm, glabrescent to brownish woolly, glabrescent. Calyx 1.5–3.5 mm, outside glabrous, outside glabrescent to pubescent, rarely woolly. Corolla blue or purple to white or yellow, inside with or without spots on abaxial lip, (0.6–)0.8–1.4(–1.9) cm, outside glabrous to glabrescent; tube 5.5–10(–13) × 1.5–5.5 mm; adaxial lip lobes 0.6–2 mm; abaxial lip lobes 2–4(–6) mm. Stamens 2–6.5 mm; staminode 0.5–2.2 mm. Pistil glabrous; ovary 2–5 mm. Style 2–8 mm. Capsule narrowly oblong, 0.6–2.5 cm. Fl. Apr–Oct, fr. Jun–Dec.

Rocky slopes, steep cliffs, forest margins, forests; 700–4300 m. N Guangdong, N Guangxi, Guizhou, Hebei, Henan, Hubei, NW Hunan, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan [Bhutan, N India, Nepal, Sikkim, Thailand].

As presently delimited, Corallodiscus lanuginosus includes seven taxa recognized in FRPS (Fl. Reipub. Populair Sin. 69: 233-245. 1990). Morphological variation in the present delimitation of C. lanuginosus includes indumentum (amount and type), leaf blade shape, size, margin, and texture, and flower number and size. The extent of this variation accounts for more than a few taxa previously described. However, in reexamining of all of these taxa, it became clear that the variation in all of these characters is continuous and is not correlated with the variation in other characters. For this reason it was impossible to clearly delimit previously recognized taxa. Thus, we recognize one, highly variable species, but further studies are needed to understand the variation.

The specimens from Xizang (Gyirong, Nyalam) and Yunnan (Baoshan) differ from those of other areas in having the leaves entire and subentire, ovate or rarely obovate, flat or very rarely slightly plicate, submembranous or thin papery, and glabrous or nearly so adaxially. They probably represent a subspecies of Corallodiscus lanuginosus or an independent species.


小石花 xiao shi hua
Corallodiscus forrestii (Anthony) B. L. Burtt;
Didissandra forrestii J. Anthony.
Petiole to 5 mm, adaxially glabrescent, abaxially white
to grayish pubescent; leaf blade ovate to rhombic-
ovoate, elliptic, or suborbicular, 6–12 × 3–8 mm, flat to
plicate, adaxially glabrescent, abaxially densely white
to grayish woolly, margin subentire to crenate, apex
cute to rounded; basal venation palmate, veins 3–7;
lateral veins to 4 on each side of midrib, adaxially
impressed, abaxially prominent. Cymes 1-flowered;
peduncle 1–6 cm, densely grayish pubescent to

堇叶苣苔属
Herbs, perennial, epipetric, rhizomatous. Stems simple. Leaves 1(or 2), on stem, apical; leaf blade pubescent, base
cordate to auriculate. Inflorescences lax, axillary, 1–3(–6)-flowered cymes; bracts apparently absent. Calyx
actinomorphic, 5-sect from near base; lobes equal. Corolla purple-red, zygomorphic, inside glabrous, outside
oblique, campanulate, not swollen, shorter than limb, 3–5 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, distinctly
shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 4, adnate to corolla tube near
base, included; anthers basifixed, coherent in pairs, thecae divericate, confluent, dehiscing from fissures or
cracks; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary ovoid, 1-
loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitulate, undivided. Capsule straight in
relation to pedicel, ovoid-oblong, slightly longer than calyx, dehiscing loculicidally to base; valves 2, straight, not
twisted. Seeds unappendaged.

One species: Bhutan, China, N India, Nepal.
堇叶苣苔
Stems 3–9(–12) cm, sparsely white pubescent to
glabrescent. Leaf blade broadly ovate, 1.5–8 × 1.8–8
mm, adaxially white appressed pubescent, abaxially
sparsely white pubescent, base cordate to auriculate,
margin coarsely dentate, apex broadly acute to obtuse;
lateral veins subpalmate, 3–6 on each side of midrib.
Peduncle 1–4 cm, sparsely glandular pubescent; bracts
subulate, 1–3 × 0.5–1 mm. Calyx 2.7–3.7 mm; tube ca.
0.7 mm; segments ovate-oblong, 2–3 × 1–1.5 mm,
outside sparsely puberulent to glabrous. Corolla purple-
red, throat spotted adaxially, adaxial lobes yellow with
purple spots, 0.7–1.3 cm; tube ca. 3 mm; limb distinctly
2-lipped; adaxial lip 3.5–4.5 mm, lobes ovate, 2–2.5 ×
2–3 mm; abaxial lip 5–8 mm, lobes ovate, 3–5.5 × 3–
3.5 mm. Filaments 1–2 mm; staminode ca. 0.25 mm.
Pistil exserted, glabrous; ca. 3 mm. Style 6.5–10 mm.
Capsule partially enclosed in persistent calyx, 5–7 mm.
Shady and damp rocks in valleys or dry cliffs; 2300–3200 m. S
Xizang (Nyalam Xian) [Bhutan, N India, Nepal].

扁蒴苣苔属
Herbs, perennial, epipetric, rhizomatous, stemless. Leaves few, basal; leaf blade sericeous to pubescent, base
cuneate. Inflorescences lax, axillary, 1- or 2-flowered cymes; bracts apparently absent. Calyx zygomorphic, 2-lipped;
adaxial lip undivided; abaxial lip 4-lobed. Corolla purplish, zygomorphic, inside pubescent to sparsely pilose; tube
tubular, slightly gibbous abaxially toward limb, much longer than limb, 7–10 mm in diam.; limb 2-lipped; adaxial
lip 2-lobed, shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 4, adnate to corolla
tube near middle, included; anthers basifixed, coherent in pairs, thecae divericate, confluent at apex, dehiscing
longitudinally; connective not projecting; staminode absent. Disc tubular. Ovary narrowly ellipsoid, 1-loculed;
placentas 2, parietal, projecting inward and divericate. Stigma 1, terminal, subcapitate, divided on 1 side. Capsule
straight in relation to pedicel, narrowly ellipsoid, slightly longer than calyx, dehiscing loculicidally to base, splitting
along 1 suture, straight, not twisted. Seeds unappendaged.

One species: endemic to China.

扁蒴苣苔
Petiole 2.5–14 cm; leaf blade oblanceolate to obovate
or elliptic, 4.5–12 × 2–6.2 cm, adaxially whitish to
brownish sericeous, abaxially appressed pubescent,
margin subentire, apex slightly obtuse; lateral veins 4 or
5 on each side of midrib. Peduncle 7–12 cm, brownish
pubescent; bracts narrowly lanceolate, ca. 5 × 1 mm. Calyx 1.2–1.4 cm; tube 2–4.5 mm; adaxial lip linear to narrowly triangular, 5–9 mm; abaxial lip 4-lobed from above to near middle, lobes triangular, 3.5–8 mm, outside pubescent. Corolla 2.5–5 cm, outside sparsely pilose; tube ca. 2.5 cm; lobes suborbicular; adaxial lip lobes ca. 4 mm; abaxial lip lobes ca. 6 mm. Adaxial stamens ca. 1.3 cm, abaxial ones ca. 1.4 cm; filaments glandular pilose. Pistil included; ovary ca. 6 mm. Style ca. 3 cm, glandular puberulent. Capsule ca. 1.6 cm. Fl. Apr–Jan, fr. Jan–Sep.

• Damp rocks by streams in valleys; ca. 2400 m. Hainan.


Petrodoxa J. Anthony; Slackia Griffith.

Herbs, rarely subshrubs, perennial, epipetric or terrestrial, rhizomatous, stemless or simple stemmed. Leaves many, basal or on stem, equal to subequal in a pair; leaf blade strigose to villous or glabrescent, base cordate to cuneate. Inflorescences often umbel-like, lax, axillary, 1- to few-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla blue-purple to red, zygomorphic, inside glabrous, outside oblique, campanulate, not swollen, shorter than to nearly equalling limb, 3–9 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, distinctly shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded to obtuse. Stamens 4, adnate to corolla near or slightly above base, included; anthers basifixed, all 4 coherent together, thecae subparallel, slightly divergent at base, confluent at apex, dehiscing poricidally; connective not projecting; staminode 1 or absent, adnate to adaxial side of corolla tube. Disc ringlike or inconspicuous. Ovary ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate, undivided. Capsule oblique in relation to pedicel, narrowly ovoid to very narrowly oblong, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

About seven species: China, Myanmar, N Vietnam; five species in China.

1a. Peduncle 1.2–4 cm; leaf blade 1–3.5 × 0.6–2.2 cm, margin crenulate-serrate to subentire; lateral veins 3 or 4 on each side of midrib; bracts 1–2 × ca. 0.5 mm; anthers ca. 0.5 mm; pistil sparsely puberulent; capsule 6–10 mm ................................ ................................ ............................................................... 5. B. minima

1b. Peduncle (5–)7–17 cm; leaf blade 2.5–12 × 1.5–8.5 cm, margin crenate to dentate, denticulate, or serrate; lateral veins 4–6 on each side of midrib; bracts 2–6 × 2–5 mm; anthers 1.4–2.5 mm; pistil glabrous (unknown in B. paucisetulosa); capsule 1.5–2.7 cm (unknown in B. paucisetulosa).

2a. Plants with stems 12–20 cm, leaves crowded near stem apex; most of plant covered with purple-red hairs; leaf blade apex acute; bracts elliptic ................................ ................................ ..................... 4. B. erythrotricha

2b. Plants stemless or with stems to 10 cm, leaves basal or alternate and spaced along stem; most of plant with whitish, yellowish, or brownish hairs; leaf blade apex acute to rounded; bracts ovate or broadly ovate.

3a. Leaf blade 2.5–4 × 3–3.5 cm, adaxially sparsely minutely bristly, abaxially minutely bristly along veins and margin; calyx segments outside sparsely villous; anthers ca. 2.5 mm ........... 2. B. paucisetulosa

3b. Leaf blade 3–12 × 1.5–8.5 cm, adaxially hirsute or strigose, abaxially less densely so; calyx segments outside pubescent or sparsely pubescent; anthers 1.4–1.5 mm.

4a. Leaf blade ovate to orbicular, base cordate, rarely rounded, whitish to brownish hirsute; plant with whitish to brownish hairs ................................ ............................................................. 1. B. tonkinensis

4b. Leaf blade elliptic to ovate, base rounded to broadly cuneate, rarely subcordate, short strigose; plant with white or yellowish hairs ........................................................................ 3. B. argentea


Beccarinda 横蒴苣苔 heng shuo ju tai


Herbs, perennial, stemless. Leaves basal; petiole (2–)4–13 cm; leaf blade ovate to orbicular, 3–12 × 2.5–8.5 cm, adaxially whitish to brownish hirsute, abaxially short whitish to brownish hirsute, base cordate, rarely rounded, margin coarsely crenate, apex rounded to obtuse; lateral veins 5 or 6 on each side of midrib.
Peduncle (5–)7–17 cm, brownish hirsute; bracts broadly ovate, 3–5 × 3–4 mm, outside nearly glabrous, inside pubescent to hirsute. Calyx segments ovate to obovate, 2–4.5 × 1.5–2.5 mm, outside sparsely pubescent. Corolla blue-purple, (0.7–)1–1.6 cm, outside sparsely puberulent; tube ca. 5 mm; adaxial lip lobes ca. 3 mm; ones of abaxial lip ca. 5 mm. Filaments ca. 3 mm; anthers ca. 1.5 mm. Pistil glabrous; ovary ca. 2 mm. Style ca. 6 mm. Capsule 1.5–2.5 cm. Fl. Apr–Jun. fr. May–Sep.

Rocks on forested slopes; 700–2400 m. Guangxi, S Guizhou, S Sichuan, SE Yunnan [N Vietnam].


Herbs, perennial, stemless. Leaves basal; petiole 2.5–4.5 cm; leaf blade ovate, 2.5–4 × 3–3.5 cm, adaxially sparsely setulose, abaxially setulose along veins and margin, base cordate, margin crenate, apex rounded; lateral veins 4 or 5 on each side of midrib. Peduncle 8–12 cm, tawny villous; bracts broadly ovate, ca. 4 × 5 mm, sparsely villous. Calyx segments narrowly ovate, ca. 5 × 2.5–3 mm, outside sparsely pubescent. Corolla purple, ca. 9 mm, outside sparsely puberulent; tube ca. 4 mm; adaxial lip lobes ca. 2.5 mm; abaxial lip lobes ca. 5 mm. Filaments ca. 3 mm; anthers ca. 2.5 mm. Ovary ca. 2 mm. Style ca. 4 mm. Fruit unknown. Fl. May.

• Forest margins; ca. 2100 m. SE Yunnan (Jinping Xian).


Herbs, perennial, stemless. Leaves basal; petiole 2.5–4.5 cm; leaf blade elliptic to obovate, 1.5–2 × ca. 0.5 mm, adaxially white short strigose, abaxially sparsely villous. Calyx segments narrowly ovate to lanceolate, 3.2–5 × 1.5–1.8 mm, outside reddish hirsute to sparsely pubescent. Corolla purplish, ca. 1.7 cm, outside sparsely pubescent; tube ca. 5 mm; adaxial lip lobes ca. 2 mm; abaxial lip ca. 1.1 cm, central lobe ca. 7 mm, lateral lobes ca. 3 mm. Filaments ca. 2.2 mm; anthers ca. 1.6 mm. Pistil glabrous; ovary ca. 2.5 mm. Style ca. 4.5 mm. Capsule 2–3.1 cm. Fl. Jun–Oct. fr. Jan–Jun.

• Dense forests; 1400–1700 m. SE Yunnan (Pingbian Xian). Burtt (Notes Roy. Bot. Gard. Edinburgh 22: 64. 1955) recognized this species as new but did not describe it.


Herbs, perennial, stemless. Leaves basal; petiole 1–4 cm; leaf blade elliptic to ovate, 1–3.5 × 0.6–2.2 cm, adaxially sparsely villous, abaxially sparsely pubescent, base often oblique, broadly cuneate to subcordate, margin crenulate-serrate to subentire, apex acute to rounded; lateral veins 3 or 4 on each side of midrib. Peduncle 1.2–4 cm, sparsely pubescent; bracts ovate, 1–2 × ca. 0.5 mm, pubescent to glabrous. Calyx segments lanceolate to narrowly oblong, 1.5–2 × ca. 0.5 mm, outside sparsely pubescent. Corolla purple-blue to white, ca. 8 mm, outside glabrous; tube ca. 4 mm; adaxial lip ca. 2 mm; abaxial lip ca. 4 mm. Filaments 2.5–3 mm; anthers ca. 0.5 mm. Pistil sparsely puberulent; ovary ca. 1 mm. Style ca. 3 mm. Capsule 6–10 mm. Fr. May–Jul. fr. Jul.

• Damp limestone cliffs; 400–1200 m. E Guangxi.


Subshrubs, terrestrial, not rhizomatous. Stems branched. Leaves few, opposite, often crowded on short branches, equal to subequal in a pair; leaf blade pilose to pubescent, base cuneate to broadly cuneate. Inflorescences umbel-like, lax, axillary, 3–5-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla yellowish, zygomorphic, inside glabrous; tube campanulate, not swollen, slightly longer than limb, 3–5 mm in diam.; limb indistinctly 2-lipped; adaxial lobe 2-lobed, nearly as long as abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 4, adnate to corolla near base, included; anthers basifixied, free, thecae subparallel, not confluent, dehiscing poricidally; connective not projecting; staminode 1, adnate to adaxial side of corolla tube.

About three species: Bhutan, China, N India, Myanmar, Sikkim, Thailand; one species in China.


细蒴苣苔 **xi shuo ju tai**


Stems to at least 30 cm. Petiole 0.5–2.2(–6) cm; leaf blade elliptic to ovate, 2.5–11(–17) × (1.3–)2.6–7.5 cm, adaxially appressed pilose, especially along veins, abaxially appressed pubescent, especially along veins, margin shallowly serrate, apex acute to acuminate; lateral veins 9–12 on each side of midrib. Peduncle 1–4 cm, puberulent; bracts linear to subulate, 1–4 × 0.2–1 mm, puberulent. Pedicel puberulent, often bracteolate. Calyx segments linear to narrowly triangular, 1.5–2 × 0.2–0.4 mm. Corolla 6–9 mm, outside glabrous; tube 4–5 mm; lobes subequal, suborbicular to oblong, 2–3 × 4–6 mm. Stamens 2.5–4.5 mm; staminode ca. 0.5 mm. Ovary 1.8–2 mm, parssely puberulent. Style 6–7 mm, glabrous. Capsule 2–3.5 cm. Fl. Jul, fr. Aug–Dec.

Dense forests on slopes; 1000–1300 m. S and SW Yunnan [Bhutan, NE India, Myanmar, Sikkim].


短筒苣苔 **duan tong ju tai**

*Boeicopsis* H. W. Li.

Subshrubs or herbs, perennial, epipetric or terrestrial, rhizomatous, sometimes stoloniferous, stemmed or seldom stemless. Leaves few to many, on stem and alternate, ± crowded near stem apex or basal; leaf blade puberulent to densely woolly or glabrescent, base cuneate to attenuate. Inflorescences lax, sometimes umbel-like, axillary, 1- to many-flowered cymes; bracts 2 and opposite, rarely several and whorled. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white to pink or blue to purple, zygomorphic, inside glabrous or puberulent; tube campanulate, not swollen, sometimes saccate at base, slightly shorter than limb, 3–7 mm in diam.; limb slightly 2-lipped; adaxial lip 2-lobed, slightly shorter than to as long as abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded to acute. Stamens 4, adnate to corolla near base, included; anthers basifixed, free, thecae subparallel, confluent at apex, dehiscing longitudinally, poricidally, or transversely; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike or inconspicuous. Ovary ovoid or conical, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitulate, undivided. Capsule straight in relation to pedicel, linear to narrowly oblong, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

About 12 species: Bhutan, S China, N India, Myanmar, N Vietnam; seven species in China.

1a. Style with 2 broad and flat winglike appendages; petiole and leaf blade hirsute adaxially; corolla tube saccate at base; ovary glabrous ................................................................. 7. *B. yunnanensis*

1b. Style unappendaged; petiole and leaf blade villous, woolly, or puberulent adaxially; corolla tube not saccate; ovary sparsely puberulent to villous.

2a. Cymes 1-flowered; lateral veins 4–6 on each side of midrib; plants always stemless; corolla 10–12 mm; anthers dehiscing longitudinally ............................................................... 3. *B. guileana*

2b. Cymes 3- to many flowered; lateral veins 7–16 on each side of midrib; plants with stems (0.5–)4–30 cm; corolla 3–6 mm; anthers dehiscing poricidally or transversely (unknown in *B. fulva*).

3a. Pedicels 10–20 mm; stems 0.5–7 cm; bracts 4–7 mm.

4a. Leaf blade broadly elliptic or ovate to obovate, 3.5–10 × 2.8–5.5 cm, adaxially villous, base cuneate to rounded, margin serrulate to serrate; lateral veins 7–9 on each side of midrib .......... 2. *stolonifera*

4b. Leaf blade ovate-elliptic, 8–20 × 3–11 cm, adaxially appressed puberulent, base attenuate, margin coarsely serrate; lateral veins 10–13 on each side of midrib ........................................ 4. *B. ferruginea*

3b. Pedicels 0.4–2.5 mm; stems 6–14 cm; bracts 1–5 mm.

5a. Leaf blade margin irregularly shallowly denticulate, adaxially woolly, glabrescent; peduncle 10–15 cm ................................................................. 6. *B. fulva*
Shady and damp forests; 200–900 m. SE Guangxi [N Vietnam].

Herbs. Stems 0.5–7 cm, densely hirsute and woolly.


孔药短筒苣苔  kong yao duan tong ju tai

*Boeica* *tonkinensis* (Kraenzlin) B. L. Burtt;

*Didymocarpus* *tonkinensis* (Kraenzlin) Handel-Mazzetti;

*Oreocharis* *tonkinensis* Kraenzlin.

Subshrubs. Stems 10–30 cm, densely villous. Petiole 0.5–2.8 cm, densely villous; leaf blade obovate to elliptic, 4.5–18 × 3.5–6.5 cm, adaxially sparsely villous, abaxially sparsely villous along veins, base sometimes oblique. Cyme 3– to many flowered; peduncle 3.5–8 cm, densely villous; bracts 2, sometimes several, 1.5–5 mm. Pedicel 0.8–2.5 mm. Calyx segments narrowly lanceolate to elliptic, 4–5 × 1–1.3 mm, outside densely villous, margin entire to dentate. Corolla white to pinkish, 3–7 mm, outside glabrescent; tube not swollen, 1–1.5 mm; lobes suborbicular, 2–5 × 2.5–4 mm. Filaments 0.6–1.5 mm, glandular. Anthers dehiscing longitudinally; staminode apparently absent. Disc ringlike. Ovary conical, 2–3.5 mm, villous. Style unappendaged, 4–7 mm, pubescent to puberulent. Capsule 0.7–1.4 cm. Fl. and fr. Jul.


匍茎短筒苣苔  pu jing duan tong ju tai


Herbs, stemless. Petiole 1–3 cm, densely villous; leaf blade elliptic to ovobate or ovate, 2–6 × 1.1–3.2 cm, villous and puberulent, abaxially more densely villous along veins, base cuneate to rounded, margin serrate to double serrate, apex acute to rounded; lateral veins 4–6 on each side of midrib. Cymes 1-flowered; peduncle 2.5–5.5 cm, villous; bracts 2, linear, 2.5–3.5 mm. Pedicel 1–2 cm. Calyx segments lanceolate to linear, 3–5 × ca. 1 mm, outside villous, margin entire. Corolla blue-purple, 1–1.2 cm, outside puberulent; tube not swollen, 1.5–2.5 mm; adaxial lip 2-lobed from middle, lobes oblong, 5–7 × 4–5 mm; abaxial lip 3-sect from base, lobes obovate-oblong to spatulate, 1–1.1 cm × 4.5–6 mm. Filaments 2.5–3.5 mm, sparsely puberulent; anthers dehiscing longitudinally; staminode apparently absent. Disc ringlike. Ovary conical, 2–3.5 mm, villous. Style unappendaged, 4–7 mm, pubescent to puberulent. Capsule 0.7–1.4 cm. Fl. and fr. Jul.

Damp rocks in forests in steep ravines or on cliffs; 200–700 m. Hong Kong.


紫花短筒苣苔  zi hua duan tong ju tai

Herbs. Stems 4–6 cm, woolly to villous or pilose. Petiole 3–5 cm, densely villous; leaf blade ovate-elliptic, 8–20 × 3–11 cm, adaxially appressed puberulent, abaxially sparsely woolly to glabrescent, woolly to villous along veins, base attenuate, margin coarsely serrate, apex acute to rounded; lateral veins 6–11 on each side of midrib. Cymes 3–5-flowered; peduncle 5–8 cm, villous; bracts 2, some- times several, linear to oblong, 1.5–5 mm. Pedicel 0.8–2.5 mm. Calyx segments lanceolate to elliptic, 3–5 × ca. 1 mm, outside villous, margin entire. Corolla purple, 1–1.2 cm, outside puberulent; tube not swollen, 1.5–2.5 mm; adaxial lip 2-lobed from middle, lobes oblong, 5–7 × 4–5 mm; abaxial lip 3-sect from base, lobes obovate-oblong to spatulate, 1–1.1 cm × 4.5–6 mm. Filaments 2.5–3.5 mm, sparsely puberulent; anthers dehiscing longitudinally; staminode apparently absent. Disc ringlike. Ovary conical, 2–3.5 mm, villous. Style unappendaged, 4–7 mm, pubescent to puberulent. Capsule 0.7–1.4 cm. Fl. and fr. Jul.

In shady and damp areas of dense forests; 300–1200 m. SE Yunnan (Jinping Xian) [N Vietnam].


锈毛短筒苣苔  xiu mao duan tong ju tai

Herbs. Stems 4–6 cm, woolly to villous or pilose. Petiole 3–5 cm, densely villous; leaf blade ovate-elliptic, 8–20 × 3–11 cm, adaxially appressed puberulent, abaxially sparsely woolly to glabrescent, woolly to villous along veins, base attenuate, margin coarsely serrate, apex acute to rounded; lateral veins 6–11 on each side of midrib. Cymes 3–5-flowered; peduncle 5–8 cm, villous; bracts 2, oblong, 6–7 mm. Pedicel 1–2 cm. Calyx segments lanceolate to linear, 1–4 × 0.4–0.7 mm, outside villous, margin sparsely dentate. Corolla 5–6 mm, outside sparsely pubescent; tube not swollen, ca. 2 mm; adaxial lip slightly shorter than abaxial, lobes ca. 2 mm. Filaments ca. 1.5 mm, glabrous; anthers dehiscing pericidally; staminode ca. 0.2 mm. Disc ringlike. Ovary conical, 1.5–2 mm, sparsely pubescent. Style unappendaged, 4–7 mm, glabrescent. Capsule ca. 2 cm.


多脉短筒苣苔  duo mai duan tong ju tai

Shady and damp forests; 200–900 m. SE Guangxi [N Vietnam].
Herbs. Stems 6–14 cm, woolly. Petiole 1.5–2.5 cm, woolly; leaf blade ovate to obovate, 5.5–11 × 2.8–5.2 cm, adaxially densely puberulent, abaxially woolly, base oblique, cuneate, margin serrate, apex acute; lateral veins 14–16(–20) on each side of midrib. Cymes 10–20-flowered; peduncle 6–10 cm, pubescent; bracts 2, linear to obovate-oblong, 3–4 mm. Pedicel ca. 0.5 mm. Calyx segments linear-lanceolate, ca. 3 × 0.4 mm, outside puberulent, margin entire. Corolla ca. 6 mm, outside glabrescent; tube not swollen, ca. 2.2 mm; adaxial lip lobes ca. 1.6 mm; abaxial lip lobes narrowly ovate, ca. 2 mm. Filaments ca. 1 mm, glabrous; anthers dehiscing transversely; staminode ca. 0.2 mm. Disc inconspicuous. Ovary conical, ca. 1.5 mm, sparsely puberulent. Style unappendaged, ca. 8 mm, glabrous. Fruit unknown. Fl. Aug.

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Hilly regions; 400–500 m. SW Yunnan (Yingjiang Xian).

6. Boeica fulva

短筒苣苔 duan tong ju tai
Herbs. Stems to at least 15 cm, woolly, glabrescent. Petiole 0.6–6.5 cm, woolly; leaf blade lanceolate-elliptic to oblanceolate, 10–17 × 4.5–6.5 cm, adaxially woolly, glabrescent, abaxially densely woolly, base narrowly cuneate to rounded, margin irregularly shallowly denticulate, apex acute to acuminate; lateral veins 11–16 on each side of midrib. Cymes many flowered; peduncle 10–15 cm, woolly, glabrescent; bracts 2, linear, 1–5 mm. Pedicel 0.4–1 mm. Calyx segments narrowly triangular to linear-lanceolate, 1–2.5 mm, outside puberulent to woolly, margin entire. Corolla purple, ca. 4 mm; tube not swollen. Filaments ca. 1.5 mm. Ovary conical, ca. 1.5 mm, puberulent. Style unappendaged, 1–1.5 mm, glabrous. Capsule 7–10 mm.

Montane regions; 1300–1400 m. SE Xizang (Zay Xian) [Bhutan, NE India].

7. Boeica yunnanensis

翼柱短筒苣苔 yi zhu duan tong ju tai
Boecopsis yunnanensis

Subshrubs. Stems to 12 cm, densely villous. Petiole 1–2 cm, densely hirsute; leaf blade ovate to ovate-elliptic, 6.5–7.5 × 4–5 cm, adaxially hirsute, abaxially pubescent, densely hirsute along veins, base broadly cuneate to rounded, margin serrate, apex acute to broadly acute; lateral veins ca. 6 on each side of midrib. Cymes ca. 9-flowered; peduncle 5.5–6.5 cm, densely villous to hirsute; bracts 2, linear-lanceolate, to 5 mm. Pedicel ca. 5 mm. Calyx segments linear-lanceolate, ca. 5 × 1 mm, outside hirsute to villous, margin minutely serrulate. Corolla purple, ca. 4 mm; tube saccate at base, ca. 3 mm; lobes subequal, suborbicular, ca. 2 × 2 mm. Filaments ca. 1.5 mm, glabrous; anthers dehiscing poricidally; staminode ca. 1 mm. Disc inconspicuous. Pistil glabrous; ovary ovoid, ca. 1.2 mm. Style with 2 broad and flat winglike appendages, ca. 2.5 mm. Fruit unknown. Fl. Jun.

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Grassy areas under forests on slopes; ca. 1300 m. SE Yunnan (Maguan Xian).

19. OPITHANDRA
B. L. Burtt, Baileya 4: 162. 1956.

后蕊苣苔属 hou rui ju tai shu
Schistolobos

Herbs, perennial, epipetric or terrestrial, rhizomatous, stemless. Leaves few to many, basal; leaf blade puberulent to woolly or velutinous, base cuneate to cordate. Inflorescences often umbel-like, lax, axillary, 1- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base to deeply 5-lobed; segments equal. Corolla pink to purple, zygomorphic, inside glabrous to sparsely puberulent or glandular puberulent; tube tubular to funnelform, rarely nearly salverform or cylindric, not swollen, sometimes slightly gibbous abaxially, 1.5–4 × longer than limb, 3.5–17 mm in diam.; limb distinctly or indistinctly 2-lipped; adaxial lip 2-lobed, usually distinctly shorter than, rarely nearly as long as abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded to acute. Stamens 2, adnate to adaxial side of corolla tube near middle, rarely near corolla base, included; anthers basifixed, free or coherent at apex, thecae parallel, not confluent, dehiscing longitudinally from straight or arcuate slits; connective not projecting; staminodes (1–)3 or absent, adnate to adaxial, lower, or adaxial and abaxial sides of corolla tube. Disc ringlike or cupular. Ovary linear, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, oblate, undivided, or 1, terminal, capitulate, undivided or 2-lipped. Capsule straight in relation to pedicel, linear, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

Ten species: China, Japan; nine species in China.

1a. Corolla lobes lobed .......................................................... 9. O. pumila
1b. Corolla lobes entire.

2a. Anthers oblong or oblong ovoid with straight slits; corolla mouth 3–3.5 mm in diam.

3a. Corolla tube nearly cylindric, puberulent outside, adaxial lip ca. 1 cm; leaf blade thick leathery, strongly bullate; pistil ca. 5.5 mm, stigma 1 .......................................................... 4. O. fargesii

9. O. pumila

3b. Corolla tube puberulent outside, adaxial lip ca. 1 cm; leaf blade not thick leathery, strongly bullate; pistil ca. 5.5 mm, stigma 1 .......................................................... 4. O. fargesii
3b. Corolla tube tubular or nearly so, glabrous outside, adaxial lip 1–6 mm; leaf blade papery, nearly flat; pistil 6.5–14 mm; stigmas 1 or 2.

4a. Calyx segments ca. 2 mm; corolla to 1 cm, adaxial lip ca. 1 mm, abaxial lip ca. 2.8 mm; anthers coherent at apex; pistil exerted; stigma 1; lateral veins 4 or 5 on each side of midrib; bracts subulate .......................................................... 3. O. acaulis

4b. Calyx segments 3.5–5 mm; corolla at least 1.6 cm, adaxial lip 4–6 mm, abaxial lip 5–9 mm; anthers free; pistil included; stigmas 2; lateral veins 6–13 on each side of midrib; bracts linear.

5a. Leaf blade abaxially densely woolly on entire surface, 7.5–13 cm, base cuneate; lateral veins 8–13 on each side of midrib; peduncle 8.5–13 cm .................................................. 1. O. sinohenryi

5b. Leaf blade abaxially appressed puberulent, woolly only along veins, 2.5–8 cm, base rounded to cordate; lateral veins 6–8 on each side of midrib; peduncle 2–6 cm .................. 2. O. burttii

2b. Anthers globose-ovoid to reniform with arcuate slits; corolla mouth 5–17 mm in diam.

6a. Leaf blade margin nearly entire to indistinctly repand; calyx segment apex caudate-acuminate, tip somewhat obtuse; corolla outside puberulent to pubescent ........................................ 6. O. dinghushanensis

6b. Leaf blade margin denticulate to serrulate to crenate or double crenate; calyx segment apex acute to obtuse; corolla outside puberulent to pubescent at least axadially.

7a. Leaf blade 3–19 cm, base cordate to broadly cuneate; lateral veins 7–9 on each side of midrib; peduncle 4.5–7.5 cm; corolla mouth 1.5–1.7 cm in diam.; stamens adnate to corolla near base, ca. 2 cm; pistil densely glandular puberulent to puberulent ........................................ 5. O. dalzielli

7b. Leaf blade to 9.5 cm, base cuneate to broadly so; lateral veins 4–6 on each side of midrib; peduncle 5.5–14 cm; corolla mouth 5–9 mm in diam.; stamens adnate to corolla tube slightly below middle, 5–7.5 mm; pistil glabrous.

8a. Petiole 1.3–7.5 cm, with dense, white to brownish shorter appressed hairs and brown longer spreading ones; leaf blade 4–9.5 cm; corolla ca. 3.2 cm, mouth ca. 9 mm in diam.; staminodes 3 ................................................................ ................................ ....... 7. O. obtusidentata

8b. Petiole 0.3–1.7 cm, densely grayish strigose; leaf blade 1.5–3.5 cm; corolla 1.5–2 cm, mouth 5–6 mm in diam.; staminodes 2 .......................................................... 8. O. cinerea


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Petiole 2.5–4.5 cm, brown woolly; leaf blade oblong to narrowly obovate, 7.5–13 × 2.7–7.2 cm, papery, nearly flat, adaxially densely puberulent to velutinous, abaxially brown woolly, base cuneate, margin indistinctly denticulate, apex obtuse to rounded; lateral veins 8–13 on each side of midrib. Peduncle 8.5–13 cm, woolly, glabrescent; bracts linear. Calyx 5- sect from base; segments narrowly lanceolate, 4–5 × ca. 1 mm, apex acute. Corolla pink, ca. 2 cm, outside puberulent, inside sparsely puberulent; tube tubular, not swollen, ca. 1.2 cm × 3.5 mm; adaxial lip ca. 6 mm; abaxial lip ca. 9 mm, all lobes entire. Stamens adnate to corolla tube above middle, ca. 5 mm; filaments glabrous; anthers free, oblong, dehiscing from straight slits; staminodes 1, adaxial, ca. 0.4 mm. Pistil included, ca. 1.1 cm, glabrous. Style ca. 2.5 mm; stigmas 2. Capsule ca. 2.5 cm. Fl. Jul–Aug, fr. Aug.

Streamsides rocks in forests; 500–600 m. S Guangxi (Shiwandashan, Dongxing Xian, Shangsi Xian).

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Petiole 0.5–7.5 cm, brown sericeous-woolly; leaf blade elliptic to oblong, 2.5–8 × 1.7–5.4 cm, papery, nearly flat, adaxially white puberulent, abaxially appressed puberulent, brown sericeous-woolly along veins, base rounded to cordate, margin crenulate, apex obtuse to rounded; lateral veins 6–8 on each side of midrib. Peduncle 2–6 cm, puberulent; bracts linear. Calyx 5- sect from base; segments linear, 3.5–3.8 × ca. 1 mm, apex acute to obtuse. Corolla purple, 1.6–2.2 cm, outside sparsely puberulent, inside glabrous; tube tubular, not swollen, 1–1.4 cm × ca. 3.5 mm; adaxial lip 4–6 mm; abaxial lip 5–7 mm, all lobes entire. Stamens adnate to corolla tube 5–7 mm above base, 5.5–7 mm; filaments glabrous; anthers free, oblong, dehiscing from straight slits; staminodes absent. Pistil included, ca. 6.5 cm.
mm, glabrous. Style ca. 1 mm; stigmas 2. Fruit unknown. Fl. Oct.
  Steep, stony slopes in forests. S. Jiangxi (Longnan Xian).
小花后蕊苣苔 xiao hua hui rui ju tai
Petiole 1–3 cm, densely brown villous; leaf blade ovate to narrowly ovate, 1.7–7 × 1.1–3 cm, papery, nearly flat, adaxially densely brownish puberulent, abaxially sparsely puberulent, base broadly cuneate to rounded, margin denticulate, apex acute to obtuse; lateral veins 4 or 5 on each side of midrib. Peduncle ca. 9 cm, brownish pubescent; bracts subulate. Calyx 5-sect from base; segments narrowly triangular, ca. 2 × 0.9 mm, apex acute to obtuse. Corolla pink, 7–10 mm, outside sparsely puberulent, inside glabrous; tube nearly tubular, not swollen, 6–8 × ca. 3 mm; adaxial lip ca. 1 mm; abaxial lip ca. 2.8 mm, all lobes entire. Stamens adnate to corolla ca. 2 mm above base, ca. 3.7 mm; filaments sparsely puberulent; anthers coherent at apex, oblong ovoid, dehiscing from straight slits; staminodes 3, adaxial 1 ca. 2 mm, abaxial 2 ca. 3.2 mm. Pistil exserted, ca. 1.4 mm; ovary puberulent. Style ca. 7 mm, glabrous; stigma 1. Fruit unknown. Fl. Apr.
  Shaded areas in montane regions. Guangdong (Zengcheng Xian).
皱叶后蕊苣苔 zhou ye hui rui ju tai
Petiole to 2.5 cm, densely brown pubescent; leaf blade oblong to obovate-oblong, 2–6.5 × 1.2–2.5 cm, thick leathery, strongly bullate, adaxially sparsely villous, abaxially brown villous, base cuneate, margin denticulate, apex obtuse to rounded; lateral veins 5–7 on each side of midrib. Peduncle ca. 4.5 cm, brown pubescent, glandular puberulent apically; bracts linear. Calyx 5-sect from base; segments narrowly triangular, 4–5 × ca. 0.4 mm, apex acute. Corolla purplish, ca. 2.8 cm, outside glabrous, inside sparsely puberulent near mouth; tube cylindrical, not swollen, ca. 1.5 × 3.5 mm; adaxial lip ca. 1 cm; abaxial lip ca. 1.3 cm, all lobes entire. Stamens adnate to corolla tube near middle, ca. 3 mm; filaments glabrous; anthers free, oblong, dehiscing from straight slits; staminodes absent. Pistil included, ca. 5.5 mm, glabrous. Style ca. 1 mm; stigma 1. Fruit unknown. Fl. Aug.
  E Sichuan.
5. Opithandra dalzielii (W. W. Smith) B. L. Burtt, Notes Roy.
汕头后蕊苣苔 shan tou hui rui ju tai
Edinburgh 10: 171. 1918.
Petiole 0.6–9 cm, densely spreading brown villous; leaf blade elliptic to ovate or obovate, 3–19 × 1.1–9 cm, herbaceous to papery, nearly flat, adaxially white puberulent and sparsely brown villous, abaxially appressed puberulent, base oblique, cordate to broadly cuneate, margin denticulate to serrulate or double crenate, apex acute to rounded; lateral veins 7–9 on each side of midrib. Peduncle 4.5–7.5 cm, spreading brown villous; bracts narrowly triangular to linear. Calyx 5-sect from base; segments narrowly triangular to linear, 4–7(–10) × 0.8–1.1 mm, apex acute. Corolla pink, 3–3.6 cm, outside sparsely puberulent adaxially, inside glabrous; tube funneliform, slightly gibbous abaxially, 2.3–2.6 × 1.5–1.7 cm; adaxial lip 5–7 mm; abaxial lip ca. 9 mm, all lobes entire. Stamens adnate to corolla ca. 2 mm above base, ca. 2 cm; filaments glabrous; anthers coherent at apex, globose-ovoid, dehiscing from arcuate slits; staminodes 3, adaxial 1 ca. 3 mm, abaxial 2 1–1.5 mm. Pistil included, ca. 1.7 cm; ovary densely glandular puberulent. Style ca. 5 mm, sparsely puberulent; stigmas 2. Capsule ca. 4.2 cm. Fl. Sep.–Oct.
  Valley forests; 600–700 m. S Fujian (Nanjing Xian), Guangdong (Shantou Xian, Xin'e Xian).
鼎湖后蕊苣苔 ding hu hui rui ju tai
Petiole 0.7–2.7 cm, densely grayish strigose; leaf blade narrowly elliptic to elliptic-ovate, 3.5–8 × 2–3.5 cm, herbaceous, nearly flat, short strigose, base slightly oblique, broadly cuneate, margin nearly entire to indistinctly repand, apex acute; lateral veins ca. 6 on each side of midrib. Peduncle ca. 5 cm, short strigose; bracts linear. Calyx 5-sect from base; segments lanceolate, 3.5–4 × ca. 0.8 mm, apex caudate-acuminate, tip somewhat obtuse. Corolla pale purplish, ca. 2.8 cm, glabrous, margin sparsely ciliate; tube funneliform, not swollen, ca. 2 × 1.1 cm; adaxial lip ca. 5 mm; abaxial lip ca. 8.5 mm, all lobes entire. Stamens adnate to corolla tube near middle, ca. 1.2 cm; filaments sparsely puberulent; anthers coherent at apex, globose-ovoid, dehiscing from arcuate slits; staminodes 2, abaxial, ca. 1.5 mm. Pistil included, ca. 1.5 cm; ovary puberulent. Style ca. 4.5 mm, glandular puberulent; stigmas 2. Fruit unknown. Fl. Oct.
  Rocks in valley forests. Guangdong (Dinghushan, Gaoyao Xian).
钝齿后蕊苣苔 dun chi hui rui ju tai
Petiole 1.3–7.5 cm, with dense, white to brownish shorter appressed hairs and brown longer spreading ones; leaf blade narrowly elliptic to rhombic-elliptic, 4–9.5 × 2–5 cm, papery to herbaceous, nearly flat, appressed puberulent, abaxially brown villous along veins, base cuneate to broadly cuneate, margin single or double crenate to crenate-dentate, apex obtuse to acute;

lateral veins 4–6 on each side of midrib. Peduncle 6.5–14 cm, spreading brown pubescent; bracts lanceolate-linear. Calyx 5-sect from base; segments lanceolate, ca. 5 × 1.5 mm, apex acute to obtuse. Corolla red-purple, ca. 3.2 cm, outside sparsely pubescent, inside sparsely glandular below abaxial lip; tube funnel-form-tubular, slightly gibbous abaxially, ca. 2.3 × 0.9 cm; adaxial lip ca. 5 mm; abaxial lip ca. 9 mm, all lobes entire. Stamens adnate to corolla tube ca. 7 mm above base, ca. 7.5 mm; filaments sparsely puberulent; anthers coherent at apex, reniform, dehiscing from arcuate slits; staminodes 3, adaxial 1 ca. 1.2 mm, abaxial 2 ca. 2 mm. Pistil included, ca. 2.1 cm, glabrous. Style ca. 6.5 mm; stigmas 2. Fruit unknown. Fl. May.

• Streamsides in valleys. W Hunan (Quanyang Xian).


灰叶后蕊苣苔 hui ye hou rui ju tai

Pettiode 0.3–1.7 cm, densely grayish strigose; leaf blade narrowly elliptic to elliptic, 1.5–3.5 × 0.7–1.8 cm, papery, nearly flat, densely short strigose, base cuneate, margin denticate, apex acute; lateral veins ca. 4 on each side of midrib. Peduncle 5.5–11 cm, short brown hispid; bracts lanceolate-linear. Calyx ca. 3.5 mm, deeply 5-lobed; lobes triangular, ca. 2.7 × 1 mm, apex acute to obtuse. Corolla 1.5–2 cm, outside strigose, inside glandular puberulent below adaxial lip; tube narrowly funnel-form, not swollen, 1.2–1.5 cm × 5–6 mm; adaxial lip 2.8–3.2 mm; abaxial lip ca. 4.5 mm, all lobes entire. Stamens adnate to corolla tube slightly above middle, 5–7.5 mm; filaments sparsely puberulent; anthers coherent at apex, reniform-ovoid, dehiscing from arcuate slits; staminodes 2, abaxial, 2–2.5 mm. Pistil included, ca. 5 mm, glabrous. Style ca. 1 mm; stigmas 2. Fruit unknown. Fl. May.

• E Guizhou (Jianhe Xian).


裂檐苣苔 lie yan ju tai


Pettiode 0.8–2.5 cm, rust-brown villous; leaf blade elliptic-ovate to elliptic, 1.8–4 × 1.1–2.2 cm, papery, nearly flat, pubescent and villous, base slightly oblique, broadly cuneate to rounded, margin single or double denticate to serrulate, apex acute to rounded; lateral veins 4–6 on each side of midrib. Peduncle ca. 4 cm, rust-brown villous; bracts linear. Calyx 5-sect from base; segments linear to elliptic, 2.5–3.5 × 0.8–1 mm, apex acute to obtuse. Corolla purplish, ca. 1.5 cm, outside sparsely puberulent, inside glabrous; tube tubular, not swollen, ca. 1.2 cm × 3 mm; adaxial lip ca. 2.5 mm, lobes 3-lobed; abaxial lip ca. 3 mm, lobes 7–9-lobed. Stamens adnate to corolla tube ca. 4 mm above base, ca. 4.6 mm; filaments glabrous; anthers coherent face to face, nearly reniform, dehiscing from somewhat arcuate slits; staminodes 2, abaxial, ca. 3 mm. Pistil included, ca. 1 cm, glabrous. Style ca. 4 mm; stigma 1. Fruit unknown. Fl. Apr–May.

• Rocks in valley forests; 700–900 m. SW Guangxi (Daxin Xian).

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瑶山苣苔属 yao shan ju tai shu

Herbs, perennial, terrestrial, rhizomatous, stemless. Leaves many, basal; leaf blade puberulent, base broadly cuneate to subcordate. Inflorescences monochasial, lax, axillary, 1- or 2-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-lobed to 5-sect from base; segments equal. Corolla purplish to white, zygomorphic, inside sparsely puberulent, base narrowly funnelform, not swollen, 1.2–1.5 cm × 5–6 mm; adaxial lip ca. 5–7.5 mm; filaments sparsely puberulent; anthers coherent at apex, reniform-ovoid, dehiscing from arcuate slits; staminodes 2, abaxial, 2–2.5 mm. Pistil included, ca. 5 mm, glabrous. Style ca. 1 mm; stigmas 2. Fruit unknown. Fl. May.

• One species: endemic to China.


瑶山苣苔 yao shan ju tai

Pettiode 0.8–6 cm; leaf blade ovate to nearly orbicular, 2.5–5.5 × 2.3–4.8 cm, puberulent to densely so, base slightly oblique, broadly cuneate to nearly cordate, margin nearly entire to indistinctly crenulate, apex broadly acute to rounded. Peduncle 5.5–8.5 cm, densely puberulent; bracts linear-lanceolate, 5.5–9 × 1.2–2.2 mm, densely puberulent. Calyx segments narrowly triangular to lanceolate-linear, 5–8 mm, margin nearly entire or few-denticate. Corolla 1.3–1.9 cm; tube 7–9 mm; adaxial lip 7–10 mm, lobes broadly ovate, 6–10 mm wide; abaxial lip 7–12 mm, 3-lobed, lobes triangular, 2–6 mm wide. Stamens 0.9–1.4 cm; staminodes ca. 4 mm. Pistil 1–1.6 cm; ovary 4.5–9 mm, densely puberulent. Style sparsely puberulent. Immature capsule ca. 2.5 cm. Fl. Sep.

• Forests of montane regions; 900–1200 m. Guangxi (Dayaoshan, Jinxiu Xian).

**双片苣苔属**  shuang pian ju tai shu

Herbs, annual, terrestrial or epipetric, not rhizomatous. Stems simple or branched. Leaves few, along stem, opposite, equal to subequal in a pair; leaf blade glabrous to pubescent, base cuneate to rounded. Inflorescences often racemelike, lax, axillary, 2–10-flowered cymes sometimes near stem apex; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white to purplish, zygomorphic, inside glabrous; tube slender funnelform, not swollen, longer than limb, 0.7–1.3 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, much shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near mouth, slightly exserted; anthers basifixed, coherent at apex, thecae parallel, not confluent at apex, dehiscing longitudinally; connective not projecting or projecting; staminodes 2 or 3, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, slightly projecting inward, 2-cleft. Stigmas 2, equal, oblate or semioblong, undivided. Capsule straight in relation to pedicel, linear, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

- Two species: endemic to China.

1a. Stem, leaf blade, and peduncle pubescent; leaf blade ovate; bracts linear, 3–6 × 0.5–1 mm ............ 1. **D. obtusum**

1b. Stem, leaf blade, and peduncle glabrous or nearly so; leaf blade oblong elliptic to elliptic; bracts ovate, ca. 6.5 × 3.5 mm ................................ ................................................................ ................................ 2. **D. leiophyllum**


**双片苣苔** shuang pian ju tai

*Chirita obtusa* C. B. Clarke in A. & C. de Candolle, Monogr. Phan. 5:114. 1883; *Didymocarpus clarkei* H. Léveillé; *Roettlera obtusa* (C. B. Clarke) Kuntze.

Stems ascending to nearly erect, 12–20 cm, pubescent to densely pubescent. Petiole 0.8–3.5 cm; leaf blade ovate, 2–10.5 × 1.4–5(–7) cm, adaxially pubescent, abaxially sparsely pubescent, abaxial surface often purple tinged, base sometimes slightly oblique, broadly cuneate to rounded, margin crenate, apex acute to obtuse. Cymes 2–10-flowered; peduncle 1.5–4 cm, pubescent; bracts linear, 3–6 × 0.5–1 mm, pubescent. Calyx segments lanceolate-linear, 7.5–10 mm. Corolla white, purple-blue near apex, 3.6–5.2 cm; tube 2.7–4 cm; adaxial lip 5–7 mm; abaxial lip 0.9–1.2 cm. Stamens ca. 1.2 cm; filaments slightly tortuous; anther connective not projecting; staminodes 2, ca. 5 mm. Pistil 2.2–3.8 cm, sparsely pubescent; gynophore absent; ovary ca. 1.6 cm. Capsule 4–8 cm. Fl. Jun–Oct, fr. Oct.

- Forests, shaded streamsides; 200–800 m. S Fujian, Guangdong, Guangxi, Hainan.


**光叶双片苣苔** guang ye shuang pian ju tai

Stems ascending basally, 7–12 cm, glabrous or nearly so. Leaves slightly unequal in each pair; petiole 0.4–2.2 cm; leaf blade oblong elliptic to elliptic, 3–15 × 1.5–4 cm, glabrous, base broadly cuneate to cuneate, margin serrate to repand-denticulate, apex acute. Cymes ca. 2-flowered; peduncle 3.6–5 cm, nearly glabrous; bracts ovate, ca. 6.5 × 3.5 mm, glabrous. Calyx segments linear-lanceolate, 6.5 mm. Corolla ca. 4 cm; tube ca. 3 cm; adaxial lip ca. 5 mm; abaxial lip ca. 1 cm. Stamens ca. 1.4 cm; anther connective appendage projecting, ca. 1.5 mm; staminodes 3, 1.5–5 mm. Pistil ca. 1.8 cm, glabrous; gynophore ca. 5 mm; ovary ca. 6 mm. Fruit unknown. Fl. Sep.

- Forests, on rocks. Guangxi (Xilin Xian).


**异裂苣苔属** yi lie ju tai shu

Herbs, probably perennial, terrestrial. Rhizomatous. Stems simple or branched. Leaves few to many, along stem, opposite, equal to subequal in a pair; leaf blade densely pubescent to velutinous, base cuneate to rounded. Inflorescences sympodial, spikelike, dense, ca. 10-flowered cymes axillary near stem apex; bracts 2, opposite. Calyx nearly actinomorphic, 5-lobed; adaxial central lobe larger. Corolla white, zygomorphic, inside glabrous; tube funnelform, not swollen, longer than limb, ca. 9 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, much shorter than abaxial lip; abaxial lip 3-lobed, lobes unequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near middle, included; anthers basifixed, coherent at apex, thecae parallel, not confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2 or 3, adnate to adaxial side of corolla tube. Disc cupular. Ovary linear, 1-loculed; placentas 2, parietal, slightly projecting inward, 2-cleft. Stigmas 2, unequal, smaller 1 truncate, undivided, larger 1 narrowly obtrapeziform, emarginate. Capsule straight in relation to pedicel, linear, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.
One species: China, Vietnam.


异裂苣苔  

Stems 50–100 cm, densely velutinous. Leaves unequal in each pair; petiole 1–7 cm; leaf blade ovate, 11–27(–30) × 6–16(–19) cm, adaxially densely appressed pubescent, abaxially velutinous, base slightly oblique, broadly cuneate to rounded, margin serrulate, apex acute to abruptly acuminate. Peduncle 3–9(–12) cm, velutinous; bracts early deciduous, ovate, to 1.5 cm, densely puberulent. Calyx 0.9–1.1 cm; adaxial central lobe broadly ovate, ca. 2 × 3 mm, other lobes depressed deltoid, ca. 1 × 2.5 mm. Corolla 3.2–4.3 cm; tube 2.5–3 cm; adaxial lip ca. 4 mm; abaxial lip 0.9–1.2 cm. Stamens ca. 1–1.3 cm; central staminode ca. 0.2 mm, laterals 4.5–5 mm. Pistil 2.4–2.9 cm; gynophore 5–8 mm; ovary ca. 1.2 cm, glandular puberulent. Style glandular puberulent; adaxial stigma narrowly ovoid, ca. 1 mm, abaxial stigma obtrapeziform, ca. 2.5 mm, apex emarginate. Capsule 3–4.5 cm.

Forests on limestone hills. Guangxi [Vietnam].


异片苣苔属  
**Allostigma** is very similar to **Pseudochirita** except that it has axile placentation while **Pseudochirita** has parietal placentation.


异片苣苔  
Stems ca. 42 cm, with dense grayish to brownish hairs of 2 lengths. Leaves unequal in each pair; petiole 1–4.5 cm; leaf blade oblique, ovate to elliptic, 6.5–15 × 5–8 cm, puberulent, yellow glandular, base oblique, auriculate to cordate on broad side, broadly cuneate on narrow side, margin crenulate, apex acute to acuminate. Peduncle 4.5–10 cm, villous; bracts linear, 3–5.5 mm, pubescent. Calyx ca. 1.1 cm; tube ca. 2 mm; lobes lanceolate-linear, 8–9.5 mm, apex often subulate. Corolla ca. 3.8 cm; tube ca. 2.7 cm; adaxial lip ca. 4 mm; abaxial lip ca. 1.1 cm. Stamens ca. 1 cm; central staminode ca. 0.5 mm, lateral 2.5–4.5 mm. Pistil ca. 2.8 cm; ovary ca. 1.2 cm, puberulent. Style sparsely puberulent basally; adaxial stigma ca. 1 mm, abaxial stigma nearly oblong, ca. 4 mm, apex truncate to emarginate. Capsule ca. 4 cm. Fl. and fr. Sep.

Limestone hills. SW Guangxi (Daxin Xian).


单座苣苔属  
Herbs, perennial, terrestrial, rhizomatous. Stems simple. Leaves few, along stem, opposite, unequal to subequal in a pair; leaf blade puberulent, base cuneate to subcordate. Inflorescences lax or dense, 3–12-flowered cymes axillary near stem apex; bracts 2, forming a globose involucre. Calyx actinomorphic, 5-lobed; segments equal. Corolla white to yellow, zygomorphic, inside glabrous; tube funnelform-tubular, not swollen, longer than limb, 8–10 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, much shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near middle, included; anthers basifixted, coherent at apex, thecae parallel, not confluent at apex, dehiscing longitudinally; connective prominent; staminodes 3, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 2-loculed; placenta 1, axile. Stigmas 2, unequal, smaller 1 triangular, undivided, larger 1 narrowly obtrapeziform, emarginate. Capsule straight in relation to pedicel, linear, much longer than calyx, dehiscing loculicularly to base; valves 2, straight, not twisted. Seeds unappendaged.

• One species: endemic to China.
1a. Leaf blade oblique, ovate, base oblique, rounded to subcordate, abaxially greenish; calyx segments 1.5–2 mm wide; staminodes 3, central one ca. 1.5 mm, lateral two 9–10 mm ................................. 1. Metabriggsia ovalifolia

1b. Leaf blade elliptic or oblong, base often slightly oblique, broadly cuneate to rounded, abaxially purple except midrib and lateral veins greenish; calyx segments 2.5–3.5 mm wide; staminodes 2, ca. 4 mm 2. Metabriggsia purpureotincta


单座苣苔 dan zuo ju tai

Stems 20–40 cm, brown villous. Petiole 0.3–7 cm; leaf blade green on both surfaces, slightly oblique, ovate, 5–25.5 × 2.5–17 cm, appressed puberulent, base oblique, rounded to subcordate, margin repand-crenulate, apex abruptly acuminate. Cymes 3–12-flowered; peduncle 7.5–12.5 cm, brown glandular pubescent; involucre early deciduous. Calyx segments lanceolate-linear, 9–10 × 1.5–2 mm. Corolla white, suffused yellow-green, ca. 3.6 cm, outside sparsely pubescent near apex; tube ca. 2.7 cm; adaxial lip ca. 2.8 mm; abaxial lip ca. 1 cm. Stamens ca. 1.7 cm; staminodes 3, central 1 ca. 1.5 mm, lateral 2 9–10 mm. Pistil ca. 2.5 cm; ovary ca. 8 mm, sparsely puberulent. Style puberulent basally. Capsule ca. 1.5 cm. Fl. and fr. Oct.

• Forests on limestone hills; ca. 1100 m. SW Guangxi (Napo Xian).


紫叶单座苣苔 zi ye dan zuo ju tai

Stems 13–32 cm, brown villous. Petiole 0.5–7 cm; leaf blade adaxially green, abaxially purple except midrib and lateral veins greenish, elliptic to oblong, 8–23.5 × 3.8–11.5 cm, adaxially puberulent to densely so, abaxially sparsely puberulent, base often slightly oblique, broadly cuneate to rounded, margin repand to denticulate apically, apex abruptly acuminate. Cymes ca. 4-flowered; peduncle 9–10 cm, brown villous; involucre deciduous, nearly globose, ca. 1.2 cm in diam., apex short cuspidate. Calyx segments lanceolate-linear, 8–9 × 2.5–3.5 mm. Corolla white, ca. 2.9 cm, outside brown puberulent; tube ca. 2.1 cm; adaxial lip ca. 3.2 mm; abaxial lip ca. 8 mm. Stamens ca. 1.5 cm; staminodes 2, ca. 4 mm. Pistil ca. 1.6 cm, sparsely puberulent; ovary ca. 7 mm. Capsule unknown. Fl. Sep.

• Guangxi (Nandan Xian).

25. HEMIBOEA C. B. Clarke, Hooker’s Icon. Pl. 18: sub pl. 1798. 1888.

半蒴苣苔属 ban shuo ju tai shu

Herbs, perennial, terrestrial or epipetric, stoloniferous. Stems simple or branched. Leaves few to many, along stem, opposite, equal to subequal in a pair; leaf blade glabrous to pilose, base attenuate to cuneate, rarely rounded. Inflorescences umbel-like, dense, axillary or pseudoterminal, 1- to many-flowered cymes; bracts 2, opposite, connate, forming a globose to ovoid involucre. Calyx actinomorphic, 5-sect from base, 2-lipped, or 5-lobed from middle or above; segments equal, rarely unequal. Corolla white to pink, purple, or yellow, zygomorphic, inside usually with a ring of hairs; tube funnelform-tubular, not swollen, longer than limb, 0.7–2 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, shorter than to nearly as long as abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube below middle, included; anthers basifixed, coherent apically or adaxially, thecae parallel, not confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2 or 3, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear to linear-lanceolate, 2-loculed, only adaxial locule fertile; placenta 1, axile. Stigma 1, terminal, truncate to obtuse or capitate, undivided. Capsule straight or oblique in relation to pedicel, usually narrowly lanceolate, somewhat curved, much longer than calyx, dehiscing loculicidally to base only adaxially; valves 2, straight, not twisted. Seeds unappendaged.

Twenty-three species: China, S Japan, N Vietnam; all 23 species in China.

Petioles are often described as winged in Hemiboea; since a winged petiole is really a decurrent leaf blade, they are described here as the leaf blade base.

1a. Calyx 5-lobed from middle or above, lobes equal.

2a. Calyx 5-lobed from middle; corolla pink outside ................................................................. 20. H. gamosepala

2b. Calyx 5-lobed from above middle; corolla white outside.

3a. Leaf blade without sclereids; petiole 1–10.5 cm; peduncle 1–4.5 cm; corolla 1.5–1.8 cm, glabrous outside; staminodes 1–2.5 mm; pistil ca. 0.9 cm ......................................................... 22. H. follicularis

3b. Leaf blade with sclereids; petiole 0.5–4 cm; peduncle 0.6–1.5 cm; corolla 3.7–4.5 cm, sparsely glandular puberulent outside; staminodes ca. 8 mm; pistil ca. 2.6 cm.

4a. Stems much branched, with 7 to many nodes; leaf blade 3–10 × 1–4 cm, apex cuspidate to acuminate; involucre ca. 1 cm in diam.; calyx lobes 3–4 × 2–3 mm; anthers ca. 2.5 mm 21. H. wangiana
4b. Stems unbranched, with 3–5 nodes; leaf blade 8–24 × 4–11 cm, apex acute; involucre 2.5–3 cm in diam.; calyx lobes 7–10 × 8–10 mm; anthers ca. 4 mm ................................. 23. *H. magnibracteata*

1b. Calyx 5-sect from base, segments equal, or unequal and 2-lipped with adaxial lip 2-lobed from base or below middle.

5a. Calyx segments outside and margin puberulent or glandular puberulent.

6a. Ovary ± glandular puberulent or white pilose.

7a. Stems sparsely spreading glandular pubescent toward apex, with 10–15 nodes; leaf blade abaxially glabrous; lateral veins 8–12 on each side of midrib; peduncle 1–2 cm; corolla pale yellow, with a ring of hairs inside ................................................................. 19. *H. longgangensis*

7b. Stems densely puberulent to villous, with 3–7 nodes; leaf blade abaxially pubescent to densely pubescent; lateral veins 3–8 on each side of midrib; peduncle 0.4–5.5(–10) cm; corolla white, glabrous inside.

8a. Cymes 2–7(–21)-flowered; involucre 1–2.5 cm in diam.; anthers ca. 3.2 mm; staminodes 2, 6–8 mm ............................................................... 17. *H. flaccida*

8b. Cymes 2- or 3-flowered; involucre 0.4–0.5 cm in diam.; anthers ca. 1.5 mm; staminodes 3, 0.4–2.5 mm ........................................ 18. *H. parvibracteata*

6b. Ovary glabrous.

9a. Leaf blade apex obtuse; staminodes 3, 0.6–2.8 mm; cymes 3–10- or more flowered; adaxial corolla lip ca. 3.5 mm ................................................................. 16. *H. strigosa*

9b. Leaf blade apex acute to acuminate; staminodes 2, 4–7 mm; cymes 1–6-flowered; adaxial corolla lip 5–10 mm.

10a. Stems densely spreading villous; peduncle 5–14 cm ........................................ 15. *H. mollifolia*

10b. Stems glabrous to sparsely pilose toward apex; peduncle 0.2–2.1(–4) cm.

11a. Calyx segments 5–8 mm; style glabrous; leaf blade sparsely pilose on both surfaces, base cuneate to narrowly so; lateral veins 4–6 on each side of midrib 5. *H. gracilis*

11b. Calyx segments 11–14 mm; style sparsely glandular puberulent or sparsely glandular; leaf blade adaxially pubescent, abaxially glabrous to sparsely pubescent, base often unequal, cuneate to rounded; lateral veins 5–11 on each side of midrib.

12a. Involucre sparsely pubescent outside; corolla ca. 2.1 cm; capsule ca. 1.9 cm; leaf blade margin entire; calyx segments narrowly lanceolate, ca. 2.5 mm wide 13. *H. glandulosa*

12b. Involucre glabrous outside; corolla 3.7–4.4 cm; capsule ca. 3.5 cm; leaf blade margin conspicuously serrate to nearly entire; calyx segments lanceolate, 4–5 mm wide ................................................................. 14. *H. fangii*

5b. Calyx segments outside and margin glabrous.

13a. Peduncle sparsely pilose to densely pubescent.

14a. Peduncle 0.2–1.2 cm; leaf blade sparsely pilose on both surfaces ................................. 5. *H. gracilis*

14b. Peduncle 1.5–5 cm; leaf blade adaxially puberulent to pubescent, abaxially nearly glabrous to pubescent.

15a. Stems glabrous, much branched; leaf blade 5–8 × 2.3–4.2 cm, abaxially nearly glabrous, apex acute to abruptly acuminate ......................................................... 10. *H. pingbianensis*

15b. Stems glabrescent to densely pubescent, unbranched; leaf blade 5–20 × (3–)5–10.5 cm, abaxially pubescent to sparsely pubescent, apex acute.

16a. Cymes 1–3-flowered; stems 5–22.5 cm with 2–5 nodes; petiole (0.5–)1–3.6 cm; leaf blade 5–12 × (3–)5–8.8 cm, without sclereids; corolla pink with purple spots, 2.1–4.1 cm; staminodes 2, 3.5–6 mm; pistil 2.1–2.5 cm ...................... 11. *H. subacaulis*
16b. Cymes 6- or more flowered; stems ca. 40 cm with ca. 10 nodes; petiole 3–6 cm; leaf
blade 14–20 × 7–10.5 cm, with vermiform sclereids surrounding vascular
bundles;
corolla white with purple spots, ca. 2.2 cm; staminodes 3, 0.6–3.5 mm; pistil
ca. 1.4 cm .............................................................................. 12. Hemiboea parviflora

13b. Peduncle glabrous.
17a. Calyx 2-lipped, adaxial lip 2-lobed, divided to base, abaxial lip 3-lobed, divided to middle
or to apical third; stems much branched ....................................................... 8. Hemiboea latiseepala
17b. Calyx divided to base, segments equal; stems branched or unbranched.
18a. Calyx segments 15–20 mm.
19a. Stems not spotted, nodes many; corolla glabrous outside; anthers ca. 2 mm;
style glabrous ....................................................................................... 2. Hemiboea longisepala
19b. Stems sparsely purple-brown spotted, nodes 3 or 4; corolla sparsely glandular
puberulent outside; anthers 3.5–4 mm; style sparsely glandular pubescent 6. Hemiboea omeiensis

18b. Calyx segments 5–12 mm.
20a. Corolla glabrous outside.
21a. Pistil ca. 3.2 cm; corolla pink with purple spots, tube 2.1–2.3 cm, abaxial
lip 11–12 mm; petiole 0.5–2 cm; leaf blade entire, without sclereids;
involucre ca. 1.3 cm in diam. ........................................... 1. Hemiboea integra
21b. Pistil ca. 1.5–2 cm; corolla white with purple spots, tube 3–3.8 cm, abaxial
lip ca. 7 mm; petiole 2–6 cm; leaf blade margin weakly serrate to nearly entire,
with vermiform sclereids surrounding vascular bundles; involucre 2–2.5
cm in diam. ........................................................................... 3. Hemiboea bicornuta

20b. Corolla sparsely glandular puberulent outside.
22a. Leaf blade sparsely pilose; cymes 1–3-flowered; corolla pink to purple or bluish
with darker or yellow lines and spots ...................................................... 5. Hemiboea gracilis
22b. Leaf blade glabrous to pubescent; cymes (1–)3–12-flowered; corolla pale
yellow to white with purple spots.
23a. Calyx segments 3–4.5 mm wide; pistil 3–4 cm; abaxial corolla lip 6–9
mm;
leaf blade base usually slightly unequal, cuneate to attenuate and
decurrent, sometimes touching at node ........................................... 7. Hemiboea subcapitata
23b. Calyx segments 0.2–2 mm wide; pistil 1.7–2.5 cm; abaxial corolla lip
7–15 mm; leaf blade base slightly oblique, cuneate to slightly
attenuate.
24a. Leaf blade with vermiform sclereids surrounding vascular
bundles;
lateral veins 4–14 on each side of midrib; peduncle 0.5–6.5(–10)
cm
........................................................................................................... 4. Hemiboea cavaleriei
24b. Leaf blade with astrosclereids scattered in mesophyll; lateral
veins 5 or 6 on each side of midrib; peduncle 7–10 cm ...... 9. Hemiboea longzhouensis

全叶半蒴苣苔 quan ye ban shuo ju tai
Stems 30–80 cm, sparsely brown spotted, glabrous, simple, with up to 15 nodes. Petiole 0.5–2 cm; leaf
blade narrowly ovate to ovate or obovate, 4–14 × 1.8–6.5 cm, glabrous, base cuneate to attenuate, margin
entire, apex abruptly acuminate, without sclereids; lateral veins 5 or 6 on each side of midrib. Cymes ca. 6-
flowered; peduncle 3.5–7 cm, glabrous; involucre ca. 1.3 cm in diam., outside glabrous. Calyx 5-sect from
Hemiboea merrillii


- Dense montane valley forests; 100–400 m. SE Yunnan.

2. Hemiboea longisepala


- Shady roadsides in montane valleys. SW Guangxi.

3. Hemiboea bicornuta

Hayata, Icon. Pl. Formos. 3: 154. 1913; Didymocarpus bicornutus (Hayata) S. Y. Hu;

Hayata, Icon. Pl. Formos. 3: 154. 1913; Didymocarpus bicornutus (Hayata) S. Y. Hu;

Hemiboea merrillii Yamamoto.

Stems to 1 m, unspotted, glabrous, simple, nodes many. Petiole 2–6 cm; leaf blade sometimes oblique, elliptic to narrowly lanceolate, sometimes falcate, 7–20 × 2.5–5 cm, nearly glabrous to sparsely pubescent, base cuneate to attenuate, margin weakly serrate to nearly entire, apex acuminate, vermiciform sclereids surrounding vascular bundles; lateral veins 6–10 on each side of midrib. Cymes 3- or more flowered; peduncle 1.5–4 cm, glabrous; involucre 2–2.5 cm in diam., outside glabrous. Calyx 5-sect from base; segments equal, linear-lanceolate, 1.9–2.5 cm × ca. 2.5 mm, outside and margin glabrous. Anthers ca. 3 mm; staminodes 3, 2–7 mm. Pistil 1.7–2.5 cm, glabrous. Capsule unknown. Fl. Sep–Oct.

- Shady places in montane valleys on calcareous mountains; 300–1600 m. Fujian, Guangdong, Guangxi, Guizhou, S Hunan, S Jiangxi, S Sichuan, SE Yunnan [N Vietnam].

Shaded areas in montane valleys, forests on calcareous mountains; 300–1600 m. Fujian, Guangdong, Guangxi, Guizhou, S Hunan, S Jiangxi, S Sichuan, SE Yunnan [N Vietnam].

Weitzman and Skog do not recognize the following varieties and believe that the characters used to separate them are insufficient.

1a. Leaf blade herbaceous, ± sparsely pubescent; lateral veins 6–14 on each side of midrib; anthers ellipsoid, coherent apically or near apex; staminodes 3

1b. Leaf blade papyraceous, usually glabrous, rarely sparsely pubescent; lateral veins 4–8(or 9) on each side of midrib; anthers nearly discoid, coherent near apex or adaxially; staminodes 2, rarely 3

4a. Hemiboea cavaleriei var. cavaleriei

Guizhou half蒴苣苔 gui zhao ban shuo ju tai

Leaf blade herbaceous, adaxially sparsely pubescent; lateral veins 6–14 on each side of midrib. Staminodes 3.

- Shady places in montane valleys; 300–1600 m. Fujian, Guangdong, Guangxi, Guizhou, S Hunan, S Jiangxi, S Sichuan.

4b. Hemiboea cavaleriei var. paucinervis


Shude半蒴苣苔 shu mai ban shuo ju tai

Hemiboea flavia C. Y. Wu ex H. W. Li.
Leaf blade papery to thin papery, adaxially usually glabrous, rarely sparsely pubescent; lateral veins 4–8(or 9) on each side of midrib. Staminodes 2, rarely 3.

Forests on calcareous mountains; 300–1600 m. Guangxi, S Guizhou, SE Yunnan [N Vietnam].

纤细半蒴苣苔 xian xi ban shuo ju tai  
Stems 4–47 cm, sparsely purple-brown spotted, glabrous to sparsely pilose toward apex, usually simple, with 3–5 nodes. Petiole 2–4 cm; leaf blade sometimes oblique, elliptic to ovate or rarely obovate, 3–15 × 1.2–5 cm, sparsely pilose, base cuneate to narrowly cuneate, margin entire to repand, apex acuminate, vermiciform sclereids surrounding vascular bundles; lateral veins 4–6 on each side of midrib. Cymes 1–3-flowered; peduncle 2–12 mm, glabrous to sparsely white pilose; involucre to 1–1.4(–2) cm in diam., outside glabrous to white pilose. Calyx 5-sect from base; segments equal, linear to lanceolate, 5–8 × 2–4 mm, outside and margin glabrous to white pilose. Corolla outside white, inside purple spotted, 3.5–4 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube 2.3–3.2 cm; adaxial lip 8–10 mm; abaxial lip 1–1.3 cm. Anthers 3.5–4 mm; staminodes 3, 4–7 mm. Pistil 2–2.5 cm; ovary glabrous. Style sparsely glandular puberulent. Capsule 3–3.5 cm. Fl. Aug–Oct, fr. Nov–Dec.

峨眉半蒴苣苔 e mei ban shuo ju tai  
Stems 30–45 cm, sparsely purple-brown spotted, glabrous, simple, with 3 or 4 nodes. Petiole 0.3–3.5 cm; leaf blade elliptic to ovate or falcate, 8–19 × 4–8.8 cm, adaxially sparsely pubescent, abaxially glabrous, base oblique, cuneate, or 1 side cuneate and other rounded, margin nearly entire to shallowly undulate or crenate, apex acuminate, vermiciform sclereids surrounding vascular bundles; lateral veins 8–10 on each side of midrib. Cymes 3–6-flowered; peduncle 2–3 cm, glabrous; involucre 1.5–2.5 cm in diam., outside glabrous. Calyx 5-sect from base; segments equal, linear-lanceolate, 1.5–1.8 cm × 2.5–3.5(–4) mm, outside and margin glabrous. Corolla outside white, inside purple spotted, 3–4 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube 2.3–3.2 cm; adaxial lip 8–10 mm; abaxial lip 1–1.3 cm. Anthers 3.5–4 mm; staminodes 3, 4–7 mm. Pistil 2–2.5 cm; ovary glabrous. Style sparsely glandular puberulent. Capsule 3–3.5 cm. Fl. Aug–Oct, fr. Nov–Dec.

- **Hemiboea gracilis**  
  var. gracilis  
  纤细半蒴苣苔(原变种) xian xi ban shuo ju tai  

7. **Hemiboea subcapitata** C. B. Clarke, Hooker's Icon. Pl. 18: sub pl. 1798. 1888.  
半蒴苣苔 ban shuo ju tai  
Stems 10–40 cm, sparsely purple-brown or purple spotted, glabrous to pubescent, simple, with 4–8 nodes. Petiole 0.5–7 (~9) cm; leaf blade elliptic to ovate or obovate, 3–22 × 1.4–11.5 cm, adaxially nearly glabrous to pubescent, abaxially glabrous to pubescent, base usually slightly unequal, cuneate to attenuate and decurrent, sometimes touching at node, margin entire to weakly serrate, shallowly crenate toward apex, or densely denticulate, apex acute to acuminate, vermiciform sclereids dispersed in leaf mesophyll; lateral veins 5–7 on each side of midrib. Cymes (1–)3–10–more flowered; peduncle 2–7 (~13) cm, glabrous; involucre 1–2.5 cm in diam., outside glabrous, seldom pilose. Calyx 5-sect from base; segments equal, 
  involucres to narrowly ovate or elliptic to oblong, 6–12 × 3–4.5 mm, outside and margin glabrous. Corolla outside white, inside purple spotted, 3.5–4.2 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube 2.8–3.5 cm; adaxial lip 5–7 mm; abaxial lip 6–9 mm. Anthers 3–4.5 mm; staminodes 3, 2–8 mm. Pistil 2–2.5 cm; ovary glabrous. Capsule 1.5–2.5 cm. Fl. Aug–Oct, fr. Oct–Dec.

- **Hemiboea subcapitata**  
  var. pilobaerata  
  毛苞半蒴苣苔 mao bao ban shuo ju tai  
  Stems near apex, petiole, peduncles, involucre outside, and calyx outside white pilose.  

8. **Hemiboea intermedia** major C. B. Clarke, Hooker's Icon. Pl. 18: sub pl. 1798. 1888.  
半蒴苣苔(变种) ban shuo ju tai (yuan bian zhong)  
Stems 30–45 cm, sparsely purple-brown or purple spotted, glabrous to pubescent, simple, with 4–8 nodes. Petiole 0.5–7 (~9) cm; leaf blade elliptic to ovate or obovate, 3–22 × 1.4–11.5 cm, adaxially nearly glabrous to pubescent, abaxially glabrous to pubescent, base usually slightly unequal, cuneate to attenuate and decurrent, sometimes touching at node, margin entire to weakly serrate, shallowly crenate toward apex, or densely denticulate, apex acute to acuminate, vermiciform sclereids dispersed in leaf mesophyll; lateral veins 5–7 on each side of midrib. Cymes (1–)3–10–more flowered; peduncle 2–7 (~13) cm, glabrous; involucre 1–2.5 cm in diam., outside glabrous, seldom pilose. Calyx 5-sect from base; segments equal, involucres to narrowly ovate or elliptic to oblong, 6–12 × 3–4.5 mm, outside and margin glabrous. Corolla outside white, inside purple spotted, 3.5–4.2 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube 2.8–3.5 cm; adaxial lip 5–7 mm; abaxial lip 6–9 mm. Anthers 3–4.5 mm; staminodes 3, 2–8 mm. Pistil 2–2.5 cm; ovary glabrous. Capsule 1.5–2.5 cm. Fl. Aug–Oct, fr. Oct–Dec.
Involucre outside glabrous.

- Rocks in montane valley forests and shaded wet forests; 100–2100 m. S Anhui, Fujian, S Gansu, Guangdong, Guangxi, Guizhou, S Henan, Hubei, Hunan, S Jiangsu, Jiangxi, S Shaanxi, Sichuan, SE Yunnan, Zhejiang.


Involucre outside pilose.

- Known only from cultivation. Cultivated at the South China Institute of Botany; introduced from NW Guangdong (Lian Xian).


- Shady calcareous rocks in forests; ca. 1600 m. SW Yunnan.


- Rocks in montane valley forests; 300–400 m. W Guangxi.


Leaf blade apex rounded to acute. Involucre outside densely pubescent. Calyx 8–9 mm.

- **Forests**, on rocky cliffs along montane streams; 100–600 m. N Guangxi, E Guizhou, Hunan.


**江西半蒴苣苔** jiang xi ban shuo ju tai

Leaf blade apex abruptly acuminate. Involucre outside sparsely pilose. Calyx 1–1.1 cm.

- **Forest streamsides**, along rocky montane streams; 800–900 m. SW Jiangxi.


**小花半蒴苣苔** xiao hua ban shuo ju tai

Stems ca. 40 cm, sparsely purple-brown spotted, densely pubescent, simple, with ca. 10 nodes. Petiole 3–6 cm; leaf blade elliptic, 14–20 × 7–10.5 cm, pubescent, base decurrent and joined across node, margin entire, apex acute, vermiciform sclereids surrounding vascular bundles; lateral veins 5–9 on each side of midrib. Cymes 6–8 or more flowered; peduncle 2.5–5 cm, densely pubescent; involucre ca. 1.5 cm in diam., outside densely pubescent. Calyx 5-sect from base; segments equal, ovate-oblong, 9–10 × 3–4 mm, outside and margin glabrous. Corolla outside white, inside sparsely glandular puberulent, inside with a ring of hairs; tube ca. 1 cm; adaxial lip ca. 3.5 mm; abaxial lip ca. 5 mm. Anthers ca. 4 mm; staminodes 3, 0.6–3.5 mm. Pistil ca. 1.4 cm, glabrous. Capsule unknown. Fl. Sep–Oct.

- **Dense montane valley forests**, 500–600 m. SW Guangxi.


**腺萼半蒴苣苔** xian e ban shuo ju tai

Stems more than 20 cm, sparsely purple spotted, glabrous, branched or simple, with few to many sometimes swollen nodes. Petiole 1.4–4.5 cm; leaf blade narrowly to broadly ovate, 9.5–12.5 × 4.4–5.1 cm, adaxially pubescent, abaxially glabrous, base sometimes slightly unequal, rounded to cuneate, margin entire, apex acute to slightly acuminate, vermiciform sclereids surrounding vascular bundles; lateral veins 3–11 on each side of midrib. Cymes ca. 6-flowered; peduncle 1.5–2.1(–4) cm, glabrous; complete involucre unknown, outside sparsely pubescent. Calyx 5-sect from base; segments equal, narrowly lanceolate, 1.3–1.4 cm × ca. 2.5 mm, outside and margin glandular puberulent. Corolla outside white, inside purple spotted, ca. 2.1 cm, outside glandular puberulent, inside with a ring of hairs; tube ca. 1.5 cm; adaxial lip ca. 5 mm; abaxial lip ca. 6 mm. Anthers ca. 2.5 mm; staminodes 2, ca. 6 mm. Pistil ca. 2 cm; ovary glabrous. Style sparsely glandular. Capsule ca. 1.9 cm. Fl. Sep–Oct, fr. Oct–Nov.

- **Rocks in dense forests**, 900–1700 m. SW Sichuan.


**柔毛半蒴苣苔** rou mao ban shuo ju tai

Stems 16–40 cm, purple-brown spotted, densely spreading villous, simple, with 3–5 nodes. Petiole 0.6–6 cm; leaf blade elliptic-ovate to oblong, 3–15 × 1–6.4 cm, villose to pubescent, base unequal, cuneate, margin shallowly repand to repand-crenate toward apex, apex acuminate, vermiciform sclereids surrounding vascular bundles; lateral veins 6–11 on each side of midrib. Cymes ca. 3-flowered; peduncle 5–14 cm, sparsely villous; involucre 1–2 cm in diam., outside villous. Calyx 5-sect from base; segments equal, narrowly lanceolate, 1.4–1.5 cm × 3–4 mm, outside sparsely glandular puberulent, inside with a ring of hairs; tube 2.5–3 cm; adaxial lip 9–10 mm; abaxial lip 1.2–1.4 cm. Anthers ca. 2 mm; staminodes 2, ca. 7 mm. Pistil ca. 2 cm; ovary glabrous. Style sparsely glandular puberulent. Capsule ca. 3.5 cm. Fl. Sep–Oct, fr. Nov–Dec.


**柔毛半蒴苣苔** rou mao ban shuo ju tai

Stems 12–45 cm, purple spotted, sparsely pubescent, simple or branched, with 4–7 nodes. Petiole to 3.5 cm;
leaf blade ovate to obovate, 6–17 × 3–9 cm, pubescent to sparsely pubescent, base cuneate in basal leaves, attenuate and decurrent and joined across node in distal leaves, margin entire, apex obtuse, vermiform sclereids surrounding vascular bundles; lateral veins 5 or 6 on each side of midrib. Cymes 2- or 3-flowered; peduncle 6–10 cm, glandular pubescent; involucre 1–2.5 cm in diam., outside glandular pubescent. Calyx 5-nect from base; segments equal, lanceolate, 7–9 × 1.2–2.2 mm, outside and margin sparsely glandular puberulent. Corolla outside white, inside purple spotted, ca. 1.5 cm, adaxially sparsely pubescent, abaxially glabrous, ca. 3 cm, outside sparsely glandular pubescent. Capsule 1.6–2.1 cm. Fl. Aug–Sep, fr. Sep–Dec.

- Rocks in montane valley forests; 400–900 m. N Guangdong, S Hunan, S Jiangxi.


毛果半蒴苣苔 mao guo ban shuo ju tai

Stems 12–40 cm, often sparsely brown spotted, densely brown puberulent to villous, simple, with 3–6 nodes. Petiole 2–11 cm; leaf blade elliptic to ovate, 7–21 × 4–14 cm, pubescent to densely so, base slightly unequal, cuneate to attenuate, margin entire to weakly serrate toward apex, apex acute to acuminate, without sclereids; lateral veins 5–8 on each side of midrib. Cymes 2–7(–14)-flowered; peduncle 0.4–5.5(–10) cm, sparsely glandular puberulent to pilose; involucre 1–2.5 cm in diam., outside sparsely glandular puberulent. Calyx 5-nect from base; segments equal, linear, 5–9 × 2.5–3 mm, outside and margin sparsely glandular puberulent. Corolla outside white, inside purple spotted, ca. 3 cm, outside sparsely glandular puberulent, base cuneate, margin nearly entire, apex acute to acuminate, without sclereids; lateral veins 8–12 on each side of midrib. Cymes 2- or 3-flowered; peduncle 1–2 cm, glandular puberulent; involucre ca. 1 cm in diam., outside sparsely glandular puberulent. Capsule 1.7–2 cm. Fl. Sep–Oct, fr. Nov.

- Shaded areas in montane valleys; ca. 100 m. SW Guangxi.


岗半蒴苣苔 long gang ban shuo ju tai

Stems 20–50 cm, sparsely purple spotted, sparsely spreading glandular pubescent toward apex, simple or sparsely branched, with 10–15 nodes. Petiole 1.1–5.5 cm; leaf blade narrowly elliptic-lanceolate, 6–13.5 × 2–4 cm, adaxially sparsely pubescent, abaxially glabrous, base oblique, cuneate, margin entire, apex acuminate, without sclereids; lateral veins 8–12 on each side of midrib. Cymes 2- or 3-flowered; peduncle 1–2 cm, glandular puberulent; involucre ca. 1 cm in diam., outside sparsely glandular puberulent. Calyx 5-nect from base; segments equal, narrowly lanceolate, ca. 10 × 3 mm, outside and margin sparsely glandular puberulent. Corolla outside pale yellow, inside sparsely purple spotted, ca. 3 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube 2–4 cm; adaxial lip ca. 3.5 mm; abaxial lip ca. 6 mm. Anthers ca. 2.5 mm; staminodes 3, 1.2–7 mm. Pistil ca. 1.8 cm, white to sparsely glandular puberulent. Capsule 1.7–2 cm. Fl. Sep–Oct, fr. Nov.

- Shaded areas in montane valleys; 700–1400 m. W Guangxi, S Guizhou.

王氏半蒴苣苔  wang shi ban shuo ju tai

Stems to 60 cm, dark purple spotted, glabrous, branched, with 7 to many nodes. Petiole 0.5–4 cm; leaf blade ovate to elliptic, 3–10 × 1–4 cm, glabrous, base oblique, cuneate to rounded, margin repand-serrulate to subentire, apex cuspidate to acuminate, vermiform sclereids surrounding vascular bundles; lateral veins 5–8 on each side of midrib. Cymes (2 or)3-flowered; peduncle 6–12 mm, glabrous; involucre ca. 1 cm in diam., outside glabrous. Calyx ca. 2.5 cm, 5-lobed from above middle; lobes equal, ovate-triangular, 3–4 × 2–3 mm, outside and margin glabrous. Corolla outside white, 1.5–1.8 cm, outside glabrous, inside with a ring of hairs; tube 1.1–1.2 cm; adaxial lip 4–4.5 mm; abaxial lip 5.5–6 mm. Anthers 1–2 mm; staminodes 2, 1–2.5 mm. Pistil ca. 9 mm, glabrous. Capsule ca. 1(–1.5) cm. Fl. Jun–Aug, fr. Sep–Nov.

22. *Hemiboea follicularis* C. B. Clarke, Hooker’s Icon. Pl. 18: sub pl. 1798. 1888.

华南半蒴苣苔  hua nan ban shuo ju tai

Hemiboea *esquirolii* H. Léveillé.

Stems 7–60 cm, sparsely purple spotted, glabrous, simple, with 4–8 nodes. Petiole 1–10.5 cm; leaf blade elliptic to narrowly ovate or falcate, 3–18 × 1.8–8 cm, glabrous, base sometimes oblique, cuneate to attenuate, margin nearly entire or weakly serrate to weakly dentate, apex acuminate, without sclereids; lateral veins 4–6 on each side of midrib. Cymes 5–7-flowered; peduncle 1–1.5 cm, glabrous; involucre 2.5–3 cm in diam., outside and margin glabrous. Calyx 2–2.5 cm, 5-lobed from above middle; lobes equal, triangular-ovate, 7–10 × 8–10 mm, outside and margin glabrous. Corolla outside white, inside pale yellow with purple spots, ca. 4.5 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube ca. 3.5 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1 cm. Anthers ca. 4 mm; staminodes 2, ca. 8 mm. Pistil ca. 2.5 cm, glabrous. Capsule ca. 1 cm. Fl. Aug, fr. Sep–Oct.


大苞半蒴苣苔  da bao ban shuo ju tai

Stems 30–60 cm or more, brown spotted, glabrous, simple, with 3–5 nodes. Petiole 1–3 cm; leaf blade broadly elliptic to obovate, 8–24 × 4–11 cm, glabrous, base sometimes oblique, broadly to narrowly cuneate, margin entire, apex acute, short vermiform sclereids surrounding vascular bundles; lateral veins 4–6 on each side of midrib. Cymes 5–7-flowered; peduncle 1–1.5 cm, glabrous; involucre 2.5–3 cm in diam., outside glabrous. Calyx 2–2.5 cm, 5-lobed from above middle; lobes equal, ovate-triangular, 3–4 × 1–5 cm, outside and margin glabrous. Corolla outside white, inside pale yellow with purple spots, ca. 4.5 cm, outside sparsely glandular puberulent, inside with a ring of hairs; tube ca. 3.5 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1 cm. Anthers ca. 4 mm; staminodes 2, ca. 8 mm. Pistil ca. 2.5 cm, glabrous. Capsule ca. 1 cm. Fl. Aug, fr. Sep–Oct.


密序苣苔属  mi xu ju tai shu

Subshrubs, terrestrial, not rhizomatous. Stems simple. Leaves few, along stem, opposite, equal to subequal in a pair; leaf blade glabrous to sparsely pubescent, base attenuate to broadly cuneate. Inflorescences dense, axillary, 3–7-flowered cymes; bracts 2, opposite, adjoining, forming a globose involucre. Calyx actinomorphic, 5-sect from base; segments equal. Corolla purplish to white, zygomorphic, inside glabrous; tube funnelform-tubular, not swollen, much longer than limb, ca. 1.3 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, much shorter than abaxial lip; abaxial lip 3-lobed, lobes equal, apex rounded. Stamens 2, adnate to corolla tube below middle of abaxial side, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent, dehiscing longitudinally; connectives 1-appendiculate abaxially; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 2-loculed; placentas 2, axile. Stigmas 2, unequal, smaller 1 semiorbicular, undivided, larger 1 broadly flabellate, emarginate. Immature capsule straight in relation to pedicel, linear, much longer than calyx; valves probably 2, straight, not twisted. Seeds unappendaged.

One species: China, Laos.


密序苣苔  mi xu ju tai

Stems 25–80 cm, apically densely brownish appressed pubescent, basally glabrescent. Petiole 1.5–5.5 cm; leaf blade falcate, ovate to oblanceolate, 9–24 × 3–6.5 cm, margin repand-crenulate to nearly entire, apex acuminate. Peduncle 1.5–2 cm, pubescent; bracts nearly orbicular to ovate-orbicular, ca. 2 × 2.5 cm. Calyx segments spatulate-linear, ca. 2 cm × 2.5–3 mm. Corolla 3.5–4.5 cm, glabrous; tube 2.5–3.5 cm; adaxial lip ca. 5 mm; abaxial lip ca. 1 cm. Stamens ca. 1.5 cm; filaments glabrous to puberulent near apex; anthers 2.8–3.2 mm, abaxially puberulent; staminodes ca. 1 cm. Pistil 2.1–2.6 cm; ovary 0.9–1.1 cm, glabrous. Style sparsely glandular puberulent. Capsule ca. 8 cm. Fl. Apr.

Dense shrub thickets, shady streamsides in valleys; 300–800 m. SE Yunnan (Hekou Xian, Jinping Xian) [Laos].

27. PETROCOSMEA Oliver, Hooker’s Icon. Pl. 18: t. 1716. 1887.

Vaniotia H. Léveillé.

Herbs, perennial, terrestrial or epipetric, rhizomatous, stemless. Leaves few to many, basal; leaf blade puberulent to pilose, rarely sericeous or velutinous, base cuneate to cordate, rarely peltate. Inflorescences usually lax, rarely subumbell-like, axillary, 1–4(–7)-flowered cymes; bracts usually 2, opposite or alternate. Calyx actinomorphic, rarely zygomorphic, 5-sect from base, rarely 3-lobed to 3-sect from base; segments equal, rarely unequal. Corolla blue to purple or white, zygomorphic, inside glabrous, sometimes puberulent; tube broadly tubular, not swollen, shorter than limb, 2–5 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, equaling or much shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers basifixed, coherent at apex, thecae parallel, confluent at apex or not, dehiscing longitudinally; connective not projecting; staminodes (absent or 1–)3, adnate to adaxial side of corolla tube. Disc absent. Ovary conical to broadly ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate, often nearly globose, undivided. Capsule straight in relation to pedicel, narrowly ellipsoid to oblong to ovoid, nearly as long as calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

Twenty-seven species: China, NE India, Myanmar, Thailand, S Vietnam; 24 species in China.

1a. Anthers constricted near apex, forming a short thick beak.

2a. Calyx zygomorphic, 3-parted or 3-sect ................................................................. 24. P. kerrii

2b. Calyx actinomorphic, 5-sect.

3a. Leaf blade 7.5–8.5 cm; bracts subulate to lanceolate, 3–4 mm; corolla black at throat, not purple at base, sparsely puberulent outside, scaly inside ......................................................... 22. P. menglianensis

3b. Leaf blade 8–17.5 cm; bracts ovate to lanceolate, 5–12 mm; corolla not black at throat, dark purple adaxially near base, glabrous outside, densely minutely yellow glandular and sparsely pubescent below abaxial lip inside ................................................................. 23. P. grandifolia

1b. Anthers not constricted near apex.

4a. Adaxial corolla lip 9–12 mm, abaxial lip 13–15 mm ............................................. 6. P. grandiflora

4b. Adaxial corolla lip 0.7–5 mm, abaxial lip 2–12 mm.

5a. Abaxial corolla lip nearly equalling adaxial.

6a. Calyx glabrous or nearly so outside; corolla glabrous outside .................................. 2. P. oblata

6b. Calyx puberulent outside; corolla puberulent or sparsely so outside.

7a. Leaf blade veins abaxially conspicuous ............................................................. 1. P. nervosa

7b. Leaf blade veins abaxially subconspicuous or indistinct.

8a. Petiole 0.5–9 cm; anthers triangular; leaf blade 1–3.5 × 1–4.4 cm ................................ 3. P. flaccida

8b. Petiole 0.5–3.5(–4.5) cm; anthers oblong or oblong ovoid; leaf blade 0.7–3(–4) × 0.7–2.8(–3.8) cm. 22. P. menglianensis

9a. Corolla glabrous inside; ovary and base of style puberulent; bracts 2.5–4 mm; anthers ca. 3 mm; pistil 9–11 mm ............................................................. 4. P. sinensis

9b. Corolla puberulent on adaxial lip inside; ovary and style spreading villous; bracts 1.6–2 mm; anthers ca. 1.2 mm; pistil ca. 5.2 mm .......................................................... 5. P. qinlingensis

5b. Abaxial corolla lip at least 2 × longer than adaxial.

10a. Adaxial corolla lip indistinctly 2-lobed, emarginate, or undivided.

11a. Leaf blade base cordate or rounded; calyx segments narrowly lanceolate; style glabrous.
12a. Capsule 7–11 mm; calyx 5–7 mm; corolla tube ca. 6.5 mm; bracts 2.5–4 mm; leaf blade 1.5–3.8(–4.9) × 1–4.5 cm; lateral veins abaxially conspicuous; cymes (1 or)2–4-flowered ................................................................. 18. *P. iodioides*

12b. Capsule 3.5–5 mm; calyx 2.5–3 mm; corolla tube to 3 mm; bracts 1–2 mm; leaf blade 0.7–2(–2.6) × 0.5–1.5(–1.9) cm; lateral veins inconspicuous; cymes 1(or 2)-flowered ................................................................. 19. *P. martinii*

11b. Leaf blade base cuneate, broadly cuneate, rarely rounded; calyx segments linear or narrowly triangular; style puberulent near base.

13a. Peduncle, outer calyx surface, petiole, and leaf blade brownish yellow appressed puberulent; pedicel 0.4–1.2 cm; capsule to 12 mm ......................... 20. *P. sericea*

13b. Peduncle, outer calyx surface, petiole, and leaf blade adaxially whitish to tan pubescent, abaxially densely puberulent; pedicel 1.4–2.5 cm; capsule 5–8(–10) mm ................................................................. 21. *P. minor*

10b. Adaxial corolla lip 2-parted near base or at least in apical 1/3.

14a. All leaves peltate ........................................................................................................ 17. *P. coerulea*

14b. Most or all leaves not peltate.

15a. Filaments puberulent.

16a. Adaxial corolla lip 2-parted to near base; anthers 2.5 × or more longer than filaments; petiole 1–8 cm; peduncle 4.5–10 cm ..................................................... 7. *P. duclouxii*

16b. Adaxial corolla lip 2-lobed in apical 1/3–1/2; anthers 0.5–2 × filament length; petiole 0.3–5.5 cm; peduncle 2.2–7 cm.

17a. Pistil 7–10 mm; capsule ca. 13 mm; petiole 1.2–5.5 cm; leaf blade 0.5–4 × 0.6–3 cm ........................................................................................................ 14. *P. begoniifolia*

17b. Pistil 4–6 mm; capsule 4–6 mm; petiole 0.3–3.7 cm; leaf blade 0.4–2.5 × 0.4–2.2 cm.

18a. Style glabrous; anthers ca. 1.8 mm; petiole 0.3–2.5 cm; leaf blade 0.4–1.7 cm ................................................................. 15. *P. sichuanensis*

18b. Style pilose basally; anthers 0.5–1.2 mm; petiole 0.3–3.7 cm; leaf blade 0.5–2.5 cm.

19a. Leaf lateral veins conspicuous; bracts ca. 0.8 mm; anthers 1–1.2 mm; pistil 5.2–6 mm ........................................................................ 8. *P. mairei*

19b. Leaf lateral veins inconspicuous; bracts ca. 2 mm; anthers 0.5–0.6 mm; pistil ca. 4 mm ................................................. 13. *P. cavaleriei*

15b. Filaments glabrous.

20a. Anthers 0.6–1 mm; leaf blade 0.4–1.2 cm; petiole 0.1–2 cm.

21a. Corolla white, puberulent inside, tube ca. 2 mm, abaxial lip ca. 2.8 mm, adaxial lip ca. 6.8 mm; leaf blade 6–12 mm; peduncle to 8 cm; pedicel 2–3.5 cm; style pubescent near base ........................................ 12. *P. longipedicellata*

21b. Corolla blue, glabrous inside, tube ca. 4 mm, abaxial lip ca. 0.7–1.5 mm, adaxial lip 2–2.8 mm; leaf blade 4–6 mm; peduncle 1.5–2.4 cm; pedicel 0.2–0.7 cm; style glabrous ............................................. 16. *P. confluens*

20b. Anthers 1–2 mm; leaf blade 0.5–4 cm; petiole 1–6 cm.

22a. Pistil ca. 12 mm, ovary ca. 5 mm; capsule 10–12 mm; calyx segments ca. 5 mm; leaf blade 0.5–4 cm ......................................................... 10. *P. rosettifolia*

22b. Pistil 5–7 mm, ovary 1–2 mm; capsule 4–6 mm; calyx segments 2–4 mm; leaf blade 0.5–2.8 cm.

23a. Cymes 1-flowered; leaf blade base broadly cuneate, margin shallowly crenulate to entire; staminodes 3 ........................................ 9. *P. forrestii*

23b. Cymes 1–4-flowered; leaf blade base cordate to broadly cuneate, margin crenulate; staminodes 2 ................................................. 11. *P. barbata*

显脉石蝴蝶 xian mai shi hu die
Petiole 0.3–7 cm, pilose; leaf blade broadly ovate, rhombic-ovate, or broadly obovate to nearly orbicular, 1–5 × 1.2–5.2 cm, adaxially pilose, hairs both short and long, abaxially pilose, base broadly cuneate to nearly truncate or cordate, margin entire to repand-crenulate, apex obtuse to rounded; lateral veins abaxially conspicuous. Cymes 1(–4)-flowered; peduncle 3–11 cm, puberulent; bracts linear, 0.8–4 mm. Pedicel 0.6–3.2 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly lanceolate, 2–4.5 × 0.8–2 mm, outside puberulent. Corolla blue-purple, outside appressed puberulent, inside glabrous; tube ca. 3 mm; adaxial lip ca. 5 mm, distinctly 2-lobed; abaxial lip ca. 5 mm. Filaments 0.7–1.2 mm, glabrous; anthers ovoid, 2–2.8 mm, beakless; staminodes 2 or 3. Pistil 7–7.5 mm; ovary 1–1.5 mm, sparsely puberulent. Style sparsely puberulent near base. Capsule 5–6.5 mm. Fl. Apr–May, Sep, Jan, Apr.

• Montane regions; 2200–3100 m. SW Sichuan (Huili Xian), NW Yunnan (Eryuan Xian, Yongsheng Xian).


扁圆石蝴蝶 bian yuan shi hu die
Petiole 0.7–4 cm, puberulent to glabrescent; leaf blade oblate to orbicular-ovate or nearly orbicular, 0.7–2.8 × 0.9–3.2 cm, sparsely puberulent, base narrowly cordate to truncate-cordate or broadly cuneate, margin repand, apex rounded to truncate; lateral veins inconspicuous. Cymes 1-flowered; peduncle 3.5–8.5 cm, puberulent; bracts linear, 1–2 mm. Pedicel 1.7–2.8 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly triangular, ca. 1.1–1.5 mm. Pedicel 2–3.2 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly lanceolate to linear or triangular-ovate, 1–3 × 0.3–1.7 mm, outside glabrous or sparsely puberulent. Corolla blue, glabrous; tube 2.5–3 mm; adaxial lip ca. 6 mm, distinctly 2-lobed; abaxial lip ca. 6–8 mm. Filaments ca. 1.5 mm, glabrous; anthers ovoid, 1.5–2.5 mm, beakless; staminodes 2 or 3. Pistil 7–8.8 mm; ovary ca. 2.5 mm, puberulent. Style puberulent near base. Capsule ca. 4 mm. Fl. and fr. Aug–Sep.

• Montane regions or limestone soils; 2200–3100 m. SW Sichuan (Huili Xian), NW Yunnan (Eryuan Xian, Yongsheng Xian).


宽萼石蝴蝶 kuan e shi hu die

Bracts narrowly triangular, ca. 1.1 mm, Calyx segments triangular-ovate, 2–3 × 1–1.7 mm, glabrous. Staminodes 3. Fl. and fr. Aug–Sep.

• Limestone soils; ca. 2200 m. NE Yunnan (Huize Xian).


萎软石蝴蝶 wei ruan shi hu die


Bracts narrowly triangular, ca. 1.1 mm, Calyx segments triangular-ovate, 2–3 × 1–1.7 mm, glabrous. Staminodes 3. Fl. and fr. Aug–Sep.

• Rocky alpine cliffs; 2800–3100 m. SW Sichuan (Muli Xian), NW Yunnan (Lijiang Xian).

Petrocosmea flaccida and P. sinensis are very closely related and may be difficult to distinguish. The largest plants of P. sinensis have leaves which fit well into P. flaccida, and the leaf shape and indument also occasionally are similar.

4. Petrocosmea sinensis Oliver, Hooker’s Icon. Pl. 18: pl. 1716. 1887.

中华石蝴蝶 zhong hua shi hu die

Bracts linear, ca. 1.5 mm; calyx segments narrowly lanceolate to linear, 1–3 × 0.3–1 mm, outside sparsely puberulent, inside glabrous; staminodes 2, ca. 1 mm .... 2a. var. oblata

1b. Bracts narrowly triangular, ca. 1.1 mm; calyx segments triangular-ovate, 2–3 × 1–1.7 mm, glabrous; staminodes 3, ca. 0.1 mm

2a. Petrocosmea oblata var. oblata

2b. Petrocosmea oblata var. latifolia
linear, 2.5–4 mm. Pedicel 1.5–3.3 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly triangular, 3.5–6 × 1–1.5 mm, outside puberulent. Corolla purple to blue, outside puberulent to sparsely puberulent, inside glabrous; tube 3–3.5 mm; adaxial lip 6.5–8 mm, distinctly 2-lobed; abaxial lip ca. 6.5 mm. Filaments ca. 1.2 mm, glabrous; anthers oblong, ca. 3 mm, beakless; staminodes 3. Pistil 0.9–1.1 cm; ovary ca. 4 mm, appressed puberulent. Style appressed puberulent to puberulent near base. Capsule 4–6 mm. Fl. Aug–Nov, fr. Aug–Dec.

• Shaded rocks in hilly regions; 400–1700 m. W Hubei, Sichuan, N Yunnan.


秦岭石蝴蝶 qin ling shi hu die
Petiole 0.5–2.5 cm, sparsely puberulent; leaf blade broadly ovate to rhombic-ovate or nearly orbicular, 0.7–3 × 0.7–2.8 cm, sparsely appressed puberulent, base broadly cuneate, margin repand to indistinctly crenate, apex rounded to obtuse; lateral veins indistinct. Cymes 1-flowered; peduncle 3–5 cm, sparsely puberulent; bracts linear-lanceolate, 1.6–2 mm. Pedicel 1.5–2 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly triangular, ca. 3.8 × ca. 1 mm, outside puberulent. Corolla purplish-blue, outside sparsely puberulent below adaxial lobes; staminodes 2. Fl. and fr. Aug.

• Shaded rocks in hilly regions; 2000–2600 m. C Yunnan.


东川石蝴蝶 dong chuan shi hu die
Petiole 0.3–3.5 cm, pilose; leaf blade ovate to nearly orbicular or elliptic, 0.5–2.5 × 0.4–1.5 cm, adaxially pilose, abaxially densely puberulent, inside glabrous or puberulent; tube 3–4 mm; adaxial lip 2.2–3 mm, distinctly 2-lobed; abaxial lip ca. 8 mm. Filaments ca. 1.2 mm, rust-brown puberulent; anthers oblong ovoid, ca. 2.5 mm, beakless; staminodes 3. Pistil 7–9 mm; ovary ca. 2 mm, puberulent. Style appressed puberulent near base. Capsule ca. 5 mm. Fl. May–Jun, fr. Jun.

• Shaded rocks in hilly regions; 700–1100 m. S Shaanxi (Mian Xian).


大花石蝴蝶 da hua shi hu die
Petiole 0.2–8.5 cm, pilose; leaf blade obovate or lanceolate to broadly ovate, 1.2–6 × 0.8–2.4 cm, adaxially sericeous, abaxially sparsely sericeous, hirsute along veins, base sometimes oblique, 1 side cuneate to broadly cuneate, other cordate to rounded or cuneate, sometimes peltate, margin shallowly crenate, apex acute to broadly acute; lateral veins conspicuous. Cymes 1–3-flowered; peduncle 2.5–5 cm, pilose; bracts linear, ca. 5 mm. Pedicel 1–1.4 cm. Calyx actinomorphic, 5-sect from base; segments equal, lanceolate, ca. 6 × 1.1 mm, outside puberulent. Corolla blue, outside puberulent near base, inside glabrous; tube ca. 6 mm; adaxial lip 0.9–1.2 cm, distinctly 2-lobed; abaxial lip 1.3–1.5 cm. Filaments ca. 4 mm, puberulent; anthers oblong, ca. 2 mm, beakless; staminodes 3. Pistil 9–10 mm; ovary ca. 2 mm, pilose. Style pilose near base, glabrous above. Fruit unknown. Fl. Dec.

• Rocks of limestone hills; ca. 2000 m. SE Yunnan (Mengzi Xian).


石蝴蝶 shi hu die
Petiole 1–8 cm, puberulent; leaf blade ovate to nearly orbicular, 0.5–2.8 × 0.4–2.2 cm, adaxially densely appressed puberulent, abaxially densely pubescent, sometimes brownish pubescent along veins, base sometimes oblique, cordate to truncate, margin crenate to shallowly crenate, apex rounded to obtuse; lateral veins abaxially sometimes conspicuous. Cymes 1(or 2)-flowered; peduncle 4.5–10 cm, puberulent; bracts narrowly ovate, ca. 1 mm. Pedicel ca. 1 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly lanceolate, 2–4 × 0.5–1 mm, outside sparsely puberulent. Corolla blue-purple, outside sparsely puberulent, inside glabrous; tube 3–5.2 mm; adaxial lip 2.2–3 mm, distinctly 2-lobed; abaxial lip ca. 8 mm. Filaments ca. 0.7 mm, rust-brown puberulent; anthers ovoid, ca. 2.5 mm, beakless; staminodes 3. Pistil 7–9 mm; ovary ca. 2 mm, puberulent. Style appressed puberulent near base. Capsule ca. 5 mm. Fl. May–Jun, fr. Jun.

• Shaded rocks in hilly regions; 700–1100 m. S Shaanxi (Mian Xian).

8b. var. intraglabra

8a. Petrocosmea mairei var. mairei

东川石蝴蝶(原变种) dong chuan shi hu die (yuan bian zhong)

Petiole 1–4 cm, puberulent; leaf blade rhombic-elliptic to broadly elliptic or nearly orbicular, 0.5–2.8 × 0.4–2.6 cm, adaxially appressed puberulent to sericeous, abaxially densely pilose, base broadly cuneate to nearly rounded, shallowly crenulate to entire, apex obtuse to rounded; lateral veins inconspicuous. Cymes 1-flowered; peduncle 4–7 cm, puberulent; bracts linear, ca. 2 mm. Pedicel ca. 1.4 cm. Calyx actinomorphic, 5-sect from base; segments equal, lanceolate, 3–4 × 0.7–1 mm, outside puberulent. Corolla blue-purple, outside sparsely puberulent, inside densely pubescent on adaxial lip; tube 3.5–4 mm; adaxial lip 3.5–5 mm, glabrous; anthers ellipsoid, ca. 0.6 mm, beakless; staminodes 3. Pistil 5–7 mm; ovary 1–2 mm, puberulent toward style. Style spreading pubescent near base. Capsule 4–5 mm. Fl. and fr. Jul.


Petiole 1–4 cm, puberulent; leaf blade broadly ovate to orbicular or broadly elliptic, 0.5–4 × 0.4–3 cm, sparsely pubescent, base broadly cuneate to nearly rounded, margin entire to crenulate-serrulate toward apex, apex obtuse to broadly acute; lateral veins inconspicuous. Cymes 1-flowered; peduncle 6–9 cm, puberulent; bracts linear, ca. 3 mm. Pedicel ca. 1.5 cm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 5 × 1 mm, outside densely puberulent. Corolla color unknown, outside puberulent. Corolla blue-purple, outside sparsely puberulent, inside densely pubescent on adaxial lip; tube 3.5–4 mm; adaxial lip 3.5–5 mm, distinctly 2-lobed; abaxial lip 7–9 mm. Filaments 1.5–2 mm, glabrous; anthers oblong, 1–2 mm, beakless; staminodes 3. Pistil 5–7 mm; ovary 1–2 mm, puberulent toward style. Style spreading pubescent near base. Capsule 4–5 mm. Fl. Sep–Oct, fr. Oct.


Petiole to 4 cm, puberulent; leaf blade broadly ovate to orbicular or broadly elliptic, 0.5–4 × 0.4–3 cm, sparsely pubescent, base broadly cuneate to nearly rounded, margin entire to crenulate-serrulate toward apex, apex obtuse to broadly acute; lateral veins inconspicuous. Cymes 1-flowered; peduncle to 6 cm, puberulent; bracts subulate to linear-lanceolate, 1–3 mm. Pedicel ca. 1.5 cm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 5 × 1 mm, outside densely puberulent. Corolla color unknown, outside sparsely pubescent; tube ca. 4.5 mm; adaxial lip ca. 5 mm, distinctly 2-lobed; abaxial lip 7–8 mm. Filaments ca. 1 mm, glabrous; anthers ovoid-oblong, ca. 2 mm, beakless; staminodes 3. Pistil ca. 1.2 cm; ovary ca. 5 mm, puberulent. Style spreading pubescent near base. Capsule ca. 5 mm. Fl. Sep–Oct, fr. Oct.


Petiole to 4 cm, puberulent; leaf blade broadly ovate to orbicular or broadly elliptic, 0.5–4 × 0.4–3 cm, sparsely pubescent, base broadly cuneate to nearly rounded, margin entire to crenulate-serrulate toward apex, apex obtuse to broadly acute; lateral veins inconspicuous. Cymes 1-flowered; peduncle to 6 cm, puberulent; bracts subulate to linear-lanceolate, 1–3 mm. Pedicel ca. 1.5 cm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 5 × 1 mm, outside densely puberulent. Corolla color unknown, outside puberulent. Corolla blue-purple, outside sparsely puberulent, inside densely pubescent on adaxial lip; tube ca. 3.5 mm; adaxial lip 3.5–5 mm, distinctly 2-lobed; abaxial lip 7–9 mm. Filaments ca. 1 mm, glabrous; anthers oblong, 1–2 mm, beakless; staminodes 3. Pistil ca. 1.2 cm; ovary ca. 5 mm, puberulent. Style spreading pubescent near base. Capsule ca. 5 mm. Fl. Sep–Oct, fr. Oct.

秋海棠叶石蝴蝶 qiu hai tang ye shi hu die
Petiole 1.2–5.5 cm, puberulent; leaf blade obliquely ovate to nearly orbicular, 0.5–4 × 0.6–3 cm, puberulent, base cordate to truncate, margin crenulate-denticulate to remotely serrate, apex obtuse to acute; lateral veins indistinct. Cymes 1( or 2)–flowered; peduncle 2.5–6.5 cm, puberulent; bracts linear, 1–4 mm. Pedicel 1–4 mm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 1.8–2.9 × 0.6–1.2 mm, outside puberulent, inside glabrous; tube 2.2–3 mm; adaxial lip 0.7–1.5 mm, distinctly 2-lobed; abaxial lip 2–2.8 mm. Filaments 1–1.2 mm, glabrous; anthers triangular, ca. 1 mm, beakless; staminode 1. Pistil ca. 4.5 mm; ovary ca. 1.3 mm, densely puberulent. Style glabrous. Fruit unknown. Fl. Apr.


四川石蝴蝶 si chuan shi hu die
Petiole 0.3–2.5 cm, puberulent; leaf blade ovate to broadly ovate, seldom elliptic, 4–17 × 4–12 mm, puberulent to densely puberulent, base cordate to broadly cuneate, sometimes peltate, margin crenulate to subentire, apex broadly acute to obtuse; lateral veins inconspicuous. Cymes 1-flowered; peduncle 2.2–5 cm, puberulent; bracts unknown. Calyx actinomorphic, 5-sect from base; segments equal, lanceolate, 2–2.5 × 0.8–1 mm, outside puberulent. Corolla white, outside sparsely puberulent, inside glabrous; tube 7–8 mm; adaxial lip 3.5–5 mm, distinctly 2-lobed; abaxial lip 6.5–8 mm. Filaments ca. 3 mm, densely pubescent; anthers nearly globose, ca. 2.5 mm, beakless; staminodes 2. Pistil 7–10 mm; ovary 3.5–5 mm, sparsely pubescent. Style glabrous. Capsule ca. 1.3 cm. Fl. and fr. Apr.–May.


汇药石蝴蝶 hui yao shi hu die
Petiole 0.1–1.7 cm, spreading puberulent; leaf blade broadly ovate to nearly orbicular, 4–6 × 4–9 mm, densely puberulent, base nearly cordate, margin crenulate, apex rounded to obtuse; lateral veins indistinct. Cymes 1-flowered; peduncle 1.5–2.4 cm, spreading puberulent; bracts linear, ca. 1 mm. Pedicel 2–7 mm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 1.8–2.9 × 0.6–0.9 mm, outside densely puberulent. Corolla blue, outside puberulent, inside glabrous; tube 2.2–3 mm; adaxial lip 0.7–1.5 mm, distinctly 2-lobed; abaxial lip 2–2.8 mm. Filaments 1–1.2 mm, glabrous; anthers triangular, ca. 1 mm, beakless; staminode 1. Pistil ca. 4.5 mm; ovary ca. 1.3 mm, densely puberulent. Style glabrous. Fruit unknown. Fl. Apr.


蓝石蝴蝶 lan shi hu die
Petiole 1.5–2.7 cm, densely apressed puberulent; leaf blade slightly oblique, oblong to elliptic or elliptic-ovate, 1–6.6 × 0.7–2.2 cm, densely apressed puberulent, base peltate, margin nearly entire to indistinctly few repand-crenate, apex slightly obtuse; lateral veins abaxially slightly impressed. Cymes 1-flowered; peduncle 1.5–2.2 cm, spreading puberulent; bracts linear, 1–1.2 mm. Pedicel 1–1.5 cm. Calyx actinomorphic, 5-sect from base; segments equal, lanceolate-linear, 3–3.2 × ca. 1 mm, outside puberulent. Corolla blue, outside puberulent, inside glabrous; tube ca. 4.5 mm; adaxial lip ca. 3.5 mm, distinctly 2-lobed; abaxial lip ca. 6 mm. Filaments ca. 1.2 mm, puberulent above; anthers cordate-ovoid, ca. 2.2 mm, beakless; staminodes 2. Pistil ca. 8 mm; ovary ca. 2.5 mm, puberulent. Style glabrous. Fruit unknown. Fl. Apr.


蒙自石蝴蝶 meng zi shi hu die
Petiole 2–6(–8) cm, matted hirsute; leaf blade ovate to nearly orbicular, 1.5–3.8(–4.9) × 1–4.5 cm, adaxially hirsute, abaxially velutinous, base cordate, margin denticulate to crenulate or serrate, apex broadly acute; lateral veins abaxially conspicuous. Cymes (1 or)2–4-flowered; peduncle 4–7.5 cm, pubescent; bracts linear, 2.5–4 mm. Pedicel 0.4–1.6 cm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly lanceolate, 5–7 × 1–1.2 mm, outside villous. Corolla blue-purple, outside sparsely puberulent, inside glabrous; tube ca. 6.5 mm; adaxial lip ca. 3 mm, indistinctly 2-lobed; abaxial lip ca. 1.2 cm. Filaments 2.2–2.5 mm, puberulent; anthers ellipsoid, ca. 3 mm, beakless; staminodes 2. Pistil ca. 9 mm; ovary 2–2.5 mm, densely puberulent. Style glabrous. Capsule 7–11 mm. Fl. May, Nov, fr. Nov.


滇黔石蝴蝶 dian qian shi hu die
Petiole 0.5–3.5 cm, spreading hirsute; leaf blade ovate to orbicular-ovate, 0.7–2(–2.6) × 0.5–1.5(–1.9) cm,
adaxially pilose, abaxially densely pilose, base cordate to rounded, margin crenulate to denticulate, apex rounded to obtuse; lateral veins inconspicuous. Cymes 1(or 2)-flowered; peduncle 3–5 cm, pilose; bracts linear, 1–2 mm. Pedicel 3–14(–19) mm. Calyx actinomorphic, 5-sect from base; segments equal, narrowly lanceolate, 2.5–3 × 0.8–1.5 mm, outside puberulent. Corolla blue-purple, outside puberulent, inside glabrous; tube to 3 mm; adaxial lip ca. 3 mm, indistinctly 2-lobed; abaxial lip ca. 8.5 mm. Filaments 2–3 mm, rust-brown puberulent or glabrous; anthers oblong, ca. 2 mm, beakless; staminodes 2. Pistil 6–8 mm; ovary 1.5–2 mm, puberulent. Style glabrous. Capsule 3.5–5(–7) mm. Fl. and fr. May–Jun.

1a. Filaments rust-brown puberulent

1b. Filaments glabrous

19a. Petrocosmea martinii var. martinii

19b. var. leiandra

19a. Petrocosmea martinii var. martinii 滇黔石蝴蝶 (原变种) dian qian shi hu die (yuanshui zhong)


丝毛石蝴蝶 si mao shi hu die

Petiole 1–4 cm, densely brownish yellow appressed puberulent; leaf blade elliptic to ovate, 1.5–6.5 × 0.8–3.5(–4) cm, brownish yellow appressed puberulent, base broadly cuneate to cuneate, margin nearly entire to repand-crenate, apex broadly acute; lateral veins abaxially conspicuous. Cymes 1–3-flowered; peduncle 5.5–7 cm, densely brownish yellow appressed puberulent; bracts linear, 3–6 mm. Pedicel 4–12 mm. Calyx actinomorphic, 5-sect from base; segments equal, linear, 5.5–6 × ca. 1 mm, outside densely brownish yellow appressed puberulent. Corolla purple-blue, outside sparsely puberulent, inside glabrous; tube ca. 5 mm; adaxial lip ca. 5 mm, indistinctly 2-lobed; abaxial lip ca. 8 mm. Filaments ca. 3 mm, minutely hispid; anthers ca. 1 mm, beakless; staminodes 2: Pistil ca. 1 cm; ovary ca. 3 mm, appressed puberulent. Style sparsely puberulent near base. Capsule to 1.2 cm. Fl. Oct, fr. Nov–Jan.


小石蝴蝶 xiao shi hu die

Petrocosmea henryi Craib.

Petiole 0.5–5(–7) cm, whitish to tan densely pubescent; leaf blade oblique to elliptic-ovate, 7.5–8.5 × 5–6 cm, adaxially rust-brown pubescent, abaxially densely pubescent along midrib and lateral veins, base sometimes oblique, rounded to cuneate on 1 side, rounded on other, margin irregularly dentate, apex broadly acute to obtuse; lateral veins abaxially conspicuous. Cymes ca. 3-flowered; peduncle ca. 8 cm, rust-brown pubescent; bracts subulate to lanceolate, 3–4 mm. Pedicel 1.1–1.4 cm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 5–6 × ca. 1.5 mm, outside rust-brown pubescent. Corolla purple with whitish base, outside pubescent, inside glabrous; tube 2.5–5 mm; adaxial lip 2–4 mm, indistinctly 2-lobed; abaxial lip 0.8–1.2 cm. Filaments ca. 2.2 mm, densely brown puberulent near apex; anthers narrowly ovoid, ca. 3 mm, beakless; staminodes 2. Pistil 8–11 mm; ovary 2–3 mm, appressed puberulent. Style appressed puberulent near base. Capsule 5–8(–10) mm. Fl. and fr. Aug–Nov.


孟连石蝴蝶 menglian shi hu die

Petiole 1.4–10 cm, rust-brown villous; leaf blade oblique, elliptic to elliptic-ovate, 7.5–8.5 × 5–6 cm, adaxially rust-brown pubescent, abaxially rust-brown pubescent along midrib and lateral veins, base sometimes oblique, rounded to cuneate on 1 side, rounded on other, margin irregularly dentate, apex broadly acute to obtuse; lateral veins abaxially conspicuous. Cymes ca. 3-flowered; peduncle ca. 8 cm, rust-brown pubescent; bracts subulate to lanceolate, 3–4 mm. Pedicel 1.1–1.4 cm. Calyx actinomorphic, 5-sect from base; segments equal, linear-lanceolate, 5–6 × ca. 1.5 mm, outside rust-brown pubescent. Corolla white, inside blackish near mouth, outside sparsely white puberulent, inside with small scales; tube ca. 3 mm; adaxial lip ca. 3.5 mm, distinctly 2-lobed; abaxial lip ca. 4 mm. Filaments ca. 1 mm, puberulent; anthers broadly ellipsoid, ca. 3 mm, beaked ca. 0.5 mm; staminodes 3. Pistil ca. 5.5 mm; ovary ca. 2.5 mm, minutely villous. Style glabrous. Fruit unknown. Fl. Aug.


*Damrongia kerrii* (Craib) Pellegrin; *Petrocosmea wardii* W. W. Smith.

Calyx with abaxial 2 lobes narrowly triangular, outside puberulent, margin denticulate to subentire with very small, narrowly triangular teeth, abaxial 2 lobes narrowly triangular

1. Calyx puberulent outside, margin denticulate to subentire with very small, narrowly triangular teeth, abaxial 2 lobes narrowly triangular ........................................................ 24a. var. *kerrii*

2. Calyx woolly outside, margin denticulate with small, deltoid teeth, abaxial 2 lobes triangular to ovate-rhombic .......................... 24b. var. *crinita*


*Damrongia kerrii* (Craib) Pellegrin; *Petrocosmea wardii* W. W. Smith.

Calyx with abaxial 2 lobes narrowly triangular, outside puberulent, margin denticulate to subentire with very small, narrowly triangular teeth. Fl. Jun, Sep.

Rocks in forests; 1900–3100 m. SW Yunnan [N Myanmar, N Thailand].


Calyx with abaxial 2 lobes triangular to ovate-rhombic, outside woolly, margin denticulate with small, deltoid teeth. Fl. Jul.

*Forests; ca. 1500 m. S Yunnan (Mengzi Xian).*

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**盾叶苣苔属** dun ye ju tai shu

Herbs, perennial, epipetric, rhizomatous, stemless. Leaves few to many, basal; leaf blade sparsely puberulent, base rounded, peltate. Inflorescences lax, axillary, 1- or 2(-7)-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white, zygomorphic, inside glabrous; tube tubular, not swollen, longer than limb, ca. 3 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers nearly dorsiﬁxed, free, thecae divaricate, not conﬂuent, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to abaxial side of corolla tube. Disc absent. Ovary broadly ovoid, 1-loculed; placentas 2, parietal, slightly projecting inward and divaricate. Stigma 1, terminal, capitate, undivided. Capsule straight in relation to pedicle, nearly globose, slightly surpassing calyx, dehiscing loculicidally to near middle; valves 2, straight, not twisted. Seeds unappendaged.

*One species: endemic to China.*


*盾叶苣苔* dun ye ju tai shu

Petiole 0.6–2(–5) cm, puberulent; leaf blade ovate to broadly ovate, 1.2–2(–4.5) × 0.5–1.5(–2.5) cm, margin repand to entire, apex obtuse to rounded. Peduncle 2.5–4(–8) cm, puberulent; bracts narrowly triangular to linear, 0.7–1 mm. Calyx segments lanceolate to narrowly ovate, 1.5–2.5 × 0.7–1 mm, outside pubescent. Corolla ca. 8 mm; tube ca. 4.5 mm; adaxial lip ca. 2.2 mm; abaxial lip ca. 3.5 mm. Filaments ca. 1.8 mm, glabrous; anthers ca. 1 mm, white villous; staminodes ca. 0.25 mm. Ovary ca. 1 mm, densely appressed puberulent. Style 4–6 mm, glabrous. Capsule ca. 3 mm in diam. Fl. Dec–Feb.

- Streamside rocks in forests in hilly regions; 300–700 m. Hainan.


**全唇苣苔属 quan chun ju tai shu**

Herbs, perennial, terrestrial or epipetric, rhizomatous, stemless. Leaves many, basal; leaf blade puberulent to pubescent, rarely woolly, base broadly cuneate to subrounded. Inflorescences lax, axillary, 2–8-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white to purplish, zygomorphic, inside glabrous; tube tubular to funnelform-tubular, not swollen, longer than limb, ca. 4 mm in diam.; limb 2-lipped; adaxial lip undivided, 1.5–4 × shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal or central lobe longer, apex rounded. Stamens 2, adnate to abaxial side of corolla tube above middle, exserted; anthers basifixed, free or coherent at apex, thecae parallel, not confluential, dehiscing longitudinally; connective not projecting; staminodes 3 or absent, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, not projecting inward, 2-cleft. Stigma 1, terminal, truncate to depressed capitate, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

- Two species: endemic to China.

1a. Leaf blade leathery, 2.2–4 cm, abaxially sparsely rust-brown pubescent, margin crenate; lateral veins ca. 4 on each side of midrib, indistinct; calyx segments 1.9–2.4 mm, margin entire; adaxial corolla lip shallowly erose apically; anthers coherent at apex; staminodes 3 ........................... 1. **D. sichuanense**

1b. Leaf blade herbaceous, 2.5–8 cm, abaxially sparsely white puberulent, midrib and lateral veins brown woolly, margin double dentate to crenate; lateral veins 6–8 on each side of midrib, slightly prominent abaxially; calyx segments 2.5–3.5 mm, margin sparsely denticulate; adaxial corolla lip entire; anthers free; staminodes absent .......................... 2. **D. jiangxiense**


**全唇苣苔 quan chun ju tai**

Petiole 0.2–6 cm; leaf blade ovate to oblong ovate, 2.2–4 × 1.4 cm, leathery, adaxially sparsely pubescent, abaxially sparsely rust-brown pubescent, base broadly cuneate to nearly rounded, margin crenate, apex narrowly obtuse; lateral veins ca. 4 on each side of midrib, indistinct. Cymes 5–8-flowered; peduncle 5–6.2 cm, sparsely yellow villous and glandular puberulent. Pedicel 0.9–5 cm. Calyx segments linear to narrowly triangular, 1.9–2.4 mm, outside sparsely pubescent, margin entire. Corolla 1.3–1.5 cm, outside puberulent; tube ca. 1.1 cm; adaxial lip ca. 1.8 × 3 mm, shallowly erose at apex; abaxial lip 3.2–3.8 × ca. 7.5 mm. Stamens 1–1.1 cm; anthers coherent at apex; staminodes 3, 2.5–3.8 mm. Pistil ca. 1.1 cm, glabrous. Style ca. 2.5 mm. Capsule ca. 3.8 cm. Fl. Aug.

- Rocky cliffs in hilly regions. E Sichuan (Wuxi Xian).


**江西全唇苣苔 jiang xi quan chun ju tai**

Petiole 0.5–7 cm; leaf blade oblique, elliptic to obovate, 2.5–8 × 1.3–4.8 cm, herbaceous, adaxially white appressed puberulent, abaxially sparsely white puberulent, midrib and lateral veins brown woolly, base slightly oblique, broadly cuneate to nearly rounded, margin double dentate to crenate, apex obtuse to rounded; lateral veins 6–8 on each side of midrib, abaxially slightly prominent. Cymes 2–8-flowered; peduncle 6–12 cm, spreading puberulent and glandular puberulent. Pedicel 0.8–2 cm. Calyx segments linear to spatulate-linear, 2.5–3.5 mm, outside puberulent, margin sparsely denticulate. Corolla light purple, ca. 1.5 cm, outside glandular puberulent adaxially, more so apically; tube ca. 1.1 cm; adaxial lip ca. 1 × 4 mm, entire; abaxial lip ca. 4 × 5.5 mm. Stamens ca. 1.4 cm; anthers free; staminodes absent. Pistil ca. 9.5 mm, glabrous. Style ca. 3.3 mm. Capsule unknown. Fl. Jul, Oct.

- Montane regions; ca. 1200 m. SE Jiangxi (Xunwu Xian).

细筒苣苔属  xi tong ju tai shu

Herbs, perennial, terrestrial or epipetric, rhizomatous, stemless. Leaves few to many, basal; leaf blade pubescent to hispid, base rounded to cordate. Inflorescences lax, axillary, few- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla purple, zygomorphic, inside strigose or puberulent; tube cylindric, not swollen, much longer than limb, 3–4 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, ca. 2 × shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex acute. Stamens 2, adnate to above middle of abaxial side of corolla tube, included; anthers dorsifixed, coherent adaxially, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 3, adnate to adaxial side of corolla tube. Disc cupular or ringlike. Ovary linear, 1-loculed; placentas 2, parietal, projecting slightly inward, 2-cleft. Stigmas 2, equal, oblate, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds unknown.

• Two species: endemic to China.

1a. Leaves and peduncle spreading or appressed hispid; leaf blade margin shallowly crenulate; bracts 1.4–2.5 cm; corolla tube ca. 2.2 cm, upper lip 4–5 mm; filaments glabrous; petiole to 14.2 cm ........................... 1. *L. hispidus*

1b. Leaves and peduncle spreading or appressed pubescent; leaf blade margin entire, seldom undulate; bracts 0.3–0.8 cm; corolla tube 1.5–1.6 cm, upper lip ca. 9 mm; filaments puberulent and glandular puberulent; petiole to 8.5 cm ................................................................ ................................ ........................... 2. *L. integrifolius*


全缘叶细筒苣苔  quán yuán yè xi tong ju tai

Petiole 2–14.2 cm, spreading hispid; leaf blade slightly oblique, broadly ovate to orbicular, 4.5–11 × 4–13 cm, white appressed hispid, margin shallowly crenulate, apex rounded. Peduncle 3.5–5 cm, hispid; bracts elliptic to oblong, 1.4–2.5 cm, sparsely hispid. Calyx segments narrowly triangular, 7–8 × 0.8–1.2 mm, outside sparsely hispid. Corolla 2.5–3 cm; tube ca. 2.2 cm; adaxial lip 4–5 mm; abaxial lip 7–9 mm, lobes triangular. Stamens ca. 3.7 mm, glabrous; staminodes 0.4–1.5 mm. Pistil 1.2–1.8 cm, puberulent and glandular puberulent. Style ca. 1.3 cm. Fruit unknown. Fl. Aug.

• Evergreen broad-leaved forests on slopes; ca. 1500 m. SE Yunnan (Xichou Xian).


全缘叶细筒苣苔  quán yuán yè xi tong ju tai

Petiole 2–8.5 cm, spreading pubescent; leaf blade ovate to orbicular, 3–13 × 2–10.5 cm, appressed pubescent, margin entire, seldom undulate, apex obtuse to rounded. Peduncle 3–6 cm, densely spreading pubescent; bracts oblong to lanceolate, 3–8 mm, puberulent. Calyx segments narrowly triangular, 7–11 × 1–1.5 mm, outside pubescent. Corolla inside with 3 dark purple lines, 2.5–2.7 cm; tube 1.5–1.6 cm; adaxial lip ca. 9 mm; abaxial lip ca. 1.2 cm, lobes triangular. Stamens ca. 5 mm, puberulent and glandular puberulent; anthers glabrous; staminodes 0.5–1.5 mm. Pistil ca. 1.6 cm; ovary spreading glandular puberulent. Style ca. 1.1 cm, glandular puberulent. Capsule (possibly immature) 0.9–1.5 cm. Fl. Jun.

• Limestone hills; ca. 500 m. SW Guangxi (Longzhou Xian).

### 31. PRIMULINA Hance, J. Bot. 21: 169. 1883.

报春苣苔属  bao chun ju tai shu

Herbs, perennial, terrestrial or epipetric, rhizomatous, stemless. Leaves few, basal; leaf blade puberulent, base cordate. Inflorescences umbel-like, dense, axillary, 3–9-flowered cymes; bracts 2, opposite. Calyx actinomorphic, deeply 5-lobed; segments equal. Corolla pale purple, lobes with purple central stripe and apical band, zygomorphic, inside puberulent, nearly salverform; tube cylindric, not swollen, longer than limb, ca. 3 mm in diam.; limb indistinctly 2-lipped; adaxial lip 2-lobed, slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded, erose. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers dorsifixed, coherent, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 3, adnate to adaxial side of corolla tube. Disc of 2 glands, ringlike. Ovary narrowly ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, abaxial, narrowly obtapeziform, 2-lobed. Capsule straight in relation to pedicel, ellipsoid, shorter than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

• One species: endemic to China.

1. **Primulina tabacum** Hance, J. Bot. 21: 169. 1883.

报春苣苔  bao chun ju tai

Primulina sinensis J. D. Hooker.
Petiole with wide, undulate marginal wings, 2.5–14 × 0.4–1.2 cm, sparsely puberulent; leaf blade broadly ovate, 5–12 × 4–12.5 cm, adaxially appressed puberulent, abaxially sparsely puberulent, margin deeply lobed, sometimes undulate, lobes occasionally toothed, apex broadly acute to obtuse, subpalmately veined; lateral veins 2 or 3 on each side of midrib. Peduncle 7–11 cm, puberulent; bracts narrowly lanceolate, 4–10(–15) × ca. 1 mm. Calyx 4–6.5 mm; tube to 1 mm; lobes narrowly triangular, 3–5.5 × 0.8–1.5 mm, puberulent. Corolla tube ca. 9 × 3 mm; limb spreading, ca. 1.6 cm in diam.; adaxial lip ca. 7 mm; abaxial lip ca. 9 mm, all lobes ovate, 7–9 mm. Stamens glabrous; filaments 0.8–1.4 mm; anthers ca. 1.5 mm; staminodes 0.2–0.3 mm. Pistil 2.6–5.8 mm, puberulent. Style 1–2 mm. Capsule 3.2–6 mm. Fl. Aug–Oct.


Herbs, perennial or rarely annual, terrestrial or epipetric, often rhizomatous, stemless or with simple or branched stems. Leaves few to many, basal or along stem and opposite, seldom in whorls of 3 or alternate, unequal to equal in a pair; leaf blade puberulent to villous or velutinous, rarely glabrous, base cuneate to cordate, rarely attenuate. Inflorescences umbel-like, lax or dense, axillary, 1- to many-flowered cymes; bracts 2, opposite, rarely to 7 and whorled, 1, or absent. Calyx actinomorphic or slightly zygomorphic, 5-sect from base or (3–5)-lobed; segments equal to subequal. Corolla purple to blue or white to yellow, pink or purple-red, rarely flesh colored, zygomorphic, inside puberulent, glandular puberulent, or glabrous; tube funnelform-tubular to campanulate or cylindrical, not swollen or gibbous abaxially, longer than limb, 0.2–2 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, slightly to 2–3.5 × shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded, rarely to obtuse. Stamens 2, adnate to abaxial side of corolla tube near or above middle, included; anthers dorsifixum, coherent, thecae divericate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes (absent or 1–3), adnate to adaxial or adaxial and abaxial sides of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, projecting inward, seldom 2-loculed, abaxial locule sterile, or placenta 1, axile, projecting inward, 2-cleft. Stigma 1, abaxial, obtriangular to oblong, flabellate, obtuate, or lamelliform, 2-lobed to undivided. Capsule straight, rarely oblique in relation to pedicel, linear to very narrowly ovoid, much surpassing calyx, dehiscing loculicidally to base, rarely only adaxial locule dehiscing; valves 2 or 4, straight, not twisted. Seeds unappendaged.

About 140 species: Bhutan, Borneo, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam; 99 species in China. Chirita is divided into three sections: Chirita sect. Gibbosaccus C. B. Clarke (approximately 91 species in China and Vietnam; sp. 99 in China). The last section consists of annuals (rarely perennials) with peduncles ± fused to the petiole and anthers fused only by projections on their connectives. The first two sections are usually perennials (rarely annuals) with peduncles free from petioles and anthers fused by their entire adaxial surfaces. Section Gibbosaccus has calyces 5-sect from base or rarely 5-lobed and stigmas 0.5–3 mm wide, while sect. Chirita has 5-lobed calyces and stigmas 2.4–5.8 mm wide.

Chirita umbrophila C. Y. Wu ex H. W. Li (Bull. Bot. Res., Harbin 3(2): 38. 1983), which is known only from a fruiting specimen without persistent stigma, is impossible to determine whether it belongs in Chirita or not. In these characters needs further study to determine their taxonomic value.

Observations of several cultivated species of Chirita show that the basal leaves may be ternate as well as opposite, and this may be true of others. The margin of calyx lobes, which is of diagnostic significance in several species, varies from entire to denticulate on a single cultivated plant of C. fimbrisepalu. Therefore, variation in these characters needs further study to determine their taxonomic value.

1a. Peduncle often fused with petiole; anthers fused by projections on connectives; plants annual ....... 99. C. hamosa
1b. Peduncle never fused with petiole; anthers fused along entire adaxial surface (anthers unknown in some species); plants perennial, rarely annual.

2a. Calyx with a tube, 5-lobed, rarely 5-sect from near base.
2a. Calyx with a tube, 5-lobed, rarely 5-sect from near base.
3a. Plants stemless, or stems prostrate and rooting at nodes.

3a. Plants stemless, or stems prostrate and rooting at nodes.
4a. Calyx ca. 1.5 mm; corolla 0.9–1.5 cm ................................................................. 64. C. hedyotidea
4b. Calyx 7–35 mm; corolla 1.7–7 cm.
5a. Petiole to 1.5 cm wide; apical internodes of rhizome to 2.2 cm .............................. 36. C. heterotricha
5b. Petiole to 0.4 cm wide; apical internodes of rhizome inconspicuous, or plants not rhizomatous.
6a. Leaf blade lateral veins 4 or 5 on each side of midrib.
7a. Calyx tube 5–10 mm; ovary sparsely glandular puberulent; leaf blade adaxially with hairs to 1.2 mm ............................................................................................... 83. C. monantha
7b. Calyx tube 1–3 mm; ovary glabrous; leaf blade adaxially with hairs 1–6.5 mm.

8a. Peduncle ca. 4 cm; calyx ca. 2.3 cm, 5-lobed, lobes equal; leaf blade adaxially with hairs 1–3 mm, apex acute to obtuse; style sparsely glandular puberulent; flowers always solitary .................................................. 82. C. briggsioides

8b. Peduncle 3–8(–11) cm; calyx 1–1.7 cm, 2-lipped, adaxial lip 4-lobed, abaxial lip entire; leaf blade adaxially with hairs 3–6.5 mm, apex obtuse to rounded; style glabrous; flowers solitary or sometimes paired .................................................. 84. C. dielsii

6b. Leaf blade lateral veins 6–12 on each side of midrib.

9a. Calyx segments hollow and hornlike apically; petiole 4–5 cm; leaf blade base cuneate on 1 side, broadly cuneate to rounded on other; lateral veins 7–12 on each side of midrib; peduncle 3–5 cm ........................................... 86. C. corniculata

9b. Calyx segments not hollow and hornlike apically; petiole 1.8–40 cm; leaf blade base rounded to cordate or oblique, cuneate to cordate on 1 side, rounded to cordate on other; lateral veins 6–9 on each side of midrib; peduncle 3.5–25 cm.

10a. Calyx 0.9–1.5 cm, tube 1–7 mm; corolla 1.7–4.5 cm; bract 1 .................................. 87. C. lachenensis

10b. Calyx 1.1–3 cm, tube 5–11 mm; corolla 4.4–7 cm; bracts 2 or rarely 1.

11a. Flowers always solitary; bract margins entire; calyx lobes slightly unequal .......... 85. C. fruticola

11b. Cymes 1–6-flowered; bract margins entire to dentate or serrulate; calyx lobes unequal.

12a. Petiole 1.8–17(–24) cm; peduncle rust-colored pubescent and villous; bracts narrowly ovate or oblong, 1–4 mm wide, rust-colored villous; corolla sparsely puberulent to sparsely pilose outside, tube narrowly funnelform; anthers densely puberulent; staminode 1 89. C. speciosa

12b. Petiole 13–40 cm; peduncle sparsely pubescent; bracts ovate or elliptic to suborbicular, 1–10 mm wide, sparsely pubescent; corolla glabrous outside, tube tubular; anthers glabrous; staminodes 3 .......................................................... 90. C. macrophylla

3b. Plants stemmed, stems ± erect.

13a. Petiole to 1.5 cm wide; apical internodes of rhizome to 2.2 cm ...................... 36. C. heterotricha

13b. Petiole to 0.4 cm wide; rhizome usually without conspicuous internodes, or plants not rhizomatous (rarely rhizomes unknown).

14a. At least upper 2 pairs of stem leaves crowded at stem apex.

15a. Stem leaves alternate, abaxially often purplish, especially along veins; stems rust-colored pilose ................................................................. 89. C. speciosa

15b. Stem leaves opposite, abaxially green; stems white villous or glabrescent to glabrous.

16a. Flowers 1–10 in umbel-like fascicles in leaf axils, peduncle absent; bracts ca. 7, 6–15 mm; pedicel to 2.5 cm; calyx 1–1.4 cm, tube ca. 3 mm; anthers ca. 2 mm; ovary puberulent; stigma undivided .......................................................... 95. C. fasciculiflora

16b. Flowers 1 or 2 per inflorescence, peduncle 1–6 cm; bracts 2, 0.5–1.7 mm; pedicel 3–5(–8.5) cm; calyx 2.4–3 cm, tube 13–19 mm; anthers ca. 4.5 mm; ovary glabrous; stigma 2-lobed 96. C. shuii

14b. Stem leaves ± widely spaced.

17a. Bracts connate, forming a funnelform involucre ............................................. 94. C. infundibuliformis

17b. Bracts free.

18a. Stem leaves alternate ...................................................................................... 97. C. pycnantha

18b. Stem leaves opposite.

19a. Bracts ovate-orbicular to subreniform, at least slightly wider than long; calyx 2-lipped, adaxial lip 4-lobed, abaxial lip entire .......................................................... 98. C. puerensis

19b. Bracts lanceolate to ovate or obovate or elliptic to suborbicular, longer than wide; calyx 5-lobed, lobes equal or unequal, but not 2-lipped.

20a. Petiole 13–40 cm; leaves basal and on stem ................................................. 90. C. macrophylla

20b. Petiole 0.2–7 cm; leaves all on stem.
21a. Leaf blade abaxially densely yellow glandular; lateral veins 8–13 on each side of midrib;
anthers ca. 1.5 mm .......................................................... 88. *C. oblongifolia*

21b. Leaf blade eglandular; lateral veins 5–10 on each side of midrib; anthers 2–4 mm.

22a. Plants perennial; calyx 2.5–3.5 cm, tube 1–1.5 cm, lobes 1–2 cm; capsule often at under
90° to peduncle .......................................................... 91. *C. urticifolia*

22b. Plants annual; calyx 0.6–1.8 cm, tube 0.3–1.2 cm, lobes 0.4–1 cm; capsule always erect.

23a. Leaf blade not purple spotted; calyx lobes not hornlike, not spreading outward at apex;
petiole 0.2–4(–7) cm .......................................................... 92. *C. anachoreta*

23b. Leaf blade purple spotted abaxially; calyx lobes hornlike at apex, spreading;
petiole 0.4–1.2(–2.8) cm .......................................................... 93. *C. pumila*

2b. Calyx without a tube, 5-sect from near base.

24a. Leaf blade margin shallowly to deeply pinnately lobed.

25a. Leaf blade margin deeply dentate or pinnately compound, lateral lobe margin deeply crenate or serrate to entire; lateral veins 3–10 on each side of midrib; pedicel spreading and appressed villous; calyx margin denticulate; stigma emarginate .......................................................... 58. *C. pinnata*

25b. Leaf blade margin simple, irregularly pinnately lobed or dentate to pinnately lobed basally or crenate; lateral veins 3–5 on each side of midrib; pedicel pubescent to pilose, sometimes glandular puberulent; calyx margin entire or 1- or 2(or 3)-denticulate; stigma 2-lobed.

26a. Leaf blade margin irregularly pinnately lobed; cymes 1–4-flowered; bracts oblong or ovate to obovate, 1.5–8(–10) mm wide; calyx segments 3–7 mm, margin 1- or 2(or 3)-denticulate; ovary ca. 1.4 cm; capsule at ca. 90° to peduncle, ca. 3–4 cm ........................................ 57. *C. pinnatifida*

26b. Leaf blade margin to lobed basally or crenate; cymes 2–12-flowered; bracts lanceolate-linear, 0.6–1.2 mm wide; calyx segments 4–13 mm, margin entire; ovary 4–8 mm; capsule erect, 0.9–1.3 cm .................................................... 41. *C. juliae*

24b. Leaf blade margin not lobed.

27a. Leaf blade glabrous, margin finely spiny denticulate, lanceolate-linear, seldom falcate.

28a. Cyme 2- or 3-flowered; bracts 3.0–3.5 cm; calyx 10–12 mm, segment apex attenuate; corolla 4.5–5 cm; staminodes 3 .......................................................... 65. *C. wentsaii*

28b. Cyme 5–9-flowered; bracts 0.2–1.2 cm; calyx 1.5–5 mm, segment apex acute; corolla 1.3–2 cm; staminodes 2.

29a. Bracts linear to lanceolate-linear, 9–12 mm; peduncle ca. 6 cm; pedicel 2–2.5 cm; calyx segments lanceolate-linear, 4–5 mm; corolla ca. 2 cm ........................................ 66. *C. ophiopogoides*

29b. Bracts narrowly triangular, 2–2.5 mm; peduncle ca. 20 cm; pedicel 0.15–0.6 cm; calyx segments triangular, ca. 1.5 mm; corolla 1.3 cm ........................................ 67. *C. spinulosa*

27b. Leaf blade sparsely puberulent or stigose to densely pubescent, pilose, or villous, sometimes only along veins, margin entire to crenate, dentate, repand, serrate, undulate, denticulate, or rarely lobed, but not spiny denticulate; ovate, elliptic, reniform, narrowly elliptic, obovate, or oblong, seldom linear.

30a. Plants with a stem.

31a. Leaves alternate; anthers densely puberulent or woolly.

32a. Capsule erect, 3–3.6 cm; cymes 1- or 2-flowered; corolla glabrous inside, adaxial lip exceeding abaxial lip; ovary ca. 18 mm; stigma emarginate; leaf blade 1.5–8.5 cm, base oblique, cuneate to cordate, not peltate .......................................................... 70. *C. minutihamata*

32b. Capsule at ca. 90° to peduncle, 1.5–2 cm; cymes 2–11-flowered; corolla glandular puberulent basally inside adaxial lip, abaxial lip exceeding adaxial lip; ovary 7–9 mm; stigma 2-lobed; leaf blade 3–15 cm, base oblique, rounded to cordate on 1 side, cuneate on other, often slightly peltate .......................................................... 71. *C. cyrtocarpa*

31b. Leaves opposite; anthers glabrous.

33a. Corolla glandular, puberulent, or glandular puberulent on yellow spot or on adaxial lip inside; petiole 0.5–11 cm; leaf blade 3–26 × 1.5–14 cm; cymes 2–28-flowered; peduncle 4.4–35 cm; bracts 0.9–25 mm; pedicel (0.3–)1.2–6 cm.

34a. Ovary 2–2.3 cm; rhizome internodes inconspicuous; peduncle 20–35 cm ....... 10. *C. flavimaculata*
34b. Ovary ca. 1.2 cm; rhizome internodes to 2.2 cm toward apex; peduncle 4.4–21 cm  
36. *C. heterotricha*

33b. Corolla glabrous inside; petiole 0.2–3 cm; leaf blade 1–15 × 0.7–8.5 cm; cymes 1–5-flowered; peduncle 2.4–7 mm; bracts 2.6–7 mm; pedicel 0.7–1.8 cm.

35a. Corolla white; leaf blade 1–6.6 × 0.9–3.5 cm, margin entire to repand or shallowly crenate; filaments glandular puberulent near apex; staminodes 2  
68. *C. tibetica*

35b. Corolla purple to blue with yellow throat; leaf blade 1–15 × 0.7–8.5 cm, margin dentate; filaments glabrous; staminode 1  
69. *C. forrestii*

30b. Plants stemless.

36b. Calyx segment margin denticulate or serrate, at least once near apex.

37a. Leaves leathery.

38a. Cymes 7–11-flowered; peduncle ca. 12 cm; bracts 1.3–2 cm; corolla ca. 2.7 cm; leaf blade to 10 cm  
46. *C. liboensis*

38b. Cymes 1–3-flowered; peduncle 5.5–8 cm; bracts 0.4–0.6 cm; corolla ca. 4.5 cm; leaf blade to 7 cm  
48. *C. subrhomboidea*

37b. Leaves herbaceous or papery.

39a. Corolla tube cylindric, 2–5 mm in diam. at mouth; filaments 1.6–5.5 mm.

40a. Bract 1; calyx ca. 2 mm; corolla ca. 1.2 cm; staminode 1; stigma not divided; petiole to 1 cm; leaf blade 1–2.2 × 0.5–0.9 cm, margin entire  
63. *C. speluncae*

40b. Bracts 2; calyx 4–6 mm; corolla 2.2–3.4 cm; staminodes 3; stigma 2-lobed or 2-parted; petiole to 3.4 cm; leaf blade 1.4–5.4 × 0.6–3 cm, margin repand to indistinctly denticulate.

41a. Flowers always solitary; peduncle ca. 1.2 cm; corolla 2.5–3.4 cm, inside glabrous; filaments ca. 5.5 mm  
60. *C. vestita*

41b. Flowers 1–6 per cyme; peduncle 2.4–4.5 cm; corolla ca. 2.2 cm, inside puberulent on limb; filaments ca. 3 mm  
61. *C. secundiflora*

39b. Calyx segment margin entire.

42a. Leaf blade 1.5–3.3 cm wide; cymes 1–3-flowered; corolla 2.3–2.7 cm; adaxial lip 3–3.5 mm.

43a. Corolla purplish blue, inside with longitudinal lines of very short hairs on adaxial lip; petiole 0.7–1.1 cm; leaf blade 3–4.8 cm; calyx segments ca. 5 mm; filaments glandular puberulent; anthers purple strigose at apex  
23. *C. jiuwanshanica*

43b. Corolla flesh colored, inside pilose basally; petiole 0.7–1.1 cm; leaf blade 3–4.8 cm; calyx segments 7–7.5 mm; filaments glabrous; anthers glabrous  
74. *C. skogiana*

42b. Leaf blade 1.9–16.5 cm wide; cymes (1–)4–15-flowered; corolla 2.5–6.4 cm; adaxial lip 6–12 mm.

44a. Corolla 2.5–3.4 cm; pistil ca. 2.1 cm; petiole 5–25 cm  
77. *C. macrodonta*

44b. Corolla 3.5–6.4 cm; pistil 2.7–3.2 cm; petiole 0.8–10 cm.

45a. Calyx 4–7 mm; corolla ca. 3.5 cm, inside sparsely pubescent basally; leaf blade 1.9–7 cm wide; cymes with up to 12 flowers  
22. *C. obtusidentata*

45b. Calyx 7–17 mm; corolla (3.5–)4–6.4 cm, inside puberulent just below adaxial lip on lines or spots; leaf blade 3.5–11 cm wide; cymes with up to 5 flowers.

46a. Peduncle to 28 cm; bract margin entire; pedicel 0.5–3.8 cm; calyx segments 0.7–1.1(–1.5) cm, apex acute to acuminate  
29. *C. fimbrisepala*

46b. Peduncle to 10 cm; bract margin crenulate; pedicel 0.1–0.5(–2) cm; calyx segments 1.2–1.7 cm, apex attenuate  
30. *C. verecunda*

36b. Calyx segment margin entire.

47a. Bracts 3.

48a. Corolla 4.5–6 cm, abaxial lip 2–3 cm; peduncle 8–31.5 cm  
78. *C. macrorhiza*

48b. Corolla 3–4 cm, abaxial lip 0.9–1.5 cm; peduncle 4–13.5 cm.

49a. Leaf blade lateral veins 2 or 3 on each side of midrib; cymes (3–)10–14-flowered; corolla 4–5 mm; corolla white, ca. 3 cm, abaxial lip ca. 0.9 cm  
28. *C. xinningensis*

49b. Leaf blade lateral veins 4 or 5 on each side of midrib; cymes up to 7-flowered; calyx 5–10 mm; corolla blue or purple, 3.5–4 cm, abaxial lip 1.4–1.5 cm.
50a. Petiole 2–4.5 cm; leaf blade elliptic to broadly obovate; cymes ca. 7-flowered; peduncle 8.5–9.8 cm; bracts 3–7.5 mm wide; calyx 7–10 mm; filaments ca. 13 mm, glandular puberulent near apex; staminodes 3 ........................................ 27. *C. tribracteata*

50b. Petiole to 1 cm; leaf blade ovate to orbicular-ovate; cymes ca. 2-flowered; peduncle 4–6 cm; bracts 1–2 mm wide; calyx 5–7 mm; filaments ca. 8 mm, glabrous; staminode 1 ........................................................................................................ 42. *C. cruciformis*

47b. Bracts 1 or 2.

51a. Bract 1.

52a. Leaf blade margin entire; peduncle 1.1–2.2 cm, densely spreading villous; calyx ca. 2 mm; corolla ca. 1.2 cm, tube cylindrical, mouth ca. 2 mm in diam.; filaments ca. 1.6 mm; staminode 1 ................................................................. 63. *C. speluncae*

52b. Leaf blade margin repand-crenate, remotely denticulate or undulate-crenate; peduncle 5–7 cm, densely or spreading puberulent; calyx 4.8–5 mm; corolla 2.8–3 cm, tube narrowly funnelform or nearly campanulate, mouth 9–15 mm in diam.; filaments 9–10 mm; staminodes 2.

53a. Leaf blade membranous; petiole 0.3–2 cm; bract subulate, ca. 1.2 mm, apex acute; corolla tube narrowly funnelform; stigma undivided ........................................ 7. *C. tenuifolia*

53b. Leaf blade papery; petiole 1–9 cm; bract narrowly spathelike, navicular-ovate, 15–20 mm, apex long acuminate; corolla tube nearly campanulate; stigma 2-lobed 35. *C. spadiciformis*

51b. Bracts 2.

54a. Leaf blade leathery.

55a. Leaf blade margin crenate or repand, rarely subentire.

56a. Leaf blade to 3.2 cm; cymes 2–4-flowered ........................................ 51. *C. yungfuensis*

56b. Leaf blade 4–10 cm; cymes 5–11-flowered.

57a. Corolla 3.7–4.6 cm; peduncle villous; bracts linear-lanceolate, ca. 1 mm wide, apex acute to acuminate; calyx segments apex acuminate ................................................................. 44. *C. sclerophylla*

57b. Corolla ca. 2.7 cm; peduncle puberulent; bracts narrowly ovate, 3.5–5 mm wide, apex obtuse; calyx segments apex obtuse ................................................................. 46. *C. liboensis*

55b. Leaf blade margin entire.

58a. Leaf blade to 4 cm, apex obtuse to rounded; cymes 1- or 2-flowered.

59a. Leaf base rounded; peduncle 5.3–5.6 cm; bracts 8–11 × ca. 4 mm; corolla ca. 2.7 cm, glabrous inside; anthers glabrous; stigma 2-lobed ........................................ 50. *C. parvifolia*

59b. Leaf base broadly cuneate; peduncle 9–12.5 cm; bracts 4–5 × 1.6–2 mm; corolla 3.4–4 cm, puberulent at least basally inside; anthers pubescent or villous; stigma undivided.

60a. Petiole 1–5 mm; calyx segments narrowly lanceolate-linear, 6.5–7 × 1–1.2(–1.5) mm; stigma ovate, ca. 0.8 mm ......................................................... 3. *C. brachystigma*

60b. Petiole 6–14 mm; calyx segments lanceolate, ca. 5 × 1.5–2 mm; stigma ligulate-linear, ca. 6 mm ................................................................. 5. *C. atropurpurea*

58b. Leaf blade 2.5–16 cm, apex acute to acuminate or attenuate, rarely rounded; cymes (1 or)2–15-flowered.

61a. Petiole absent to 1 cm; leaf blade base attenuate; stigma obtrapeziform.

62a. Leaf blade 1–2.9 cm wide; bracts 4–20 mm; pedicel 0.7–4 cm; calyx 5–8 mm; corolla 3.4–4 cm ........................................................................ 54. *C. longgangensis*

62b. Leaf blade 0.4–0.8 cm wide; bracts 4–10 mm; pedicel 0.5–1.2 cm; calyx 3.2–4 mm; corolla ca. 2.4 cm ..................................................................................... 55. *C. linearifolia*

61b. Petiole 1–5 cm; leaf blade base cuneate, rarely broadly cuneate; stigma cuneate or oblong (unknown in *C. minutimaculata*).

63a. Cymes 7–11-flowered; bract and calyx segment apex obtuse; leaf blade apex acute to rounded ........................................ 46. *C. liboensis*
63b. Cymes ca. 5-flowered; bract apex acute, calyx segment apex attenuate; leaf blade apex acute.
64a. Leaf blade not spotted; bracts 5–7 mm wide; calyx segments ca. 11 mm 20. *C. pseudoeburnea*
64b. Leaf blade adaxially densely and minutely purple spotted; bracts 8–12 mm wide; calyx segments ca. 5.5 mm ................................................................. 21. *C. minutimaculata*
54b. Leaf blade herbaceous or papery.
65a. Bracts 3 mm or more wide.
66a. Leaf blade with 3–6 palmate basal veins and 1–3 pinnate veins on each side of midrib distally.
67a. Leaf blade adaxially with dense, long and short hairs, abaxially puberulent, base cuneate; petiole to 9 cm; bracts 2–2.5 mm; corolla ca. 4.4 cm ................... 31. *C. langshanica*
67b. Leaf blade villous on both surfaces, base cordate; petiole to 25 cm; bracts 4–10 mm;
corolla 2.5–3.4 cm ....................................................................................... 77. *C. macrodonta*
66b. Leaf blade with 3–7 pinnate lateral veins on each side of midrib.
68a. Leaf blade 0.8–3.2 cm ................................ ............................................. 17. *C. lienxienensis*
68b. Leaf blade (2–)3–26 cm.
69a. Calyx at least 10 mm.
70a. Adaxial corolla lip 10–15 mm; leaf blade 2.2–9.5 × 1.4–6.5 cm; cymes 1–6-flowered.
71a. Petiole 0.2–2.8 cm; leaf surfaces appressed puberulent; peduncle 3–9 cm;
corolla ca. 4 cm, abaxial lip ca. 1.3 cm; anthers glabrous; staminodes 2; stigma undivided ................................................................. 2. *C. subulatisepala*
71b. Petiole 2.5–7.5 cm; leaf surfaces sparsely strigose; peduncle 8–31.5 cm;
corolla 4.5–6 cm, abaxial lip 2–3 cm; anthers densely bearded abaxially; staminodes 3;
stigma 2-lobed .................................................................................. 78. *C. macrorhiza*
70b. Adaxial corolla lip 3–7 mm; leaf blade (3–)6–26 × (1.5–)4–16 cm; cymes 2–28-flowered.
72a. Anthers villous abaxially; leaf blade 3–12 cm; lateral veins 3 or 4 on each side of midrib; peduncle 4–12 cm; staminodes 2 ........................... 24. *C. polycephala*
72b. Anthers glabrous; leaf blade 3–26 cm; lateral veins 4–7 on each side of midrib;
peduncle 4.4–35 cm; staminodes (2 or)3.
73a. Pistil 2.9–3.2 cm, ovary 2–2.3 cm; leaf blade abaxially pubescent with veins pilose, base cuneate to broadly so ............................................. 10. *C. flavimaculata*
73b. Pistil 2–2.6 cm, ovary 1.2–1.6 cm; leaf blade abaxially sparsely pubescent or puberulent, base cuneate or broadly cuneate to attenuate and decurrent into petiole wings, seldom truncate-cordate.
74a. Leaf blade lateral veins inconspicuous; peduncle 4.4–21 cm; bracts 0.9–25 mm; pedicel puberulent to spreading pilose .................................. 36. *C. heterotricha*
74b. Leaf blade lateral veins conspicuous; peduncle 15–30 cm; bracts 10–13 mm;
pedicel glandular puberulent ........................................................................ 40. *C. pteropoda*
69b. Calyx less than 10 mm.
75a. Petiole (0.2–)7–18 mm wide.
76a. Corolla tube ca. 3 cm; bracts (8–)12–28 mm wide.
77a. Leaf blade margin entire; bract margin entire; pedicel to 2.3 cm;
staminodes 2 ................................................................. 16. *C. eburnea*
77b. Leaf blade margin dentate or denticulate to serrate; bract margin denticulate;
pedicel to 1.1 cm; staminodes 3 .................................................. 19. *C. lungzouensis*
76b. Corolla tube 1.3–2.8 cm; bracts less than 10 mm wide.
78a. Apical internodes of rhizome to 2.2 cm; calyx 7–17 mm; leaf blade 3–23 cm, margin entire to indistinctly denticulate; pedicel to 6 cm .......... 36. *C. heterotricha*

78b. Apical internodes of rhizome inconspicuous; calyx 4–7 mm; leaf blade 2–15 cm, margin undulate-dentate, crenate, dentate, or repand; pedicel to 2.5 cm.

79a. Peduncle ca. 18 cm; bracts ca. 22 mm; corolla ca. 2.1 cm; anthers glabrous; pistil ca. 1 cm; stigma obovoid ...................................................... 13. *C. latinervis*

79b. Peduncle 7–13 cm; bracts 4–13(–18) mm; corolla 3.2–4 cm; anthers sparsely puberulent or bearded; pistil 2.6–2.8 cm; stigma cuneate.

80a. Leaf blade surfaces sparsely strigose; peduncle 9–13 cm; calyx segments 0.8–1 mm wide, apex acute ........................................ 39. *C. roseoalba*

80b. Leaf blade surfaces sparsely puberulent; peduncle 7–9 cm; calyx segments 1.5–2.5 mm wide, apex obtuse ......................................... 45. *C. brachytricha*

75b. Petiole to 6 mm wide.

81a. Leaves sessile or petiole to 1.4 cm.

82a. Rhizome internodes conspicuous, 0.4–2 cm; leaf blade base attenuate; anthers bearded; cymes 2–15-flowered ................................ 54. *C. longgangensis*

82b. Rhizome internodes inconspicuous; leaf blade base cuneate; anthers glabrous; cymes 4–5-flowered.

83a. Leaf blade margin shallowly crenate, apex obtuse to rounded; filaments glabrous; staminodes 3; stigma 2-lobed ................................ 26. *C. depressa*

83b. Leaf blade margin subentire to repand, apex acute; filaments glandular puberulent above middle; staminodes 2; stigma emarginate . 80. *C. atroglandulosa*

81b. Petiole (0.2–)1–9(–19) cm.

84a. Bracts to 3 mm wide.

85a. Corolla 4.5–6 cm, adaxial lip 10–15 mm, abaxial lip 20–30 mm; peduncle 8–31.5 cm; calyx 6–11 mm; petiole 2.5–7.5 cm; leaf blade sparsely strigose ................................................................. 78. *C. macrorhiza*

85b. Corolla 2.2–3.5 cm, adaxial lip 3–3.5 mm, abaxial lip 5–11 mm; peduncle 7–8 cm; calyx 3–6 mm; petiole 1–3.5 cm; leaf blade sparsely to densely puberulent.

86a. Bracts ca. 5 mm, margin remotely crenulate, apex obtuse; calyx 3–3.5 mm; corolla glabrous outside, abaxial lip ca. 5 mm; anthers glabrous; staminodes 2 ................................................................. 14. *C. orthandra*

86b. Bracts 8–9 mm, margin entire, apex acute; calyx ca. 6 mm; corolla puberulent outside, abaxial lip ca. 11 mm; anthers bearded; staminodes 3 ................................................................. 25. *C. leiophylla*

84b. Bracts (4–)5–28 mm wide.

87a. Adaxial corolla lip ca. 11 mm; stigma ligulate, undivided; leaf blade 2.2–6.5 cm; bracts strigose .................................................. 2. *C. subulatisepala*

87b. Adaxial corolla lip 4–7 mm; stigma cuneate or obtrapeziform to oblong, 2-lobed; leaf blade 2.6–20 cm; bracts puberulent to villous.

88a. Staminodes 3; calyx densely puberulent and glandular puberulent inside ................................................................. 19. *C. lungzouensis*

88b. Staminodes 2; calyx glabrous inside.

89a. Leaf blade adaxially puberulent only near margin, abaxial surface sparsely appressed puberulent, margin repand to entire; bracts 0.9–1.8 × 0.4–0.9 cm ................................................................. 47. *C. glabrescens*
89b. Leaf blade both surfaces puberulent, pubescent, and/or pilose, margin repand to crenate or denticate, rarely dentate or serrate; bracts 0.6–4 × 0.4–2.7 cm.

90a. Leaf blade adaxially puberulent; staminodes ca. 0.8 mm; cymes 1–4-flowered; peduncle 4–8 cm; bracts 0.9–2.1 cm .......... 15. C. sichuanensis

90b. Leaf blade adaxially appressed pubescent and pilose; staminodes 3–7 mm; cymes 1–12-flowered; peduncle 5–32 cm; bracts 0.6–4 cm.

91a. Leaf blade 2.6–10(−12) cm, abaxially appressed pilose; corolla tube narrowly funnelform; peduncle 5–20 cm; bracts elliptic to broadly ovate, 0.4–2.7 cm wide; pedicel 0.6–1 cm ................. 18. C. lunglinensis

91b. Leaf blade 4–20 cm, abaxially appressed pubescent and pilose; corolla tube tubular to broadly funnelform, often gibbous abaxially; peduncle 12–32 cm; bracts ovate to lanceolate, 0.4–1.6 cm wide; pedicel 0.8–2.5 cm ................................................. 56. C. sinensis

65b. Bracts less than 3 mm wide.

92a. Leaf blade base cordate, rarely truncate-cordate on both sides.

93a. Filaments sparsely puberulent; anthers glabrous; rhizome apical internodes to 2.2 cm; leaf blade sometimes oblique, narrowly elliptic to oblong, obovate or ovate, apex acute to obtuse; adaxial corolla lip 3–5 mm ..................................................... 36. C. heterotricha

93b. Filaments glabrous or sparsely glandular near apex; anthers glandular, villous, or densely bearded abaxially; rhizome internodes inconspicuous; leaf blade ovate to orbicular, oblate, or reniform, apex acute to rounded; adaxial corolla lip 5–7 mm.

94a. Leaf blade basally with 3–6 palmate veins, apically with 2 or 3 pinnate veins on each side of midrib, blade 4.5–15 × 5–16.5 cm; peduncle 8–23 cm; bract margin 3–5-glandular denticate .......................................................... 77. C. macrodonta

94b. Leaf blade veins all pinnate, 3–5 on each side of midrib, blade 1.6–6.8 × 1.6–6.8 cm; peduncle 3.5–13 cm; bract margin entire.

95a. Cymes 2–7-flowered; peduncle 4.5–13 cm; pedicel 1.7–7 cm; calyx 4–5 mm; corolla 2.3–2.7 cm; leaf blade adaxially appressed pilose (hairs to 5 mm); petiole 1–4.5 cm

.......................................................... 49. C. rotundifolia

95b. Flowers solitary; peduncle ca. 3.5 cm; pedicel ca. 1 cm; calyx ca. 13 mm; corolla 4–4.5 cm; leaf blade adaxially puberulent; petiole 3–17.5 cm .. 52. C. cordifolia

92b. Leaf blade base decurrent, attenuate, cuneate to broadly cuneate to rounded, rarely truncate, if cordate on 1 side then other side merely cuneate or rounded.

96a. Calyx to 4 mm.

97a. Cymes 2–11-flowered; peduncle 3.5–20 cm; leaf blade 3.5–20 cm.

98a. Leaf blade 2–3.5 cm wide, abaxially velutinous, base cuneate; petiole 0.5–2.5 cm ........................................................................................................ 12. C. medica

98b. Leaf blade 2.5–10 cm wide, abaxially appressed puberulent or densely puberulent and appressed pilose, base cuneate to rounded or cordate; petiole 0.5–11 cm.

99a. Pedicel 2.5–4 cm; stigma undivided; pistil ca. 1.1 cm; bracts ca. 3.5 mm 8. C. liguliformis

99b. Pedicel 0.3–1.6 cm; stigma 2-lobed; pistil 1.2–3.7 cm; bracts 3–9 mm .... 37. C. fordii

97b. Cymes 1–3-flowered; peduncle 2.5–7 cm; leaf blade 1.5–4.2(−4.7) cm.

100a. Calyx pilose inside; corolla ca. 1.4 cm, mouth ca. 4 mm in diam., adaxial lip ca. 2 mm, abaxial lip ca. 5.5 mm; anthers glabrous ................................. 75. C. napoensis
100b. Calyx glabrous inside; corolla 3–3.5 cm, mouth ca. 1 cm in diam., adaxial lip 5–6 mm, abaxial lip ca. 1 cm; anthers puberulent or villous.

101a. Leaves ca. 8; bracts 1.2–2.2 mm; staminodes 3 ............................ 33. C. villosissima
101b. Leaves to 24; bracts 3–4 mm; staminodes 2 .................................. 72. C. wangiana

96b. Calyx at least 4 mm.

102a. Leaf blade (2–)6–24 cm.

103a. Leaf blade (2–)6–24 cm.

104a. Petiole 1.5–4 cm; leaf blade apex acute to obtuse; staminodes absent; rhizome internodes inconspicuous ........................................... 53. C. bicolor
104b. Leaves sessile or petiole to 1 cm; leaf blade apex acute to acuminate; staminodes 3; rhizome internodes conspicuous, 0.4–2 cm .................... 54. C. longgangensis

103b. Leaf blade (1.5–)3.5–17 cm wide, margin crenate, crenulate, dentate, denticulate, or serrate, often repand, seldom subentire to entire.

105a. Bracts over 9 mm.

106a. Petiole to 3 cm; bract and calyx segment apex obtuse .......... 45. C. brachytricha
106b. Petiole (0.5–)2–17 cm; bract apex acute to acuminate (unknown in C. depressa, sometimes obtuse in C. macrorhiza), calyx segment apex acute to acuminate or attenuate.

107a. Pistil ca. 1.4 cm; stigma ligulate, undivided; corolla tube ca. 1.7 cm 6. C. brassicoides
107b. Pistil 2–3.3 cm; stigma cuneate, oblong, trapezoid, obtrapeziform, or obovoid,

2-lobed or rarely undivided; corolla tube 2.2–3.3 cm.

108a. Leaf blade adaxially sparsely to densely strigose; anthers sparsely puberulent to densely bearded.

109a. Bract strigose; peduncle 9–13 cm, puberulent; leaf blade base broadly cuneate, margin crenulate or remotely dentate ..................... 39. C. roseoalba
109b. Bract puberulent or pubescent; peduncle 8–31.5 cm, villous or pubescent;

leaf blade base cuneate to rounded, margin crenate to subentire or repand.

110a. Corolla tube mouth 0.9–1.3 cm in diam., abaxial lip 1.2–2 cm;

staminodes 2; stigma ca. 1.2 mm; cymes 5–10-flowered ................. 44. C. sclerophylla
110b. Corolla tube mouth 1.5–2 cm in diam., abaxial lip 2–3 cm;

staminodes 3; stigma ca. 3.5 mm; cymes 1–6-flowered ................... 78. C. macrorhiza

108b. Leaf blade adaxially sparsely to densely puberulent, sometimes also pilose; anthers glabrous.

111a. Leaf blade 3–24 cm; lateral veins 4 or 7 on each side of midrib; peduncle 4.4–30 cm.

112a. Peduncle 4.4–21 cm; apical rhizome internodes to 2.2 cm; petiole to 1.5 cm wide; bracts 0.9–25 mm ............................................. 36. C. heterotricha
112b. Peduncle 15–30 cm; rhizome internodes inconspicuous; petiole to 3 cm wide; bracts 10–13 mm ......................................... 40. C. pteropoda

111b. Leaf blade 6–15 cm; lateral veins 4 or 5 on each side of midrib;
peduncle 4–11 cm.

113a. Petiole ca. 8 mm; leaf blade abaxially velutinous; corolla ca. 3 cm;

staminodes 3 ................................................................. 26. C. depressa
113b. Petiole 3–17 cm; leaf blade abaxially appressed puberulent; corolla 3.5–4.5 cm; staminodes 2 ................................. 41. C. juliae
105b. Bracts to 9 mm.
114a. Petiole to 3 cm.
115a. Leaf blade narrowly elliptic to oblong, densely appressed puberulent 38. *C. carnosifolia*
115b. Leaf blade broadly ovate to ovate, sparsely puberulent .......... 45. *C. brachytricha*
114b. Petiole (0.5–)2–17 cm.
116a. Leaf blade sparsely strigose to strigose on both surfaces; abaxial corolla lip 1–3 cm.
117a. Corolla 2.4–4.2 cm, abaxial lip 1–2.2 cm; staminodes 2; pistil 1.5–1.7 cm; stigma undivided; bracts 2–6 mm ................................. 1. *C. swinglei*
117b. Corolla 4.5–6 cm, abaxial lip 2–3 cm; staminodes 3; pistil ca. 3.3 cm; stigma 2-lobed; bracts 5–16 mm ................................. 78. *C. macrorhiza*
116b. Leaf blade adaxially sparsely to densely puberulent and sometimes pubescent, or velutinous; abaxial corolla lip 0.6–1.5 cm.
118a. Staminode 1; anthers pilose; cymes ca. 2-flowered ................. 42. *C. cruciformis*
118b. Staminodes 2 or 3; anthers glabrous or seldom puberulent; cymes 2–15-flowered.
119a. Petiole (0.5–)4–17 cm; bracts to 25 mm; calyx segments to 17 mm; corolla tube mouth 0.8–1.5 cm in diam.
120a. Adaxial corolla lip 3–5 mm; anthers 2.2–3 mm; pistil 2–2.6 cm; petiole to 11 cm; leaf blade to 23 cm; bracts to 25 mm; pedicel (0.3–)1.5–6 cm; calyx 7–17 mm ................................. 36. *C. heterotricha*
120b. Adaxial corolla lip 7–8 mm; anthers 3.2–3.5 mm; pistil 3–3.2 cm; petiole to 17 cm; leaf blade to 15 cm; bracts to 13 mm; pedicel 0.1–1.5 cm; calyx 4–13 mm ................................. 41. *C. juliae*
119b. Petiole to 5.2 cm; bracts and calyx segments to 9 mm (bracts unknown in *C. depressa*); corolla tube mouth 0.4–0.8 cm in diam.
121a. Staminodes 3; petiole ca. 0.8 cm; leaf blade abaxially velutinous 26. *C. depressa*
121b. Staminodes 2; petiole (0.5–)2–5.2 cm; leaf blade abaxially densely puberulent and sometimes appressed pilose.
122a. Stigma 2-lobed; corolla tube 1.5–2.6 cm; leaf blade lateral veins ca. 4 on each side of midrib; calyx 3.5–9 mm; peduncle spreading pubescent to pilose ................................. 37. *C. fordii*
122b. Stigma undivided; corolla tube ca. 1.2 cm; leaf blade lateral veins 5–7 on each side of midrib; calyx 4.5–4.8 mm; peduncle puberulent or glandular puberulent.
123a. Bracts 3–4 mm; pistil ca. 9.5 mm; calyx segment apex obtuse; cymes 3–7-flowered; leaf blade 6–9.6 cm ................................. 9. *C. laxiflora*
123b. Bracts 6–8 mm; pistil ca. 12.5 mm; calyx segment apex acute; cymes 8–15-flowered; leaf blade 8.5–14 cm ................................. 11. *C. floribunda*
102b. Leaf blade 0.8–8(–11) cm.
124a. Leaf blade margin shallowly crenate to crenate to serrate, dentate, denticulate, or undulate, indistinctly undulate-denticulate.
125a. Stigma undivided; pistil ca. 1 cm; corolla ca. 1.7 cm; glabrous inside .. 9. *C. laxiflora*
125b. Stigma 2-lobed, 2-parted, or emarginate; pistil (1.2–)1.5–3.7 cm; corolla 2.1–6 cm, puberulent inside basally, on adaxial lip, below stamens, near mouth, or on lobes.
126a. Leaf blade apex acute or acuminate, seldom obtuse.
127a. Stigma emarginate; filaments glabrous; leaf blade 2.8–4 × 1.6–2.4 cm; cymes 1-
or 2-flowered; bract 2–5 mm ................................. 59. *C. fangii*
127b. Stigma 2-lobed; filaments sparsely puberulent or glandular puberulent at base and apex; leaf blade 2.5–11 × 1.5–7 cm; cymes 1–8-flowered; bract 3–16 mm.

128a. Corolla 2.1–3.9 cm, mouth 0.6–0.8 cm in diam., abaxial lip 7–9 mm; leaf blade puberulent and villous or pilose; peduncle 3.5–13 cm; staminodes 2 ................................................................. 37. *C. fordii*

128b. Corolla 4.5–6 cm, mouth 1.5–2 cm in diam., abaxial lip 20–30 mm; leaf blade sparsely strigose; peduncle 8–31.5 cm; staminodes 3 ... 78. *C. macrorhiza*

126b. Leaf blade apex obtuse to rounded.

129a. Leaf blade abaxially velutinous; petiole ca. 0.8 cm ...................... 26. *C. depressa*

129b. Leaf blade abaxially puberulent, pubescent, pilose, or villous; petiole (0.5–)1–5(–6) cm.

130a. Staminodes 3; stigma 2-parted; abaxial corolla lip ca. 1.6 cm; petiole to 2.5 cm.

131a. Bracts lanceolate-linear, ca. 7 × 1–1.2 mm, apex attenuate; staminodes ca. 5 mm ................................................................. 32. *C. linglingensis*

131b. Bracts ovate-triangular, ca. 4 × 1.6–1.8 mm, apex obtuse; staminodes 7–14 mm ................................................................. 43. *C. crassituba*

130b. Staminodes 2; stigma 2-lobed; abaxial corolla lip 0.7–1.5 cm; petiole (0.5–)1–5(–6) cm.

132a. Leaf blade 0.8–3.2 × 0.8–2.8 cm; corolla ca. 2.7 cm .......... 17. *C. lienxienensis*

132b. Leaf blade 2–11 × 1–7 cm; corolla (2.1–)3–6 cm.

133a. Filaments glabrous; corolla 4–6 cm, mouth 1.2–2 cm in diam., adaxial lip 9–12 mm; bracts 2–14 mm; peduncle 1.5–6 cm ......... 34. *C. gueilinensis*

133b. Filaments sparsely puberulent at least near apex; corolla 2.1–3.9 cm, mouth 0.6–1 cm in diam., adaxial lip 3–7 mm; bracts 3–9 mm; peduncle 3–14 cm.

134a. Peduncle spreading pubescent to pilose; bracts and calyx pubescent to pilose outside; corolla tube nearly tubular, mouth 6–8 mm in diam., abaxial lip 7–9 mm; cymes 2–8-flowered ...... 37. *C. fordii*

134b. Peduncle villous and glandular pubescent; bracts and calyx villous outside; corolla tube funnelform, mouth ca. 1 cm in diam., abaxial lip ca. 12 mm; cymes 2- or 3-flowered ......................... 79. *C. liujiangensis*

124b. Leaf blade margin entire, subentire, repand, repand-crenate, or repand-denticulate.

135a. Peduncle 0.6–1.4 cm.

136a. Calyx 10–12 mm; bracts 4–6 mm; pedicel 7–11 mm; corolla ca. 4.5 cm, mouth ca. 1.4 cm in diam.; filaments ca. 11 mm; anthers woolly; pistil ca. 3.4 cm; stigma 2-lobed, adaxial lobe 2-lobed .................... 73. *C. shouchengensis*

136b. Calyx 4–6 mm; bracts 0.8–3 mm; pedicel 2–5.5 mm; corolla 2–3.4 cm, mouth 2–5 mm in diam.; filaments 4.5–5.5 mm; anthers glabrous; pistil 1.9–2.2 cm; stigma merely 2-lobed or 2-parted.

137a. Corolla 2.5–3.4 cm, abaxial lip ca. 13 mm; staminodes 3; stigma 2-lobed; flowers solitary; petiole 2–30 mm; leaf blade to 5.4 cm .................... 60. *C. vestita*

137b. Corolla 2–2.5 cm, abaxial lip 5–7.5 mm; staminodes 2; stigma 2-parted; cymes 1–3-flowered; petiole 3–9 mm; leaf blade to 3.2 cm ..................... 62. *C. tenuituba*

135b. Peduncle 3–31.5 cm.
138a. Leaf blade sparsely strigose; corolla 4.5–6 cm, mouth 1.5–2 cm in diam.,
adaxial lip 10–15 mm, abaxial lip 20–30 mm; petiole to 7.5 cm; peduncle
to 31.5 cm ................................................................. 78. C. macrorhiza

138b. Leaf blade puberulent, pubescent, pilose, villous, and/or velutinuous;
corolla
2–4 cm, mouth 0.5–1 cm in diam., adaxial lip 3–8 mm, abaxial lip 4–15
mm;
petiole to 5 cm; peduncle to 14 cm.

139a. Bracts 1.2–2.2 mm; staminodes absent or 3.

140a. Pedicel ca. 5 mm; bract apex obtuse; corolla mouth ca. 5 mm in diam.;
filaments pilose basally, pubescent above; staminodes absent; stigma
undivided ................................................................. 4. C. demissa

140b. Pedicel 9–14 mm; bract apex acute; corolla mouth ca. 1 cm in diam.;
filaments glabrous; staminodes 3; stigma 2-lobed ................. 33. C. villosissima

139b. Bracts 3–13 mm; staminodes (1 or)2.

141a. Staminode 1; anthers pilose; corolla abaxial lip ca. 15 mm; peduncle
4–6 cm ...................................................................... 42. C. cruciformis

141b. Staminodes 2; anthers glabrous to puberulent or villous; corolla
abaxial
lip 4–12 mm; peduncle 3–14 cm.

142a. Filaments 5–6 mm, glandular pilose; anthers villous; abaxial corolla
lip 4–7 mm; leaf blade 2–5.5 cm ...................................... 76. C. hochiensis

142b. Filaments 7–13 mm, glabrous, sparsely puberulent at least near apex,
or glandular puberulent above middle; anthers glabrous or puberulent;
abaxial corolla lip 7–12 mm; leaf blade 2–11 cm.

143a. Leaf blade ovate, elliptic, or obovate, 1–7 cm wide.

144a. Corolla tube nearly tubular, mouth 6–8 mm in diam., adaxial lip
3–5.5 mm, abaxial lip ca. 7–9 mm; peduncle spreading pubescent
to pilose; bracts and calyx pubescent to pilose outside .......... 37. C. fordii

144b. Corolla tube funnelform, mouth ca. 1 cm in diam., adaxial lip ca.
7 mm, abaxial lip ca. 12 mm; peduncle villous and glandular
pubescent; bracts and calyx villous outside ..................... 79. C. liujiangensis

143b. Leaf blade narrowly elliptic to narrowly ovate, 0.8–2.8 cm wide.

145a. Peduncle 12–13 cm; leaf blade base cuneate, margin subentire to
reapand; bracts ovate to narrowly ovate, 6.5–7 × 2.5–3 mm;
pedicel
0.3–1.8 cm; calyx segments appressed puberulent inside; stigma
emarginate ............................................................... 80. C. atroglandulosa

145b. Peduncle 5–7.8 cm; leaf blade base attenuate, margin entire;
bracts triangular-linear, 5–13 × ca. 1.5 mm; pedicel 2.7–5 cm;
calyx segments glabrous inside; stigma 2-lobed ...... 81. C. pungentisepala


钟冠唇柱苣苔 zhong guan chun zhu ju tai

Didymocarpus swinglei Merrill, Philipp. J. Sci. 13: 156.
1918; Chirita pellegriniana B. L. Burtt; Didymocarpus
balansae Pellegrin (1926), not C. balansae Drake
(1890).

Perennial, stemless. Rhizome internodes inconspicuous.
Leaves basal, opposite; petiole 0.8–7.5 cm × 2–11 mm; leaf blade elliptic to ovate, obovate, or orbicular, 6–19
× 4–17 cm, herbaceous, strigose, eglandular, base often
oblique, broadly cuneate to rounded or truncate, margin
denticulate or dentate to crenate, apex acute to rounded;
lateral veins 3–7 on each side of midrib, slightly
conspicuous. Cymes (1–)3–8-flowered; peduncle 2.8–
19 cm, pubescent; bracts 2, free, linear to linear-lanceolate,
2–6 × 0.8–1 mm, puberulent, margin entire, apex acute. Pedicel 2–4(–8) cm, spreading puberulent.
Calyx 5-sect from base; segments equal, lanceolate-linear, 6–10 × 1–1.5 mm, outside densely puberulent,
inside apically sparsely puberulent, margin entire, apex
acute. Corolla bluish to purple, 2.4–4.2 cm, outside
sparsely puberulent, inside glabrous or glandular puber-
ulent on adaxial lip; tube campanulate to funnelform,
1.2–2.2 × 0.7–1.2 cm; abaxial lip 7–11 mm; abaxial lip
1–2.2 cm. Filaments ca. 9 mm, sparsely puberulent;
anthers fused by entire adaxial surfaces, 2.5–3 mm,
glabrous; staminodes 2, 1.2–2 mm. Pistil 1.5–1.7 cm, puberulent; ovary ca. 9 mm. Stigma spatulate to narrowly ovoid, 1–2 mm, undivided. Capsule erect, 2–3.5 cm. Fl. May–Sep, fr. Jul–Oct.

Forests, cliffs in valleys; 600–900 m. Guangdong (Laofushan, Zengcheng Xian), S Guangxi [N Vietnam].


钻萼唇柱苣苔 zuan e chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.2–2.8 cm × 2–3 mm; leaf blade narrowly ovate to ovate, 2.2–6.5 × 1.4–5 cm, papery, apressed puberulent, eglandular, base oblique, broadly cuneate to truncate, margin obtusely dentate to crenate, apex acute to rounded; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes (1–)4–6-flowered; peduncle 3–9 cm, sparsely puberulent; bracts 2, free, elliptic to elliptic-ovate, leaflike, 1.7–2.3 × 0.8–1.1 cm, strigose, margin remotely denticulate, apex acute. Pedicel 0.5–1.5 cm, puberulent and glandular puberulent. Calyx 5-merous from base; segments equal, narrowly lanceolate-linear, 6.5–7 × 1.1–1.8 mm, outside purple puberulent, inside glabrous, margin entire, apex obtuse. Pedicel 0.5–1.5 cm, densely spreading pilose. Calyx 5-merous from base; segments equal, lanceolate-linear, 4–5 × 0.8–1 mm, outside densely pilose, inside above sparsely pubescent, margin entire, apex acute. Corolla white, ca. 2.3 cm, outside sparsely puberulent, inside glandular puberulent near mouth; tube narrowly funneliform, 1.5–1.8 × ca. 0.5 cm; adaxial lip ca. 1.1 cm; abaxial lip ca. 1.3 cm. Filaments ca. 1.2 cm, apically sparsely glandular puberulent; anthers fused by entire adaxial surfaces, ca. 3.5 mm, glabrous; staminodes 2, ca. 5 mm. Pistil ca. 3 cm, puberulent; ovary ca. 1 cm. Stigma ligulate, ca. 2 mm, undivided. Fruit and seeds unknown. Fl. Jun. • Shaded rocky cliffs; ca. 800 m. SW Hubei (Xianfeng Xian), SE Sichuan (Qianjiang Xian).


短头唇柱苣苔 duan tou chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–5 × 2.5–4 mm; leaf blade oblique, orbicular-ovate to ovate, 1.2–3 × 0.9–1.8 cm, leathery, appressed puberulent, eglandular, base broadly cuneate, margin entire, apex obtuse; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 1- or 2-flowered; peduncle 9–11.5 cm, spreading purple puberulent; bracts 2, free, lanceolate, ca. 5 × 1.6 mm, puberulent, margin entire, apex obtuse. Pedicel ca. 1.2 cm, puberulent. Calyx 5-merous from base; segments equal, narrowly lanceolate-linear, 6.5–7 × 1–1.2(–1.5) mm, outside purple puberulent, inside glabrous, margin entire, apex obtuse. Corolla ca. 3.4 cm, outside sparsely puberulent, inside densely puberulent; tube narrowly funneliform, ca. 2.2 × 0.8 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1.2 cm. Filaments ca. 8 mm, sparsely glandular puberulent near apex; anthers fused by entire adaxial surfaces, ca. 3 mm, pubescent; staminodes 2, ca. 4.5 mm. Pistil ca. 2.2 mm, puberulent; ovary ca. 1.4 cm. Stigma ovate, ca. 0.8 mm, undivided. Immature capsule erect, ca. 6 cm. Fl. Apr–May, fr. May. • Shaded areas in valleys. Guangxi (Hechi Xian).


巨柱唇柱苣苔 ju zhu chun zhu ju tai

紫萼唇柱苣苔 zi e chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.5–3 cm × 1–3 mm; leaf blade elliptic to narrowly ovate or narrowly obovate, 2.5–5(–7) × 1–2 cm, papery, adaxially densely puberulent and villous, eglandular, abaxially grayish velutinous to densely pubescent, base cuneate to broadly cuneate, margin entire, apex acute to rounded; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1–3-flowered; peduncle ca. 6 cm, densely pubescent to villous; bracts 2, free, triangular-linear, ca. 2 × 0.3 mm, pilose, margin entire, apex obtuse. Pedicel ca. 5 mm, densely spreading pilose. Calyx 5-merous from base; segments equal, lanceolate-linear, 4–5 × 0.8–1 mm, outside densely pilose, inside above sparsely pubescent, margin entire, apex acute. Corolla white, ca. 2.3 cm, outside sparsely puberulent, inside glandular puberulent near mouth; tube narrowly funneliform, 1.5–1.8 × ca. 0.5 cm; adaxial lip ca. 4 mm; abaxial lip 8–9 mm. Filaments ca. 6.5 mm, pilose basally, pubescent above; anthers fused by entire adaxial surfaces, ca. 3.2 mm, abaxially pilose; staminodes absent. Pistil ca. 1.5 cm, puberulent; ovary ca. 5.5 mm. Stigma narrowly oblong, ca. 1 mm, undivided. Capsule erect, ca. 5 cm. Fl. Oct.


紫萼唇柱苣苔 zui e chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 6–14 × ca. 4 mm; leaf blade narrowly ovate to ovate, 2.2–4 × 1.3–2 cm, leathery, adaxially sparsely appressed puberulent, eglandular, abaxially densely appressed puberulent, base broadly cuneate, margin entire, apex obtuse to rounded; lateral veins invisible. Cymes ca. 2-
flowered; peduncle 9.5–12.5 cm, dark purple pubescent; bracts 2, free, narrowly ovate, 4–5 × ca. 2 mm, densely purple villous, margin entire, apex obtuse. Pedicel 0.7–1.5 cm, puberulent. Calyx 5-sect from base; segments equal, lanceolate, ca. 5 × 1.5–2 mm, outside densely puberulent, inside glabrous, margin entire, apex obtuse. Corolla purple, ca. 4 cm, outside puberulent, inside puberulent basally; tube nearly tubular, ca. 3 × 1.2 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1 cm. Filaments ca. 1.4 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 4.5 mm, villous; staminodes 3, central 1 ca. 0.5 mm, laterals ca. 1 mm. Pistil ca. 3.2 cm, puberulent; ovary ca. 1.6 cm. Stigma ligulate-linear, ca. 6 mm, undivided. Fruit and seeds unknown. Fl. Feb.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–6 cm × 3–5 mm; leaf blade broadly elliptic to elliptic-ovate, 7–15.5 × 5–14 cm, herbaceous, densely appressed puberulent, eglandular, base oblique, corolla to broadly cuneate on 1 side and cuneate on other, margin irregularly crenate-dentate, apex acute to obtuse; lateral veins 6 or 7 on each side of midrib, conspicuous. Cymes ca. 6-flowered; peduncle ca. 17 cm, puberulent; bracts 2, free, linear to lanceolate-linear, 1–1.5 cm × ca. 2 mm, puberulent, margin entire, apex acute. Pedicel to 3 cm, densely spreading puberulent. Calyx 5-sect from base; segments equal, linear-lanceolate, ca. 10 × 1.2 mm, puberulent, margin entire, apex acute. Corolla purplish, ca. 2.8 cm, outside puberulent, inside sparsely puberulent below stamens; tube nearly tubular, ca. 1.7 × 0.8 cm; adaxial lip ca. 5 mm; abaxial lip ca. 1 cm. Filaments ca. 9 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 2.8 mm, glabrous; staminodes 2, ca. 2.6 mm. Pistil ca. 1.4 cm, puberulent; ovary ca. 7 mm. Stigma ligulate, ca. 1.5 mm, undivided. Fruit and seeds unknown. Fl. Jun.

• Limestone hills. SW Guangxi (Guilin Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 3–20 × 0.6–1 mm; leaf blade elliptic, 2.2–5 × 1.1–3 cm, membranous, sparsely appressed puberulent, eglandular, base oblique, broadly cuneate, margin remotely denticulate to undulate-crenate, apex obtuse to rounded; lateral veins ca. 4 on each side of midrib, inconspicuous.

Cymes 1-flowered; peduncle ca. 5 cm, densely puberulent; bract 1, subulate, ca. 1.2 × 0.3 mm, puberulent, margin entire, apex acute. Pedicel ca. 3.3 cm, puberulent. Calyx 5-sect from base; segments equal, linear-lanceolate, ca. 4.8 × 0.8 mm, outside densely puberulent, inside apically sparsely puberulent, margin entire, apex acute. Corolla purplish, ca. 2.8 cm, outside sparsely puberulent, inside glabrous; tube narrowly funnelform, ca. 1.5 × 0.9 cm; adaxial lip ca. 6 mm; abaxial lip ca. 8 mm. Filaments ca. 9 mm, sparsely puberulent; anthers fused by entire adaxial surfaces, ca. 2.2 mm, glabrous; staminodes 2, ca. 1.2 mm. Pistil ca. 1.8 cm, puberulent; ovary ca. 1 cm. Stigma ligulate, ca. 1.8 mm, undivided. Fruit and seeds unknown. Fl. Aug.

• Limestone hills. Guangxi (Donglan Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–11 cm × 4–9 mm; leaf blade elliptic to broadly ovate, 4–20 × 2.5–10 cm, papery, adaxially appressed pilose, eglandular, abaxially appressed puberulent, base sometimes oblique, broadly cuneate to cordinate on 1 side and cuneate to rounded on other, margin undulate-crenate to dentate, apex obtuse to acute; lateral veins 4 or 5 on each side of midrib, inconspicuous. Cymes 7–11-flowered; peduncle 6–20 cm, spreading puberulent; bracts 2, free, narrowly triangular, ca. 3.5 × 1.1 mm, puberulent, margin entire, apex acute. Pedicel 2.5–4 cm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 3–3.5 × ca. 1 mm, outside puberulent, inside glabrous, margin entire, apex acute. Corolla purplish, ca. 1 cm. Stigma ligulate, ca. 2 mm, undivided. Capsule erect, 2–3 cm. Fl. Jun-Jul, fr. Jul.

• Wet valley forests; ca. 800 m. SW Guizhou (Anlong Xian, Ceheng Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–5 cm × 3–8 mm; leaf blade ovate to elliptic, 6–9.6 × 4–6.5 cm, herbaceous, densely puberulent, eglandular, base sometimes oblique, cuneate to nearly rounded on 1 side and cuneate on other, margin crenate to serrate or dentate, apex acute to rounded; lateral veins 5–7 on
each side of midrib, conspicuous. Cymes 3–7-flowered; peduncle 8.5–15 cm, puberulent; bracts 2, free, linear, 3–4 × 0.6–0.8 mm, puberulent, margin entire, apex obtuse. Pedicel 0.3–3 cm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 4.5 × 1 mm, outside puberulent, inside apically sparsely puberulent, margin entire, apex obtuse. Corolla purple, ca. 1.7 cm, outside puberulent, inside glabrous; tube nearly tubular, ca. 1.2 × 0.6 cm; adaxial lip ca. 3 mm; abaxial lip ca. 6 mm. Filaments ca. 8.5 mm, sparsely puberulent; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 1.5 mm. Pistil ca. 1 cm, puberulent; ovary ca. 5.5 mm. Stigma ligulate-oblong, ca. 1.5 mm, undivided. Capsule erect, ca. 2.8 cm. Fl. Jun.

- Rocks in limestone hills. NW Guangxi (Lingyun Xian).


- Known only from cultivation. Cultivated in the Medicinal Botanic Garden of Nanning, Guangxi; possibly introduced from Jinxiou Xian, Guangxi.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–9 × 0.4–1 cm; leaf blade oblong ovate to ovate, obovate, or narrowly elliptic, 8–26 × 4.5–14 cm, papery, adaxially pilose, eglandular, abaxially pubescent, pilose along veins, base cuneate to broadly cuneate, margin nearly entire to shallowly crenate, apex acute; lateral veins 4–6 on each side of midrib, conspicuous to inconspicuous. Cymes 7–28-flowered; peduncle 20–35 cm, puberulent; bracts 2, free, narrowly triangular to navicular-triangular, 1–1.6 cm × 3–4 mm, puberulent to pilose, margin entire, apex attenuate. Pedicel 1.2–3 cm, glandular puberulent. Calyx 5-sect from base; segments equal, narrowly triangular to lanceolate-linear, 1–1.5 cm × ca. 2 mm, puberulent, margin entire, apex attenuate. Corolla blue-purple, with 1 yellow spot below adaxial lip, 3.2–4.5 cm, outside sparsely glandular puberulent, inside glandular puberulent on yellow spot; tube nearly tubular, 2.4–3.5 × ca. 1 cm; adaxial lip 3.5–4 mm; abaxial lip 8–10 mm. Filaments ca. 1 cm, puberulent near apex; anthers fused by entire adaxial surfaces, ca. 2.2 mm, glabrous; staminodes 3, central 1 ca. 0.8 mm, laterals 5–6 mm. Pistil 2.9–3.2 cm, densely glandular puberulent; ovary 2–2.3 cm. Stigma narrowly elliptic, 2.2–3 mm, undivided. Immature capsule ca. 3 cm. Fl. Nov.

- Known only from cultivation. First cultivated at the South China Institute of Botany in Guangzhou, Guangdong; possibly introduced from Guangxi.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.2–5.2 × 0.5–1 cm; leaf blade narrowly elliptic to narrowly ovate, 8.5–14 × 3.8–7 cm, papery, densely appressed puberulent, eglandular, base cuneate, margin crenate, apex acute to obtuse; lateral veins 6 or 7 on each side of midrib, slightly conspicuous. Cymes 8–15-flowered; peduncle 10–12 cm, densely spreading glandular puberulent; bracts 2, free, lanceolate-linear, 6–8 × ca. 1 mm, puberulent, margin entire, apex acute. Pedicel 1.5–20 cm, densely glandular puberulent. Calyx 5-sect from base; segments equal, narrowly triangular to narrowly lanceolate-linear, ca. 4.8 × 0.6–0.9 mm, outside puberulent, inside apically sparsely puberulent, margin entire, apex acute. Corolla purple, ca. 2.1 cm, outside sparsely puberulent, inside adaxial lip puberulent basally; tube funnelform-tubular, ca. 1.2 cm × 4–6 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 8.5 mm. Filaments ca. 7 mm, sparsely glandular; anthers fused by entire adaxial surfaces, ca. 2 mm, glabrous; staminodes 2, ca. 3 mm. Pistil ca. 1.2 cm, densely puberulent and glandular puberulent; ovary ca. 7.5 mm. Stigma obdeltoid, ca. 1.5 mm, undivided. Fruit and seeds unknown. Fl. Jun.

- Rocky crevices of limestone hills. Guangxi (Pingle Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.8–3.5
× 0.5–1.8 cm; leaf blade broadly ovate to orbicular-ovate, 6–12 × 5–12 cm, papery, sparsely appressed puberulent, eglandular, base nearly truncate to truncate on 1 side and broadly cuneate on other, margin undulate-dentate to repand, apex acute to rounded; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes ca. 10-flowered; peduncle ca. 18 cm, spreading pubescent; bracts 2, free, lanceolate, ca. 2.2 × 5–7 mm, appressed puberulent, margin entire, apex obtuse. Pedicel to 1.6 cm, puberulent. Calyx 5-sect from base; segments equal, narrowly triangular to lanceolate-linear, ca. 6 × 1.1 mm, outside puberulent, inside apically puberulent with very short hairs, margin entire, apex acute; Calorla blue-purple, ca. 2.1 cm, sparsely puberulent; tube nearly tubular, ca. 1.3 cm × 7 mm; adaxial lip ca. 5 mm; abaxial lip ca. 8 mm. Filaments ca. 8 mm, sparsely glandular puberulent near apex; anthers fused by entire adaxial surfaces, ca. 4 mm, glabrous; staminodes 2, ca. 2.2 mm. Pistil ca. 1 cm, puberulent; ovary ca. 6 mm. Stigma obovoid, ca. 1.2 mm, 2-lobed. Fruit and seeds unknown. Fl. Aug.


直蕊唇柱苣苔 zhi rui chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–3.5 cm × 3–6 mm; leaf blade narrowly ovate to narrowly elliptic, 7–11 × 3–4.2 cm, herbaceous, densely puberulent, eglandular, base oblique, cuneate, margin densely crenulate to dentate or serrulate, apex acute to rounded; lateral veins 5 or 6 on each side of midrib, slightly conspicuous. Cymes 2–8-flowered; peduncle 7–8 cm, spreading puberulent; bracts 2, free, ovate, ca. 5 × 3 mm, puberulent, margin remotely crenulate, apex obtuse. Pedicel 4–13 mm, puberulent and glandular puberulent. Calyx 5-sect from base; segments equal, narrowly triangular, 3–3.5 × ca. 1.2 mm, outside puberulent, inside glabrous, margin entire, apex acute. Corolla purple-blue, 2.2–2.7 cm, glabrous; tube nearly tubular, ca. 1.7 × 0.7 cm; adaxial lip ca. 3.5 mm; abaxial lip ca. 5 mm. Filaments ca. 9 mm, sparsely puberulent and glandular above; anthers fused by entire adaxial surfaces, ca. 2.5 mm, glabrous; staminodes 2, ca. 1.5 mm. Pistil ca. 2.1 cm, puberulent; ovary ca. 1 cm. Stigma oblong, ca. 2 mm, 2-lobed. Capsule erect, 2.5–3 cm. Fl. May.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.5–5 cm × 2–4 mm; leaf blade ovate to elliptic, 2.9–11.5 × 1.5–6.5 cm, papery, puberulent, eglandular, base often oblique, cuneate on 1 side and broadly cuneate on other, margin repand-crenate to denticate, apex acute to obtuse; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 1–4-flowered; peduncle 4–8 cm, spreading puberulent; bracts 2, free, ovate to nearly elliptic, 0.9–2.1 × 0.5–1.2 cm, puberulent, margin crenulate to entire, apex acute to obtuse. Pedicel 6–12 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 7–10 × 1.5–2 mm, outside puberulent, inside glabrous, margin entire, apex acute. Corolla purple, ca. 4 cm, outside puberulent, inside puberulent below adaxial lip; tube funnelform-tubular, ca. 2.8 × 0.9 cm; adaxial lip ca. 6.5 mm; abaxial lip ca. 1.1 cm. Filaments ca. 9 mm, glandular puberulent above; anthers fused by entire adaxial surfaces, ca. 3 mm, apically with a few short hairs; staminodes 2, ca. 0.8 mm. Pistil ca. 2.6 cm, puberulent; ovary ca. 1.1 cm. Stigma cuneate, ca. 3 mm, 2-lobed. Capsule erect, ca. 4 cm. Fl. May–Jun.

• Shaded damp areas of montane forests; 700–1200 m. Sichuan (Pengshui Xian, Xiushan Xian). 16. Chirita eburnea Hance, J. Bot. 21: 168. 1883. 牛耳朵 niu er duo

Chirita fauriei Franch.; Didymocarpus eburneus (Hance) H. Léveillé; Roettlera eburnea (Hance) Kuntze.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–8 × 0.5–1 cm; leaf blade ovate to elliptic or obovate, 3.5–17 × 2–9.5 cm, papery, appressed puberulent to pilose, eglandular, base attenuate to broadly cuneate, margin entire, apex acute; lateral veins 4 or 5 on each side of midrib, inconspicuous. Cymes (1 or)2–13–(17)-flowered; peduncle 4–30 cm, puberulent; bracts 2, free, ovate to orbicular-ovate, 1–4.5 × 0.8–2.8 cm, densely puberulent, margin entire, apex acute to obtuse. Pedicel to 2.3 cm, puberulent and glandular puberulent. Calyx 5-sect from base; segments equal, narrowly lanceolate, 3–7–10 × (1–)2–2.5 mm, outside puberulent and glandular puberulent, inside sparsely puberulent, margin entire, apex acute. Corolla purple to white or yellow, 3–4.5 cm, sparsely puberulent; tube nearly tubular, ca. 3 × 1–1.4 cm; adaxial lip 5–9 mm; abaxial lip 1.2–1.8 cm. Filaments 9–10 mm, sparsely puberulent basally; anthers fused by entire adaxial surfaces, 3–5 mm, nearly glabrous; staminodes 2, 4–6 mm. Pistil 2.2–3 cm, densely puberulent; ovary ca. 2 cm. Stigma cuneate, ca. 3 mm, 2-lobed. Capsule erect, 4–8 cm. Fl. Apr–Sep, fr. May–Oct.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–3.5(–6) cm × 1.5–3 mm; leaf blade broadly ovate to ovate, seldom nearly orbicular, 0.8–3.2 × 0.8–2.8 cm, papery, puberulent to pilose, eglandular, base sometimes oblique, cuneate to nearly truncate, margin indistinctly undulate-denticulate, apex obtuse to rounded; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1- or 2-flowered; peduncle 1.5–6 cm, spreading puberulent; bracts 2, free, ovate to lanceolate or oblanceolate-linear, 5–12 × 2.2–5 mm, puberulent, margin entire, apex acute. Pedicel 4–13 mm, spreading puberulent. Calyx 5-sect from base; segments equal, narrowly lanceolate-linear, 3–7 × 0.8–1 mm, puberulent, margin entire, apex acute. Corolla purple, ca. 2.7 cm, outside sparsely glandular puberulent, inside puberulent on and below adaxial lip; tube nearly tubular, ca. 1.8 × 0.9 cm; adaxial lip ca. 4 mm; abaxial lip ca. 8 mm. Filaments ca. 1 cm, sparsely glandular, anthers fused by entire adaxial surfaces, ca. 4.5 mm, puberulent; staminodes 3, central 2, 6–9 mm. Pistil ca. 2.1 cm, densely puberulent; ovary ca. 9 mm. Stigma cuneate, ca. 3.5 mm, apex attenuate.

1a. Bracts 1–3.8 × 0.9–2.7 cm, margin denticulate; calyx segments 1–1.5 mm, apex attenuate

1b. Bracts 0.6–0.9 × 0.4–0.45 cm, margin entire; calyx segments 2–3 mm, apex acute 18b. var. amblyosepala

18a. Chirita lunglinensis var. lunglinensis

隆林唇柱苣苔(原变种) long lin chun zhu ju tai (yuan bian zhong)

Bracts 1–3.8 × 0.9–2.7 cm, margin denticulate. Calyx segments 1–1.5 mm, apex attenuate.

• Valleys, on rocks of forest margin on limestone hills; 300–500 m. NW Guangxi (Longlin Xian), S Guizhou (Luodian Xian).


钝萼唇柱苣苔 dun e chun zhu ju tai

Bracts 6–9 × 4–4.5 mm, margin entire. Calyx segments 2–3 mm, apex acute. Fl. Jun.

• Streamsides in valleys; 700–800 m. Guangxi (Luocheng Xian).


龙州唇柱苣苔 long zhou chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.6–8 cm × 1–5 mm; leaf blade elliptic to ovate, seldom broadly ovate, 2.6–10(–12) × 1.6–5.7 (~11.5) cm, papery, adaxially appressed pubescent and pilose, eglandular, abaxially appressed pilose, base oblique, broadly cuneate to cuneate on 1 side, cuneate to nearly cordate on other, margin crenate to denticate, apex acute to obtuse; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 2–8-flowered; peduncle 5–20 cm, spreading pilose; bracts 2, free, elliptic to broadly ovate, 0.6–3.8 × 0.4–2.7 cm, puberulent, margin entire or denticate, apex acute to obtuse. Pedicel 6–10 mm, glandular puberulent. Calyx 5-sect from base; segments equal, narrowly lanceolate to narrowly triangular, 3–9 × 1.1–1.9 mm, outside puberulent, inside glabrous, margin entire, apex attenuate to acute. Corolla white to purple-blue, 3–3.8 cm, outside puberulent, inside puberulent below abaxial lip and stamens; tube narrowly funnelform, ca. 2.8 × 1–1.2 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1.1 cm. Filaments ca. 1.3 cm, sparsely glandular puberulent; anthers fused by entire adaxial surfaces, ca. 4.5 mm, bearded; staminodes 2, 6–7 mm. Pistil ca. 2.7 cm, puberulent; ovary ca. 1.7 cm. Stigma cuneate, ca. 3 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–4.5 cm × 3–7 mm; leaf blade narrowly ovate to elliptic, 2.5–11 × 1.2–4.4 cm, leathery, appressed puberulent, eglandular, base cuneate, margin entire, apex acute; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes ca. 5–flowered; peduncle 0.1–0.4 cm, densely appressed puberulent; bracts 2, free, lanceolate, 1.5–1.8 cm × 5–7 mm, pubescent, margin entire, apex acute. Pedicel 0.1–0.4 cm, densely villous. Fl. Jun–Jul.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2.7–13 × 1.9–7 cm, papery, puberulent, eglandular, base broadly cuneate to truncate, margin obtusely dentate to crenate or denticulate, apex acute to rounded; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 1–12-flowered; peduncle 0.1–13 cm, pubescent to densely pilose; bracts 2, free, ovate to oblong or nearly orbicular, 4–11 × 2.7–7 mm, sparsely puberulent, margin denticulate to entire, apex acute to obtuse. Pedicel 3–11 mm, densely glandular puberulent. Calyx 5-sec from base; segments equal, linear to lanceolate, 4–7 × 1.2–2 mm, outside densely glandular puberulent, inside sparsely puberulent apically, margin 1- or 2-denticulate apically, apex acute. Corolla purple, ca. 3.5 cm, outside puberulent, inside sparsely pubescent basally; tube nearly tubular, 2.5–2.7 cm × 8–9 cm; adaxial lip 6–7 mm; abaxial lip 1.1–1.2 cm. Filaments 1.1–1.4 cm, sparsely glandular puberulent; anthers fused by entire adaxial surfaces, 2.5–4 mm, abaxially bearded; staminodes 2, 4–7 mm. Pistil ca. 2.9 cm, puberulent; ovary 1.1–1.5 cm. Stigma linear, 2–3 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun–Jul.

22a. Chirita obtusidentata var. obtusidentata


Peduncle 0.1–0.4 cm, densely villous. Fl. Jun–Jul.

22a. Chirita obtusidentata var. obtusidentata


22b. Chirita obtusidentata var. mollipes

Peduncle 0.1–0.4 cm, densely villous. Fl. Jun–Jul.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 7–11 × 2.2–2.6 mm; leaf blade elliptic to ovate, 3.4–8.8 × 1.5–3.8 cm, papery, adaxially with short and long hairs, whitish along midrib and lateral veins, eglandular, abaxially puberulent, base oblique, cuneate to rounded, margin crenate to dentate, apex rounded to acute; lateral veins 4 or 5 on each side of midrib, conspicuous. Cymes 2- or 3-flowered; peduncle ca. 6 cm, densely puberulent; bracts 2, free, ovate to narrowly elliptic, ca. 9 × 4.5 mm,
Inconspicuous. Leaves basal, opposite; petiole 1–2.5 cm outside densely puberulent, inside puberulent apically, margin 1- or 2-denticulate, apex attenuate. Corolla purple-blue, ca. 2.7 cm, outside puberulent, inside in longitudinal lines with very short hairs on adaxial lip; tube funnelform-tubular, ca. 2 × 0.9 cm; adaxial lip ca. 3.5 mm; abaxial lip ca. 7 mm. Filaments ca. 9 mm, glandular puberulent; anthers fused by entire adaxial surfaces, 2.8–3 mm, purple stigrose at apex; staminodes 2, ca. 3 mm. Pistil ca. 2.8 cm, puberulent; ovary ca. 1 cm. Stigma ligulate or ca. 2 mm, apex nearly truncate and emarginate. Capsule erect, ca. 2.5 cm. Fl. Jun, fr. Aug.


多葶唇柱苣苔 duo ting chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.7–10 cm × 3–7 mm; leaf blade ovate to nearly orbicular, seldom elliptic, 3–12 × 2.8–11 cm, thin papery, sparsely appressed pilose and appressed pubescent, eglandular, base broadly cuneate, truncate, to nearly cordate, margin entire or repand to irregularly shallowly crenate, apex obtuse to rounded; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 2–7–flowered; peduncle shorter than leaves; bracts 2. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 2.4 × 1.3 cm; adaxial lip ca. 3 mm; abaxial lip ca. 1.1 cm. Filaments ca. 8.5 mm, glandular puberulent above; anthers fused by entire adaxial surfaces, ca. 2.1 cm, bearded; staminodes 3, central ca. 0.8 mm, laterals ca. 6 mm. Pistil ca. 2.5 cm, puberulent and purplish glandular puberulent; ovary ca. 1.7 cm. Stigma trapezoid, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.


光叶唇柱苣苔 guang ye chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–2.5 cm × ca. 6 mm; leaf blade elliptic to oblong, ca. 12 × 4.7–7.2 cm, thin papery, sparsely puberulent, eglandular, base oblique, cuneate to broadly cuneate on 1 side, broadly cuneate to rounded on other, margin indistinctly denticulate to crenulate or entire on 1 side, apex acute to obtuse; lateral veins ca. 6 on each side of midrib, inconspicuous. Cymes 2–4–flowered; peduncle ca. 7.2 cm, puberulent; bracts 2, free, elliptic, 8–9 × ca. 3 mm, puberulent, margin entire, apex acute. Pedicel 5–12 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 6 × 1–1.2 mm, outside purplish puberulent, inside glabrous, margin entire, apex acute. Corolla purple-white, ca. 3.5 cm, outside puberulent, inside sparsely puberulent on adaxial lip; tube funnelform-tubular, ca. 2.4 × 1.3 cm; adaxial lip ca. 3 mm; abaxial lip ca. 1.1 cm. Filaments ca. 8.5 mm, glandular puberulent above; anthers fused by entire adaxial surfaces, ca. 2.1 cm, bearded; staminodes 3, central ca. 0.8 mm, laterals ca. 6 mm. Pistil ca. 2.5 cm, puberulent and purplish glandular puberulent; ovary ca. 1.7 cm. Stigma trapezoid, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.


短序唇柱苣苔 duan xu chun zhu ju tai
Didymocarpus depressus (J. D. Hooker) W. Y. Chun, Sunyatsenia 6: 298. 1946.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole ca. 8 × 6 mm; leaf blade broadly ovate or elliptic to obovate, ca. 10 × 6 cm, papery, adaxially densely puberulent, eglandular, abaxially velutinous, base cuneate, margin shallowly crenate, apex obtuse to rounded; lateral veins ca. 4 on each side of midrib, conspicuous. Cymes ca. 4-flowered; peduncle shorter than leaves; bracts 2. Calyx 5-sect from base; segments slightly unequal, narrowly linear, ca. 7 × 1 mm, outside puberulent and glandular puberulent, margin entire, apex attenuate. Corolla purple, ca. 3 cm, outside sparsely pubescent, inside glandular puberulent below stamens; tube funnelform-tubular, ca. 2.3 × 0.8 cm; adaxial lip ca. 6 mm; abaxial lip ca. 7 mm. Filaments ca. 1.3 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 2.5 mm, glabrous; staminodes 3, central ca. 2 mm, laterals ca. 6 mm. Pistil nearly as long as corolla tube; ovary puberulent and sparsely glandular puberulent. Stigma obovoid, 2-lobed. Fruit and seeds unknown.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–4.5 cm × 3–5 mm; leaf blade elliptic to broadly ovate, (1.8)–8–10 × (1.4)–5–7.4 cm, papery, adaxially puberulent near margin, eglandular, abaxially sparsely puberulent, base oblique, broadly cuneate, margin crenate to repand, apex obtuse to rounded; lateral veins 4 or 5 on each side of midrib, inconspicuous. Cymes ca. 7-flowered; peduncle 8.5–9.8 cm, villous and glandular puberulent; bracts 3, free, lanceolate to narrowly elliptic, 0.9–1.3 cm × 3–7.5 mm, ciliate, margin entire, apex acute. Pedicel 0.8–1.6 cm, glandular puberulent. Calyx 5-sect from base; segments equal, linear-lanceolate, 7–10 × 1.5–1.7 mm, outside puberulent, inside glabrous, margin entire, apex attenuate. Corolla blue, 3.6–4 cm, outside sparsely puberulent, inside puberulent on adaxial lip; tube narrowly funneliform, ca. 2.5 × 0.9–1.1 cm; adaxial lip ca. 7 mm; abaxial lip ca. 1.4 cm.

Filaments ca. 1.3 cm, glandular puberulent near apex; anthers fused by entire adaxial surfaces, ca. 3.2 mm, glabrous; staminodes 3, central ca. 0.5 mm, laterals ca. 3.2 mm. Pistil ca. 2.5 cm, densely puberulent; ovary ca. 1.5 cm. Stigma cuneate, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Jul.

- Near caves in limestone hills. NW Guangxi (Fengshan Xian).


新宁唇柱苣苔

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.3–2 × 0.4–1.4 cm; leaf blade orbicular to broadly ovate, 3–8 × 2.5–8 cm, papery, adaxially puberulent, eglandular, abaxially puberulent, base broadly cuneate to subcordate, margin irregularly dentate or undulate and obtusely dentate, apex rounded to obtuse; lateral veins 2 or 3 on each side of midrib, inconspicuous. Cymes (3–)10–14-flowered; peduncle 4.5–13.5 cm, spreading or 3 on each side of midrib, inconspicuous. Cymes (3–)10–14-flowered; peduncle 4.5–13.5 cm, spreading puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear to narrowly elliptic, 7–11(–15) × 1.5–3 mm, puberulent, margin often denticulate to serrate apically, apex acute to acuminate. Corolla blue, purple, to pinkish green, (3.5–)4.2–6.4 cm, outside basally sparsely puberulent, inside puberulent below adaxial lip on 2 purple lines; tube narrowly funneliform, 2.5–3.8 × 0.8–1.4 cm; adaxial lip 0.7–1.2 cm; abaxial lip 1.5–2.4 cm. Filaments ca. 1.3 cm, apex sparsely puberulent to glabrous; anthers fused by entire adaxial surfaces, ca. 4 mm, sparsely bearded; staminodes 2 or 3, ca. 4 mm. Pistil ca. 2.7–3.2 cm, densely puberulent; ovary 2–2.6 cm. Stigma obtrapezoid, 2–3 mm, 2-lobed. Capsule erect, 4–8 cm. Fl. Mar–Apr, fr. Apr–Jun.

- Rocks or cliffs in forests or montane streamsides; 400–1000 m. Fujian, N Guangdong, N and S Guangxi, S Guizhou, Hunan, Jiangxi.

29a. **Chirita fimbrisepala** var. **fimbrisepala**

蚂蝗七 ma huang qi

Didymocarpus fimbrisepalus (Handel-Mazzetti) Handel-Mazzetti.

Leaf blade abaxially sparsely puberulent to pubescent.

- Rocks or cliffs in forests or montane streamsides; 400–1000 m. Fujian, N Guangdong, N Guangxi, S Guizhou, Hunan, Jiangxi.


密毛蚂蝗七 mi mao ma huang qi

Leaf blade abaxially densely puberulent to velutinous.

- Rocks in forested valleys; 800–1000 m. S Guangxi (Fangcheng Xian, Shangsi Xian).

齿萼唇柱苣苔 *chi e chun zhu ju tai*

**Didymocarpus verecundus** W. Y. Chun, Sunyatsenia 6: 297. 1946.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–10 cm × 4–10 mm; leaf blade oblique, rhombic-elliptic, 8–15 × 5–11 cm, papery, sparsely puberulent, eglandular, base oblique, cuneate to rounded on 1 side and rounded to cordate on other, margin irregularly dentate to denticulate, apex acute to rounded; lateral veins 4 or 5 on each side of midrib, inconspicuous. Cymes 1–4-flowered; peduncle to 10 cm, villous; bracts 2, free, narrowly ovate to oblong, 1–2 cm × 3–6 mm, puberulent, margin crenulate, apex acute. Pedicel 1–5(–20) mm, puberulent. Calyx 5-sect from base; segments equal, linear-lanceolate, 1.2–3 × 1–2 mm, outside puberulent, inside puberulent, margin denticulate, apex attenuate. Corolla blue, 4–4.5 cm, outside sparsely puberulent, inside puberulent on purple spots below adaxial lip; tube nearly tubular, ca. 3 × 0.9 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1.8 cm. Filaments ca. 1.2 cm, apex puberulent; anthers fused by entire adaxial surfaces, ca. 6 mm, abaxially puberulent; staminodes 2, ca. 3 mm. Pistil ca. 3 cm, puberulent; ovary ca. 1.1 cm. Stigma suboblong, ca. 3 mm, 2-parted. Capsule erect, 4–5 cm. Fl. Dec.


.lang shan chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–10 cm × 7–9 mm; leaf blade oblique, rhombic-ovate, 4.8–10 × 3.8–7 cm, papery, adaxially densely pubescent (hairs to 8.2 mm) and eglandular, abaxially densely pubescent, margin coarsely dentate, apex attenuate. Pedicel 1.6–2.2 cm, spreading pubescent. Calyx 5-sect from base; segments equal, linear-lanceolate, 7–9 × 1.2–2 cm, outside puberulent, inside glabrous, margin entire, apex attenuate. Corolla purple-red, 3.5–5 cm, outside sparsely puberulent, inside puberulent toward mouth; tube broadly funnelform to tubular-funnelform, 2.3–3 × 1.4–1.8 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1.6 cm. Filaments ca. 1.1 cm, sparsely puberulent apically; anthers fused by entire adaxial surfaces, ca. 3.2 mm, abaxially puberulent; staminodes 3, ca. 5 mm. Pistil ca. 3 cm, densely puberulent; ovary ca. 1.4 cm. Stigma suboblong, ca. 3 mm, 2-parted. Capsule erect, 3–4 cm. Fl. Mar.–Apr.


ling ling chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.4–2.2 cm × ca. 3 mm; leaf blade narrowly to broadly elliptic or ovate, 1.5–3.6(–4.7) × 1–2 cm, papery, adaxially densely villous (hairs to 8.2 mm) and puberulent, eglandular, abaxially densely pubescent, base cuneate to broadly cuneate, margin repand to entire, apex acute to rounded; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1- or 2-flowered; peduncle 3–7 cm, villous; bracts 2, free, lanceolate-linear, ca. 7 × 1–1.2 mm, villous, margin entire. Pedicel 1.2–2.2 cm, pubescent and glandular puberulent. Calyx 5-sect from base; segments equal, linear-lanceolate, 7–9 × 1–2 mm, outside puberulent, inside glabrous, margin entire, apex attenuate. Pedicel 0.9–1.4 cm, spreading pubescent. Calyx 5-sect from base; segments equal, linear-triangular, 1.2–2.2 × 0.6–1.2 mm, pubescent, margin entire, apex acute. Pedicel 3–7 cm, spreading pubescent. Calyx 5-sect from base; segments equal, linear-triangular, 1.4 × 1.5–1.8 mm, outside puberulent, inside glabrous, margin entire, apex attenuate. Pedicel 1.2–3 cm, spreading pubescent. Calyx 5-sect from base; segments equal, linear-triangular, 2 × 1 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1 cm. Filaments ca. 1 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 3.5 mm, villous; staminodes 3, central ca. 2 mm, laterals ca. 5 mm. Pistil ca. 1.8 cm, puberulent; ovary ca. 1.1 cm. Stigma sub-
oblong, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. May.

- Forests on limestone hills; ca. 100 m. S Guangdong (Zhaoqing Xian).


桂林唇柱苣苔  gui lin chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.5–4 cm × 4–8 mm; leaf blade narrowly elliptic to rhombic-elliptic or ovate, 2.5–7.5 × 1.4–4 cm, papery, densely puberulent, eglandular, base oblique, cuneate, margin shallowly crenate, apex obtuse to rounded; lateral veins 4–6 on each side of midrib, inconspicuous. Cymes 1–5-flowered; peduncle 1.5–6 cm, densely spreading puberulent; bracts 2, free, linear to narrowly elliptic or narrowly triangular, 2–14 × 0.3–1.5 mm, puberulent, margin entire, apex acute. Pedicel 2.5–10 mm, densely spreading puberulent. Calyx 5-sect from base; segments equal, narrowly lanceolate, 5–7 × 1.2–2 mm, outside puberulent, inside glabrous, margin entire, apex acute. Corolla purple, 4–6 cm, outside puberulent, inside puberulent, only on adaxial lip; tube tubular to narrowly funnelform, 2.5–3.8 × 1.2–2 cm; adaxial lip 0.9–1.2 cm; abaxial lip 1.1–1.5 cm. Filaments 1.1–1.2 cm, glabrous; anthers fused by entire adaxial surfaces, 4.5–5 mm, pubescent; staminodes 2, 5.5–7 mm. Pistil 2–3 cm, puberulent; ovary (0.4–)1.5–2.6 cm. Stigma obtrapezoid, 2.5–4 mm, 2-lobed. Capsule erect, 2.5–3.6 cm. Fl. Mar–Apr.

- Shaded forest areas in limestone hills; to 800 m. W Guangdong (Yunfu Xian), E and NE Guangxi.


烟叶唇柱苣苔  yan ye chun zhu ju tai
Perennials, Rhizome apical internodes to 2.7 cm. Stem absent, or decumbent, to 25 × 3 cm, puberulent. Leaves basal or crowded at apex of stem, opposite; petiole 0.5–11 × 0.2–1.5 cm; leaf blade sometimes oblique, narrowly elliptic to oblong, obovate, or ovate, 3–23 × 1.5–13 cm, herbaceous to papery, adaxially sparsely puberulent and sparsely pilose, eglandular, abaxially sparsely pubescent, base sometimes oblique, cuneate to attenuate and decurrent, seldom truncate-cordate, margin entire to indistinctly denticulate, apex acute to obtuse; lateral veins 4–7 on each side of midrib, inconspicuous. Cymes 2–15-flowered; peduncle 4.4–21 cm, puberulent to spreading pilose and glandular puberulent; bracts 2, free, elliptic to ovate or narrowly triangular, 0.9–25 × 0.2–9 mm, pubescent, margin entire, apex acute to acuminate. Pedicel (0.3–)1.5–6 cm, puberulent to spreading pilose. Calyx 5-sect from near base; segments equal, linear-lanceolate to narrowly triangular, 0.7–1.7 cm × 0.5–1.2 mm, outside sparsely to densely puberulent and glandular puberulent, inside puberulent, margin entire, apex acute to attenuate. Corolla purplish to white with a purple spot below adaxial lip, 3–4 cm, outside sparsely puberulent to puberulent, inside glandular or puberulent on adaxial lip; tube nearly tubular, 2.4–2.8 × 0.8–1.2 cm; adaxial lip 3–5 mm; abaxial lip 7–12 mm. Filaments ca. 1 cm, sparsely puberulent; anthers fused by entire adaxial surfaces, 2.2–3 mm, glabrous; staminodes 2 or 3, 3–4 mm. Pistil 2–2.6 cm, puberulent and glandular puberulent; ovary ca. 1.2 cm. Stigma cuneate to narrowly oblong, 2–4 mm, 2-lobed or undivided. Capsule erect, 4.5–9 cm. Fl. Apr–Oct, fr. May–Oct.

- Rocky streamsides in forested valleys; 400–600 m. Hainan.


桂粤唇柱苣苔  gui ye chun zhu ju tai
Perennials. Rhizome apical internodes to 2.2 cm. Stem absent, or decumbent, to 25 × 3 cm, puberulent. Leaves basal or crowded at apex of stem, opposite; petiole 0.5–11 × 0.2–1.5 cm; leaf blade sometimes oblique, narrowly elliptic to oblong, obovate, or ovate, 3–23 × 1.5–13 cm, herbaceous to papery, adaxially sparsely puberulent and sparsely pilose, eglandular, abaxially sparsely pubescent, base sometimes oblique, cuneate to attenuate and decurrent, seldom truncate-cordate, margin entire to indistinctly denticulate, apex acute to obtuse; lateral veins 4–7 on each side of midrib, inconspicuous. Cymes 2–15-flowered; peduncle 4.4–21 cm, puberulent to spreading pilose and glandular puberulent; bracts 2, free, elliptic to ovate or narrowly triangular, 0.9–25 × 0.2–9 mm, pubescent, margin entire, apex acute to acuminate. Pedicel (0.3–)1.5–6 cm, puberulent to spreading pilose. Calyx 5-sect from near base; segments equal, linear-lanceolate to narrowly triangular, 0.7–1.7 cm × 0.5–1.2 mm, outside sparsely to densely puberulent and glandular puberulent, inside puberulent, margin entire, apex acute to attenuate. Corolla purplish to white with a purple spot below adaxial lip, 3–4 cm, outside sparsely puberulent to puberulent, inside glandular or puberulent on adaxial lip; tube nearly tubular, 2.4–2.8 × 0.8–1.2 cm; adaxial lip 3–5 mm; abaxial lip 7–12 mm. Filaments ca. 1 cm, sparsely puberulent; anthers fused by entire adaxial surfaces, 2.2–3 mm, glabrous; staminodes 2 or 3, 3–4 mm. Pistil 2–2.6 cm, puberulent and glandular puberulent; ovary ca. 1.2 cm. Stigma cuneate to narrowly oblong, 2–4 mm, 2-lobed or undivided. Capsule erect, 4.5–9 cm. Fl. Apr–Oct, fr. May–Oct.
Chirita fordii var. dolichotricha

37a. Chirita fordii var. fordii

37b. var. dolichotricha

38. Chirita carnosifolia

39. Chirita roseoalba

40. Chirita pteropoda

Corolla blue to purple, 3.5–4.5 cm, outside sparsely puberulent and glandular puberulent, inside puberulent, margin entire, apex acute. Pedicel 1–2.3 cm, densely glandular puberulent and pilose. Calyx 5-sect from base; segments equal, linear-lanceolate to narrowly triangular, 4–9 × 1–2 cm, densely puberulent and pilose, margin entire, apex acute.

Isolated or clustered, in shaded streamside rocks in hilly regions; 300–600 m. W Fujian (Ninghua Xian), N Guangdong, SE Hunan, NE Jiangxi (Guangfeng Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 5–10 × 4–10 mm; leaf blade ovate to orbicular-ovate, 5–8 × 4–7 cm, papery, densely appressed puberulent and appressed pilose (hairs to 1 mm and to 3 mm), eglandular. Calyx 5-sect from base; tube narrowly funnelform, ca. 2.2 × 1 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1.5 cm. Filaments ca. 8 mm, glabrous; anthers fused by entire adaxial surfaces, 3–4 mm, pilose; staminode 1, ca. 4 mm. Pistil ca. 2.5 cm, puberulent; ovary ca. 2 cm. Stigma cuneate, ca. 2 mm, 2-lobed. Fruit and seeds unknown.
1.4 cm. Pistil ca. 2.7 cm, puberulent; ovary ca. 1.4 cm.
- Dense slope forests; ca. 900 m. S Hunan (Shuangxi Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.2–5.5 cm × 5–8 mm; leaf blade slightly oblique, elliptic to ovate, 7.5–10 × 4.2–5.2 cm, leathery to papery, adaxially densely strigose (hairs mixed 0.15–1.2 mm), eglandular, abaxially appressed puberulent, base cuneate to rounded, margin crenate to subentire, apex acute to obtuse; lateral veins 4 or 5 on each side of midrib, inconspicuous. Cymes 5–10-flowered; peduncle 8–26 cm, villous; bracts 2, free, linear-lanceolate, ca. 1.4 cm × 1 mm, puberulent, margin entire, apex acute to acuminate. Pedicel 0.7–2 cm, puberulent and glandular puberulent. Calyx 5-sect from base; segments equal, lanceolate to narrowly triangular, 4–8 × 1–2 mm, outside puberulent to pilose, inside glabrous, margin entire, apex acuminate. Corolla pink to purplish, ca. 3.8 cm, outside puberulent, inside puberulent on limb; tube nearly tubular, 2.2–2.5 × 0.9–1.3 cm; adaxial lip 0.8–1 cm; abaxial lip 1.2–2 cm. Filaments ca. 1.3 cm, glandular puberulent; anthers fused by entire adaxial surfaces, ca. 3.8 mm, pubescent; staminodes 2, ca. 4 mm. Pistil ca. 2.5 cm, puberulent and glandular puberulent; ovary ca. 1.8 cm. Stigma trapezoid, ca. 1.2 mm, 2-lobed. Fruit and seeds unknown. Fl. Apr–May.

- Rocks in forested valleys; ca. 700 m. SE Guizhou (Libo Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.4–3 × 0.9–1.3 cm; leaf blade slightly oblique, broadly ovate to ovate, 2–15 × 2–12 cm, papery, sparsely puberulent (hairs 0.15–0.25 and 0.8–1 mm), eglandular, base oblique, truncate-rounded to broadly cuneate, margin crenate to dentate to reaped, apex rounded to acute; lateral veins 4–6 on each side of midrib, inconspicuous. Cymes 3–6-flowered; peduncle 7–9 cm, densely purple puberulent; bracts 2, free, linear to ovate, 4–8 (–18) × 2.8–3.5 (–6) mm, pubescent to ciliate, margin entire, apex obtuse. Pedicel 3.5–12 mm, purple puberulent and glandular puberulent. Calyx 5-sect from base; segments equal, triangular-linear, ca. 7 × 1.5–2.5 mm, outside puberulent, inside glabrous, margin entire, apex obtuse. Corolla purple, ca. 3.2 cm, outside puberulent, inside puberulent in lines; tube funnelform-tubular, ca. 2 × 1 cm; adaxial lip ca. 7 mm; abaxial lip ca. 1.1 cm. Filaments ca. 1.2 cm, glandular puberulent above; anthers fused by entire adaxial surfaces, ca. 3.5 mm, bearded; staminodes 2, ca. 6 mm. Pistil ca. 2.6 cm, pubescent; ovary ca. 1.6 cm. Stigma cuneate, ca. 3 mm, 2-lobed. Fruit and seeds unknown. Fl. Apr–May.

- Damp rocky crevices in forests of hilly regions; 400–1000 m. SE Guizhou (Libo Xian).

45a. Chirita brachytricha var. brachytricha

Leaf blade 2–8.5 × 2–6.6 cm, apex rounded. Bracts 4–8 × 2.8–3.5 mm. Calyx segments outside purple puberulent.

- Damp rocky crevices in forests of hilly regions; 400–1000 m. SE Guizhou (Libo Xian).


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–4.5 cm × 1.5–5 mm; leaf blade oblique, elliptic to ovate, 4–10 × 2–4.5 cm, leathery, sparsely puberulent, eglandular, base oblique, cuneate to broadly cuneate, margin entire to reaped, apex acute to rounded; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 7–11-flowered; peduncle ca. 12 cm, purple puberulent; bracts 2, free, narrowly ovate, 1.3–2 cm × 3.5–5 mm, sparsely puberulent, margin entire, apex obtuse. Pedicel 1.5–15 mm, purple puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 7 × 1.2–1.5 mm, purplish puberulent, margin indistinctly denticulate, apex obtuse. Corolla blue-purple, ca. 2.7 cm, outside puberulent, inside puberulent on limb; tube funnelform-tubular, ca. 1.7 × 0.8 cm; adaxial lip ca. 4 mm; abaxial lip ca. 1 cm. Filaments ca. 1 cm, glandular puberulent apically; anthers fused by entire adaxial surfaces, ca. 3.8 mm, bearded; staminodes 2, ca. 3 mm. Pistil ca. 1.9 cm, puberulent; ovary ca. 1.3 cm. Stigma oblong, ca. 1.5 mm, 2-lobed. Fruit and seeds unknown. Fl. May.
47. Chirita glabrescens W. T. Wang & D. Y. Chen in W. T. Wang, Bull. Bot. Res., Harbin 5(3): 57. 1985. 少毛唇柱苣苔 shao mao chun zhu ju tai Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.5–5 cm × 3.5–4.5 cm; leaf blade oblique, oblong to narrowly oblong, 4–12 × 1.9–3.5 cm, papery, adaxially puberulent near margin, eglandular, abaxially sparsely appressed puberulent, base oblique, cuneate, margin repand to entire, apex acute to rounded; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 3–11-flowered; peduncle 9–13 cm, sparsely purple puberulent; bracts 2, free, ovate, 0.9–18 cm × 4–9 mm, sparsely puberulent, margin entire, apex obtuse. Pedicel 0.15–12 mm, spreading purple puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 6 × 0.8 mm, outside puberulent, inside glabrous, margin entire, apex acute to acuminate. Corolla purple, 2.8–3.7 cm, outside sparsely puberulent, inside puberulent, margin entire, apex acute to acuminate. Pedicel 0.8–1.5 cm, spreading purple puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 1.9 × 0.7 cm; adaxial lip ca. 4 mm; abaxial lip ca. 8 mm. Filaments ca. 1.1 cm, margin sparsely puberulent; anthers fused by entire adaxial surfaces, 2.8 mm, bearded; staminodes 2, ca. 6 mm. Pistil ca. 2.3 cm, puberulent; ovary ca. 1.5 cm. Stigma cuneate, ca. 3 mm, 2-lobed. Fruit and seeds unknown. Fl. May.


卵圆唇柱苣苔 luàn yuán chún zhu ju tái

Didymocarpus rotundifolius Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 230. 1890. Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–4.5 cm × ca. 2 mm; leaf blade orbicular-ovate to orbicular-reniform, 1.6–4.9 × 1.6–5.3 cm, herbaceous, adaxially appressed pilose (hairs to 5 mm), eglandular, base cordate, margin entire to shallowly crenate, apex rounded; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 2–7-flowered; peduncle 4.5–13 cm, pilose; bracts 2, free, narrowly triangular, 4–6 × 0.8–1 mm, puberulent, margin entire, apex acute. Pedicel 1.7–7 cm, glandular puberulent, and spreading pilose. Calyx 5-sect from base; segments equal, narrowly triangular to lanceolate-linear, 4–5 × ca. 1 mm, outside pilose, inside pubescent, margin entire, apex attenuate. Corolla purple, 2.3–2.7 cm, outside sparsely puberulent, inside apically pubescent; tube nearly tubular, 1.2–1.7 cm × ca. 8 mm; adaxial lip ca. 5 mm; abaxial lip 7–10 mm. Filaments ca. 7 mm, glandular apically; anthers fused by entire adaxial surfaces, ca. 2 mm, glandular; staminodes 2, ca. 3 mm. Pistil 1.2–1.6 cm, densely glandular puberulent; ovary ca. 7 mm. Stigma obtrapeziform, ca. 1 mm, 2-lobed. Capsule erect, 3–3.5 cm. Fl. and fr. Nov.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–4 cm × 3–5 mm; leaf blade oblique, narrowly oblanceolate to narrowly elliptic, often falcate, 4–13 × 1.3–3 cm, papery, adaxially densely appressed puberulent, eglandular, abaxially white velutinous, base attenuate, margin entire, apex acute to obtuse; lateral veins 5 or 6 on each side of midrib, inconspicuous. Cymes 2-flowered; peduncle 8–13 cm, puberulent to velutinous; bracts 2, free, linear to triangular or ovate, 5–12 × 1.5–2.5 mm, densely puberulent to velutinous, margin entire, apex acute. Pedicel 6–12 mm, pilose and sparsely glandular puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear to narrowly triangular, 4–7 × 1–2.2 mm, outside densely pubescent to pilose, inside puberulent near apex, margin entire, apex acute. Corolla purplish, 3.6–4.6 cm, outside sparsely pilose, inside puberulent below stamens; tube narrowly funnelform, ca. 2.2 × 1 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1.3 cm. Filaments ca. 1 cm, glabrous; anthers fused by entire adaxial surfaces, 3–5 mm, bearded; staminodes absent. Pistil ca. 2.5 cm, puberulent; ovary ca. 1.5 cm. Stigma cuneate, ca. 3 mm, 2-lobed. Fruit and seeds unknown. Fl. May.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 3–17.5 cm × ca. 2 mm; leaf blade ovate to oblate or reniform, 2–6.8 × 2–6.8 cm, herbaceous, puberulent, eglandular, base cordate, margin irregularly repand-crenate to dentate to serrate, apex acute to rounded; lateral veins 3–5 on each side of midrib, slightly conspicuous. Cymes 1-flowered; peduncle ca. 3.5 cm, white villous; bracts 2, free, linear-lanceolate, 6–9 × 1–1.2 mm, puberulent and glandular puberulent, margin entire, apex acute. Pedicel ca. 1 cm, densely puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear to narrowly triangular, 5.5–7 × 1.2–2.2 mm, outside puberulent, margin entire, apex acute. Corolla purplish, 3.8–4.6 cm, outside densely pubescent to pilose, inside puberulent near apex, margin entire, apex acute. Corolla purplish, ca. 3.6 cm, outside sparsely pilose, inside puberulent below stamens; tube narrowly funnelform, ca. 2.2 × 1 cm; adaxial lip ca. 6 mm; abaxial lip ca. 1.3 cm. Filaments ca. 1 cm, glabrous; anthers fused by entire adaxial surfaces, 4–5 mm, bearded; staminodes 2, ca. 7.5 mm. Pistil ca. 3.2 cm, densely puberulent; ovary ca. 1.4 cm. Stigma linear, ca. 3 mm, 2-lobed. Fruit and seeds unknown. Fl. May.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.5–3 cm × 3 mm; leaf blade elliptic to ovate, (1.4–)2.3–3.2 × (1.1–)1.7–2.4 cm, leathery, purple puberulent to pilose if present; adaxial surfaces 0.3–4 mm adaxially, 0.5–2 mm abaxially, eglandular, base broadly cuneate, margin crenate to repand, apex acute to rounded; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 2–4-flowered; peduncle 4.5–9 cm, purple villous; bracts 2, free, narrowly ovate to elliptic, 7–12 × 5–7 mm, purple pubescent, margin entire, apex obtuse. Pedicel 1–1.8 cm, densely puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear to narrowly triangular, 5.5–7 × 1.2–2.2 mm, puberulent, margin entire, apex acute. Corolla white to red-purple, 3.4–4 cm, outside glabrous to puberulent, inside puberulent or glabrous below stamens; tube narrowly funnelform, ca. 2 × 1 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1.2 cm. Filaments ca. 1.4 cm, basally puberulent; staminodes 3, central ca. 0.5 mm, laterals 5–7 mm. Pistil ca. 2.8 cm, densely pubescent to glandular.
54a. Chirita longgangensis var. longgangensis

岗唇柱苣苔 (原变种) long gang chun zhu ju tai 
(yuan bian zhong)

Bracts lanceolate to obovate, 7–20 × 3–6 mm. Corolla white, outside glabrous, inside puberulent below stamens.

- Rocks on forest margin on limestone hills; 200–300 m. SW Guangxi (Longzhou Xian).


红药唇柱苣苔 hong yao chun zhu ju tai

Bracts linear, 4–15 × 0.5–1.5 mm. Corolla purple-red, outside puberulent, inside glabrous.

- Shaded rocky crevices on limestone hills. SW Guangxi (Tiandeng Xian).


唇柱苣苔 chun zhu ju tai

Chirita dryas Dunn; C. sinensis var. angustifolia Dunn; C. sinensis var. bodinieri H. Léveillé; Didymocarpus sinensis (Lindley) H. Léveillé; Roettlera sinensis (Lindley) Kunze.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite or ternate; petiole 2–8(–19) cm × 2–5 mm; leaf blade ovate to elliptic, lanceolate, oblanceolate, or suborbicular, sometimes falcate, 4–20 × 3.5–6.5(–9) cm, papery, appressed pubescent and pilose, eglandular, base attenuate to cordate, margin repand to crenate, rarely dentate to serrate, apex acuminate to rounded; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 1–12-flowered; peduncle 12–32 cm, spreading villous to pilose; bracts 2, free, ovate to lanceolate, 1–4 × 0.4–1.6 cm, pubescent to villose, margin entire or crenulate to serrulate, apex acute. Pedicel 0.8–2.5 cm, pubescent to pilose and glandular puberulent. Calyx 5-sect from base; segments equal, lanceolate to narrowly ovate, 3–6 × 1–2.5 mm, outside puberulent to pilose, inside glabrous, margin entire, apex acute to rounded. Corolla purple to white, inside tinged purple with 2 yellow longitudinal lines adaxially of tube, (2–)2.7–4.6 cm, outside sparsely pubescent to pilose, inside puberulent only on purple spot of adaxial lip; tube tubular to broadly funnelform, often gibbous abaxially, (1.5–)2–3.5 × 1.1–1.5 cm; adaxial lip 4–6 mm; abaxial lip 0.7–1.5 cm. Filaments 0.7–1.4 mm, puberulent; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous to pubescent; staminodes 2, 3–6 mm. Pistil 1.8–2.5 cm, puberulent to pilose and glandular pubescent; ovary 1–1.8 cm. Stigma obtrapeziform to oblong, 2–3 mm, 2-lobed. Capsule at ca. 90° to peduncle, 4–7.5 cm. Fl. May–Feb. fr. Aug–Feb.

- Wet shady places by streams or on rocks in valleys; 100–500 m. W Guangdong.


羽叶唇柱苣苔 yu ye chun zhu ju tai

Didymocarpus pinnatifidus Handel-Mazzetti, Sinensia 5: 8. 1934; Chirita quercifolia D. Wood.

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–10 cm × 1–3 mm; leaf blade oblong to lanceolate or narrowly ovate, 3–20 × 1.5–7.8 cm, herbaceous, appressed puberulent to pilose, eglandular, base cuneate to broadly cuneate, margin irregularly pinnately lobed, apex acute to rounded; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 1–4-flowered; peduncle 4.5–20 cm, spreading villous to pilose; bracts 2, free, oblong to ovate or obovate, 5–14(–25) × 1.5–8(–10)
Chirita fangii (Rongshui Xian).

Sep. of ca. 90° to peduncle, ca. 3–3.5 cm. Fl. and fr. May–oblong, ca. 3 mm, emarginate. Capsule forming at angle glandular puberulent to pilose; ovary ca. 9 mm. Stigma 4 mm, glabrous; staminodes 2, ca. 2 mm. Pistil ca. 3 cm, glandular; anthers fused by entire adaxial surfaces, 3.8–1.5 cm. Filaments ca. 1 cm, sparsely glandular; anthers fused by entire adaxial surfaces, 3–3.5 mm, glabrous; staminodes 2, ca. 2 mm. Pistil ca. 3 cm, glandular puberulent to pilose; ovary ca. 9 mm. Stigma oblong, ca. 3 mm, emarginate. Capsule forming at angle of ca. 90° to peduncle, ca. 3–3.5 cm. Fl. and fr. May–Sep.

Chirita pinnata

Rocks, streamsides in forested valleys; 600–2100 m. W Fujian, N Guangdong, Guangxi, S Hunan, Jiangxi, S and W Zhejiang.

Aug–Nov. Capsule at ca. 90° to peduncle, 3–4 cm. Fl. May–Sep, fr. 4–10 cm, spreading and appressed villous; bracts 2, free, linear to lanceolate, 2–5 × 0.5–1 mm, puberulent, margin entire, apex acute. Pedicel 4–9 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 6–7 × ca. 1.4 mm, outside puberulent, inside sparsely puberulent near apex, margin entire, apex attenuate. Corolla purple, ca. 2.8 cm, outside puberulent, inside puberulent on limb and below stamens; tube cylindric, ca. 2.3 cm × 7 mm; adaxial lip ca. 3.5 mm; abaxial lip ca. 7 mm. Filaments ca. 1.3 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 3 mm, puberulent; staminodes 3, central ca. 0.2 mm, laterals 0.3–0.4 mm. Pistil ca. 2 cm, puberulent; ovary ca. 7 mm. Stigma narrowly oblong, ca. 2.5 mm, emarginate. Fruit and seeds unknown. Fl. Jun.

Chirita secundiflora

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.5–5 cm × 1–2 mm; leaf blade deeply pinnately lobed, nearly compound, elliptic to narrowly ovate or oblanceolate, 3–15 × 2–6 cm, papery, sparsely appressed puberulent to pilose, eglandular, base cuneate, margin deeply dentate to pinnately lobed, lateral lobes 3–7 on each side of midrib, 0.4–4 cm, margin deeply crenate or serrate to entire, apex acuminate or rounded; lateral veins ca. 3 on each side of midrib, inconspicuous.

Cymes 1–3-flowered; peduncle 4–11 cm, spreading and appressed villous; bracts 2, free, oblong to elliptic or oblongate, 5–14 × 1.8–5 mm, sparsely pubescent, margin denticate to entire, apex acuminate to rounded; lateral veins 3–10 on each side of midrib, inconspicuous. Cymes 1–3-flowered; peduncle 4–11 cm, spreading and appressed villous; bracts 2, free, oblong to elliptic or oblongate, 5–14 × 1.8–5 mm, sparsely pubescent, margin denticate to entire, apex acuminate to rounded; lateral veins 3–10 on each side of midrib, inconspicuous. Cymes 1–3-flowered; peduncle 4–11 cm, spreading and appressed villous; bracts 2, free, oblong to elliptic or oblongate, 5–14 × 1.8–5 mm, sparsely pubescent, margin denticate to entire, apex acuminate to rounded; lateral veins 3–10 on each side of midrib, inconspicuous. Cymes 1–3-flowered; peduncle 4–11 cm, spreading and appressed villous; bracts 2, free, oblong to elliptic or oblongate, 5–14 × 1.8–5 mm, sparsely pubescent, margin denticate to entire, apex acuminate to rounded; lateral veins 3–10 on each side of midrib, inconspicuous.

Chirita vestita

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.2–3 cm × ca. 1.2 mm; leaf blade narrowly elliptic to narrowly obovate, 1.4–5.4 × 0.6–2.4 cm, thin papery, densely pubescent to appressed pilose, eglandular, base cuneate, margin repand-denticate, apex acute; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1–2-flowered; peduncle ca. 1.2 cm, puberulent; bracts 2, free, linear, (1–)2.5–3 × ca. 0.3 mm, puberulent, margin entire, apex acute. Pedicel 3–5 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 4–6 × 0.5–1 mm, outside puberulent to pilose, inside glabrous to puberulent, margin 2–4-denticate to entire, apex acute to attenuate. Corolla purple, 2.5–3.4 cm, outside puberulent to sparsely puberulent, inside glabrous; tube cylindric, ca. 2.1 cm × 3–5 mm; adaxial lip ca. 6 mm; abaxial lip ca. 1.3 cm. Filaments ca. 5.5 mm, sparsely glandular puberulent; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 3, central ca. 0.4 mm, laterals 0.6–1 mm. Pistil ca. 2.2 cm, puberulent to pilose; ovary ca. 3.5 mm. Stigma cuneate, ca. 2.5 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.

Chirita vestita

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 0.2–3 cm × ca. 1.2 mm; leaf blade narrowly elliptic to narrowly obovate, 1.4–5.4 × 0.6–2.4 cm, thin papery, densely pubescent to appressed pilose, eglandular, base cuneate, margin repand-denticate, apex acute; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1–2-flowered; peduncle ca. 1.2 cm, puberulent; bracts 2, free, linear, (1–)2.5–3 × ca. 0.3 mm, puberulent, margin entire, apex acute. Pedicel 3–5 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 4–6 × 0.5–1 mm, outside puberulent to pilose, inside glabrous to puberulent, margin 2–4-denticate to entire, apex acute to attenuate. Corolla purple, 2.5–3.4 cm, outside puberulent to sparsely puberulent, inside glabrous; tube cylindric, ca. 2.1 cm × 3–5 mm; adaxial lip ca. 6 mm; abaxial lip ca. 1.3 cm. Filaments ca. 5.5 mm, sparsely glandular puberulent; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 3, central ca. 0.4 mm, laterals 0.6–1 mm. Pistil ca. 2.2 cm, puberulent to pilose; ovary ca. 3.5 mm. Stigma cuneate, ca. 2.5 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.

Chirita vestita
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1.2–3.4 cm × 1.5–2.5 mm; leaf blade broadly ovate to narrowly elliptic, 2.2–4 × 1.1–3 cm, papyry, adaxially densely appressed villous and puberulent, eglandular, abaxially puberulent, base cuneate to nearly truncate, margin repand to indistinctly denticate, apex acute to obtuse; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1–6-flowered; peduncle 2.4–4.5 cm, spreading pubescent; bracts 2, free, linear, 2.5–6.5 × 0.1 mm, pubescent, margin entire, apex acute. Pedicel 3–7 mm, densely puberulent. Calyx 5-sect from base; segments equal, narrowly triangular to linear-lanceolate, ca. 4 × 0.8–1 mm, outside densely villous, inside puberulent, margin 1- or 2-denticate, apex acute. Corolla purple, ca. 2.2 cm, outside puberulent, inside glabrous, margin entire, apex acute. Pedicel ca. 4 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 2 × 0.5 mm, outside densely villous, inside puberulent near apex, margin often 1-denticate apically, apex acute. Corolla purple, ca. 1.2 cm, outside sparsely pubescent, inside nearly glabrous; tube cylindric, ca. 6 × 2 mm; adaxial lip ca. 4 mm; abaxial lip ca. 6 mm. Filaments ca. 1.6 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 1.2 mm, glabrous; staminode 1, ca. 0.3 mm. Pistil ca. 3.8 mm, puberulent; ovary ca. 1.7 mm. Stigma oblate, ca. 0.4 mm, undivided. Capsule erect, ca. 7 mm. Fl. May.


神农架唇柱苣苔  shen nong jia chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 3–9 × 1–1.2 mm; leaf blade narrowly elliptic to elliptic, 1–2.2 cm × 5–9 mm, papyry, densely pubescent, eglandular, base cuneate, margin entire, apex acute to rounded; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes 1–3-flowered; peduncle 0.6–1.4 cm, densely spreading pilose; bracts 2, free, narrowly triangular to lanceolate, 0.8–3 × 0.3–1 mm, puberulent to pilose, margin entire, apex acute. Pedicel 2.5–5.5 mm, densely spreading puberulent to pilose. Calyx 5-sect from base; segments equal, linear to narrowly triangular, 4.5–5.5 × 0.8–1.2 mm, outside puberulent to pilose, inside glabrous, margin entire, apex acute to obtuse. Corolla purple, 2–2.5 cm, outside sparsely puberulent, inside puberulent below abaxial lip; tube cylindric, 1.3–1.8 cm × 2–5 mm; adaxial lip ca. 4 mm; abaxial lip 5–7.5 mm. Filaments 4.5–5.5 mm, glabrous; anthers fused by entire adaxial surfaces, 1.5–2 mm, glabrous; staminodes 2, 0.5–0.8 mm. Pistil 1.9–2.2 cm, puberulent; ovary 3.2–6 mm. Stigma obdeltoid, 1.5–3.5 mm, 2-parted. Capsule erect, 2–2.8 mm. Fl. Mar–May.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–10 × 1–2 mm; leaf blade narrowly elliptic to elliptic, 1–2.2 cm × 5–9 mm, papyry, densely pubescent, eglandular, base cuneate, margin entire, apex acute to rounded; lateral veins 2 or 3 on each side of midrib, inconspicuous. Cymes 1-flowered; peduncle 1.1–2.2 cm, densely spreading villous; bract 1, narrowly linear, ca. 1.0 × 0.3 mm, pubescent, margin entire, apex acute. Pedicel ca. 4 mm, puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 2 × 0.5 mm, outside densely villous, inside puberulent near apex, margin often 1-denticate apically, apex acute. Corolla purple, ca. 1.2 cm, outside sparsely pubescent, inside nearly glabrous; tube cylindric, ca. 6 × 2 mm; adaxial lip ca. 4 mm; abaxial lip ca. 6 mm. Filaments ca. 1.6 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 1.2 mm, glabrous; staminode 1, ca. 0.3 mm. Pistil ca. 3.8 mm, puberulent; ovary ca. 1.7 mm. Stigma oblate, ca. 0.4 mm, undivided. Capsule erect, ca. 7 mm. Fl. Apr.


Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole nearly absent to 2 cm × 1.5–3 mm; leaf blade elliptic to lanceolate, often falcate, 6.5–12 × 0.9–2.4 cm, leathery, appressed pilose, eglandular, base attenuate, margin entire, revolute, apex attenuate; lateral veins 3 or 4 on each side of midrib, conspicuous abaxially. Cymes 12–20-flowered; peduncle 5.5–21 cm, densely puberulent; bracts 2, free, narrowly elliptic to lanceolate, 3–5 × 1.5–2 mm, puberulent, margin entire, apex acute. Pedicel 2–5 mm, puberulent. Calyx ca. 1.5 mm, 5-lobed from middle; tube ca. 0.5 mm; lobes equal, broadly triangular, ca. 1 × 1 mm, outside puberulent, inside glabrous, margin entire, apex acute. Corolla purple, 0.9–1.5 cm, outside puberulent, inside glabrous; tube cylindric, 7–10 × ca. 3 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 6 mm. Filaments ca. 6 mm, sparsely puberulent; anthers fused by entire adaxial surfaces, ca. 2 mm, glabrous; staminodes 2, ca. 4 mm. Pistil ca. 1 cm, puberulent;

- Shaded rocks or cliffs in limestone hills; ca. 200 m. SW Guangxi (Longzhou Xian, Ningming Xian).


文采唇柱苣苔 *wen cai chun zhu ju tai*

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite, sessile; leaf blade lanceolate-linear, 6–11 × 0.8–1.2 cm, leathery, glabrous, eglandular, base cuneate, margin finely spiny denticulate, apex acute to obtuse; lateral veins invisible. Cymes 2–3-flowered; peduncle ca. 20 cm, mostly sparsely puberulent; bracts 2, free, narrowly triangular, 2–2.5 × ca. 1 mm, sparsely dark purple puberulent, margin entire, apex acute. Pedicel 1.5–6 mm, sparsely puberulent. Calyx 5-sect from base; segments equal, triangular, ca. 1.5 × 0.8–1 mm, outside sparsely puberulent, inside glabrous, margin entire, apex acute. Corolla blue-purple, ca. 1.3 cm, outside apically puberulent, inside glabrous; tube nearly tubular, ca. 10 × 2 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 3.5 mm. Filaments ca. 6.5 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 2 mm, basally sparsely puberulent; staminodes 2, ca. 1.5 mm. Pistil ca. 1.4 cm; ovary ca. 7 mm, glabrous. Style sparsely puberulent; stigma obtrapeziform, ca. 0.8 mm, 2-lobed. Fruit and seeds unknown. Fl. Nov.

- Shaded areas on limestone hills; ca. 100 m. SW Guangxi (Fusui Xian).


刺齿唇柱苣苔 *ci chi chun zhu ju tai*

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite, sessile; leaf blade lanceolate-linear, 6–11 × 0.8–1.2 cm, leathery, glabrous, eglandular, base cuneate, margin finely spiny denticulate, apex acute to obtuse; lateral veins invisible. Cymes ca. 9-flowered; peduncle ca. 20 cm, mostly sparsely puberulent; bracts 2, free, narrowly triangular, 2–2.5 × ca. 1 mm, sparsely dark purple puberulent, margin entire, apex acute. Pedicel 1.5–6 mm, sparsely puberulent. Calyx 5-sect from base; segments equal, triangular, ca. 1.5 × 0.8–1 mm, outside sparsely puberulent, inside glabrous, margin entire, apex acute. Corolla blue-purple, ca. 1.3 cm, outside apically puberulent, inside glabrous; tube nearly tubular, ca. 10 × 2 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 3.5 mm. Filaments ca. 6.5 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 2 mm, basally sparsely puberulent; staminodes 2, ca. 1.5 mm. Pistil ca. 1.4 cm; ovary ca. 7 mm, glabrous. Style sparsely puberulent; stigma obtrapeziform, ca. 0.8 mm, 2-lobed. Fruit and seeds unknown. Fl. Nov.

Didymocarpus tibeticus


Perennials. Rhizome tuberlike, internodes conspicuous. Stems erect, 3.5–14(–25) cm, sparsely puberulent to pilose. Stem leaves 4–10, opposite, ± spaced along stem or crowded near apex; petiole 2–10(–30) × ca. 1 mm; leaf blade elliptic to obovate, 1–6.6 × 0.9–3.5 cm, thin papery, sparsely puberulent to pilose, eglandular, base cuneate to rounded, margin entire to repand or shallowly crenate, apex acute to rounded; lateral veins 5–7 on each side of midrib, inconspicuous. Cymes 1–4-flowered; peduncle 2.4–5.5 cm, sparsely puberulent to pilose; bracts 2, free, narrowly elliptic to lanceolate, 3–7 × 1–2 mm, pilose, margin entire, apex acute. Pedicel 0.7–1.5 cm, glandular puberulent to pilose. Calyx 5-sect from base; segments equal, linear-triangular, 6–9 × 1–1.5 mm, outside puberulent to pilose, inside glabrous, margin entire, apex acute. Corolla white, 3.2–3.6 cm, outside sparsely puberulent to pilose, inside glabrous; tube nearly tubular, ca. 2.5 × 1 cm; adaxial lip ca. 5 mm; abaxial lip ca. 1 cm. Filaments ca. 9 mm, glandular puberulent above; anthers fused by entire...
adaxial surfaces, ca. 2 mm, glabrous; staminodes 2, ca. 4 mm. Pistil ca. 2 cm, puberulent; ovary ca. 1 cm. Stigma obtrapeziform, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Jul–Sep.


cm, densely purple puberulent and glandular puberulent; bracts 2, free, linear, 3–4 × ca. 0.4 mm, puberulent, margin entire, purple ciliate, apex obtuse to rounded. Pedicel ca. 3 mm, purple puberulent and glandular puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, ca. 3 × 0.8 mm, outside puberulent, inside glabrous, margin entire, apex subulate-acuminate. Corolla white, inside limb purplish, ca. 3.5 cm, outside sparsely puberulent and glandular puberulent, inside glabrous; tube funnelform-tubular, ca. 2.5 × 1 cm; adaxial lip ca. 5 mm; abaxial lip ca. 1 mm. Filaments ca. 1.4 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 4 mm. Pistil ca. 2.7 cm, densely puberulent and glandular puberulent; ovary ca. 1.7 cm. Stigma obtrapeziform, ca. 3 mm, 2-lobed. Fruit and seeds unknown. Fl. Jul.

- Known only from cultivation. Cultivated in the conservatory of Longtan Park; introduced from Guangxi (Rong’an Xian).


寿城唇柱苣苔 shou cheng chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves crowded at rhizome apex, opposite; petiole ca. 10 × 1–2 mm; leaf blade oblanceolate, 2–3 × 0.5–1 cm, papery, adaxially greenish white puberulent, eglandular, abaxially appressed white velutinous, base deciduous, margin entire, apex acute; lateral veins 2 or 3 on each side of midrib, inconspicuous. Cymes 1-flowered; peduncle nodding, 0.9–1.1 cm, densely puberulent; bracts 2, free, oblong-linear, 4–6 × ca. 1 mm, densely puberulent, margin entire, apex obtuse to rounded. Pedicel 7–11 mm, densely puberulent. Calyx 5-sect from base; segments equal, lanceolate-linear, 1–1.2 cm × 1.6–1.8 mm, outside puberulent, inside glabrous, margin entire, apex acuminate. Corolla flesh colored, ca. 2.3 cm, outside puberulent, inside glabrous, margin repand-crenate, apex minutely acute; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 1–2-flowered; peduncle 2.5–6.5 cm, densely puberulent; bracts 2, free, narrowly oblong, 1.5–3.5 × ca. 0.3 mm, puberulent, margin entire, apex obtuse. Calyx 5-sect from base; segments equal, lanceolate-linear, 2.5–3 × 0.7–0.9 mm, outside puberulent, inside puberulent, margin entire, apex obtuse. Corolla blue-purple, ca. 1.4 cm, outside puberulent and glandular puberulent, inside glabrous; tube subcampanulate, ca. 8.5 × 4 mm; adaxial lip ca. 2 mm; abaxial lip ca. 5.5 mm. Filaments ca. 4 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 0.7 mm. Pistil ca. 1.3 cm, puberulent; ovary ca. 3 mm. Stigma narrowly oblong, ca. 1.2 mm, undivided. Immature capsule erect, ca. 1.5 cm. Fl. May.

- Rocks in valleys; ca. 900 m. Gansu (Wen Xian).


那坡唇柱苣苔 na po chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal; petiole 1–1.7 cm × 1–3.5 mm; leaf blade broadly elliptic to oblanceolate, 2.5–4.2 × ca. 1.3 cm. Papery, densely appressed white puberulent, eglandular, base oblique, cuneate, decurrent, margin crenate to repand-crenate, apex minutely obtuse; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 1–2-flowered; peduncle 2.5–6.5 cm, densely puberulent; bracts 2, free, narrowly oblong, 1.5–3.5 × ca. 0.3 mm, puberulent, margin entire, apex obtuse. Calyx 5-sect from base; segments equal, lanceolate-linear, 2.5–3 × 0.7–0.9 mm, outside puberulent, inside puberulent, margin entire, apex obtuse. Corolla blue-purple, ca. 1.4 cm, outside puberulent and glandular puberulent, inside glabrous; tube subcampanulate, ca. 8.5 × 4 mm; adaxial lip ca. 2 mm; abaxial lip ca. 5.5 mm. Filaments ca. 4 mm, glabrous; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 0.7 mm. Pistil ca. 1.3 cm, puberulent; ovary ca. 3 mm. Stigma narrowly oblong, ca. 1.2 mm, undivided. Immature capsule erect, ca. 1.5 cm. Fl. May.

- Rocks in valleys; ca. 600 m. Guangxi (Napo Xian).


河池唇柱苣苔 he chi chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal; petiole 1–3.5 cm × ca. 3 mm; leaf blade broadly elliptic to oblanceolate, 2–5.5 × 1.3–3.5 cm, papery, densely appressed puberulent, eglandular, base cuneate to rounded, margin nearly entire, apex rounded to obtuse; lateral veins 3 or 4 on each side of midrib, inconspicuous. Cymes 1–4-flowered; peduncle 4–7 cm, glandular puberulent; bracts 2, free, linear-lanceolate, 3–4 × ca. 1.2 mm, glandular puberulent, margin entire, apex acute. Pedicel 0.7–2.3 cm, glandular puberulent. Calyx 5-sect from base; segments
equal, lanceolate-linear to subulate, 4–7 × 0.5–0.8 mm, outside densely pubescent, margin entire, apex acute. Corolla purple, 2–3 cm, outside glandular puberulent, inside glabrous; tube funnelform, 1.3–1.8 cm × ca. 6 mm; adaxial lip 3–5 mm; abaxial lip 4–7 mm. Filaments 5–6 mm, glandular pilose; anthers fused by entire adaxial surfaces, ca. 3 mm, abaxially villous; staminodes 2, ca. 1.5 mm. Pistil 1.5–2 cm; ovary 5–9 mm, densely puberulent and glandular puberulent or glandular pilose. Stigma ligate, ca. 1 mm, emarginate at apex. Capsule erect, 1.5–2 cm. Fl. and fr. Oct.

- Limestone hills; ca. 600 m. Guangxi (Hechi Xian).


粗齿唇柱苣苔 cu chi chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal; petiole 5–25 cm × 2–4 mm; leaf blade orbicular to ovate, 4.5–15 × 5–16.5 cm, papery, villous, eglandular, base cordate, margin double dentate, occasionally lobed, apex acute to rounded, basal veins 3–6; lateral veins 2 or 3 on each side of midrib, adaxially inconspicuous, abaxially slightly conspicuous. Cymes 4–15-flowered; peduncle 8–23 cm, densely spreading villous and glandular pubescent; bracts 2, free, lanceolate to oblong, 4–10 × 1–2.5 mm, densely villous and glandular pubescent, margin 3–5-glandular denticate, apex acute. Pedicel 2–5 cm. Calyx 5-sect from base; segments equal, lanceolate, 0.8–1.2 cm × ca. 1.5 mm, densely villous and glandular pubescent, margin entire or 1- or 2-denticulate, apex acute. Corolla white to purplish, 2.5–3.4 cm, outside densely pubescent, margin entire, apex acute. Pedicel 2–3 cm. Filaments 5–6 mm, glandular pilose; anthers fused by entire adaxial surfaces, ca. 3 mm, abaxially densely bearded; staminodes 2, ca. 5.5 mm. Pistil ca. 2.1 cm; ovary ca. 6 mm, densely glandular villous or densely glandular pubescent. Stigma obtuse, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Jul.

- Forests on limestone hills; ca. 200 m. Guangxi (Lingchuan Xian).


粗根唇柱苣苔 da gen chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal; petiole 5–25 cm × 2–4 mm; leaf blade orbicular to ovate, 4.5–15 × 5–16.5 cm, papery, villous, eglandular, base cuneate, margin double dentate, occasionally lobed, apex acute to rounded, basal veins 3–6; lateral veins 2 or 3 on each side of midrib, adaxially inconspicuous, abaxially slightly conspicuous. Cymes 4–15-flowered; peduncle 8–23 cm, densely spreading villous and glandular pubescent; bracts 2, free, lanceolate to oblong, 4–10 × 1–2.5 mm, densely villous and glandular pubescent, margin 3–5-glandular denticate, apex acute. Pedicel 2–5 cm. Calyx 5-sect from base; segments equal, lanceolate, 0.8–1.2 cm × ca. 1.5 mm, densely villous and glandular pubescent, inside pubescent at base; tube subtubular, 1.7–2.5 × ca. 1 cm; adaxial lip ca. 6 mm; abaxial lip 1–1.2 cm. Filaments ca. 1 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 4 mm, abaxially densely bearded; staminodes 2, ca. 5.5 mm. Pistil ca. 2.1 cm; ovary ca. 6 mm, densely glandular villous or densely glandular pubescent. Stigma obtuse, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Jul.

- Limestone hills; ca. 200 m. Guangxi (Lingchuan Xian).


柳江唇柱苣苔 liu jiang chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal; petiole 0.5–4 cm × 2–4 mm; leaf blade ovate, seldom elliptic, 2–8 × 1–6 cm, papery, pubescent (hairs 1–7 mm), eglandular, base cuneate or oblique and broadly cuneate, margin crenate to slightly repand, apex obtuse; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 2- or 3-flowered; peduncle 3–14 cm, villous and glandular pubescent; bracts 2, free, linear, 3–6 × 0.5–1.5 mm, villous, margin entire, apex obtuse. Pedicel 3–15 mm, villous and glandular puberulent. Calyx 5-sect from base; segments equal, narrowly lanceolate, 4–6 × ca. 1 mm, outside villous, inside sparsely puberulent, margin entire, apex acute. Corolla purple red, 3–3.8 cm, outside sparsely puberulent and glandular pubescent, inside glandular puberulent on lobes; tube funnelform, ca. 2.4 × 1 cm; adaxial lip ca. 7 mm; abaxial lip ca. 1.2 cm. Filaments ca. 1 cm, sparsely puberulent near apex; anthers fused by entire adaxial surfaces, ca. 3 mm, abaxially puberulent; staminodes 2, ca. 4 mm. Pistil ca. 2.4 cm; ovary ca. 1.8 cm, densely glandular puberulent and glandular puberulent. Stigma obtuse, ca. 1 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.

- Forests on limestone hills. Guangxi (Liujiang Xian).


黑腺唇柱苣苔 hei xian chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–14 × 2–4 mm; leaf blade narrowly elliptic to narrowly ovate, 2–7.5 × 0.8–2.8 cm, papery, densely appressed puberulent, adaxially with hairs 0.8–1.1 and 0.15–0.5 mm, eglandular, base cuneate, margin subentire to repand, apex acute; lateral veins ca. 3 on each side of midrib, inconspicuous. Cymes ca. 5-flowered; peduncle 12–13 cm, spreading puberulent; bracts 2, free, ovate to narrowly ovate, 6.5–7 × 2.5–3 mm, densely appressed puberulent, margin entire, apex acute. Pedicel 0.3–1.8 cm, outside densely puberulent and glandular puberulent, inside sparsely puberulent and glandular puberulent. Stigma obtuse, ca. 2 mm, 2-lobed. Fruit and seeds unknown. Fl. Apr.

- Forests on limestone hills; ca. 200 m. S Guangxi (Wuming Xian).
cm, densely puberulent and glandular puberulent. Calyx 5-lobed from base; segments nearly equal, narrowly triangular-lanceolate, 4–5 × 1–1.1 mm, appressed puberulent, margin entire, apex acute. Corolla ca. 3 cm, outside sparsely puberulent, inside puberulent near base of adaxial lip and below filaments; tube funnelform-tubular, ca. 2 × 1 cm; adaxial lip ca. 4 mm; abaxial lip ca. 1 cm. Filaments ca. 9 mm, glandular puberulent above middle; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 3 mm. Pistil ca. 1.5 cm; ovary ca. 9 mm, densely appressed puberulent. Style glabrous; stigma narrowly obovate, ca. 2 mm, emarginate. Fruit and seeds unknown.

- Cliffs. Guangxi (Longzhou Xian).


尖萼唇柱苣苔 jian e chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–7.5 cm × 0.6–2 mm; leaf blade elliptic to elliptic-ovate or elliptic-obovate, 4.5–13 × 2.3–6.5 cm, herbaceous, sparsely puberulent (hairs to 1.2 mm), eglandular, base oblique, rounded to subcordate, margin dentate to serrate, apex obtuse; lateral veins ca. 5 on each side of midrib, inconspicuous. Cymes 1-flowered; peduncle ca. 2–4 cm, sparsely pubescent; bracts absent or 2, free, narrowly linear, 2.5–3 × 0.3–0.5 mm, puberulent, margin entire, apex acute. Pedicel 1.3–3 cm, pubescent. Calyx 1.7–1.9 cm, 5-lobed; tube 5–10 mm; lobes equal, triangular-lanceolate, ca. 7 mm, outside sparsely puberulent, inside glabrous, margin entire, apex subulate-acuminate. Corolla purplish, 4.5–5.6 cm, glabrous; tube narrowly funnelform, 3–4 × 1–1.5 cm; adaxial lip ca. 1 cm; abaxial lip ca. 1.6 cm. Filaments ca. 9 mm, glandular puberulent near apex; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 6 mm. Pistil ca. 3.1 cm, sparsely glandular puberulent; ovary ca. 1.5 cm, 2-lobed. Fruit and seeds unknown.

- Shaded rocky cliffs in montane regions. SW Hubei (Hefeng Xian).


单花唇柱苣苔 dan hua chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 2–7.5 cm × 0.6–2 mm; leaf blade elliptic to elliptic-ovate or elliptic-obovate, 4.5–13 × 2.3–6.5 cm, herbaceous, sparsely puberulent (hairs to 1.2 mm), eglandular, base oblique, rounded to subcordate, margin dentate to serrate, apex obtuse; lateral veins ca. 5 on each side of midrib, inconspicuous. Cymes 1-flowered; peduncle ca. 2–4 cm, sparsely pubescent; bracts absent or 2, free, narrowly linear, 2.5–3 × 0.3–0.5 mm, puberulent, margin entire, apex acute. Pedicel 1.3–3 cm, pubescent. Calyx 1.7–1.9 cm, 5-lobed; tube 5–10 mm; lobes equal, triangular-lanceolate, ca. 7 mm, outside sparsely puberulent, inside glabrous, margin entire, apex subulate-acuminate. Corolla purplish, 4.5–5.6 cm, glabrous; tube narrowly funnelform, 3–4 × 1–1.5 cm; adaxial lip ca. 1 cm; abaxial lip ca. 1.6 cm. Filaments ca. 9 mm, glandular puberulent near apex; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 6 mm. Pistil ca. 3.1 cm, sparsely glandular puberulent; ovary ca. 1.5 cm, 2-lobed. Fruit and seeds unknown. Fl. Jun–Jul.

- Forests, valley stream sides; 400–1600 m. NW Hunan (Sanzhxi Xian, Yongshun Xian).


圆叶唇柱苣苔 yuan ye chun zhu ju tai

Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 1–5(–8) cm × 1.5–3 mm; leaf blade broadly ovate to broadly obovate or orbicular to reniform, 2–11 × 2–8 cm, herbaceous, adaxially between lateral veins with long white hairs 3–6.5 mm, eglandular, abaxially puberulent, white to brownish pubescent to pilose along veins, base rounded to cordate, margin dentate to crenate or serrate, apex obtuse to rounded; lateral veins 4 or 5 on each side
of midrib, conspicuous. Cymes 1(or 2)-flowered; peduncle 3–8(–11) cm, pubescent to sparsely pilose; bracts 2 or absent, free, lanceolate to ob lanceolate, 0.8–1.2 cm × 1–2.5 mm, pubescent, margin entire to sparsely denticulate, apex acute. Pedicel 3–4 cm, pubescent to sparsely pilose. Calyx 1–1.7 cm, 2-lipped; adaxial lip 4-lobed from above middle; tube 1–3 mm; lobes triangular, 4–5 × 2–2.5 mm; abaxial lip entire, linear to lanceolate, 1–1.5 cm × 3–4 mm, outside sparsely pubescent to pilose or glabrous, inside glabrous, margin entire, apex acuminate. Corolla purple to purple-blue, 4–7 cm, glabrous; tube funnelform-tubular, 2.8–5 × 1.2–2 cm; adaxial lip 1–1.2 cm; abaxial lip 1.2–2 cm. Filaments ca. 1 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 5.5 mm. Pistil ca. 3 cm, glabrous; ovary ca. 1.8 cm. Stigma flabellate, ca. 5 mm, 2-lobed. Capsule erect, 6–12 cm. Fl. Jun-Sep, fr. Aug-Sep.

- Shaded rocks in montane regions; 1900–3400 m. Yunnan (Fengqing Xian, Lufeng Xian, Yongsheng Xian).


灌从唇柱苣苔 guan cong chun zhu ju tai
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 12.5–21 cm × ca. 3 mm; leaf blade broadly ovate, ca. 8.3 × 8.3 cm, papery, adaxially brownish pubescent, eglandular, abaxially yellowish pubescent along veins, base cordate, margin denticulate to serrate, apex acute; lateral veins ca. 9 on each side of midrib, inconspicuous. Cymes 1-flowered; peduncle to 10 cm, appressed pubescent; bracts 2, free, ovate-triangular, ca. 5 × 3 mm, pubescent, margin entire, apex acute. Pedicel to 2.3 cm, pubescent. Calyx ca. 3 cm, 5-lobed from above middle; tube ca. 1.5 cm; lobes slightly unequal, narrowly linear-triangular, ca. 1.5 cm, outside sparsely pubescent, inside glabrous, margin entire, apex subulate-acuminate. Corolla purple to purple-blue, ca. 7 cm, outside puberulent, inside with 2 longitudinal lines of puberulent hairs below adaxial lip; tube funnelform-tubular, 5.5–6.5 × ca. 2 cm; adaxial lip ca. 1.5 cm; abaxial lip ca. 2 cm. Filaments ca. 1.1 cm, glandular puberulent apically, glandular below; anthers fused by entire adaxial surfaces, ca. 4 mm, glabrous; staminodes 3, central ca. 0.8 mm, laterals ca. 3 mm. Pistil ca. 3 cm, glandular puberulent; ovary ca. 1 cm. Stigma oblate, ca. 3 × 5 mm, 2-lobed. Fruit and seeds unknown. Fl. May. Montane thickets; ca. 1300 m. SE Yunnan (Jingping Xian) [Vietnam]. Mature flowers are known only from Vietnam.

角萼唇柱苣苔 jiao e chun zhu ju tai

Ceratoscyphus caeruleus W. Y. Chun (1946), not Chirita caerulea R. Brown (1840); Chirita ceratoscyphus B. L. Burtt.
Perennials, stemless. Rhizome internodes inconspicuous. Leaves basal, opposite; petiole 4–5 cm × ca. 2 mm; leaf blade narrowly to broadly elliptic, 3–18 × 1.5–5.5 cm, herbaceous to papery, adaxially densely puberulent, eglandular, abaxially puberulent and densely so along veins, base oblique, cuneate on 1 side, broadly cuneate to rounded on other, margin serrate, apex acute; lateral veins 7–12 on each side of midrib, conspicuous. Cymes 1–3-flowered; peduncle 3–5 cm, puberulent; bracts 2, free, narrowly ovate to oblong, 0.8–3.5 × 0.3–1.6 cm, puberulent, margin dentate to serrate, apex acute. Pedicel 1.2–2 cm, puberulent. Calyx 1.1–2 cm, 5-lobed from middle to above middle; tube 4–10 mm; lobes equal, lanceolate-linear with protruberance near middle, 5–10 mm, outside puberulent, inside glabrous, margin entire, apex attenuate, hollow, hornlike. Corolla purple to blue, ca. 4.5 cm, outside sparsely puberulent, inside glabrous; tube funneliform, ca. 3.2 × 1.4 cm; adaxial lip ca. 8 mm; abaxial lip ca. 1.2 cm. Filaments ca. 1.1 cm, glandular puberulent apically; anthers fused by entire adaxial surfaces, 2–4 mm, puberulent; staminodes 3, central ca. 1.5 mm, laterals ca. 6 mm. Pistil ca. 2.8 cm, puberulent; ovary ca. 1.5 cm. Stigma flabellate, ca. 6 mm, 2-lobed. Old capsule erect, ca. 5.5 cm. Fl. Apr–Jun.

- Shaded valleys along streamside; ca. 600 m. S Guangxi (Ningning Xian, Shangxi Xian) [Vietnam].

Based on observation of the types of Chirita ceratoscyphus and C. corniculata Burtt (pers. comm.) concluded that they are the same.

卧茎唇柱苣苔 wo jing chun zhu ju tai
Chirita clarkei J. D. Hooker.
Perennials. Rhizome internodes inconspicuous. Stems absent or prostrate and rooting at nodes, puberulent. Leaves 2–8, basal, sometimes on stem and alternate or opposite, ± widely spaced; petiole 2–18 cm × 1–2 mm; leaf blade ovate to narrowly ovate or rarely oblong, 5–14 × 3.4–9 cm, herbaceous, adaxially puberulent, eglandular, abaxially puberulent only along veins, base oblique, cuneate to cordate on 1 side, rounded to cordate on other, margin dentate to serrate, apex acute to obtuse or abruptly acuminate; lateral veins 6–8 on each side of midrib, conspicuous. Cymes 1–4-flowered; peduncle 4.5–17(–21) cm, puberulent to villous; bract 1, narrowly ovate or oblong to spatulate, 1.8–7 × 1–3 mm, sparsely puberulent to villous, margin sparsely denticulate to subentire, apex acute. Pedicel 2–4 cm, sparsely puberulent to villous. Calyx 0.9–1.2 cm, 5-lobed from near base to 5-lobed from near middle; tube 1.6–7 mm; lobes equal, lanceolate-linear to ovate, 3–10 mm, outside puberulent to sparsely villous, inside glabrous,
margin entire, apex subulate-acuminate to acute.

Corolla white or tinged pink to blue, 3–4.5 cm, outside puberulent and sometimes villous, inside apically sparsely puberulent; tube funnelform-tubular, 2–3 × 0.8–1.2 cm; adaxial lip 6–10 mm; abaxial lip 1.2–1.5 cm. Filaments ca. 8 mm, puberulent; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, ca. 2 mm. Pistil 1.6–2.5 cm, puberulent; ovary 1–1.8 cm. Stigma suboblate, ca. 3 mm, undivided or 2-lobed. Capsule often at 90° to peduncle, 6–12 cm. Fl. Jun–Aug, fr. Oct–Dec.

Montane broad-leaved forests; 2300–3100 m. SE Xizang (Medog Xian), NW Yunnan (Gongshan Xian) [NE India, N Myanmar, Sikkim].


Perennials. Rhizome internodes inconspicuous. Stems absent or to 5 cm, rust-brown pilose. Leaves 4–6, basal or along stem, crowded at apex, alternate; petiole 1.8–17(–24) cm × 1–3 mm; leaf blade oblique, ovate to suborbicular, 5–19 × 3.7–13 cm, herbaceous, adaxially sparsely white pubescent, eglandular, abaxially leaves often purplish, especially along veins, rust-colored pilose, especially along veins, base oblique, cordate to rounded, margin dentate to serrate or crenate, apex acuminate to rounded; lateral veins 6–9 on each side of midrib, conspicuous. Cymes 1–6-flowered; peduncle 3.5–16.5 cm, rust-brown pubescent and villous; bracts 1 or 2, free, narrowly ovate to oblong, 6–14 × 1–4 mm, rust-brown villous, margin entire to serrulate, apex acute. Pedicel 0.8–2 cm, rust-brown pubescent. Calyx 1.1–2.5 cm, 5-lobed from above to near middle; tube 5–10 mm; lobes unequal, narrowly triangular, 0.7–1.5 cm × 3–4 mm, outside rust-brown pubescent to villous, inside glabrous, margin entire, apex subulate-acuminate. Corolla blue-purple with yellow in tube, 4.8–6.5 cm, outside sparsely puberulent to sparsely pubescent, inside puberulent below stamens and near mouth of tube; tube narrowly funnelform, 3.5–4.6 × 1.3–1.8 cm; adaxial lip 1–1.2 cm; abaxial lip 1.6–1.8 cm. Filaments ca. 1.1 cm, glabrous to sparsely pubescent; anthers fused by entire adaxial surfaces, 4–6.5 mm, densely puberulent; staminode 1, ca. 3 mm. Pistil ca. 3.4 cm, puberulent; ovary ca. 2.2 cm. Stigma filabellate, ca. 4 mm, 2-lobed. Capsule at 90° to peduncle, 7–9 cm. Fl. Mar–Sep, fr. May–Jul.

Rocks in wet valleys; 700–3100 m. S and W Yunnan [NE India, Myanmar, Thailand, N Vietnam].
0.7–2.3 cm, pubescent to glabrous. Calyx 1.5–2.2 cm, 5-lobed from above to near middle; tube 7–11 mm; lobes unequal, narrowly triangular, 5–8 × 3–4 mm, glabrous or outside sparsely puberulent, margin entire, apex acute to attenuate. Corolla white to yellow, sometimes purplish to bluish, 4.4–5.5 cm, glabrous; tube tubular, 3–4 × ca. 1 cm; adaxial lip ca. 9 mm; abaxial lip ca. 1.1 cm. Filaments ca. 1 cm, glabrous; anthers fused by entire adaxial surfaces, 3–4 mm, glabrous; staminodes 3, central ca. 2 mm, laterals 3.5–5.5 mm. Pistil ca. 2.3 cm, puberulent; ovary ca. 1.5 cm. Stigma flabellate, ca. 3 mm, 2-lobed. Capsule often at to 90° to peduncle, 8–13 cm. Fl. May–Sep, fr. Aug–Dec.


Chirita grandiflora Wallich; Didymocarpus urticifolius (Buchanan-Hamilton ex D. Don) Wonisch; Gonostemon boucheanum Regel; Henckelia urticifolia (Buchanan-Hamilton ex D. Don) A. Dietrich; H. wallichiana A. Dietrich; Roettlera urticifolia (Buchanan-Hamilton ex D. Don) Kuntze.

Perennials. Rhizome unknown. Stems erect, 30–80 cm, sparingly puberulent. Stem leaves to 8 or more, ± widely spaced, unequal in a pair; petiole 0.7–6.5 cm × 1–2 mm; leaf blade elliptic to broadly elliptic, rarely ovate or obovate, 4–11(−17) × 2.2–6(−10) cm, papery, puberulent, eglandular, abaxially mostly along veins, base oblique, broadly cuneate to rounded, margin dentate to serrate, apex acute to abruptly acuminate; lateral veins 5–10 on each side of midrib, conspicuous. Cymes 1–3-flowered; peduncle 1.5–5(−8) cm, glabrous to sparsely puberulent, or pilose or glabrous, margin entire to remotely denticate, apex acute. Pedicle 0.5–1.8 cm, glabrous to sparsely puberulent or glandular puberulent. Calyx (0.6–)1.1–1.7 cm, 5-lobed from near middle; tube 3–12 mm; lobes slightly unequal, narrowly triangular to triangular, 5–7.5 × 3–4 mm, outside sparsely puberulent to pilose or glabrous, sometimes glandular, inside glabrous, margin entire, apex acuminate. Corolla white to yellow with yellow or purple markings or blue-purple, (2.3–)3.4–5.8 cm, outside glabrous to sparsely puberulent, inside glabrous; tube nearly tubular, 2.5–4 × 1–1.6 cm; adaxial lip 7–10 mm; abaxial lip 1.2–1.5 cm. Filaments 1–1.2 cm, glabrous to sparingly puberulent; anthers fused by entire adaxial surfaces, 2–3 mm, glabrous (rarely pubescent); staminodes 2 or 3, (0.2–)3–5 mm. Pistil 2.4–3 cm, glabrous or with a few hairs (rarely pubescent); ovary 1.5–2.5 cm. Stigma oblongifore, 3.5–4.5 mm, 2-lobed to deeply 2-lobed. Capsule erect, 7.5–12 cm. Fl. Jul–Sep, fr. Aug–Nov.

Rocks in forests, valley stream sides; 200–2300 m. Guangdong, Guangxi, S Hunan, Taiwan, SE Xizang (Medog Xian), S Yunnan [Laos, N Myanmar, Sikkim, N Thailand, N Vietnam].


斑叶唇柱苣苔 ban ye chun zu ju tai

Bonnaya pumila (D. Don) Sprengel; Chirita flava R. Brown; C. spagnicola H. Léveillé & Vaniot; Didymocarpus anthonyanus Handel-Mazzetti; Henckelia pumila (D. Don) A. Dietrich; Roettlera pumila (D. Don) Kuntze.

Annuals, not rhizomatous. Stems erect, 6–46 cm, pubescent to sparingly pilose. Stem leaves 4–8, opposite, ± widely spaced; petiole 4–12(−28) × 1–2 mm; leaf blade oblique, lanceolate to ovate or elliptic, 2–17 × 1.2–5.5(−8) cm, herbaceous, puberulent to pilose, eglandular, abaxially purple spotted, base oblique,
cuneate to cordate, margin denticulate to serrulate, apex acute to acuminate; lateral veins 6–9 on each side of midrib, conspicuous. Cymes (1 or)2–7-flowered; peduncle 2.8–10 cm, puberulent to sparsely pilose or glabrescent; bracts 2, free, ovate to lanceolate or obovate, 5–18 × 1–4 cm, pubescent, margin entire to shallowly denticate, apex acute. Pedicel 3–20 mm, glabrous to puberulent or pilose. Calyx 0.9–1.8 cm, 5-lobed from below to above middle; tube 4–10 mm; lobes slightly unequal, narrowly triangular to ovate, 4–10 × ca. 2 mm, outside pubescent to sparsely pilose, inside glabrous, margin entire, apex subulate-acuminate, hornlike, spreading. Corolla white to purple with yellow or purple markings, 3.2–5.7 cm, outside puberulent to pilose, inside glabrous to sparsely pubescent adaxially; tube narrowly funnelform, 2.5–4.5 × 0.8–1.5 cm; adaxial lip 4–10 mm; abaxial lip 0.6–1.5 cm. Filaments 0.8–1.3 cm, sparsely puberulent to glabrous; anthers fused by entire adaxial surfaces, 3–4 mm, glabrous; staminodes 2, 2.5–4(–10) mm. Pistil 2.5–3.8 cm, glabrous to puberulent; ovary 1.4–2.8 cm. Stigma flabellate, ca. 3 mm, 2-lobed. Capsule erect, 6–12 cm. Fl. Jul–Sep, fr. Jul–Oct.

Perennials. Rhizome internodes inconspicuous. Stems erect, 5.5–20 cm, white villous. Stem leaves 2–6, opposite, crowded at stem apex; petiole 1–2 × 1–2 mm; leaf blade elliptic to ovate or ovate, 2.5–17.5 × 2–9.5 cm, herbaceous, puberulent to pilose, eglandular, base oblique, cuneate to truncate, margin denticulate to serrulate, apex acute to rounded; lateral veins 5 or 6 on each side of midrib, slightly conspicuous. Cymes 1–10-flowered; peduncle absent; bracts ca. 7, free, spatulate to linear, 0.6–1.5 × 0.3–2 mm, pubescent, margin entire, apex attenuate. Pedicel to 2.5 cm, puberulent. Calyx 1–1.4 cm, deeply 5-lobed; tube ca. 3 mm; lobes slightly unequal, triangular, 3–10 mm, outside with 5 longitudinal bands of pilose hairs between lobes, inside glabrous, margin entire, apex acute. Corolla blue, 5–6.5 cm, outside puberulent, inside glabrous; tube narrowly funnelform, 4–5.5 × ca. 1.3 cm; adaxial lip ca. 7 mm; abaxial lip ca. 1.2 cm. Filaments ca. 1.2 cm, glabrous; anthers fused by entire adaxial surfaces, ca. 2 mm, glabrous; staminodes 2, ca. 9 mm. Pistil 4–5.2 cm, puberulent; ovary ca. 3 cm. Stigma ligulate-spatulate, ca. 5 mm, undivided. Fruit and seeds unknown. Fl. Jun.

• Valley forests; ca. 1500 m. S Yunnan (Menghai Xian).


Perennials. Rhizome internodes conspicuous. Stems erect, 18–34 cm, glabrous or glabrescent. Stem leaves 2–4 pairs, opposite, all or at least upper 2 pairs crowded near stem apex; petiole 1.2–9.5 cm × 2–2.5 mm; leaf blade elliptic to broadly ovate or suborbicular, 2.5–21.4 × 2.5–11.2 cm, herbaceous, adaxially appressed white puberulent, eglandular, abaxially glabrous to puberulent near veins, base oblique, 1 side cuneate to auriculate, other narrowly cuneate to cuneate, rarely rounded, margin dentate to repand-crenate, apex acute to rounded; lateral veins 4–9 on each side of midrib, slightly conspicuous. Cymes 1- or 2-flowered; peduncle 3.4–6 cm, densely brown pubescent; bracts 2, ciliate into an involucre, broadly funnelform, ca. 1.5 cm, ca. 2.3 cm in diam., puberulent, margin denticulate, apex acute. Pedicel 2–4 mm, sparsely puberulent. Calyx ca. 2.5 cm, 5-lobed from middle; tube ca. 1 cm; lobes equal, triangular, 1.1–1.5 cm, outside puberulent, inside glabrous, margin entire, apex acute. Corolla purple-red, ca. 4.8 cm, outside sparsely puberulent, inside glabrous; tube nearly tubular, ca. 4 × 1 cm; adaxial lip ca. 6 mm; abaxial lip ca. 8 mm. Filaments ca. 1.1 cm, glanduliferous apically; anthers fused by entire adaxial surfaces, ca. 6 mm, glabrous; staminodes 2, ca. 6 mm. Pistil ca. 6.8 cm; ovary ca. 1.1 cm, glabrous. Style puberulent; stigma obtrapeziform, ca. 6 mm, 2-lobed. Fruit and seeds unknown. Fl. Aug.

• Broad-leaved forest margins, montane streamside; 900–1700 m. SE Xizang (Medog Xian).
opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white, yellowish, or purplish, pilose, base cuneate to cordate. Inflorescences lax or rarely dense, axillary, few- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white, yellowish, or purplish, petals oblong, 4–9 × 1.5–3 mm, glabrous, margin entire, apex obtuse; lateral veins 7 or 8 on each side of midrib, conspicuous. Cymes 2–6-flowered; peduncle 0.5–6 cm, glabrous; bracts free, depressed semiiorbicuar, 5–7 mm × 1–2 cm, glabrous, margin subentire, apex truncate-rounded. Pedicel ca. 1.8 mm, glabrous. Calyx ca. 1.3 cm, 5-lobed from above middle; tube ca. 9 mm; lobes oblong, deltoid, ca. 4 × 4.8 mm, glabrous, margin entire, apex acute. Corolla ca. 3.2 cm, glabrous; tube funneliform, ca. 3 × 1.8 cm; adaxial lip ca. 2 mm; abaxial lip ca. 4 mm. Filaments ca. 9 mm, minutely glandular; anthers fused by entire adaxial surfaces, ca. 3 mm, glabrous; staminodes 2, 4–5.5 mm. Pistil ca. 2.9 cm, sparsely appressed puberulent; ovary ca. 1.7 cm. Stigma flabellate, ca. 3 mm, deeply 2-lobed. Fruit and seeds unknown. Fl. Oct.


密花唇柱苣苔
Perennials (probably). Rhizomes unknown. Stems 2.2–9 cm, glabrous. Stem leaves 1–3, alternate, ± widely spaced; petiole 1.8–9 cm × 1–2 mm; leaf blade oblique, ovate, 4–9 × 2.1–5.4 cm, papery, adaxially sparsely puberulent, eglandular, abaxially sparsely puberulent along veins, base often oblique, cuneate to truncate-rounded, margin crenate, apex acute; lateral veins 7 or 8 on each side of midrib, conspicuous. Cymes (2 or)3–7-flowered; peduncle 3–7 × 1–1.3 cm; calyx obdeltoid, 5–7.5 mm × 1–1.2 cm, glabrous; base cuneate, apex acute; lateral veins 6–16 on each side of midrib, slightly conspicuous. Cymes scorpioid, 1–5(–9)-flowered; peduncle adnate to petiole, puberulent; bracts absent. Pedicel 3–14 mm, spreading pubescent. Calyx 5–11 mm, 5-lobed from near base; tube 0.5–4 mm; segments unequal, linear to narrowly triangular, 4.5–7 × 1–1.5 mm, outside puberulent, inside glabrous, margin entire, apex obtuse; lateral veins 4–8 on each side of midrib, conspicuous. Cymes (2 or)3–7-flowered; peduncle 3–8 cm, glabrous to sparsely puberulent; bracts 2, free, ovate-orbicular to subreniform, 1–1.8 × 1.2–2.7 cm, sparsely ciliate, margin entire, apex rounded. Pedicel 4–10 mm, glabrous to sparsely puberulent. Calyx 1.5–2 cm, 2-lipped; tube 1.1–1.5 mm; adaxial lip shallowly 4-lobed, lobes triangular, 4–7 mm; abaxial lip entire, oblong-ovate, 1.4–1.9 cm × 5–6 mm, outside sparsely pilose near apex, inside glabrous, margin entire, apex apiculate. Corolla white, 3.5–5 cm, glabrous; tube funnelform, 2–3.3 × 1–1.3 cm; adaxial lip 5–9 mm; abaxial lip 1–1.4 cm. Filaments 1–1.3 cm, sparsely glandular puberulent near apex; anthers fused by entire adaxial surfaces, 2.9–3.2 mm, glabrous; staminodes 3, central ca. 1 mm, laterals 3.5–4.5 mm. Pistil 2.5–3.5 cm; ovary 1.5–2 cm, puberulent near apex. Style puberulent and glandular puberulent; stigmas obdeltoid, 3.5–3.7 mm, deeply 2-lobed. Capsule erect, 8–12 cm. Fl. and fr. Aug.


钩序唇柱苣苔
gou xun chu zhu ju tai
Roettlera hamosa (R. Brown) Kuntze.

Annuals, not rhizomatous. Stems erect, 5–25(–36) cm, sparsely puberulent to glabrous. Stem leaves 1–3(–7), lowestmost solitary, leaves toward apex opposite; petiole 2–4(–10) × 1–3 mm; leaf blade narrowly to broadly ovate, 1.5–13 × 1–11 cm, herbaceous, adaxially puberulent, eglandular, abaxially sparsely puberulent to glabrescent, base rounded to cordate, margin entire, apex acute to obtuse; lateral veins 6–16 on each side of midrib, slightly conspicuous. Cymes scorpionoid, 1–5(–10)-flowered; peduncle adnate to petiole, puberulent; bracts absent. Pedicel 3–14 mm, spreading pubescent. Calyx 5–11 mm, 5-lobed to 5-sect from near base; tube 0.5–4 mm; segments unequal, linear to narrowly triangular, 4.5–7 × 1–1.5 mm, outside puberulent, inside glabrous, margin entire, apex attenuate. Corolla white, yellow at throat, often flushed lavender, 1–1.9 cm, outside sparsely puberulent adaxially, inside glabrous; tube nearly tubular, 7–15 × 3–5 mm; adaxial lip 1.2–2 mm; abaxial lip ca. 2.3 mm. Filaments 2–4 mm, glabrous; anthers fused by projections on connectives, 1.8–1.9 mm, bearded; staminodes 2, 0.8–1.5 mm. Pistil 1.1–1.4 cm, puberulent; ovary 3–6 mm. Stigma narrowly obovate, ca. 1 mm, deeply 2-lobed. Capsule erect, 1.4–4 cm. Fl. Jul–Oct, fr. Jul–Nov.

Shaded rocks in forests, cliffs, or streamside valleys; 300–1500 m. S and W Guangxi, S and SE Yunnan [India, Laos, Malaysia, Myanmar, Thailand, N Vietnam].


小花苣苔属
Perennials (probably). Rhizomes unknown. Stems 2.2–9 cm, glabrous. Stem leaves 1–3, alternate, ± widely spaced; petiole 1.8–9 cm × 1–2 mm; leaf blade oblique, ovate, 4–9 × 2.1–5.4 cm, papery, adaxially sparsely puberulent, eglandular, abaxially sparsely puberulent along veins, base often oblique, cuneate to truncate-rounded, margin crenate, apex acute; lateral veins 7 or 8 on each side of midrib, conspicuous. Cymes (2 or)3–7-flowered; peduncle 3–7 × 1–1.3 cm; calyx obdeltoid, 5–7.5 mm × 1–1.2 cm, glabrous; base cuneate, apex acute; lateral veins 6–16 on each side of midrib, slightly conspicuous. Cymes scorpioid, 1–5(–9)-flowered; peduncle adnate to petiole, puberulent; bracts absent. Pedicel 3–14 mm, spreading pubescent. Calyx 5–11 mm, 5-lobed to 5-sect from near base; tube 0.5–4 mm; segments unequal, linear to narrowly triangular, 4.5–7 × 1–1.5 mm, outside puberulent, inside glabrous, margin entire, apex attenuate. Corolla white, yellow at throat, often flushed lavender, 1–1.9 cm, outside sparsely puberulent adaxially, inside glabrous; tube nearly tubular, 7–15 × 3–5 mm; adaxial lip 1.2–2 mm; abaxial lip ca. 2.3 mm. Filaments 2–4 mm, glabrous; anthers fused by projections on connectives, 1.8–1.9 mm, bearded; staminodes 2, 0.8–1.5 mm. Pistil 1.1–1.4 cm, puberulent; ovary 3–6 mm. Stigma narrowly obovate, ca. 1 mm, deeply 2-lobed. Capsule erect, 1.4–4 cm. Fl. Jul–Oct, fr. Jul–Nov.

Shaded rocks in forests, cliffs, or streamside valleys; 300–1500 m. S and W Guangxi, S and SE Yunnan [India, Laos, Malaysia, Myanmar, Thailand, N Vietnam].
zygomorphic, inside puberulent to glabrous; tube nearly tubular, not swollen, much longer than limb, 3–5 mm in diam.; limb indistinctly to distinctly 2-lipped; adaxial lip 2-lobed, slightly to 2–3 × shorter than abaxial lip; abaxial lip 3(or 4)-lobed, lobes equal or central lobe longer, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near base or above middle, included; anthers dorsifixed, connate by adaxial surfaces, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes (absent or)1 or 3, adnate to adaxial or adaxial and abaxial sides of corolla tube. Disc ringlike or 2-lobed. Ovary ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, abaxial, obovate-triangular, rarely linear, undivided to 2-lobed. Capsule straight in relation to pedicel, ovoid to narrowly ellipsoid, equaling to shorter than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

• Nine species: endemic to China.


1a. Leaf blade margin pinnately to palmately lobed; staminodes 1 or 3, less often 2 or absent.

2a. Leaf blade ovate to rhombic, base broadly cuneate, margin pinnatifid ................................ 7. **C. bipinnatifida**

2b. Leaf blade ovate to orbicular or reniform, base cordate, margin palmately or nearly palmately lobed.

3a. Corolla ca. 7.8 mm; petiole, peduncle, pedicel, and calyx white puberulent to pilose; calyx segments

3–4 × 0.4–0.7 mm; stamens glabrous; disc 2-lobed, eglandular; staminode 1 .......................... 8. **C. lobulata**

3b. Corolla 11–13 mm; petiole, peduncle, pedicel, and calyx glandular puberulent or pubescent and purple glandular; calyx segments 3–8 × 1.3–2 mm; stamens sparsely pubescent; disc ringlike, glandular;

staminodes 2 or 3, seldom absent .......................................................................................... 9. **C. glandulosa**

1b. Leaf blade margin denticulate, dentate, crenate, or nearly entire; staminodes 2 or absent.

4a. Leaf blade orbicular-ovate to nearly orbicular; corolla purplish; stigma linear, 1–1.5 mm, undivided 1. **C. mollifolia**

4b. Leaf blade elliptic or rhombic to ovate or reniform, rarely nearly orbicular; corolla white or yellowish; stigma obturipetala, 0.3–0.9 mm, 2-lobed.

5a. Leaf blade base rounded to cordate; peduncle 5–9 cm; corolla 10–14 mm, inside puberulent in 2 longitudinal lines on or below abaxial lip; stamens puberulent or sparsely so.

6a. Leaf blade 4–8.5 × 3–9 cm, puberulent, margin repand-crenate to obtusely dentate; petiole 5.5–16.5 cm; bracts 2–3 × ca. 0.3 mm; pedicel 4–18 mm; corolla ca. 1.4 cm; stamens adnate to corolla ca. 3 mm above base, staminodes 2 ................................................................. 5. **C. cordifolia**

6b. Leaf blade 3–4 × 2.2–3.6 cm, pubescent and pilose, margin remotely denticate to entire;

petiole 3–7 cm; bracts 5.5–7 × 1.8–2 mm; pedicel 1.5–3.5 mm; corolla ca. 1 cm; stamens adnate to corolla 1–1.5 mm above base, staminodes absent ................................................................. 6. **C. subulata**

5b. Leaf blade base cuneate to broadly cuneate, seldom to nearly cordate; peduncle 8–9 cm; corolla 7.2–12 mm, inside glabrous or sparsely puberulent below abaxial lip; stamens glabrous.

7a. Cymes dense; pedicels 0.2–2 mm; corolla distinctly 2-lipped, adaxial lip ca. 0.8 mm, abaxial lip ca. 2.2 mm, inside sparsely puberulent below abaxial lip; disc ringlike, ca. 0.5 mm; style ca. 2.8 mm, puberulent ............................................................. 4. **C. confertiflora**

7b. Cymes lax; pedicels 3–25 mm; corolla indistinctly 2-lipped, adaxial lip 2–3 mm, abaxial lip ca. 2 mm, inside glabrous; disc 2-lobed, 1–1.5 mm; style 5–7 mm, glabrous or nearly so.

8a. Leaf blade puberulent to villous, base cuneate to broadly cuneate; lateral veins conspicuous; pedicel 3–8 mm; corolla white, ca. 8 mm ........................................... 2. **C. repanda**

8b. Leaf blade sparsely puberulent, base broadly cuneate to nearly cordate; lateral veins inconspicuous; pedicel 8–25 mm; corolla yellowish, ca. 12 mm .................... 3. **C. xiuningensis**

7.5–9 mm, inside glabrous; tube 5–6 mm; limb 2-lipped; adaxial lip ca. 2.2 mm; abaxial lip ca. 3 mm. Stamens adnate to corolla 0.4–0.6 mm above base, glabrous; filaments linear, 2–2.3 mm; staminodes 2, 0.5–1 mm. Disc ringlike, ca. 0.3 mm, glabrous. Pistil 7–8.5 mm, puberulent. Style 5.5–7 mm; stigma linear, 1–1.5 mm, apex undivided, truncate. Capsule narrowly ellipsoid, ca. 4 × 1.6 mm. Fl. Apr–Jun, fr. Jun.


小花苣苔 **xiao hua ju tai**

Petiole 3.5–11.6 cm, puberulent to villous; leaf blade elliptic to ovate, 3.5–9.5 × 2.5–4.2 cm, puberulent to villous, base cuneate to broadly cuneate, margin sparsely repand-crenate to dentate, apex acute to rounded; lateral veins conspicuous. Cymes lax, 8–15-flowered; peduncle 3–14 cm, sparsely to densely pubescent or pilose; bracts lanceolate-linear to subulate, 4–10 × ca. 1 mm, margin entire. Pedicel 3–8 mm, sparsely to densely puberulent or pilose. Calyx segments narrowly triangular, 3–4 × ca. 1 mm, outside puberulent to pilose, inside glabrous. Corolla white, ca. 8 mm, inside glabrous; tube ca. 6 mm; limb indistinctly 2-lipped, both lips ca. 2 mm. Stamens adnate to corolla ca. 2 mm above base, glabrous; filaments subulate, ca. 3 mm; staminodes 2, ca. 1 mm. Disc 2-lobed, ca. 1 mm, glabrous. Pistil ca. 7.5 mm; ovary densely puberulent. Style ca. 5 mm, glabrous; stigma obtrapeziform, ca. 0.5 mm, 2-lobed. Capsule narrowly ovoid, ca. 4.5 × 1.5 mm. Fl. Jul–Sep. fr. Aug–Sep.

1a. Leaf blade base decurrent, cuneate  2a. var. *repanda*

1b. Leaf blade base oblique, broadly cuneate  ...........................................  2b. var. *guilinensis*

2a. *Chiritopsis repanda* var. *repanda* **xiao hua ju tai** (yuan bian zhong)


• NW Guangxi (Tian’e Xian).


桂林小花苣苔 **gui lin xiao hua ju tai**


• Guangxi (Guilin Xian, Shanglin Xian).


休宁小花苣苔 **xiu ning xiao hua ju tai**

Petiole 1–8 cm, densely spreading puberulent; leaf blade ovate to broadly ovate or elliptic to nearly orbicular, 2–9 × 1–6 cm, sparsely puberulent, base broadly cuneate to nearly cordate, margin repand-crenate to nearly entire, apex obtuse to rounded; lateral veins inconspicuous. Cymes lax, 2–10-flowered; peduncle 1.4 cm, spreading puberulent; bracts linear, 3–7 × 0.5–1 mm, margin entire. Pedicel 0.8–2.5 cm, spreading puberulent. Calyx segments linear to narrowly linear-lanceolate, 3.5–5 × 0.7–1 mm, outside puberulent, inside glabrous. Corolla yellowish, ca. 1.2 cm, inside glabrous; tube ca. 9 × 4 mm; limb indistinctly 2-lipped; adaxial lip ca. 3 mm; abaxial lip ca. 2 mm. Stamens adnate to corolla ca. 2.5 mm above base, glabrous; filaments lanceolate-subulate to narrowly subulate, ca. 3 mm; staminodes 2, ca. 0.5 mm. Disc 2-lobed, ca. 1.5 mm, glabrous. Pistil ca. 1 cm; ovary puberulent. Style ca. 7 mm, nearly glabrous; stigma obtrapeziform, ca. 0.5 mm, 2-lobed. Capsule narrowly ovoid, ca. 6 × 2.5 mm. Fl. Jul–Aug. fr. Aug.

• Shady cliffs in limestone hills; ca. 300 m. N Guangxi (Yishan Xian).


密小花苣苔 **mi xiao hua ju tai**

Petiole 2.5–5.5 cm, puberulent to pilose; leaf blade rhombic-ovate to nearly elliptic, 7.5–11 × 4.5–7 cm, puberulent to villous, base cuneate to broadly cuneate, margin dentate to crenate, apex acute to obtuse; lateral veins conspicuous. Cymes dense, 7–12-flowered; peduncle 8–14 cm, spreading puberulent; bracts narrowly lanceolate to elliptic, 5–7 × 1–1.2 mm, margin entire. Pedicel 0.2–2 mm, densely spreading puberulent. Calyx segments narrowly linear-lanceolate, ca. 4.5 × 0.7–0.8 mm, outside puberulent, inside sparsely puberulent. Corolla yellowish, ca. 7.2 mm, inside sparsely puberulent below abaxial lip; tube ca. 5 × 3 mm; limb distinctly 2-lipped; adaxial lip ca. 2.2 mm. Stamens adnate to corolla ca. 2 mm above base, glabrous; filaments linear, ca. 3 mm; staminodes 2, ca. 1 mm. Disc ringlike, ca. 0.5 mm, glabrous. Pistil ca. 5 mm, puberulent. Style ca. 2.8 mm; stigma obtrapeziform, ca. 0.3 mm, 2-lobed. Fruit and seeds unknown. Fl. Jun.

• Rocks by rivers in montane regions; ca. 300 m. NW Guangdong (Yangshan Xian).


心叶小花苣苔 **xin ye xiao hua ju tai**

Petiole 5.5–16.5 cm, densely puberulent; leaf blade ovate to reniform, 4–8.5 × 3–9 cm, puberulent, base cordate, margin repand-crenate to obtusely dentate, apex acute to rounded; lateral veins conspicuous. Cymes lax, 8–18-flowered; peduncle ca. 5 cm, densely puberulent; bracts linear, 2–3 × ca. 0.3 mm, margin entire. Pedicel 0.4–1.8 cm, densely puberulent. Calyx segments triangular, 3.5–4 × 0.8–1 mm, outside puberulent, inside glabrous. Corolla white, ca. 1.4 cm, inside puberulent along 2 longitudinal lines below abaxial lip; tube ca. 11 × 5 mm; limb indistinctly 2-lipped; adaxial lip ca. 3 mm; abaxial lip ca. 3.5 mm. Stamens adnate to corolla ca. 3 mm above base, sparsely puberulent; filaments linear, ca. 3.5 mm;
stamine 2, 2.8–3 mm. Disc ringlike, ca. 0.8 mm, glabrous. Pistil ca. 1 cm; ovary densely brownish puberulent. Style ca. 6.5 mm, puberulent near base; stigma obtrapeziform, ca. 0.6 mm, 2-lobed. Fruit and seeds unknown. Fl. Apr.

• Cliffs in limestone hills. C Guangxi (Liujiang Xian).


钻丝小花苣苔 zuan si xiao hua ju tai

Petiole 3–7 cm, spreading pubescent to pilose; leaf blade ovate to broadly so, 3–4 × 2.2–3.6 cm, pubescent and pilose, base cordate to rounded, margin remotely denticulate to entire, apex acute to obtuse; lateral veins inconspicuous. Cymes dense or lax, 9- to many flowered; peduncle 8–9 cm, spreading pubescent to pilose; bracts linear to lanceolate, 5.5–7 × 1.8–2 mm, margin entire. Pedicel 1.5–3.5 mm, ca. 35-flowered. Fl. Aug–Sep.

Leaf blade base truncate-cordate to rounded, apex obtuse; cymes lax, branched 4 ×, ca. 0.6 mm, 2-lobed. Fruit and seeds unknown. Fl. Apr.


羽裂小花苣苔 yu lie xiao hua ju tai

Petiole 2–6.5 cm, puberulent to pilose; leaf blade ovate to rhombic, 2–6 × 1.5–4 cm, puberulent to pilose, base broadly cuneate, margin pinnatifid, lobes 3 or 4 pairs, each narrowly ovate to triangular, 1- or 2-lobed or entire, apex acute to obtuse; lateral veins inconspicuous. Cymes lax, 5–7-flowered; peduncle 7–8 cm, sparsely puberulent; bracts lanceolate, ca. 4.5 × 1.5 mm, margin entire. Pedicel 4–10 mm, puberulent. Calyx segments narrowly triangular, 4–5 × ca. 1 mm, outside densely puberulent, inside sparsely puberulent. Corolla white, ca. 1 cm, inside sparsely puberulent above; tube ca. 7 × 3.5 mm; limb distinctly 2-lipped; adaxial lip ca. 1.2 mm; abaxial lip ca. 3.5 mm. Stamens adnate to corolla ca. 2 mm above base, glabrous; filaments linear, ca. 4 mm; staminodes 3, ca. 0.8 mm. Disc ringlike, ca. 0.3 mm, glabrous. Pistil ca. 8 mm, puberulent. Style ca. 5 mm; stigma obtrapeziform, ca. 0.5 mm, 2-lobed. Capsule ovoid, ca. 3 × 2 mm. Fl. Jun, fr. Oct.

• Limestone hills. NE Guangxi (Lingui Xian).


浅裂小花苣苔 qian lie xiao hua ju tai

Petiole 2.2–(5–8) cm, white puberulent to sparsely pilose; leaf blade ovate to orbicular or reniform, 2–3.5 × 2.5–3.8 cm, adaxially puberulent to pilose, abaxially more densely puberulent along veins, base cordate, margin nearly palmately lobed, lobes 4–6 pairs, each broadly ovate, apex rounded to obtuse, 5-veined or basal veins not touching, apex obtuse; lateral veins conspicuous to inconspicuous. Cymes lax, ca. 7-flowered; peduncle 6–10 cm, sparsely white puberulent to pilose; bracts ob lanceolate to linear, 4–8 × 0.8–3 mm, margin entire to few denticulate apically. Pedicel 3–10 mm, white puberulent. Calyx segments linear-lanceolate, 3–4 × 0.4–0.7 mm, outside white puberulent to pilose, inside glabrous. Corolla white, ca. 7.8 mm, inside glabrous; tube ca. 5 × 3 mm; limb distinctly 2-lipped; adaxial lip ca. 1.4 mm; abaxial lip ca. 2.5 mm. Stamens adnate to corolla ca. 2 mm above base, glabrous; filaments linear, ca. 3 mm; staminode 1, ca. 0.2 mm. Disc 2-lobed, ca. 0.8 mm, glabrous. Pistil ca. 4.2 mm, sparsely puberulent. Style ca. 3 mm; stigma obtrapeziform, ca. 0.2 mm, 2-lobed. Capsule ellipsoid, ca. 2.5 × 1.2 mm. Fl. May–Jun, fr. Jun.

• Shaded rocks in limestone hills; ca. 300 m. NW Guangdong (Yangshan Xian).


紫腺小花苣苔 zhi xian xiao hua ju tai

Petiole 7–10 cm, glandular pubescent and purple glandular; leaf blade reniform to orbicular, 3–12 × 3–16.3 cm, glandular puberulent and purple glandular, base cordate, margin palmately lobed, lobes 4–8 pairs and ovate to broadly so, 5-veined, apex rounded to obtuse; lateral veins conspicuous. Cymes lax, 7- to many flowered; peduncle 7–18 cm, glandular pubescent and purple


浅裂小花苣苔 yan lie xiao hua ju tai

Petiole 2–6.5 cm, puberulent to pilose; leaf blade ovate to rhombic, 2–6 × 1.5–4 cm, puberulent to pilose, base broadly cuneate, margin pinnatifid, lobes 3 or 4 pairs, each narrowly ovate to triangular, 1- or 2-lobed or entire, apex acute to obtuse; lateral veins inconspicuous. Cymes lax, 5–7-flowered; peduncle 7–8 cm, sparsely puberulent; bracts lanceolate, ca. 4.5 × 1.5 mm, margin entire. Pedicel 4–10 mm, puberulent. Calyx segments narrowly triangular, 4–5 × ca. 1 mm, outside densely puberulent, inside sparsely puberulent. Corolla white, ca. 1 cm, inside sparsely puberulent above; tube ca. 7 × 3.5 mm; limb distinctly 2-lipped; adaxial lip ca. 1.2 mm; abaxial lip ca. 3.5 mm. Stamens adnate to corolla ca. 2 mm above base, glabrous; filaments linear, ca. 4 mm; staminodes 3, ca. 0.8 mm. Disc ringlike, ca. 0.3 mm, glabrous. Pistil ca. 8 mm, puberulent. Style ca. 5 mm; stigma obtrapeziform, ca. 0.5 mm, 2-lobed. Capsule ovoid, ca. 3 × 2 mm. Fl. Jun, fr. Oct.

• Limestone hills. NE Guangxi (Lingui Xian).

6a. Chiritopsis subulata var. subulata

钻丝小花苣苔原变种 zuan si xiao hua ju tai (yuan bian zhong)

Leaf blade base cordate to nearly so, apex acute
to obtuse; cymes dense, branched 2 ×, ca. 9-flowered. Fl. Jun.

• Cave walls in limestone hills; ca. 100 m. S Guangdong (Zhaoping Xian).

6b. Chiritopsis subulata var. yangchunensis

浅裂小花苣苔原变种 zuan si xiao hua ju tai (yuan bian zhong)

Leaf blade base cordate to nearly so, apex acute
to obtuse; cymes dense, branched 2 ×, ca. 9-flowered. Fl. Jun.

• Cave walls in limestone hills; ca. 100 m. S Guangdong (Zhaoping Xian).

阳春小花苣苔 yang chun xiao hua ju tai


• Rocks in caves in limestone hills. SW Guangdong (Yangchun Xian).


羽裂小花苣苔 yu lie xiao hua ju tai

Petiole 2–6.5 cm, puberulent to pilose; leaf blade ovate to rhombic, 2–6 × 1.5–4 cm, puberulent to pilose, base broadly cuneate, margin pinnatifid, lobes 3 or 4 pairs, each narrowly ovate to triangular, 1- or 2-lobed or entire, apex acute to obtuse; lateral veins inconspicuous. Cymes lax, 5–7-flowered; peduncle 7–8 cm, sparsely puberulent; bracts lanceolate, ca. 4.5 × 1.5 mm, margin entire. Pedicel 4–10 mm, puberulent. Calyx segments narrowly triangular, 4–5 × ca. 1 mm, outside densely puberulent, inside sparsely puberulent. Corolla white, ca. 1 cm, inside sparsely puberulent above; tube ca. 7 × 3.5 mm; limb distinctly 2-lipped; adaxial lip ca. 1.2 mm; abaxial lip ca. 3.5 mm. Stamens adnate to corolla ca. 2 mm above base, glabrous; filaments linear, ca. 4 mm; staminodes 3, ca. 0.8 mm. Disc ringlike, ca. 0.3 mm, glabrous. Pistil ca. 8 mm, puberulent. Style ca. 5 mm; stigma obtrapeziform, ca. 0.5 mm, 2-lobed. Capsule ovoid, ca. 3 × 2 mm. Fl. Jun, fr. Oct.

• Limestone hills. NE Guangxi (Lingui Xian).
glandular; bracts leaflike, obovate to oblong or narrowly lanceolate, 0.4–1.8 × 0.2–1.5 cm, margin serrate to entire. Pedicel 1.5–6 cm, glandular pubescent and purple glandular. Calyx segments lanceolate, 3–8 × 1.3–2 mm, outside glandular puberulent and purple glandular, inside nearly glabrous. Corolla white, 1.1–1.3 cm, inside sparsely pubescent; tube 7–8 × 4–5 mm; limb distinctly 2-lipped; adaxial lip ca. 1.5 mm; abaxial lip 3–4 mm. Stamens adnate to corolla ca. 2.5 mm above base, sparsely pubescent; filaments linear, 3.5–4 mm; staminodes 2 or 3, seldom absent, ca. 0.5 mm. Disc ringlike, ca. 0.7 mm, glandular. Pistil ca. 1 cm, glandular puberulent. Style ca. 7.5 mm; stigma obturpezeiform, ca. 0.6 mm, 2-lobed. Capsule narrowly ovoid, 3–5 × ca. 1.5 mm. Fl. May–Jun, fr. Jun.

- Rocks in limestone hills; 200–300 m. NE Guangxi (Pingle Xian).

34. **PETROCODON** Hance, J. Bot. 21: 167. 1883.

**石山苣苔属**

Herbs, perennial, terrestrial or epipetric, rhizomatous, stemless. Leaves few, basal; leaf blade strigose, base cuneate. Inflorescences umbel-like, dense, axillary, few- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white, zygomorphic, inside glabrous; tube subulate-tubular, not swollen, longer than limb, 1–2.5 mm in diam.; limb indistinctly 2-lipped; adaxial lip 3-lobed, lobes equal, apex acute. Stamens 2, adnate to abaxial side of corolla tube slightly above base, included; anthers dorsifixed, coherent apically, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 1–3, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, projecting inwards, 2-cleft. Stigma 1, terminal, nearly globose, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

- One species: endemic to China.

1. **Petrocodon dealbatus** Hance, J. Bot. 21: 167. 1883.

**石山苣苔**

Petiole 2–4(–11) cm, short strigose; leaf blade oblanceolate, elliptic, sometimes falcate, 5–13(–16) × 1.5–6.8 cm, short strigose, margin nearly entire to dentate, denticulate, or crenulate, apex acute to acuminate. Peduncle 4–11 cm, short strigose; bracts linear, 3–9 mm. Calyx segments linear, 2–5 × 0.2–0.3 mm, outside sparsely short strigose. Corolla 4–8 mm; tube 3–5 mm; lobes triangular, (0.8–)1–2.1(–3) mm. Stamens glabrous; filaments 2–4 mm; anthers 1.8–2.2 mm; staminodes ca. 0.3 mm. Pistil 6–9 mm, glabrous. Style 3.8–4.8 mm. Capsule 1.2–22 cm. Fl. Jun–Sep.

- Rocks in shaded areas in valley, forests on limestone hills; 200–1000 m. N Guangdong, N Guangxi, E Guizhou, SW Hubei, Hunan.

1a. Leaf blade margin nearly entire to denticulate or crenulate ..............

1a. var. **dealbatus**

1b. Leaf blade margin dentate ...... 1b. var. **denticulatus**


**齿缘石山苣苔**

Leaf blade margin dentate.

- E Guizhou (Liping Xian), W Hunan (Qianyang Xian).


**长蒴苣苔属**

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, dehiscing 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, dehiscing 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).


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 denticate or double denticate, apex obtuse; corolla yellow, tube funnelform-cylindric, mouth 3–4 mm in diam. ........................................ 25. D. subpalmatinervis
6b. Leaf blade distinctly or indistinctly multilobed, margin denticate 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. sinoprimulinus

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 semiobtuse, 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. 16 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
connect 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
cia.
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 funnelform, 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 eglanular, abaxial surface eglanular 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, eglanular; bracts connate at base or free; anthers nearly glabrous ............................................. 16. *D. stenanthos*


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, eglanular, abaxially puberulent along veins, eglanular, 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 funnelform, 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).


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, eglanular, abaxially sparsely puberulent, densely puberulent along veins, eglanular, 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, streamsid forests and forest margin in valleys; 500–2200 m. Guangxi, S Guizhou, Sichuan, SE Yunnan.

2a. *Didymocarpus glandulosus* var. glandulosus

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


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


毛药长蒴苣苔 mao yao chang shuo ju tai


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

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


短萼长蒴苣苔 duan e chang shuo ju tai


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


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).


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.


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 obovate to ovate, 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.


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, obovate to ovate, 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 (Yinjiang Xian).


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 (MEng Xian).


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 cm. Calyx actinomorphic, 2–3 mm; limb 5-lobed; tube ca. 1.5 cm; 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.

• Montane regions; 1200–1300 m. S Yunnan (Simao Xian).


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-robust, 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 funneliform, 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).


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].


长毛长蒴苣苔 chang mao chang shuo ju tai
Henckelia villosa (D. Don) Roettler; 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; staminodes apparently absent, ca. 1.2 mm. Pistil ca. 1.5 cm, glandular; ovary ca. 1.2 cm. Fruit unknown. Fl. Jun.

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


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, 3.4–4.5 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].


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].


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).


Stems 2.5–7 cm, pubescent. Leaves opposite; petiole 0.2–3 cm; leaf blade oblanceolate 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).


Didymocarpus stenanthus C. B. Clarke, Hooker’s Icon. Pl. 18: pl. 1799. 1888.

Stems 3–32 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

16b. Didymocarpus stenanthos var. pilosellus

Stems 4–17.5 cm, appressed puberulent and sparsely villous. Leaves opposite; petiole 0.2–2.5 cm; leaf blade elliptic, oblique 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-clawed 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

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-clawed, 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

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-clawed, 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).
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 glandular. Corolla purple to reddish purple with darker stripes, 2.5–3.5 cm, outside sparsely pubescent, inside glabrous; tube narrowly funnelform, 2.8–2.8 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. Filaments 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. punchanus 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.


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 obtuse; lateral veins 6–9 on each side of midrib. Cymes 1–15-flowered; peduncle 1–12 cm, sparsely puberulent, inside glabrous, margin glandular. Corolla purple to reddish purple with darker stripes, 3.2–4.5 cm, glabrous; tube funneliform, 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.


紫苞长蒴苣苔 zì bāo chāng shuò ju tāi
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 semiobicular, 2–3 × ca. 3 mm; abaxial lip 2-lobed, lobes semiobicular, 2–3 × 4–5 mm, glabrous, margin entire. Corolla purple to pinkish purple with darker stripes, 3.2–4.5 cm, glabrous; tube funneliform, 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.

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.


柔毛长蒴苣苔 róu máo chāng shuò ju tāi
Plants stemless. Leaves basal; petiole 2.2–5 cm; leaf blade ovate to narrowly ovate or obovate-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.


东南长蒴苣苔 dōng nán chāng shuò ju tāi


柔毛长蒴苣苔 róu máo chāng shuò ju tāi
Plants stemless. Leaves basal; petiole 2.2–5 cm; leaf blade ovate to narrowly ovate or obovate-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.


东南长蒴苣苔 dōng nán chāng shuò ju tāi
Plants stemless. Leaves basal; petiole 1–4 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 × 0.3 cm; 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.

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


棉毛长蒴苣苔 mian mao chang shuo ju tai

Plants stemless. Leaves basal; petiole 1 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 × 0.3 cm; 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.

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


闽赣长蒴苣苔 min gan chang shuo ju tai

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 mm, papery, adaxially pubescent and pilose, eglandular, abaxially pilose, sparsely glabrous, 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. 0.6 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 steamside rocks, forests; 500–1000 m. S Anhui, W Fujian, NE Guangdong, SE Hubei, Jiangxi, W Zhejiang.
Cymes 2–10-flowered; peduncle 7.4–10 cm, rust-brown
veins 3; lateral veins 2 or 3 on each side of midrib.
irregularly denticulate, apex obtuse to rounded, basal
e glandular, abaxially sparsely puberulent, rust-brown villous along veins, densely pubescent, sparsely glandular, abaxially multilobed, 4.6–10 × 3.2–9 cm, papery, adaxially densely pubescent, abaxially shortly pubescent, 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

densely spreading rust-brown villous and white
side of midrib. Cymes 4–8-flowered; peduncle 7–11 cm,
densely spreading rust-brown villous and white
dental, base cordate to truncate-cordate, lobes
triangular, margin irregularly denticate, apex obtuse to rounded, basal veins 4; lateral veins 2 or 5 on each side of midrib. Cymes 3–12-flowered; peduncle ca. 10 cm, spreading pubescent; staminodes 2, 0.6–0.8 mm. Pistil ca. 2.3 cm; ovary ca. 1.6 mm. Capsule ca. 3.8 cm. Fl. May–Jun.

• NW Hunan (Xinhuang Xian, Yuanling Xian).


温州长蒴苣苔  wen zhou 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 denticate, 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

3.5–7.5 cm, puberulent, abaxially appressed puberulent, margin entire. 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 obtrapeziform, 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).


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-denticate 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 funnelform, ca. 1.8 × 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).


迭裂长蒴苣苔  die lie chang shuo ju tai

Plants stemless. Leaves basal; petiole 1–5.5 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 denticate, 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

5-sect from near base; adaxial lobe largest, narrowly
ovate, 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).


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 denticate, 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

1- or 2-denticate 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 funnelform, ca. 1.8 × 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.

• Stony cliffs of montane regions. SE Zhejiang.

Some recent authors place this species in Chiromia, however based on stigma morphology, it is included in Didymocarpus here.
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, 2–2.2 × 4–4.5 mm, outside sparsely puberulent, inside glabrous, margin denticate to entire. Corolla purple, 2.5–3 cm, sparsely puberulent to glabrescent; tube funnelform, ca.


Herbs, perennial, epipetric or terrestrial, rhizomatous, stemless. Leaves few, basal; leaf blade puberulent to pubescent, base cordate. Inflorescences lax, axillary, 5- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic or slightly zygomorphic, 5-sect from base, 2–5-lobed, or 2-lipped; segments equal to unequal. Corolla purple to reddish, zygomorphic, inside glabrous; tube broadly tubular, not swollen, nearly equalling limb, 3.5–4 mm in diam.; limb 2-lipped; adaxial lip undivided; ca. 1/2 × length of abaxial lip; abaxial lip 3-lobed, lobes equal, apex rounded, rarely obtuse. Stamens 2, adnate to abaxial side of corolla tube near base or rarely above middle, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

• Four species: endemic to China.

1a. Petiole and peduncle with antrorsely appressed hairs 0.2–0.6 mm; adaxial leaf blade surface with uniform hairs 0.1–0.2 mm ................................................................. 3. G. microtrichus

1b. Petiole and peduncle with spreading or retrorse hairs 0.2–2(–3.2) mm; adaxial leaf blade surface with hairs of 2 lengths, 0.2–0.5(–1.2) and 0.8–3 mm.

2a. Peduncle 4–7 cm; calyx sparsely pubescent outside from base to apex; pedicel spreading pubescent; adaxial corolla lip deltoid; filaments ca. 1.5 mm ................................................................. 2. G. lasiocalyx

2b. Peduncle 7–34 cm; calyx glabrous or sparsely pubescent outside near apex; pedicel glabrous; adaxial corolla lip semi-orbicular; filaments ca. 3 mm.

3a. Leaf blade 3–9.5 × 3–10 cm, apex rounded; petiole 3–8 cm; stamens and staminodes adnate to corolla 2–2.5 mm above base ............................................................................................................. 1. G. chorisepalus

3b. Leaf blade 7–15.5 × 5.5–15.5 cm, apex acute to obtuse; petiole to 18 cm; stamens and staminodes adnate to corolla 4–5 mm above base ......................................................................... 4. G. retrotrichus


圆唇苣苔 yuan chun ju tai

Petiole 3–8 cm, spreading pubescent, hairs 0.7–1.5 mm; leaf blade nearly orbicular to reniform, 3–9.5 × 3–10 cm, adaxially with mixed hairs 0.2–0.3 mm and 0.8–2.5 mm, abaxially sparsely pubescent, margin double dentate to deeply crenate, apex rounded. Peduncle 7–23 cm, pubescent, hairs 0.5–1.2 mm; bracts 4–6 × 3–4 mm, margin entire. Pedicel glabrous. Calyx 3–4 mm, 5-sect or 2–4-lobed; tube absent or 1–2 mm; segments equal to unequal, lanceolate-linear to obovate-oblong, 1–3 mm wide, outside sparsely pubescent near apex. Corolla reddish, ca. 1.2 cm; tube ca. 6 mm; adaxial lip semi-orbicular, ca. 2.8 mm; abaxial lip ca. 6 mm. Staminodes adnate to corolla ca. 2 mm above base; filaments ca. 3 mm; anthers ca. 2.5 mm; pistil ca. 1.1 cm, glabrous; ovary ca. 5 mm. Capsule 2–3 cm. Fl. Apr–May, fr. Jul.

• Rocky stream-sides, rocky hills, shaded cliffs in valleys; 700–900 m. W Guangdong, E and S Guangxi (Beiliu Xian, Shanglin Xian, Wuming Xian).

1a. Calyx 5-sect, segments equal, ca. 1 mm wide; leaf blade margin double dentate 1a. var. chorisepalus

1b. Calyx 2–4-lobed, lobes unequal, largest 2- or 3-lobed, 1–3 mm wide; leaf blade margin double dentate to deeply crenate 1b. var. synsepalus

1a. Gyrocheilos chorisepalus var. chorisepalus

圆唇苣苔(原变种) yuan chun ju tai (yuan bian zhong)
Leaf blade margin double dentate. Calyx 5-sect; tube absent; segments equal, ca. 1 mm wide.

- Rocky streamsides, shaded cliffs in valleys. S Guangxi (Shanglin Xian, Wuming Xian).


Leaf blade margin double dentate to deeply crenate. Calyx 2-4-lobed; tube 1–2 mm; lobes unequal, largest 2- or 3-lobed, 1–3 mm wide.

- Rocky hills; 700–900 m. W Guangdong, E Guangxi (Beiliu Xian).


• 茂萼圆唇苣苔 mao e yuan chun ju tai

Pedicel spreading triangular, 0.9–1 mm wide, outside sparsely pubescent. Calyx ca. 4 mm, 5-sect from base or near base; segments equal, linear-lanceolate to narrowly triangular, 0.9–1 mm wide, outside sparingly pubescent. Corolla red, ca. 1 cm; tube ca. 5.5 mm; adaxial lip deltoid, ca. 0.9–1 mm wide, outside sparsely pubescent. Calyx 5-lobed; lobes equal, 1–1.5 mm wide; staminodes clavate, ca. 1.5 mm. Pistil ca. 1.4 cm, glabrous; ovary ca. 6 mm. Capsule 2.5–3 cm. Fl. Mar–Jul, fr. May–Sep.

• Valley forests, shaded rocks in valleys; 400–1000 m. Guangdong, N Guangxi, SE Guizhou.

1. Leaf blade adaxially with mixed hairs, 0.3–1.2 and 1.8–2 mm; calyx 5-lobed, lobes equal, 1–1.5 mm wide; staminodes clavate, ca. 1.5 mm; cymes many flowered, peduncle 9–34 cm, hairs 0.5–2 mm ............................... 4a. var. *retrotrichus*

1b. Leaf blade adaxially with mixed hairs, 0.2–0.5 and 1–2 mm; calyx 4-lobed or 2-lipped, lobes unequal, 1–3 mm wide; staminodes linear, ca. 0.5 mm; cymes 5- to many flowered, peduncle 8.5–19 cm, hairs 0.2–1.2 mm ............................... 4b. var. *oligolobus*

4a. *Gyrocheilos retrotrichus* var. *retrotrichus*

Leaf blade adaxially with mixed hairs 0.3–1.2 mm and 1.8–2 mm. Cymes many flowered; peduncle 9–34 cm, hairs 0.5–2 mm. Calyx 5-lobed; lobes equal, 1–1.5 mm wide, apex obtuse. Staminodes clavate, ca. 1.5 mm. Fl. Mar.

• Valley forests. W Guangdong (Xinyi Xian, Yunfu Xian).


Leaf blade adaxially with mixed hairs 0.2–0.5 mm and 1–2 mm. Cymes 5- to many flowered; peduncle 8.5–19 cm, hairs 0.2–1.2 mm. Calyx 4-lobed or 2-lipped; lobes unequal, 1–3 mm wide, apex obtuse to rounded.


Herbs, perennial, epipetric, rhizomatous, stemless. Leaves few to many, basal; leaf blade pubescent, margin glandular pubescent, base broadly cuneate to rounded. Inflorescences lax, axillary, 1–4-flowered cymes; bracts 1 or 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla purplish, zygomorphic, inside sparsely puberulent toward apex of tube; tube nearly salverform, cylindric below, not swollen, slightly shorter than to nearly equaling limb, ca. 1.2 mm in diam.; limb 2-lipped; adaxial lip 2-sect from near base, slightly shorter than abaxial lip; abaxial lip 3-sect from near base, lobes equal, apex acute. Stamens 2, adnate to abaxial side of corolla tube above middle, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary narrowly ovoid, 1-loculed; placentas 2, parietal, slightly projecting inward, 2-cleft. Style 1, terminal, disc-like, undivided. Capsule straight in relation to pedicel, narrowly ellipsoid, nearly as long as calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds unappendaged.

• One species: endemic to China.


Petiole 1–4 cm, spreading white puberulent and glandular puberulent; leaf blade ovate, 1.1–2.3 × 0.7–1.3 cm, white pubescent, margin subentire, glandular and ciliate, apex broadly acute to rounded. Peduncle 1.5–3 cm, spreading white and glandular puberulent; bracts linear, 1.5–2 mm, sparsely puberulent. Calyx segments linear, 3.8–4.1 × 0.4–0.5 mm, outside sparsely pubescent. Corolla purplish, yellowish in center, 1.5–1.7 cm; tube 7–8.5 mm; adaxial lip 5.5–6 mm; abaxial lip 7–9 mm, lobes narrowly triangular. Stamens 2, adnate to abaxial side of corolla tube above middle, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary narrowly ovoid, 1-loculed; placentas 2, parietal, slightly projecting inward, 2-cleft. Stigma 1, terminal, disc-like, undivided. Capsule straight in relation to pedicel, narrowly ellipsoid, nearly as long as calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds unknown.


Herbs, perennial, epipetric, rhizomatous, stemless. Leaves few to many, basal; leaf blade puberulent to sericeous, base broadly cuneate to subcordate. Inflorescences umbel-like, dense, axillary, few- to many-flowered cymes; bracts more than 10, involucrate. Calyx actinomorphic, 5-sect from base; segments equal. Corolla red, zygomorphic, inside sparsely puberulent; tube narrowly funneliform-tubular, not swollen, 4–5 × longer than limb, ca. 5 mm in diam.; limb 2-lipped; adaxial lip 4-lobed, longer than abaxial lip; abaxial lip undivided, apex acute to rounded. Stamens 2, adnate to abaxial side of corolla tube above middle, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, depressed globose, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds unknown.

One species: China, N Vietnam.


Petiole 3–14.5 cm, appressed pubescent; leaf blade ovate, 4.5–11 × 2–4.2 cm, densely puberulent to sericeous, margin dentate, apex acute. Peduncle 9–22 cm, appressed pubescent; bracts lanceolate to ovate, 1–2 × 0.2–1.2 cm, appressed puberulent, margin entire to denticulate. Calyx segments linear, 3–7 × 0.3–0.8 mm, outside puberulent. Corolla 1.9–2.5 cm; tube 1.5–2.1 cm; adaxial lip ca. 4 mm, lobes deltoid, 1–1.5 mm; abaxial lip broadly triangular, 2–4 mm. Filaments 4–6 mm, sparsely glandular puberulent; anthers ca. 1.8 mm; staminodes ca. 0.5 mm. Pistil 2.1–2.5 cm; ovary glabrous. Style ca. 1 cm, sparsely glandular puberulent. Capsule 4.5–7 cm. Fl. Apr–Jun.

Rocks in forests on limestone hills; 1000–1500 m. W Guangxi, SE Yunnan [N Vietnam].

Herbs, perennial, epipetric, rhizomatous, stemless. Leaves few, basal; leaf blade puberulent to pilose, base cordate.
Inflorescences lax, axillary, 2–5-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla purple to rose, zygomorphic, inside glabrous; tube oblique, campanulate, not swollen, shorter than limb, ca. 3.5 mm in diam.; limb 2-lipped; adaxial lip 4-lobed, slightly shorter than abaxial lip; abaxial lip undivided, apex acute. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers dorsifixed, coherent by adaxial surfaces, thecae divericate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary nearly oblong, 1-loculed; placentas 2, parietaI, projecting inward, 2-cleft. Stigma 1, terminal, depressed-globose, undivided. Capsule straight in relation to pedicel, linear, much surpassing calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds unappendaged.

• One species: endemic to China.

Burtt (pers. comm.) has suggested that there is another, as yet undescribed, species from Vietnam.


Petiole 0.3–4 cm, spreading pubescent to villous; leaf blade broadly ovate to orbicular, 0.9–2.2 × 1–2.4 cm, adaxially sparsely appressed puberulent to pilose, abaxially densely brownish pubescent, margin crenate, apex rounded. Peduncle 6–10 cm, sparsely pubescent to villous, sometimes glandular puberulent; bracts linear, 2–2.5 mm, puberulent. Calyx segments lanceolate-linear, 2.5–3.5 mm, abaxially densely brownish pubescent, margin crenate, apex rounded. Peduncle 6–10 cm, sparsely pubescent to villous, sometimes glandular puberulent; bracts linear, 2–2.5 mm, puberulent. Calyx segments lanceolate-linear, 2.5–3.9 × 0.3–0.6 mm, outside sparsely brown pubescent. Corolla 8.5–9.5 mm; tube 3–3.5 mm; adaxial lip 3.5–5 m, lobes triangular, 1.5–2 mm; abaxial lip triangular, 5.5–7 mm. Filaments ca. 4 mm, puberulent to pilose near apex; anthers ca. 1.7 mm; staminodes 0.4–0.5 mm. Pistil ca. 1 cm; ovary densely brown pubescent. Style ca. 7 mm, sparsely pubescent to pilose. Capsule ca. 1 cm. Fl. Jul–Aug, fr. Aug–Sep.

• Rocks in limestone hills; ca. 1400 m. SW Guizhou (Xingyi Xian), E Yunnan (Luoping Xian).


Herbs, rarely subshrubs, perennial, epipetric or terrestrial, rhizomatous, stemmed or stemless. Leaves few to many, basal, clustered at stem apex, or spread along stem and opposite, rarely spirally arranged, equal to subequal in a pair; leaf blade adaxially woolly to glabrous, abaxially woolly, pannose, or velutinous, hairs dense, interwoven, usually branched at least near base, base attenuate to cuneate, rarely rounded to peltate-auretulate. Inflorescences cymes, sometimes umbel-like, corymbiform, or paniculate, lax, rarely dense, axillary or in terminal panicles, 1- to many flowered; bracts 1–3, opposite. Calyx actinomorphic, rarely slightly zygomorphic, 5-sect from base or from near base, rarely 2-lipped; segments equal. Corolla white, blue, or purple, zygomorphic, inside glabrous to glandular puberulent; tube oblique, campanulate, not swollen, longer than to occasionally nearly equaling limb, 2–13 mm in diam.; limb ± 2-lipped; adaxial lip 2-lobed; usually slightly shorter, rarely 1/4 × length to slightly longer than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers dorsifixed, coherent, thecae divericate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 1–3, seldom absent, adnate to adaxial side of corolla tube. Disc inconspicuous. Ovary narrowly ovoid to oblong, rarely conical, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate, seldom subligulate, undivided. Capsule straight in relation to pedicel, linear to narrowly oblong or lanceolate, much surpassing calyx, dehiscing loculicidally to base; valves 4, spirally twisted, seldom twisted. Seeds unappendaged.

About 87 species: Bhutan, China, Indonesia, Malaysia, Myanmar, Philippines, Thailand, Vietnam; 18 species in China.


2a. Subshrubs; peduncle 2–2.7 cm; bracts 1 or 2, ca. 0.3 mm; calyx segments 1–1.2 mm; corolla 4–5 mm, outside sparsely glandular puberulent; leaf blade 0.9–2.5 × 0.4–1 cm ........................................ 1. P. velutina

2b. Herbs, rarely subshrubs; peduncle 2.5–21 cm; bracts 2(or 3), 2–25 mm; calyx segments 2–6 mm; corolla 9–18 mm, outside glabrous; leaf blade 1–33.5 × 0.3–10 cm.

3a. Stems 17–50 cm; leaves opposite, spread along stem; bracts 7–25 mm ........................................ 9. P. clavisepala

3b. Stems to 10 cm or absent; leaves spiral near stem apex or basal; bracts 1–13 mm.

4a. Leaf blade base peltate-auretulate or peltate and rounded to cuneate, rarely merely cordate to cuneate; bracts 1–3–(–4) mm.
5a. Leaf blade 6–33.5 × 3–14.3 cm; lateral veins 11–18 on each side of midrib; petiole 1–9 cm; calyx 2-lipped, adaxial lip 2-toothed, teeth ca. 0.7 mm, abaxial lip 3-sect from base, segments ca. 2 mm; staminodes 2, ca. 2 mm; ovary ca. 5 mm .............................. 2. *P. peltifolia*

5b. Leaf blade 1–5 × 0.3–2.2 cm; lateral veins 4–6 on each side of midrib; petiole 0.3–0.9 cm; calyx 5-sect from base, segments lanceolate, 2–3.5 mm; staminode 1, ca. 0.2 mm; ovary ca. 1.5 mm ................................................................. 3. *P. filipes*

4b. Leaf blade base attenuate to broadly cuneate, sometimes ultimately rounded; bracts 5–13 mm.

6a. Leaf blade narrowly oblanceolate, 1.7–2.4 cm wide; lateral veins 3 or 4 on each side of midrib; bracts and calyx glabrous outside; corolla red; bracts 3; staminodes 2 ............... 16. *P. tribracteata*

6b. Leaf blade oblanceolate or obovate, (1.5–)2.8–8.8 cm wide; lateral veins 5–11 on each side of midrib; bracts and calyx pannose or woolly outside; corolla purplish or purple-blue; bracts 2(or 3); staminodes 3.

7a. Plants stemless; leaf blade abaxially densely brownish woolly, veins margin rust-brown woolly; peduncle 2.5–9 cm, tomentose; filaments ca. 2 mm, glandular puberulent ................................................................. 4. *P. nutans*

7b. Plants stemless or stems to 10 cm; leaf blade abaxially pannose; peduncle 8–21 cm, pannose to sparsely pannose, glabrescent; filaments 6–7 mm, glabrous ..................... 15. *P. dictyoneura*

1b. Capsule spirally twisted.

8a. Leaves opposite, spread along stem.

9a. Bracts early deciduous or to 10 mm; corolla tube 3–5 mm; filaments 1.5–3 mm, anthers 2–2.5 mm; ovary 2.5–3 mm.

9b. Bracts (7–)10–50 mm; corolla tube 5–13 mm; filaments 6–10 mm, anthers 3–4 mm; ovary 4–6 mm.

10a.Cymes appearing terminal; peduncle 5–13 cm; capsule 2–2.5 cm; leaf blade 4–14 × 2–5 cm, adaxially grayish woolly, glabrescent ................................................................. 5. *P. swinhoei*

10b. Cymes axillary; peduncle 4–5 cm; capsule 0.8–1.5 cm; leaf blade 2–7 × 1–3 cm, adaxially densely pubescent ................................................................. 6. *P. changjiangensis*

11a. Calyx segments oblong-spatulate to flabellate or obovate, 7–15 × 4–7 mm; stems to 1 m; peduncle 2.5–6(–8) cm, brown pannose ................................................................. 7. *P. sinensis*

11b. Calyx segments lanceolate or narrowly oblong to narrowly triangular, 1.8–3 × 0.5–1 mm; stems to 40 cm; peduncle 5–20 cm, cobwebby-woolly, glabrescent.

12a. Bracts narrowly ovate to obovate, 3–5 × 1–2 cm; filaments glabrous to glandular puberulent; leaf blade apex obtuse to acute ................................................................. 11. *P. glutinosa*

12b. Bracts lanceolate to ovate, 0.7–3 × 0.4–1.3 cm; filaments bearded; leaf blade apex acuminate to acute ................................................................. 12. *P. martinii*

8b. Leaves basal or mostly crowded at stem apex.

13a. Corolla 4.5–5.2 mm; ovary and capsule mealy; capsule 0.6–1.2 cm .............................. 13. *P. thirionii*

13b. Corolla 8–25 mm; ovary sparsely glandular puberulent or puberulent to glabrous (unknown in *P. paramartinii*); capsule glabrous, 1.5–6.5 cm (unknown in *P. clavisepala* and *P. tribracteata*).

14a. Stems to 50 cm; petiole (0.5–)1–10 cm; leaf blade base decurrent to subcordate, sometimes oblique; filaments glandular puberulent to bearded, rarely glabrous (unknown in *P. paramartinii*).

15a. Peduncle 3–4 cm; bracts 2 at apex of peduncle, another pair at first branch 10. *P. paramartinii*

15b. Peduncle 4–20 cm; bracts 2.

16a. Leaf blade adaxially densely puberulent to pubescent, not cobwebby-woolly; bracts 7–12 × 4–11 mm ................................................................. 8. *P. rufescens*
16b. Leaf blade adaxially cobwebby-woolly, glabrescent, sometimes also strigose; bracts 7–50 × 2–20 mm.
17a. Leaf blade abaxially densely grayish woolly; calyx segments spatulate to suboblong, 3–4 mm ................................................................. 9. *P. clavisepala*
17b. Leaf blade abaxially brown pannose; calyx segments lanceolate or narrowly oblong to narrowly triangular, 1.8–3 mm.
18a. Bracts narrowly ovate to obovate, 3–5 × 1–2 cm; filaments glabrous to glandular puberulent; leaf blade apex obtuse to acute .............. 11. *P. glutinosa*
18b. Bracts lanceolate to ovate, 0.7–3 × 0.4–1.3 cm; filaments bearded; leaf blade apex acuminate to acute ........................................ 12. *P. martinii*

14b. Plants stemless or stems to 15 cm; petiole absent to 4.5 cm; leaf blade base attenuate to cuneate, sometimes ultimately rounded; filaments glabrous.
19a. Leaf blade narrowly oblanceolate, 1.7–2.4 cm wide; lateral veins 3 or 4 on each side of midrib; bracts 3, outside glabrous; corolla red ........................................ 16. *P. tribracteata*
19b. Leaf blade oblanceolate to obovate or spatulate, rarely lanceolate or ovate, 1.2–8 cm wide; lateral veins 4–10 on each side of midrib; bracts 2(or 3), outside woolly or pannose; corolla bluish to deep purple.
20a. Leaf blade leathery, adaxially glabrous to glabrescent; corolla glandular puberulent outside; ovary puberulent; peduncle 12–30 cm; pedicel 1–4 cm ......... 18. *P. hainanensis*
20b. Leaf blade thick papery, adaxially woolly, glabrescent; corolla glabrous outside; ovary glabrous; peduncle 3–21 cm; pedicel 0.5–2 cm.
21a. Bracts ovate to elliptic, ca. 1.5 mm; corolla adaxial lip lobes 0.5–2 mm; capsule 1.5–2.5 cm ................................................................. 14. *P. neurophylla*
21b. Bracts linear to subulate or lanceolate to narrowly oblong, 2–13 mm; corolla adaxial lip lobes 3–6 mm; capsule 1.5–6 cm.
22a. Leaf blade oblanceolate, rarely obovate; bracts 5–13 mm; calyx 3–6 mm, outside woolly; staminodes 3 ........................................ 15. *P. dictyoneura*
22b. Leaf blade spatulate, rarely lanceolate, obovate, or ovate, bracts 2–5 mm; calyx 2–3 mm, outside puberulent; staminodes 2 ............... 17. *P. crassifolia*

密叶蛛毛苣苔 mi ye zhu mao ju tai


Subshrubs. Stems ca. 7 cm, brown to grayish velutinous. Leaves spirally arranged, crowded near branch apex; petiole 1–2(–4) mm; leaf blade oblongate, seldom spatulate, 0.9–2.5 cm × 4–10 mm, papery, adaxially cobwebby-woolly, glabrescent, abaxially grayish velutinous, base attenuate, margin indistinctly repand-crenulate, apex obtuse to rounded; lateral veins 4–7 on each side of midrib. Cymes axillary in pairs; peduncle 2–2.7 cm, glandular puberulent; bracts 1 or 2, subulate, ca. 0.3 mm, outside puberulent. Pedicel 3–5 mm. Calyx 5-sect from base; segments narrowly lanceolate, 1–1.2 × ca. 0.3 mm, outside glandular puberulent. Corolla white, 4–5 mm, outside sparsely glandular puberulent; tube 3–3.5 mm; adaxial lip ca. 2 mm, lobes ca. 1.5 × 1 mm; abaxial lip ca. 1.8 mm, lobes ca. 1.5 × 2.3 mm. Filaments ca. 1.4 mm, glabrous; anthers ca. 1.1 mm; staminodes 3, ca. 0.5 mm. Pistil sparsely glandular puberulent; ovary ca. 1.2 mm. Style ca. 2.8 mm. Capsule not twisted, 7–8 mm, glabrescent. Fl. Jun.

• Limestone rocks and cliffs among caves. Guangxi (Fengshan Xian).


钝叶蛛毛苣苔 dun ye zhu mao ju tai

Herbs. Stems 2–7 cm. Leaves spirally arranged; petiole 1–9 cm; leaf blade obovate to oblongate, spatulate,
or subpandurate, 6–33.5 × 3–14.3 cm, papery, adaxially cobwebby-woolly, abaxially densely brownish woolly, base peltate-auriculate, rarely cordate to cuneate, margin irregularly crenate-serrate, apex obtuse to rounded; lateral veins 11–18 on each side of midrib. Cymes axillary; peduncle 4–6 cm, densely brownish woolly; bracts 2, lanceolate-triangular, 2–3(–4) mm, outside densely brownish woolly. Pedicel ca. 6 mm. Calyx ca. 3.5 mm, 2-lipped; adaxial lip 2-toothed, teeth ca. 0.7 mm, abaxial lip 3-sect from base, segments ca. 2 × 1.5 mm, outside densely woolly. Corolla white, with lavender on abaxial lateral lobes, ca. 1.4 cm, outside glabrous; tube ca. 7 mm; adaxial lip ca. 5 mm; abaxial lip ca. 7 mm, lobes ca. 7 mm wide. Filaments ca. 3 mm, glabrous; anthers ca. 3 mm; staminodes 2, ca. 2 mm. Pistil lilac puberulent, densely so near base, sparsely above; ovary ca. 5 mm. Style ca. 7 mm. Capsule not twisted, 1–3.6 cm. glabrescent.

- **Calyx 5-sect from base; segments oblong or lanceolate - axillary; peduncle 2.5–9 cm, brownish woolly; bracts 2, lanceolate-triangular, 2–3(–4) mm, outside densely brownish woolly. Pedicel ca. 6 mm. Calyx ca. 3.5 mm, 2-lipped; adaxial lip 2-toothed, teeth ca. 0.7 mm, abaxial lip 3-sect from base, segments ca. 2 × 1.5 mm, outside densely woolly. Corolla white, with lavender on abaxial lateral lobes, ca. 1.4 cm, outside glabrous; tube ca. 7 mm; adaxial lip ca. 5 mm; abaxial lip ca. 7 mm, lobes ca. 7 mm wide. Filaments ca. 3 mm, glabrous; anthers ca. 3 mm; staminodes 2, ca. 2 mm. Pistil lilac puberulent, densely so near base, sparsely above; ovary ca. 5 mm. Style ca. 7 mm. Capsule not twisted, 1–3.6 cm. glabrescent.**


- **Paraboea changjiangensis** F. W. Xing & Z. X. Li, Acta Phytotax. Sin. 15: 121. 1993. Subshrubs. Stems 9–40 cm, densely gray woolly. Leaves opposite, spread along stem; petiole 1–5 cm; leaf blade narrowly elliptic to elliptic-lanceolate, narrowly ovate, or narrowly obovate, 4–14 × 2–5 cm, papery, adaxially grayish woolly, glabrescent, abaxially brownish pannose, base sometimes oblique, cuneate to subcordate, margin subentire to serrate, apex abruptly acuminate to rounded; lateral veins 5–11 on each side of midrib. Cymes appearing terminal; peduncle 5–13 cm, brownish woolly; bracts 2, ovate-oblong, 3–10 mm, outside brownish pannose. Pedicel 5–8 mm. Calyx 1.5–2.5 mm, 5-sect from near base; segments narrowly oblong, 1.2–2.3 × 0.5–1 mm, outside pannose to glabrous. Corolla white, 4–6 mm, outside glabrous; tube 3–4 mm; adaxial lip 1.5–3 mm, lobes 1–2.5 × ca. 3.5 mm; abaxial lip 3–3.5 mm, lobes 2–2.5 × 2.5–3.5 mm. Filaments 2–3 mm, glabrous; anthers ca. 2 mm; staminodes 2 or 3, ca. 1.5 mm. Pistil glabrous; ovary 2.5–3 mm. Style 3–4 mm. Capsule spirally twisted, 2–2.5 cm, glabrous. Fl. Jun–Sep, Feb. fr. Jul–Sep.

Phylloboea sinensis Oliver, Hooker’s Icon. Pl. 18: pl. 1721. 1887; Boea chaffanjonii H. Léveillé; Chlamydoboea sinensis (Oliver) Stapf; C. sinensis f. macra Stapf; C. sinensis f. macrophylla Stapf; Paraboeba sinensis f. macro (Stapf) C. Y. Wu ex H. W. Li; P. sinensis f. macrophylla (Stapf) C. Y. Wu ex H. W. Li.

Subshrubs. Stems to 1 m, brown pannose, glabrescent. Leaves opposite, spread along stem; petiole 2–10 cm; leaf blade narrowly elliptic or oblong to ovate or obovate, 5.5–26 × 2–10 cm, papery, adaxially grayish to brown pannose to puberulent, subglabrescent, abaxially brownish pannose, base sometimes oblique, cuneate to subcordate, margin subentire to serrulate, apex acute to acuminate; lateral veins 10–15 on each side of midrib. Cymes axillary, near branch apices; peduncle 4–12 cm, rust-brown acute to rounded; lateral veins 5–10 on each side of midrib. Cymes axillary; peduncle 3–12 cm, rust-brown obtuse to obtuse, 0.7–2.5 cm × 2.5–3 mm, outside woolly. Pedicel 5.5–13 cm. Fl. Jun–Jul, fr. Jun–Aug.

8. Paraboeba ru fescens var. ru fescens

锈色蛛毛苣苔 var. ru fescens
8a. Paraboeba ru fescens f. ru fescens

锈色蛛毛苣苔(原变种) xiue se zhu mao ju tai (yuan bian zhong)


Crevices of rocks of limestone hills; 700–1500 m. Guangdong, SW Guangxi, S Guizhou, E and S Yunnan [Thailand, Vietnam].


Rocks in valley forests; 200–1200 m. SW Guangxi [Vietnam].

Extraordinary Phylloboea (original species) bang e zhu mao ju tai

Herbs. Stems 17–50 cm, woolly. Leaves opposite, mostly crowded near stem apex; leaf blade 5–20 × 3–10 cm, outside glabrous, glabrescent. Pedicel 4–12 cm. Calyx 5-sect from base; segments narrowly oblong to lanceolate or linear, 3–4 × 0.5–1 mm, outside pannose, glabrescent. Corolla white to purplish, seldom purple-red, 1–1.3 cm, outside glabrous to sparsely glandular puberulent; tube 6–8 mm; adaxial lip ca. 3.5 mm, lobes ca. 3 × 4–5 mm; abaxial lip ca. 6.5 mm, lobes 3–4 × 4–5 mm. Filaments 3–5 mm, glandular puberulent; anthers 3–4 mm; staminodes 2, 1–1.5 mm. Pistil sparsely glandular puberulent to glabrous; ovary ca. 6 mm. Style ca. 4 mm. Capsule spirally twisted, 2.5–5 cm, glabrous. Fl. Jun–Sep, fr. Jun–Oct.

On rocks of limestone hills and valley forests; 200–1500 m. Guangdong, SW Guangxi, S Guizhou, E and S Yunnan [Thailand, N Vietnam].
adaxial lip ca. 6 mm; abaxial lip ca. 8 mm, lobes 7–8 mm wide. Filaments ca. 5 mm, glandular puberulent; anthers ca. 4 mm; staminodes 2, ca. 2 mm. Pistil glabrous; ovary ca. 6 mm. Style ca. 3 mm. Fruit unknown. Fl. Jul.

- Limestone; ca. 800 m. Guangxi (Napo Xian).

思茅蛛毛苣苔  si mao zhu mao ju tai

Subshrubs or herbs. Stems to 20 cm, pannose to woolly, glabrescent. Leaves opposite, mostly crowded near stem apex, some basal; petiole 2–13 cm; leaf blade ovate to oblong or elliptic, 10–26 × 6–12 cm, papery, adaxially glabrous to pubescent, abaxially puberulent to pannose, pannose-woolly along veins, base often oblique, broadly cuneate to subcordate, margin crenate-serrate, apex obtuse; lateral veins 10–15 on each side of midrib. Cymes axillary, near branch apices, flowers unknown; fruiting peduncle 3–4 cm, glabrescent; bracts 2 at apex of peduncle, another pair at first branch, lanceolate to ovate, 1.1–3 cm × 4–8 mm, outside pannose. Pedicel 0.4–2 cm. Calyx 5-sect from base; segments narrowly oblong, 2.5–3 × 0.5–1 mm, outside sparsely glandular puberulent, glabrescent. Capsule spirally twisted, 2–3.5 cm, glabrous. Fl. Oct.

Limestone cliffs in forests; ca. 1500 m. Yunnan (Simao Xian) [Thailand].


白花蛛毛苣苔  bai hua zhu mao ju tai

**Boea glutinosa** Handel-Mazzetti, Sinensia 7: 620. 1936.

Subshrubs or herbs. Stems to 40 cm, gray-brown cobwebby-woolly to pannose. Leaves opposite, mostly crowded near stem apex or spread along stem; petiole 2–10 cm; leaf blade elliptic to ovate or oblanceolate, 6–14 × 3–7.5 cm, papery, adaxially cobwebby-woolly, glabrescent, abaxially brown pannose, base sometimes oblique, cuneate to rounded, margin serrulate to crenulate, apex acuminate to acute; lateral veins 7–11 on each side of midrib. Cymes terminal or axillary; peduncle 5–20 cm, cobwebby-woolly, glabrescent; bracts 2, lanceolate to ovate, 0.7–3 cm × 4–13 mm, outside pannose. Pedicel 0.7–1.5(–2) cm. Calyx 5-sect from base; segments narrowly oblong to narrowly triangular, 2–3 × 0.5–1 mm, outside sparsely puberulent. Corolla purple to blue, 1.5–2.5 cm, outside glabrous to puberulent; tube 7–10 mm; adaxial lobes ca. 3 × 4 mm; abaxial lip ca. 8 mm, lobes 2.5–6 mm. Filaments ca. 1 cm, bearded; anthers ca. 4 mm; staminodes 2, ca. 3 mm. Pistil glabrous; ovary 5–6 mm. Style 4–6 mm. Capsule spirally twisted, 2.5–6.5 cm, glabrous. Fl. May, fr. Jul–Aug.

- Limestone in forests; 400–1500 m. Guangxi (Napo Xian), Guizhou (Lobo Xian), Yunnan (Xichou).


髯丝蛛毛苣苔 ran si zhu mao ju tai


Subshrubs or herbs. Stems to 30 cm, gray-brown cobwebby-woolly to pannose. Leaves opposite, mostly crowded near stem apex or spread along stem; petiole 2–10 cm; leaf blade elliptic to ovate or oblanceolate, 6–14 × 3–7.5 cm, papery, adaxially cobwebby-woolly, glabrescent, abaxially brown pannose, base sometimes oblique, cuneate to rounded, margin serrulate to crenulate, apex acuminate to acute; lateral veins 7–11 on each side of midrib. Cymes terminal or axillary; peduncle 5–20 cm, cobwebby-woolly, glabrescent; bracts 2, lanceolate to ovate, 0.7–3 cm × 4–13 mm, outside pannose. Pedicel 0.7–1.5(–2) cm. Calyx 5-sect from base; segments narrowly oblong to narrowly triangular, 2–3 × 0.5–1 mm, outside sparsely puberulent. Corolla purple to blue, 1.5–2.5 cm, outside glabrous to puberulent; tube 7–10 mm; adaxial lobes 3 × 4 mm; abaxial lip ca. 8 mm, lobes 2.5–6 mm. Filaments ca. 1 cm, bearded; anthers ca. 4 mm; staminodes 2, ca. 3 mm. Pistil glabrous; ovary 5–6 mm. Style 4–6 mm. Capsule spirally twisted, 2.5–6.5 cm, glabrous. Fl. May, fr. Jul–Aug.

Rocks of slopes; 400–1400 m. NW Guangxi, Guizhou (Luodian Xian), Yunnan [Myanmar].
lobes 2.2–2.8 × ca. 3 mm. Filaments 1–3 mm, glabrous; anthers 1.8–2 mm; staminodes apparently absent. Ovary 2–2.5 mm; grayish mealy. Style 3–5 mm, glabrous. Capsule spirally twisted, 0.6–1.2 cm, mealy. Fl. Jul.
• Shady and damp rocks; ca. 300 m. Guangxi (Tian’è Xian), Guizhou (Luodian Xian).

Paraboea thirionii is similar to and sometimes treated as a synonym of P. multiflora (R. Brown) B. L. Burtt.


Herbs. Stemless or stems to 10 cm, pannose, glabrescent. Leaves basal or crowded near stem apex; petiole 0.5–4.5 cm; leaf blade oblanceolate to obovate, (2.5–)6–12 × 1.5–7 cm, thick papery, adaxially woolly, glabrescent, abaxially densely woolly to pannose, base narrowly cuneate, ultimately rounded, margin crenate, involute, apex rounded to acute; lateral veins 5–6 on each side of midrib. Cymes axillary; peduncle 6.5–13 cm, pannose, glabrescent; bracts 2, ovate to elliptic, ca. 1.5 × 0.5 mm, outside woolly. Pedicel 5–10 mm. Calyx 5-sect from base; segments linear to lanceolate, 2–5 × 0.5–1 mm, outside sparsely woolly. Corolla bluish, 1–1.4 cm, outside glabrous; anthers ca. 3.5 mm; staminodes apparently absent. Ovary ca. 5 mm. Style ca. 3 mm. Fruit unknown. Fl. Jul.


网脉蛛毛苣苔 wang mai zhu mao ju tai Boea dictyoneura Hance, J. Bot. 21: 169. 1883; B. hancei C. B. Clarke.

Subshrubs or herbs, stemless or with stems to 10 cm, pannose, glabrescent. Leaves basal or crowded near stem apex; petiole (absent or)0.5–2 cm; leaf blade spatulate, rarely lanceolate, obovate, or ovate, 3–16 × 1.5–7 cm, thick papery, adaxially grayish woolly, glabrescent, abaxially densely cobwebby-woolly to pannose, base attenuate to cuneate, margin crenate to dentate or subentire, often undulate, sometimes involute, apex rounded to acute; lateral veins 4–9 on each side of midrib. Cymes axillary; peduncle 3–12 cm, woolly to pannose, glabrescent; bracts 2, linear to subulate, 2–5 × ca. 0.5 mm, outside woolly. Pedicel 0.5–1.5 cm. Calyx 2–3 mm, 5-sect from base; segments narrowly triangular to linear, 1.2–1.5 × ca. 0.5 mm, outside puberulent. Corolla purplish, 1.2–1.4 cm, outside glabrous; tube 6–7 mm; adaxial lip 4 mm, lobes 3–4 × ca. 5 mm; abaxial lip 6 mm, lobes 3–5 × 4–6 mm. Filaments 3–7 mm, glabrous; anthers 2.5–3 mm;

- Stony cliffs; 700–3200 m. Guizhou, W Hubei, SE Sichuan, Yunnan.


海南蛛毛苣苔 hai nan zhu mao ju tai


Herbs, stemless or with stems to 5 cm, pannose, glabrescent. Leaves basal or crowded near stem apex; petiole to 1.5 cm; leaf blade oblanceolate to obovate, 5–18 × 1.2–6 cm, leathery, adaxially glabrous to glabrescent, abaxially brown cobwebby-woolly, base attenuate to cuneate, margin crenulate to serrate, often involute, apex rounded to acute; lateral veins 5–9 on each side of midrib. Cymes axillary; peduncle 12–30 cm, brown woolly, glabrescent; bracts 2( or 3), narrowly lanceolate to lanceolate, 3–10 × 0.5–1 mm, outside brown woolly. Pedicel 1–4 cm. Calyx 5-sect from base; segments lanceolate to ovate, 1.5–2 × ca. 0.5 mm, outside glandular puberulent to pubescent. Corolla bluish to deep purple, 0.8–1.2 cm, outside glandular puberulent; tube ca. 4 mm; adaxial lip lobes ca. 6 × 5 mm; abaxial lip ca. 1 cm, abaxial lip lobes 4–6 × ca. 5 mm. Filaments 4–6 mm, glabrous; anthers 2–3 mm; staminodes apparently absent or 1 minute. Ovary ca. 4 mm, puberulent. Style ca. 5 mm, glabrous. Capsule spirally twisted, 3–4.5 cm, glabrous. Fl. and fr. Jul–Sep.

- Shady and damp rocks under mixed forest; ca. 800 m. Hainan.

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**41. BOEA** Commerson ex Lamarck, Encyl. Méth., Bot. 1: 401. 1785.

旋蒴苣苔属 xuan shuo ju tai shuo

*Dorcoceras* Bunge.

Herbs, perennial, epipetric or terrestrial, rhizomatous, stemless [or stemmed]. Leaves few to many, along stem, then opposite, sometimes spirally arranged or basal (in China), equal to subequal in a pair; leaf blade villous to puberulent, hairs unicellular, long, seldom short or glandular, base attenuate to cordate. Inflorescences lax, axillary, sometimes umbel-like, 1- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from near base, rarely 5-lobed from middle; segments equal to slightly unequal. Corolla white, blue, or purple, zygomorphic, inside densely puberulent or glandular puberulent to glabrous, outside campanulate to broadly campanulate, not swollen, longer than to nearly equalling limb, 4–10 mm in diam.; limb distinctly or indistinctly 2-lipped; adaxial lip 2 lobed, shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers dorsifixed, coherent, thecae divaricate, confluent at apex, dehiscing longitudinally from arcuate slits; connective not projecting; staminodes 2 or 3, adnate to abaxial side of corolla tube. Disc inconspicuous. Ovary oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate, undivided. Capsule straight in relation to pedicel, narrowly oblong, much surpassing calyx, dehiscing loculicidally to base; valves 2, spirally twisted. Seeds unappendaged.

About 20 species: Australia, China, E India, Malaysia, Myanmar, Philippines, Polynesia, Vietnam; three species in China.

1a. Corolla 1.4–2.2 cm; calyx 5-lobed from middle, 6–9 mm; petiole to 10 cm .............................. 3. *B. clarkeana*

1b. Corolla 0.7–1.3 cm; calyx 5-sect from near base, 1.5–3 mm; petiole to 1 cm.

2a. Leaf venation pinnate, distinct midrib; blade obovate to narrowly elliptic-spatulate or rhombic, 1.5–5(–8) × 1–2(–3) cm, base attenuate to cuneate; corolla purplish to dark red or white, petals 2.5–5 mm. 2b. Leaf venation palmate, midrib indistinct; blade suborbicular to ovate, 0.7–7 × 0.5–5.5 cm, base truncate; corolla blue-purple or blue to white or pink ................................. 2. *B. hygrometrica*


地胆旋蒴苣苔 di dan xuan shuo ju tai shuo

*Boea elephantopoides* W. Y. Chun; *Dorcoceras philippense* (C. B. Clarke) Schlechter.

Petiole to 1 cm; leaf blade obovate to narrowly elliptic-spatulate or rhombic, 1.5–5(–8) × 1–2(–3) cm, adaxially grayish villous to pubescent, abaxially densely villous, base attenuate to cuneate, margin subentire to irregularly serrate or crenate-serrate, apex acute to rounded; venation pinnate, lateral veins 3 or 4 on each side of midrib. Peduncle (4–)6–13 cm, sparsely villous to glandular puberulent; bracts narrowly oblong, 1.5–3.5 mm. Calyx 5-sect from near base; segments narrowly lanceolate, 1.5–2.5 × ca. 0.5 mm, outside sparsely glandular pubescent, inside sparsely puberulent. Corolla purplish to dark red or white, petals 2.5–5 mm. Filaments 1–1.5 mm, glabrous; staminodes 2. Pistil ca. 6 mm; ovary 3–4 mm; glandular puberulent. Style glabrous. Capsule 2–3.5 cm. Fl. May–Jun, fr. May–Jul.
2. Boea hygrometrica (Bunge) R. Brown, On Cyrtandrae 120. 1839.

旋蒴苣苔 xuan shuo ju tai

Dorcoceras hygrometrica Bunge, Enum. Pl. China Bor. 54. 1833.

Petiole to 0.5 cm; leaf blade suborbicular to ovate, 0.7–7 × 0.5–5.5 cm, adaxially white villous to sparsely villous, abaxially densely white to brownish woolly, base cuneate to truncate, margin denticulate or dentate to crenulate, apex rounded to obtuse; venation palmate, nearly parallel, veins 3–9. Peduncle (1–)4–12 cm, puberulent to pubescent; bracts linear to lanceolate, ca. 1–3 mm. Calyx 5-sect from near base; segments narrowly triangular to narrowly lanceolate, 1.5–3 × 0.6–1 mm, outside puberulent, inside glandular puberulent. Corolla blue-purple or blue to white or pink, 0.8–1.3 cm, outside sparsely puberulent, inside sparsely to densely glandular puberulent; tube 1–1.5 × 0.7–1 cm; adaxial lip lobes 3–5 mm; abaxial lip lobes 4–5 mm. Filaments ca. 7 mm, glabrous to glandular puberulent toward anther; anthers dorsifixed, coherent, thecae divaricate, confluent at apex, dehiscing longitudinally from straight or arcuate slits; connective not projecting; staminodes 2 (or 3), adnate to adaxial side of corolla tube. Disc inconspicuous or ringlike. Ovary ovoid to ovoid-conical, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate, undivided. Capsule straight in relation to pedicel, narrowly oblong, slightly to 2 × longer than calyx, dehiscing loculicidally to base; valves 2 or 4, spirally twisted. Seeds unappendaged.

About 11 species: China, Malaysia, E Myanmar, Thailand, Vietnam; five species in China.

1a. Filaments forked toward apex, 1 branch with fertile anther, other with a thick yellow knob; calyx segments spreading; bracts 4–7 mm.

2a. Calyx 7–14 mm, pubescent to villous outside; staminodes 2; corolla abaxial lip lobes oblong; peduncle and pedicel villous ........................................................................................................................................ 4. O. wildeana

2b. Calyx 6–8 mm, puberulent outside; staminodes 3; corolla abaxial lip lobes triangular; peduncle and pedicel densely pubescent ........................................................................................................................................ 5. O. calcicola

1b. Filaments simple; calyx segments reflexed; bracts inconspicuous or 2–4 mm.


大花旋蒴苣苔 da hua xuan shuo ju tai

Boea densishipidula S. B. Zhou & X. H. Guo; B. mairei H. Léveillé; Streptocarpus clarkeanus (Hemsley) Hilliard & Burtt.

Petiole to 10 cm; leaf blade ovate to broadly ovate, elliptic, or obovate, 2–10 × 1.4–7 cm, white to gray or yellowish appressed pubescent, base often oblique, broadly cuneate to cordate, margin crenate to serrate, apex acute to rounded; venation pinnate, lateral veins 5–7 on each side of midrib. Peduncle 3–18 cm, grayish puberulent to pubescent; bracts broadly ovate to narrowly oblong, 4–9 mm. Calyx 6–9 mm, 5-lobed from middle; lobes triangular or oblong to ovate-oblong, 3–4 × 2–2.5 mm, outside puberulent, inside glandular puberulent to glandular puberulent. Corolla white to blue or blue-purple, 1.4–2.2 cm, outside glandular puberulent to densely pubescent to short villous, inside glandular puberulent to glandular puberulent. Peduncle 3–18 cm, grayish puberulent to pubescent; bracts linear to lanceolate, ca. 1–3 mm. Calyx 5-sect from near base; segments narrowly triangular to narrowly lanceolate, 1.5–3 × 0.6–1 mm, outside puberulent, inside glandular puberulent. Corolla blue-purple or blue to white or pink, 0.8–1.3 cm, outside sparsely puberulent, inside sparsely to densely glandular puberulent; tube 1–1.5 × 0.7–1 cm; adaxial lip lobes 3–5 mm; abaxial lip lobes 4–5 mm. Filaments ca. 7 mm, glabrous to glandular puberulent toward anther; staminodes 2 or 3. Pistil 0.9–1.6 cm; ovary 5–8 mm; brownish puberulent to glandular puberulent. Style glandular puberulent to glabrous. Capsule 1.8–4.5 cm. Fl. Jun–Aug, fr. Jun–Oct.

Crevices of rocks on slopes; 500–3100 m. Anhui, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, NW Yunnan, Zhejiang.
3a. Stem, abaxial leaf blade surface, and peduncle cobwebby-woolly; bracts inconspicuous; calyx segments 8–10 mm; staminodes 3 ............................................................... 1. O. arachnoidea

3b. Stem, abaxial leaf blade surface, and peduncle puberulent or pubescent to villous; bracts 2–4 mm; calyx segments 3.5–6 mm; staminodes 2.

4a. Peduncle 1.8–7 cm; calyx segments 1–2 mm wide ............................................................... 2. O. feddei

4b. Peduncle 0.8–1.5 cm; calyx segments 2–2.5 mm wide ............................................................... 3. O. henryi


灰岩喜鹊苣苔 hui yan xi que ju tai
Stems to 60 cm, villous. Petiole 1–10.5 cm; leaf blade ovate to broadly ovate, 3.5–10 × 2–6.5 cm, adaxially sparsely villous, abaxially densely puberulent, villous along veins, margin dentate-serrate, apex acuminate. Peduncle ca. 2.5 cm, densely pubescent; bracts 4–7 mm.

Pedicel to 1.5 cm. Calyx segments spreading, lanceolate to narrowly ovate, 6–8 × ca. 3 mm, outside puberulent. Corolla blue-purple, ca. 1.4 cm, inside central lobe of abaxial lip densely bluish bearded; tube ca. 8 mm; adaxial lip ca. 6 mm, lobes ca. 1 mm; abaxial lip ca. 6 mm, lobes triangular, ca. 1.5 mm. Stamens ca. 3.5 mm; filaments forked apically, glandular puberulent near apex; 1 branch with fertile anther, other with a thick yellow knob; staminodes 3, ca. 2.5 mm. Ovary ovoid-conical, ca. 3 mm, densely villous to pilose. Style ca. 7 mm, pubescent. Capsule ca. 2 cm. Fl. and fr. Sep.


唇萼苣苔属 chun e ju tai shu
Dichiloboea Stapf.
Herbs, perennial, seldom annual, epipetric or terrestrial, rhizomatous or not rhizomatous, stemmed or stemless. Leaves many, along stem and opposite, or basal, equal to subequal in a pair; leaf blade adaxially puberulent, adaxially densely woolly to pannose, hairs branched, base subcordate to cuneate. Inflorescences monochasial or pseudo-paniculate, lax or rarely dense, axillary and terminal, few- to many-flowered cymes; bracts 2, opposite. Calyx zygomorphic, 2-lipped; adaxial lip 3-lobed; abaxial lip 2-sect from base. Corolla white, pink, or purplish, zygomorphic, inside glabrous; tube oblique, campanulate, not swollen, longer than limb, 3.5–6 mm in diam.; limb slightly 2-lipped; adaxial lip 2-lobed, slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near base, included; anthers dorsifixixed, coherent, thecae divericate, confluent at apex, dehiscing transversely; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary oblong, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, lingulate, undivided. Capsule straight in relation to pedicel, narrowly oblong to narrowly ovoid, ca. 2 × longer than calyx, dehiscing loculicidally to base; valves 4, spirally twisted. Seeds unappendaged.

About 13 species: China, Malaysia, Myanmar, Thailand; one species in China.


唇萼苣苔 chun e ju tai
Boea birmanica Craib, Bull. Misc. Inform. Kew 1913: 114. 1913; B. paniculata Handel-Mazzetti (1925), not Ridley (1896); Dichiloboea birmanica (Craib) Stapf. Perennials. Stems 15–50 cm, appressed woolly to pannose. Petiole 0.6–5(–6) cm; leaf blade ovate to broadly ovate, 3.5–10 × 2–6.5 cm, adaxially sparsely villous, abaxially densely puberulent, villous along veins, margin serrulate-crenulate, apex acute; lateral veins 5–7 on each side of midrib. Peduncle 0.5–3.5(–6) cm, appressed woolly to pannose. Calyx 6–11 mm; adaxial lip lobes 0.7–2 × ca. 1 mm; abaxial lip segments narrowly triangular, 5–10 × 1–2 mm, outside appressed woolly to pannose, inside glabrous. Corolla pinkish, seldom white, ca. 7–10 × 5–9 mm, outside glabrous; tube ca. 4–6 × 3.5–6 mm; lobes suborbicular, 2–4 mm. Filaments 1.5–2.5 mm; staminode 0.3–1 mm. Pistil 1–1.1 cm, glabrous. Style 3–6 mm. Capsule 1–2 cm. Fl. Sep, fr. Oct.

Rocks in thickets; 1000–1700 m. SW Sichuan (Yanyuan Xian), S Yunnan [Myanmar, Thailand].

Chlamydoboea connata Craib (Notes Roy. Bot. Gard. Edinburgh 10: 211. 1918) and Paraboëa connata (Craib) C. Y. Wu ex H. W. Li (Fl. Yunnanica 5: 628. 1991) are probably synonyms of Trisepalum birmanicum; however, the type of C. connata has never been found (see Burtt, Notes Roy. Bot. Gard. Edinburgh 41: 448. 1984).

44. RHABDOTHAMNOPSIS Hemsley in Dunn, J. Linn. Soc., Bot. 35: 517. 1903.

长冠苣苔属 chang guan ju tai shu
Subshrubs, epipetric or terrestrial, not rhizomatous. Stems branched from base or simple. Leaves few to many, opposite, equal to subequal in a pair; leaf blade puberulent, base cuneate. Flowers solitary, axillary; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla purple to blue or white to pale yellow, zygomorphic, inside glabrous; tube campanulate-tubular, not swollen, longer than limb, 0.7–1.3 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to abaxial side of corolla tube near middle, included; anthers dorsifixixed, coherent, thecae
divaricate, confluent at apex, dehiscing longitudinally; connective projecting slightly; staminodes 2, adnate to adaxial side of corolla tube. Disc ringlike. Ovary narrowly obovate, 1-loculed; placens 2, parietal, projecting inward, 2-cleft. Stigmas 2, unequal, subsemiorbiculate to ligulate or ringlike, emarginate. Capsule straight in relation to pedicel, narrowly obovate to nearly linear, much surpassing calyx, dehiscing loculicidally to base; valves 2, spirally twisted. Seeds unappendaged.

- One species: endemic to China.

**Boea cavaleriei** H. Léveillé & Vaniot; **B. rubicunda** H. Léveillé; **Rhabdothamnopsis chinensis** (Franchet) Handel-Mazzetti; **R. chinensis** var. **ochroleuca** (W. W. Smith) Handel-Mazzetti; **R. limprichtiana** Lingelsheim & Borza; **R. sinensis** var. **ochroleuca** W.W.Smith; **Streptocarpus chinensis** Franchet.

Leaves sometimes crowded near stem apex; petiole subsessile to 9 mm; leaf blade narrowly elliptic to ovate or obovate, 1.4–4 × (0.5–)0.8–2.6 cm, puberulent, margin serrulate to crenulate, apex acute to rounded, rarely acuminate; lateral veins 3–5 on each side of midrib. Peduncle 0.8–2.8 cm, densely puberulent to pilose. Calyx segments narrowly lanceolate to narrow-ovate to oblong, 1.3–3 cm, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds with 1 subulate appendage at each end.

**Tumidinodus** H. W. Li.

Subshrubs, epipetric or terrestrial, rhizomatous. Stems branched, branchlets sometimes angled. Leaves few, along stem, opposite, unequal in each pair; leaf blade puberulent to glabrescent, base narrowly cuneate to rounded. Inflorescences lax to dense, axillary, 2–8-flowered cymes; bracts 2, deciduous, opposite. Calyx actinomorphic, 5-merous from base; segments equal. Corolla white to yellowish, zygomorphic, inside with 2 arcuate projections abaxially; tube subtubular, gibbous abaxially near limb, longer than limb, 0.7–1.7 cm in diam.; limb 2-lipped; adaxial lip 2-lobed; usually shorter than abaxial lip; abaxial lip 3-lobed, lobes equal to unequal, apex rounded to obtuse. Stamens 4, adnate to corolla tube near middle, included; anthers basifixed, coherent in pairs, thecae slightly divergent, confluent at apex, dehiscing longitudinally; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placens 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, discike, undivided. Capsule straight in relation to pedicel, linear, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds with 1 subulate appendage at each end.

Three species: China, N Vietnam; all three species in China.

According to the protologue, **Anna** has 2 stigmas. A specimen from Chapa (N Vietnam), the type locality of **A. submontana**, has persistent, entire, and discike stigmas.

**Tumidinodus** H. W. Li was based on two specimens from SE Yunnan. An examination of the type (Wang Shou-cheng 879), as well as **Fang Ding** 25490 from Guangxi and a specimen from N Vietnam (collector unknown), reveals that they belong to **Anna submontana**.

1a. Leaf blade usually falcate, lanceolate, 4–13 × 1.1–4.5 cm, margin indistinctly denticulate; lateral veins 6–8 on each side of midrib; internodes 0.2–5 cm; petiole 0.7–2 cm; bracts and calyx white; seed appendages ca. 0.5 mm

1b. Leaf blade asymmetric (at least slightly), elliptic to broadly ovate, 6.5–22 × 3.2–9.5 cm, subentire to shallowly serrate; lateral veins 8–15 (–17) on each side of midrib; internodes 1–15 cm; petiole 0.7–5.5 cm; bracts and calyx red; seed appendages 0.1–0.2 mm.

2a. Peduncle (4–)8–15 cm, glabrescent; leaf blade glabrescent, veins abaxially often appressed puberulent; calyx segments narrowly obovate to oblong, 10 × 2–4.5 mm; corolla 3–4 cm; pistil ca. 1.5 cm

3. **A. ophiorrhizoides**


**Tumidinodus** H. W. Li.
2b. Peduncle 1.2–2.2 cm, densely puberulent; leaf blade ± densely puberulent; calyx segments obovate, 10–12 × 4.5–6 mm; corolla 4.5–5.8 cm; pistil ca. 2.5 cm .......................... 2. A. mollifolia


大苞苣苔 da bao ju tai
*Tumidinodus purpureoruber* H. W. Li.
Stems with internodes 1–15 cm. Petiole 1–4.5 cm; leaf blade asymmetric (at least slightly), elliptic to broadly ovate, 9–18 × 4.5–8 cm, glabrescent, abaxially often appressed puberulent along veins, margin subentire, apex acute; lateral veins 11–15 (–17) on each side of midrib. Peduncle (4–)8–15 cm, glabrescent, appressed puberulent along peduncle. Calyx segments obovate to oblong, 0.9–1.2 cm × 3–6 mm; abaxial lip 1.3–1.5 cm, glabrous to glandular pubescent; capsule 6–8 cm. Seed appendages ca. 0.5 mm. Fl. Jul–Oct, fr. Oct.


软叶大苞苣苔 ruan ye da bao ju tai

Stems with internodes 1–8 cm. Petiole 0.7–5.5 cm; leaf blade asymmetric (at least slightly), elliptic to broadly ovate, 6.5–22 × 3.2–9.5 cm, puberulent to densely so, margin subentire to shallowly serrulate, apex acute to acuminate; lateral veins 8–14 on each side of midrib. Peduncle 1.2–2.2 cm, densely puberulent; bracts deciduous, red, ca. 1.2 × 1 cm. Calyx red; segments obovate, 1–1.2 cm × 4.5–6 mm, outside glabrescent, apex acute to rounded. Corolla white, 4.5–5.8 cm, outside glabrescent. 3.5–4.5 × 1.5–1.7 cm; lobes suborbicular, ca. 7 mm. Adaxial stamens ca. 1.5 cm, abaxial ones ca. 1.8 cm; staminode ca. 0.6 mm. Pistil ca. 2.5 cm, glabrescent. Capsule 5.5–8 cm. Seed appendages 0.1–0.2 mm. Fl. Aug, fr. Sep.

- Rock crevices in limestone hills; 1100–1500 m. SW Guangxi (Napo Xian), SE Yunnan (Xichou Xian, Malipo Xian).


白花大苞苣苔 bai hua da bao ju tai

Stems with internodes 0.2–5 cm. Petiole 0.7–2 cm; leaf blade usually falcate, lanceolate, 4–13 × 1.1–4.5 cm, adaxially sparsely appressed puberulent, abaxially sparsely puberulent along veins, margin indistinctly denticulate, apex acute to acuminate; lateral veins 6–8 on each side of midrib. Peduncle 1.5–4 cm, glabrous; bracts deciduous, white, ca. 1.5 × 1.3 cm. Calyx white; segments obovate to oblanceolate, 0.9–1.2 cm × 3–6 mm, outside glandular pubescent to glabrous; capsule 6–8 cm. Seed appendages ca. 0.5 mm. Fl. Jul–Oct, fr. Oct.

- Grassy slopes, rock crevices in forests by streams; 900–1700 m. S Guizhou (Luodian Xian), W and SE Sichuan.

46. LOXOSTIGMA C. B. Clarke in A. & C. de Candolle, Monogr. Phan. 5: 59. 1883.

紫花苣苔属 zi hua ju tai shu

Herbs, perennial, epiphytic, epipetric, or terrestrial, rhizomatous. Stems simple or branched. Leaves few, spread along stem, rarely crowded near apex, opposite, unequal or subequal, rarely equal in a pair; leaf blade glabrous to pubescent or strigose, base cuneate to subcordate. Inflorescences lax, often dichotomously branched, axillary, 1- or 2-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-lobed; segments equal. Corolla white, yellowish, purple, or pinkish, often spotted within, zygomorphic, inside glabrous to subglabrous; tube broadly tubular, gibbous abaxially, 2–4 × longer than limb, 1–2 cm in diam.; limb 2-lipped; adaxial lip 2-lobed; at least slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded to obtuse. Stamens 4, adnate to corolla tube near base or near middle, included; anthers basifixid, coherent in pairs at apex, thecae subparallel, confluent or not at apex, dehiscing longitudinally; connective not projecting; staminode 1 or absent, adnate to adaxial side of corolla tube. Disc ringlike. Ovary oblong to linear, 1-loculed; placenetas 2, parietal, projecting inward, 2-cleft. Stigmas 2, equal, oblong to suborbicular, undivided. Capsule straight in relation to pedicel, narrowly oblong to linear, much longer than calyx, dehiscing loculicidally to base; valves 2, straight, not twisted. Seeds (when known) with 1 hairlike appendage at each end.
Seven species: Bhutan, China, India, Myanmar, Nepal, Sikkim, N Vietnam; all seven species in China.

1a. Leaf blade drying papery or thick papery; bract margin entire.

2a. Leaf blade drying thick papery, villous to hirsute, margin serrate; peduncle to 7.5 cm, densely villous and glandular pubescent; calyx segments 7–9 mm, margin shallowly dentate .......... 3. *L. mekongense*

2b. Leaf blade drying papery, glabrous, except veins abaxially sparsely puberulent, margin entire to indistinctly denticulate or repand; peduncle 6–16 cm, sparsely puberulent; calyx segments 4.5–7 mm, margin entire.

3a. Leaf blade elliptic or nearly so; peduncle 6–13.5 cm; corolla white outside, purple inside, outside pubescent ........................................................................................................ 4. *L. glabrifolium*

3b. Leaf blade ovate to ovate-oblong; peduncle 14–16 cm; corolla purple, outside sparsely puberulent

1b. Leaf blade drying herbaceous; bract margin entire to denticulate or serrate.

4a. Cymes branched 1–5 ×, 2–18-flowered; bracts broadly ovate to narrowly lanceolate, 3–10 × 1–8 mm, margin denticulate to repand or irregularly dentate; style glabrous.

5a. Corolla yellowish, purplish to brownish spotted inside, 3–4.2 cm; capsule 6.5–10 cm; bracts 3–6 × 1–2.5 mm .................................................................................................................. 1. *L. griffithii*

5b. Corolla white to lavender, purple spotted inside, 4.2–4.8 cm; capsule 5–6 cm; bracts 5–10 × 1.6–8 mm........................................................................................................................................ 6. *L. fimbrisepalum*

4b. Cymes unbranched to branched 3 ×, 1–7-flowered; bracts linear to ovate-lanceolate, 1–4 × 0.5–1.5 mm, margin entire or serrulate; style densely puberulent to pubescent or glandular pubescent.

6b. Ovary densely puberulent; leaf blade 2–16 × 1–7.5 cm; bracts linear, 1–2 × ca. 0.5 mm; bract and calyx margin entire; pedicel 0.8–1.7 cm ............................................................................................... 2. *L. cavaleriei*

6a. Ovary glabrous; leaf blade 4.5–9.5 × 1.5–4 cm; bracts ovate-lanceolate, to 4 × 1.5 mm; bract and calyx margin serrulate; pedicel ca. 0.6 cm .................................................................................. 7. *L. musetorum*


紫花苣苔 zi hua ju tai


Stems to 1 m, pubescent, glabrescent, branched. Leaves opposite, spread along stem, unequal to subequal in a pair; petiole 0.5–5 cm, puberulent; leaf blade elliptic to ovate or obovate, often oblique, 4–19 × 1.8–10.5 cm, adaxially sparsely appressed pubescent, abaxially sparsely puberulent to glabrescent, puberulent along veins, base oblique, cuneate to subcordate, margin serrate to crenulate-serrulate, acuminate to acute. Cymes branched 1–5 ×, 2–18-flowered; peduncle 2–13 cm, puberulent; bracts ovate to narrowly lanceolate, 3–6 × 1–2.5 mm, margin irregularly dentate. Pedicel 0.8–2 cm. Calyx 5-sect from near base; segments equal, narrowly lanceolate to broadly ovate or oblanceolate, 5–9 × 1.5–7 mm, margin denticulate to entire. Corolla yellowish, purplish to brownish spotted inside, 3–4.2 cm, outside sparsely glandular puberulent to pubescent, inside puberulent; tube 2.8–3 × 1.6–2 cm; adaxial lip lobes semiobtuse, 5–6 × ca. 5 mm; abaxial lip lobes oblong to ovate, 4–10 × 5–8 mm. Adaxial stamens ca. 1.4 cm, abaxial ones ca. 1.8 cm, glabrous; staminode ca. 1.5 mm. Pistil 1.9–3.1 cm, glabrous. Style 7–12 mm. Capsule 6.5–10 cm. Seed appendages 1–2 mm. Fl. Sep–Dec, fr. Nov–Mar.

On trees or rocks in forests; 600–2600 m. Guangxi, Guizhou, SW Sichuan, Xizang (Medog Xian), SW and SE Yunnan [Bhutan, NE India, Myanmar, Nepal, N Vietnam].


滇黔紫花苣苔 dian qian zi hua ju tai


Stems 7–30 cm, pubescent to puberulent, usually simple. Leaves opposite, spread along stem or crowded near apex, unequal to subequal in a pair; petiole 0.5–3(–4.2) cm, densely puberulent to puberulent; leaf blade narrowly elliptic to narrowly ovate or narrowly obovate, 2–16 × 1–7.5 cm, adaxially sparsely appressed puberulent, abaxially very sparsely puberulent, denser along veins, base oblique, cuneate to subcordate, margin serrate to crenulate, acuminate to acute. Cymes unbranched to branched 3 ×, 1–7-flowered;
peduncle 1.3–6 cm, glandular puberulent; bracts linear, 1–2 × ca. 0.5 mm, margin entire. Pedicel 0.8–1.7 cm. Calyx 5-secct from base to near base; segments equal, lanceolate to ovate, 5–6 × 1–2 mm, margin entire. Corolla pink to white, inside sometimes red, purple, or brown spotted, 3.5–4 cm, outside pubescent, inside subglabrous; tube 2.5–3 × 1.4–1.7 cm; adaxial lip lobes semi-orbicular, ca. 4.5 mm; abaxial lip lobes obovate, 1–1.1 cm × 5–6 mm. Adaxial stamens ca. 1 cm, abaxial ones ca. 1.5 cm, glabrous; staminode ca. 3.5 mm. Pistil 1.2–2.5 cm, densely puberulent. Style ca. 5 mm. Capsule 3.8–6 cm. Seed appendages 0.4–1 mm. Fl. Jul–Sep, fr. Oct–Nov.

On tree trunks in forests; 600–1600 m. Guangxi (Napo Xian, Rongshui Xian), S Guizhou, Yunnan (Xichou Xian).

According to Burtt & Lauener (Notes Roy. Bot. Gard. Edinburgh 38: 469, 1980), another possible synonym is Lysionotus cavaleriei H. Léveillé (1909), not H. Léveillé (1911). Unfortunately, its type has not been found (Burtt, pers. comm.).


澜沧紫花苣苔


短柄紫花苣苔

Stems ca. 45 cm, sparsely puberulent, subglabrescent, sometimes branched. Leaves opposite, spread along stem, subequal in a pair; petiole 0.5–2.5 cm, sparsely puberulent; leaf blade ovate to broadly ovate, 4–15 × 2–7 cm, villous to hirsute, base oblique, broadly cuneate to cordate, margin serrate, apex acuminate to acute. Cymes branched 2–4 ×, 5–12-flowered; peduncle to 7.5 cm, densely villous and glandular pubescent; bracts ovate to narrowly oblong, 4–6 × 1.3–2 mm, margin entire. Pedicel 0.8–2 cm. Calyx 5-secct from base; segments equal, lanceolate, 7–9 × ca. 2 mm, margin shallowly dentate. Corolla white, flushed purple, 3.5–4 cm, outside glandular puberulent, inside glabrous; tube 1.8–2.8 × 1.4–1.7 cm; adaxial lip lobes semi-orbicular, 2–5 × 2–4 mm; abaxial lip lobes oblong, 3–4 × ca. 4 mm. Adaxial stamens ca. 1.5 cm, abaxial ones ca. 1 cm. Glabrous. Pistil 2–3 cm; ovary glabrescent. Style ca. 1 cm, pubescent to densely pubescent. Immature capsule to 5.5 cm. Fl. Jul, Oct, fr. Oct.

On tree trunks in forests; 600–1600 m. Guangxi (Napo Xian, Rongshui Xian), S Guizhou, Yunnan (Xichou Xian).

According to Burtt & Lauener (Notes Roy. Bot. Gard. Edinburgh 38: 469, 1980), another possible synonym is Lysionotus cavaleriei H. Léveillé (1909), not H. Léveillé (1911). Unfortunately, its type has not been found (Burtt, pers. comm.).


齿萼紫花苣苔

Stems 60–100 cm, sparsely puberulent, glabrescent, usually simple. Leaves opposite, spread along stem, unequal to subequal in a pair; petiole 0.5–4 cm, sparsely puberulent; leaf blade ovate to broadly elliptic, 8–19 × 3.2–8 cm, adaxially sparsely appressed puberulent, abaxially glabrous to sparsely appressed
puberulent, base oblique, cuneate to slightly rounded, margin repand to serrulate, apex acuminate. Cymes branched 2–5 ×, 5–18-flowered; peduncle 5–18 cm, sparsely puberulent, glabrescent; bracts ovate to broadly ovate, 5–10 × 1.6–8 mm, margin denticulate to repand. Pedicel 1–2 cm. Calyx 5-locular from near base; segments equal, ovate to broadly triangular, 6–8 × 3–5 mm, margin denticulate to entire. Corolla white to lavender, purple spotted inside, 4.2–4.8 cm, outside sparsely pubescent, inside glabrous; tube 3–3.5 × 1.5–2 cm; adaxial lip ca. 6 mm, lobes semi-elliptic, 4.5–4–5 mm; abaxial lip 1–1.2 cm, lobes semi-elliptic, 4.5–6–7 mm. Adaxial stamens ca. 1.7 cm, abaxial ones ca. 2.5 cm, glabrous; staminode ca. 2 mm. Pistil ca. 0.6 cm. Calyx 5-locular from near base; segments equal, ovate-lanceolate, ca. 7 × 4 mm, margin serrulate. Corolla white, purple spotted inside, ca. 3 cm, outside densely glandular puberulent, inside glabrous; tube ca. 2 × 1.2 cm. Adaxial stamens ca. 9 mm, abaxial ones ca. 1 cm, glabrous; staminode ca. 3 mm. Pistil ca. 1.5 cm; ovary glabrous. Style 6–7 mm, puberulent to pubescent. Fruit unknown. Fl. Oct.

• Musa thickets; ca. 1300 m. SE Yunnan (Maguan Xian).


芒毛苣苔属 mang mao ju tai shu

Trichosporum D. Don.

 Shrubs or climbers, epiphytic or epipetric, not rhizomatous. Stems often pendent, branched or unbranched. Leaves usually many, along stem, opposite, sometimes whorled, equal to subequal in a pair; leaf blade glabrous, rarely puberulent or pubescent, base cuneate to rounded or attenuate. Inflorescences umbel-like, lax or sometimes dense, axillary or pseudoterminal, 1–10-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-locular from base to 5-lobed; segments equal, rarely unequal. Corolla red to orange, seldom greenish, yellow, or white, zygomorphic, inside sparsely puberulent, sparsely glandular puberulent, glabrous, or with a hair ring; tube narrowly tubular to funnelform-tubular, often curved, not swollen, much longer than limb, 0.4–1.5 cm in diam.; limb indistinctly or distinctly 2-lipped; adaxial lip 2-lobed; usually equaling, occasionally to 1/2 × length of abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded to acute. Stamens 4, adnate to corolla tube near or above middle, usually exserted; anthers basifixid, usually coherent in pairs at apex, thecae parallel, not confluent, dehiscing longitudinally; connective not projecting; staminode 1 or absent, adnate to adaxial side of corolla tube. Disc ringlike. Ovary linear, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitate to depressed-globose, undivided. Capsule straight in relation to pedicel, linear, much longer than calyx, dehiscing loculicidally to base; valves 2 or 4, straight, not twisted. Seeds with 1 (or 2–50) hairlike appendages, opposite end with 1 hairlike appendage, seldom 1 linear appendage at each end.

About 140 species: Asia, Pacific Islands; 34 species in China.

The flowers of Aeschynanthus are strongly prontandrous. Consequently, the length of filaments and pistil will vary greatly during the duration of an individual flower. The measurements included in this treatment do not always reflect this variability, and diagnostic use of these characters should be avoided.

1a. Corolla inside with 5 tufts of hairs above base; seeds with 25–50 hairlike appendages at hilar end (unknown in A. sinolongicalyx).  
2a. Calyx 3–3.3 cm; corolla 2.4–2.8 cm; stems to 5 m ........................................ 34. A. sinolongicalyx  
2b. Calyx to 1.5 cm; corolla 1.8–2 cm; stems to 40 cm.

3a. Calyx and corolla glabrous outside; calyx segments ca. 15 mm; corolla yellow-green; seeds with 25 hairlike appendages at hilar end; leaves always opposite; leaf blade with adaxial surface drying wrinkled  
........................................................................................................... 32. A. longicaulis

3b. Calyx glandular puberulent outside, ca. 5 mm; corolla red, sparsely puberulent outside; seeds with ca. 50
hairlike appendages at hilar end; leaves opposite or in whorls of 3; leaf blade with adaxial
surface drying nearly smooth ................................................................. 33. A. poilanei

1b. Corolla inside glabrous to pubescent or glandular, without tufts of hairs (unknown in A. maculatus);
seeds with
1 or 2 hairlike or linear appendages at hilar end (unknown in A. angustioblongus, A. angustissimus, A.
dolichanthus, A. lancilimbus, A. lasianthus, A. lasiocalyx, A. medogensis, A. pachytrichus, A. planipetiolatus, and A.
tubulosus).

4a. Leaf blade puberulent to pubescent at least on one surface, often glabrescent.

5a. Leaf blades drying papery, margin often 1- or 2-denticulate near apex, abaxially rust-brown
pubescent;
stems 20–50 cm; pedicel ca. 3 mm; corolla yellow to white; anthers of 4 stamens coherent at
 apex,
ca. 3 mm ...................................................................................................... 22. A. denticuliger

5b. Leaf blades drying leathery, margin entire, abaxially puberulent; stems to 30 cm; pedicel 4–10
mm;
corolla red, often with yellow spots on central abaxial lip lobe; anthers coherent in pairs, 1–2
mm.

6a. Stems puberulent to glabrescent; petiole to 2 mm; leaf blade adaxially drying or wrinkled.

7a. Leaf blade adaxially glabrous, base attenuate to broadly cuneate; cymes pseudoterminal;
calyx 5-lobed from near or above middle, segments 2–2.5 mm; corolla inside with short,
thick hairs near base, adaxial lip nearly erect; staminode ca. 1 mm; capsule 4.5–6 cm;
seed appendages 6–10 mm ................................................................. 17. A. humilis

7b. Leaf blade adaxially puberulent, glabrescent, base cuneate to rounded; cymes axillary;
calyx 5-sect from base, segments ca. 4 mm; corolla inside glabrous, adaxial lip reflexed;
staminode ca. 6.5 mm; capsule 9–12 cm; seed appendages 15–20 mm .................. 20. A. gracilis

6b. Stems densely spreading hispid, sometimes glabrescent; petiole 1–15 mm; leaf blade
adaxially drying smooth.

8a. Leaves mostly clustered near stem apex; petiole 1–4(–8) mm; leaf blade obovate to
oblong obovate
or elliptic, base attenuate to cuneate; cymes pseudoterminal, 2–5-flowered; calyx
glabrous outside; corolla 1.7–2 cm, inside puberulent basally; capsule 6–8 cm ... 18. A. andersonii

8b. Leaves in whorls of 3; petiole 10–15 mm; leaf blade narrowly ovate to ovate, base
rounded;
cymes axillary, 1-flowered; calyx sparsely puberulent outside; corolla ca. 2.9 cm, inside
glabrous; capsule ca. 12 cm ................................................................. 19. A. mengxingensis

4b. Leaf blade glabrous.

9a. Stems pubescent, sericeous, or glandular at least near branch apices.

10a. Leaf blade 0.7–2 cm, apex acute to rounded; stems glabrous, glandular near apex; leaves
opposite or in whorls of 3; corolla mouth oblique, limb distinctly 2-lipped, adaxial lip ca.
1/2 × length of abaxial lip ........................................................................ 21. A. buxifolius

10b. Leaf blade 2.9–12.2 cm, apex attenuate to acute; stems pubescent or sericeous, often
glabrescent;
leaves opposite; corolla mouth not oblique, limb indistinctly 2-lipped, lips nearly equal.

11a. Stems rust-brown pubescent; petiole 2–3 mm; leaf blade linear to narrowly
oblongoolate, 0.4–0.7 cm wide, base attenuate; peduncle 5.2–10 cm; calyx lobes 3.2–
4.5 mm wide; corolla glabrous outside .............................................. 8. A. angustissimus

11b. Stems brown-sericeous, glabrescent; petiole 3.5–10 mm; leaf blade narrowly ovate to
ovate or elliptic, 1.4–2.9 cm wide, base cuneate to rounded; peduncle absent; calyx
lobes 0.6–2 mm 
wide; corolla pilose outside .............................................................. 15. A. lasianthus

9b. Stems glabrous even when young.

12a. Calyx (3–)5-lobed, tube at least 2 mm.

13a. Leaf blade 4–6.3 cm, abaxially sparsely punctate; calyx tube ca. 2 mm in diam. at
mouth; ovary puberulent ................................................................. 10. A. lancilimbus
13b. Leaf blade 5–23 cm, abaxially not punctate; calyx tube 3–8 mm in diam. at mouth; ovary glabrous.
14a. Calyx lobes 5–9 mm; leaf blade papyry; lateral veins distinct .......... 24. A. dolichanthus
14b. Calyx lobes 1–5(–7) mm; leaf blade papyry to thick leathery; lateral veins indistinct or invisible.
15a. Pedicels and outer calyx surface puberulent or glandular puberulent; calyx 4–7 mm.
  16a. Leaf blade nearly linear to narrowly oblanceolate or narrowly elliptic, 0.8–2(–3) cm wide, base attenuate, adaxially drying wrinkled; stems ca. 100 cm ................................................................. 31. A. tengchungensis
  16b. Leaf blade narrowly elliptic or oblong to oblanceolate-oblong, 1.8–4.5 cm wide, base cuneate, adaxially drying smooth or nearly smooth; stems ca. 30 cm.
  17a. Corolla ca. 5.8 cm; leaf blade 7–9 × 1.8–3.3 cm, papyry to thin leathery; petiole 5–9 mm; pedicel ca. 12 mm; calyx ca. 7 mm, lobes 3.2–5 mm; style puberulent ................................................................. 25. A. lasiocalyx
  17b. Corolla ca. 3 cm; leaf blade 11–13 × 2.8–4.5 cm, thick leathery; petiole 9–15 mm; pedicel 4–5 mm; calyx ca. 4 mm, lobes 1.5–1.8 mm; style glabrous ................................................................. 26. A. medogensis
15b. Pedicels glabrous; calyx 9–15 mm.
  18a. Corolla 2–3 cm; calyx red-purple or tinged red-purple.
      19a. Leaf blade 2.3–4 cm wide, base broadly cuneate, apex acuminate; bracts 5–9 mm ......................................................... 29. A. hookeri
      19b. Leaf blade 1–2.5 cm wide, base attenuate, apex caudate or caudate-acuminate; bracts ca. 3 mm ................................. 30. A. maculatus
  18b. Corolla 4–5.5 cm; calyx green.
      20a. Calyx 9–10 mm; corolla abaxial lip ca. 1 cm, inside with subulate and triangular hairs basally; staminode ca. 0.5 mm; style ca. 3.2 cm; leaf blade papyry to thin leathery; cymes 2–4-flowered ...... 28. A. pachytrichus
      20b. Calyx 12–15 mm; corolla abaxial lip 5–6 mm, inside puberulent below middle or sparsely pubescent basally; staminode 5–6 mm; style 1–1.8 cm; leaf blade leathery; cymes 2–11-flowered.
  21a. Leaf blade adaxial surface drying smooth; bracts deciduous; corolla mouth not oblique; anthers 1.2–2 mm; seeds with 1 hairlike appendage at hilar end ..................... 16. A. macranthus
  21b. Leaf blade adaxial surface drying wrinkled; bracts persistent; corolla mouth slightly oblique; anthers 3–4 mm; seeds with 2 hairlike appendages at hilar end .......................... 27. A. mimetes
12b. Calyx 5-sect from base, without tube.
  22a. Leaf blade 10–20 × 4.4–10.5 cm; cymes 5–15-flowered; bracts persistent, 4–5.5 cm; calyx segments 2–3 cm; corolla 5.5–8.5 cm; capsule 32–52 cm .............................................. 6. A. superbus
  22b. Leaf blade 1.7–13 × 0.6–6.1 cm; cymes 1–7-flowered; bracts deciduous or persistent, 0.2–3 cm; calyx segments 0.2–1.9 cm; corolla 1.5–4.2 cm; capsule 3–29 cm (unknown in A. planipetiolatus and A. angustioblongus).
  23a. Bracts persistent, ovate to suborbicular; calyx segments ovate to ovate-oblong or obovate.
     24a. Leaves 1.4–3(–5) cm wide; peduncle 0.8–3 cm; bracts and calyx reddish, bracts 3–9 × 4–10 mm; corolla 1.5–2.2 cm; anthers 1.5–2 mm; style glabrous; capsule 6.5–16 cm ................................................................. 1. A. acuminatus
24b. Leaves (1.8–)2.4–5.5 cm wide; peduncle (3.5–)7–14 cm; bracts and calyx green, bracts 6–10 × 4–5 mm; corolla 2.8–3 cm; anthers ca. 3 mm; style puberulent; capsule 12–29 cm .......................................................... 2. A. moningeriae

23b. Bracts persistent or deciduous, linear to ovate; calyx segments linear to lanceolate, linear-oblancoale, elliptic, or subulate.
25a. Leaf blade to 3 cm; capsule 3–3.5 cm ................................................. 11. A. tubulosus
25b. Leaf blade 1.8–13 cm; capsule 5–26 cm (unknown in A. angustioblongus and A. planipetiolatus).

26a. Bracts persistent, rarely deciduous, red to purple, 10–30 mm; calyx red, 11–19 mm.
27a. Leaf blade broadly lanceolate to elliptic, ovate, or obovate, 1.5–6.1 cm wide, base cuneate to rounded or subcordate; bracts lanceolate to ovate, 15–30 × 6–14 mm; corolla glabrous inside; ovary glandular puberulent

26b. Bracts deciduous, rarely persistent, green, 2–13 mm; calyx green, sometimes tinged reddish or reddish, 3–11 mm.
28a. Petiole 6–21 mm; leaf blade 5–12 cm; cymes 1–4-flowered.
29a. Bracts lanceolate to narrowly ovate, 6–13 mm; calyx segments 7–9 mm, outside glabrous; corolla outside glabrous, inside sparsely glandular puberulent below abaxial lip; capsule 7–10 cm; seed appendages 1 at each end, 1.5–2 mm; peduncle absent to 0.5(–1) cm; leaf blade margin entire to shallowly crenulate ..................................................... 5. A. bracteatus
29b. Bracts linear to lanceolate, 0.6–2.5(–3.3) cm wide, base cuneate to attenuate; bracts lanceolate, 10–18 × 4–5(–8) mm; corolla inside sparsely glandular puberulent above; ovary glabrous ..................................................... 7. A. linearifolius

28b. Petiole 2–10 mm; leaf blade (1.8–)3–7.4 cm; cymes 1–3-flowered.
30a. Pedicel 4–8 mm, sparsely puberulent; calyx outside puberulent to glabrous .................................. 14. A. austroyunnanensis
30b. Pedicel 5–22 mm, glabrous; calyx glabrous outside.
31a. Pedicel 10–22 mm; leaf blade base attenuate, papery; corolla puberulent outside 13. A. angustioblongus
31b. Pedicel 5–11 mm; leaf blade base cuneate to rounded, thick leathery to papery; corolla glabrous outside.
32a. Cymes 1–3-flowered; peduncle 2.2–5(–7) cm; corolla mouth slightly to strongly oblique; stems 60–100 cm

32b. Cymes 1-flowered; without peduncle; corolla mouth not oblique; stems to 30 cm.
33a. Petiole 3–4 mm; leaf blade 1.4–2.5 cm wide, thin leathery; calyx segments 7.5–10 mm; style glabrous ............................................. 9. A. acuminatissimus
1. **Aeschynanthus acuminatus** Wallich ex A. P. de Candolle, Prodr. 9: 263. 1845.

脅毛苣苔 mang mao ju tai

*Aeschynanthus acuminatus* var. *chinensis* (Gardner & Champion) C. B. Clarke; *A. chinensis* Gardner & Champion.

Stems 25–150 cm, glabrous. Leaves opposite; petiole 2–11 mm; leaf blade lanceolate to elliptic or narrowly oblancoleolate, rarely oblong, 4.5–12 × 1.4–3(–5) cm, thin papery to leathery, glabrous, adaxially drying smooth, abaxially sparsely punctate, base cuneate to narrowly cuneate, margin entire to shallowly crenulate, apex acuminate; lateral veins indistinct. Cymes axillary or pseudoterminal, 1–3-flowered; peduncle 0.8–3 cm; bracts persistent, reddish, suborbicular, 3–9 × 4–10 mm. Pedicel 7–12 mm, glabrous. Calyx red, 5-sect from base; segments ovate to ovato-oblong or obvate, 2.5–5(–7) × 2–3 mm, outside glabrous. Corolla red, rarely greenish, 1.5–2.2 cm, outside glabrous, inside puberulent at base of abaxial lip, without tufts of hairs, mouth strongly oblique; limb distinctly 2-lipped; adaxial lip erect, ca. 4.5 mm; abaxial lip reflexed, ca. 5 mm. Stamens exserted; filaments 1.2–2.2 cm; anders coherent in pairs at apex, ca. 1.2 mm; staminode 1.2–2 mm. Pistil 1.6–2 cm; ovary glabrous. Style ca. 4 mm, glabrous. Capsule 6.5–16 cm. Seeds with 1 hairlike appendage at each end, appendages 1.5–4 mm. Fl. Oct–Mar, fr. Dec–May.

On trees, streamside rocks in forested valleys; 200–1900 m. Guangdong, Guangxi, Sichuan, Taiwan, SE Xizang, S and SE Yunnan [Bhutan, N India, Laos, Malaysia, Myanmar, Nepal, Thailand, N Vietnam].


红花芒毛苣苔 hong hua mang mao ju tai


Stems 1–2(–12) m, glabrous. Leaves opposite; petiole 3–16 mm; leaf blade narrowly elliptic to ovate or obvate, rarely oblong, 7–13 × (1.8–)2.4–5.5 cm, papery to thin leathery, glabrous, adaxially drying smooth, abaxially sparsely punctate, base cuneate to broadly cuneate, margin entire, apex acuminate; lateral veins indistinct. Cymes axillary or pseudoterminal, 2–4 (–7)-flowered; peduncle (3.5–)7–14 cm; bracts persistent, green, ovate to broadly so, 6–10 × 4–5 mm. Pedicel 3–10(–20) mm, glabrous. Calyx green, 5-sect from base; segments ovate to oblong ovate, 3–5 × 2–3 mm, outside glabrous. Corolla red, 2.8–3 cm, outside glabrous, inside sparsely puberulent, without tufts of hairs, mouth strongly oblique; limb indistinctly 2-lipped; adaxial lip erect, ca. 6 mm; abaxial lip reflexed, ca. 6 mm. Stamens exserted; filaments ca. 1.5 cm; anders coherent in pairs at apex, ca. 3 mm; staminode ca. 0.6 mm. Pistil ca. 2 cm; ovary glabrous. Style ca. 3 mm, puberulent. Capsule 12–29 cm. Seeds with 1 hairlike appendage at each end, appendages 0.8–1.2 mm. Fl. Sep–Feb, fr. Jan–May.

• On trees in forests, streamside rocks in valleys; 300–1200 m. Guangdong, Hainan.


尾叶芒毛苣苔 wei ye mang mao ju tai


Stems 60–100 cm, glabrous. Leaves opposite; petiole 2–5 mm; leaf blade narrowly elliptic to lanceolate or ovate, 2.2–6 × 0.8–2.3 cm, leathery to papery, glabrous, adaxially drying slightly wrinkled, abaxially few punctate, base cuneate to rounded, margin entire, apex long acuminate to caudate; lateral veins indistinct. Cymes axillary, 1–3-flowered; peduncle 2.2–5(–7) cm; bracts usually deciduous, green, linear, 2–6 × 0.8–1 mm. Pedicel 5–11 mm, glabrous. Calyx green, sometimes tinged red, 5-sect from base; segments lanceolate-linear, 3–7 × 0.6–0.8 mm, outside glabrous. Corolla red, 2.5–3.2 cm, outside glabrous, inside glandular puberulent, without tufts of hairs, mouth slightly to strongly oblique; limb indistinctly 2-lined; adaxial lip erect, 3–4 mm; abaxial lip 3–4 mm. Stamens exserted; filaments ca. 1 cm; anders coherent in pairs at apex, ca. 1.2 mm; staminode ca. 1.6 mm. Pistil ca. 1.6 cm; ovary glabrous. Style ca. 2 mm, puberulent. Capsule 5.4–8.4 cm. Seeds with 1 hairlike appendage at each end, appendages 0.8–1.2 mm. Fl. Jul–Oct, fr. Oct.

On trees, rocks in forest margins; 1500–2500 m. SE Xizang (Medog Xian), NW Yunnan [N Myanmar].

4. **Aeschynanthus wardii** Merrill, Brittonia 4: 173. 1941.

狭花芒毛苣苔 xia hua mang mao ju tai

*Aeschynanthus wardii* Merrill, Brittonia 4: 173. 1941.

Stems 1–2 m, glabrous. Leaves opposite; petiole 0.7–1.5 cm; leaf blade narrowly elliptic to ovate or obovate, 5.5–10 × 1.6–3.9 cm, leathery to papery, glabrous, adaxially drying smooth, abaxially few punctate, base cuneate to rounded, margin entire to shallowly crenulate, apex caudate to acuminate; lateral veins indistinct. Cymes axillary, 1–4-flowered; peduncle absent to 0.5(–1) cm; bracts persistent or deciduous, green, lanceolate to narrowly ovate, 6–13 × 2–5 mm. Pedicel 4–10 mm, glabrous. Calyx green, 5-sect from base; segments lanceolate-linear, 7–9 × 1.1–1.5 mm, outside glabrous. Corolla red to orange, ca. 3.5 cm, outside glabrous, inside sparsely glandular puberulent below abaxial lip, without tufts of hairs,
Stems 50–100 cm, glabrous. Leaves opposite; petiole 5–20 mm; leaf blade broadly lanceolate to elliptic, ovate, or obovate, 4.4–13 × 1.5–6.1 cm, leathery to papery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to shallowly dentate, frequently undulate, sometimes revolute, apex cuneate to acuminate; lateral veins indistinct. Cymes axillary, 2–7-flowered; peduncle (0.5–)3–7 cm; bracts usually persistent, red to purple, lanceolate, 1–2 cm, leathery, glabrous, adaxially drying wrinkled or smooth, abaxially few punctate, base cuneate to rounded or subcordate, margin entire to nearly entire, apex acuminate to subacute; lateral veins indistinct. Cymes axillary, 1–4–flowered; peduncle 1.8–5 cm; bracts persistent, red, lanceolate, 1–1.8 cm × 4.5–8 mm. Pedicel 3–10 mm, glabrous. Calyx red, 5–sect from base; segments lanceolate to elliptic, 1.1–1.3 cm × 3.4–4 mm, outside glabrous. Corolla red, 3–5.5 cm, outside glabrous, inside sparsely puberulent, without tufts of hairs, mouth oblique; limb indistinctly 2-lipped; adaxial lip erect, 1–1.6 cm; abaxial lip reflexed, 1–1.6 cm. Stamens exserted; filaments 3.2–3.5 mm; anthers coherent in pairs at apex, 3–4 mm; staminode ca. 1.5 mm. Pistil 4.2–7.6 cm; ovary with a few short hairs. Style 6–8 mm, sparsely puberulent. Capsule 32–52 mm. Seeds with 1 hairlike appendage at each end, appendages 4–8 mm. Fl. Aug–Sep.

On trees in forests; 1000–2500 m. SE Xizang (Medog Xian), SE and W Yunnan [Bhutan, NE India, N Myanmar].


Stems 50–100 cm, glabrous. Leaves opposite; petiole 3–8 mm; leaf blade narrowly to broadly obovate or rarely lanceolate, 4.2–9 × 0.6–2.5–3.3 cm, leathery, glabrous, adaxially drying wrinkled, abaxially sparsely punctate, base cuneate to attenuate, margin entire to nearly entire, apex acuminate to subacute; lateral veins indistinct. Cymes axillary, 1–4–flowered; peduncle 1.8–5 cm; bracts persistent, red, lanceolate, 1–1.8 cm × 4.5–8 mm. Pedicel 3–10 mm, glabrous. Calyx red, 5–sect from base; segments lanceolate to elliptic, 1.1–1.3 cm × 3.4–4 mm, outside glabrous. Corolla red, 3–3.5 cm, outside glabrous, inside sparsely glandular puberulent above, without tufts of hairs, mouth slightly oblique; limb indistinctly 2-lipped; adaxial lip ca. 4 mm; abaxial lip ca. 5.5 mm. Stamens exserted; filaments 1.4–2 cm; anthers coherent in pairs at apex, 2 mm; staminode ca. 1 mm. Pistil ca. 2.1 cm; ovary glabrous. Style ca. 2.5 mm, puberulent. Capsule 5–10 cm. Seeds with 1 hairlike appendage at each end, appendages 2 cm; leaves obovate or oblong, 10–20 × 4.4–10.5 cm, papery to leathery, glabrous, adaxially drying smooth, abaxially sparsely punctate, base cuneate to rounded, margin entire, apex abruptly acuminate to acuminate or acute; lateral veins indistinct. Cymes axillary, 5–15–flowered; peduncle 1–3 cm; bracts persistent, pink to red, elliptic to ovate, 4–5.5 × 2–3 cm. Pedicel 0.8–1.2 cm, glabrous. Calyx orange-red to red, 5–sect from base; segments linear to lanceolate, 2–3 cm × 3.5–7 mm, outside glabrous. Corolla orange-red to dark red with darker stripes, 5.5–8.5 cm, outside glabrous, inside sparsely puberulent, without tufts of hairs, mouth oblique; limb indistinctly 2-lipped; adaxial lip erect, 1–1.6 cm; abaxial lip reflexed, 1–1.6 cm. Stamens exserted; filaments 3.2–3.5 mm; anthers coherent in pairs at apex, 3–4 mm; staminode ca. 1.5 mm. Pistil 4.2–7.6 cm; ovary with a few short hairs. Style 6–8 mm, sparsely puberulent. Capsule 32–52 mm. Seeds with 1 hairlike appendage at each end, appendages 4–8 mm. Fl. Aug–Sep.

On trees in forests; 1000–2500 m. SE Xizang (Medog Xian), SE and W Yunnan [Bhutan, NE India, N Myanmar].
Stems ca. 40 cm, rust-brown pubescent. Leaves opposite; petiole 2-3 mm; leaf blade linear to narrowly oblanceolate, 6.5–12.2 cm × 4–7 mm, leathery, glabrous, adaxially drying wrinkled, abaxially sparsely punctate, base attenuate, margin entire, apex acuminate to acuminate; lateral veins nearly invisible. Cymes axillary, 1–4-flowered; peduncle 5.2–10 cm; bracts persistent, red, lanceolate, 1.6–1.8 cm × 5–8 mm. Pedicel 0.8–1.8 cm, glabrous. Calyx red, 5-sect from base; segments narrowly oblanceolate, 1.2–1.8 cm × 3.2–4.5 mm, outside puberulent. Corolla red, ca. 3.2 cm, outside glabrous, inside sparsely glandular puberulent apically, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped, lips nearly equal, ca. 5 mm. Stamens exserted; filaments 1.2–1.5 cm; anthers coherent in pairs at apex, 2 mm; staminode ca. 2 mm. Pistil ca. 2.4 cm; ovary glabrous. Style ca. 2 mm, glabrous. Capsule 4.8–7 cm. Seeds unknown. Fl. Aug.

• On trees and rocks in broad-leaved forests; ca. 2300 m. SE Xizang (Medog Xian).


长尖芒毛苣苔 chang jian mang mao ju tai

Stems ca. 30 cm, glabrous. Leaves opposite; petiole 3–4 mm; leaf blade lanceolate to elliptic, 5.8–7.4 cm × 1.4–2.5 cm, thin leathery, glabrous, adaxially drying smooth, abaxially densely punctate, base broadly cuneate to rounded, margin entire, apex long acuminate to caudate; lateral veins indistinct. Cymes axillary, 1-flowered; peduncle absent; bracts deciduous. Pedicel ca. 1 cm. Calyx reddish, 5-sect from base; segments lanceolate-subulate, 7.5–10 × 0.8–1.1 mm, outside glabrous. Corolla red, ca. 2.8 cm, outside glabrous, inside sparsely puberulent, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped, adaxial lip ca. 5 mm; abaxial lip ca. 7 mm. Stamens exserted; filaments 0.9–1.1 cm; anthers coherent in pairs at apex, ca. 2 mm; staminode ca. 1 mm. Pistil ca. 2.9 cm; ovary glabrous. Style ca. 1 cm, glabrous. Capsule ca. 8 cm. Seeds with 1 hairlike appendage at each end, appendages 2.2–3.2 mm. Fl. Aug.

• On trees in densely forested valleys; 1200–1500 m. SE Yunnan (Yanshan Xian).


披针芒毛苣苔 pi zhen mang mao ju tai

Stems ca. 50 cm, glabrous. Leaves opposite; petiole 3–6 mm; leaf blade lanceolate, rarely ovate, 4–6.3 × 1.4–2.5 cm, leathery to papery, glabrous, adaxially drying smooth, abaxially sparsely punctate, base broadly cuneate to rounded, margin entire, apex long acuminate to acuminate; lateral veins nearly invisible. Inflorescences unknown; bracts deciduous. Pedicel ca. 1.3 cm, glabrous. Calyx green, ca. 7 mm, 5-lobe from below middle; tube ca. 2 mm in diam. at mouth; lobes linear-lanceolate, ca. 5 × 1–1.5 mm, outside glabrous. Corolla red, ca. 2.7 cm, outside sparsely puberulent, inside glabrous, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 2.5 mm; abaxial lip ca. 3 mm. Stamens exserted; filaments 2.5–2.8 cm; anthers coherent in pairs at apex, ca. 2.5 mm; staminode ca. 2 mm. Pistil ca. 4.2 cm; ovary puberulent. Style ca. 2 cm, puberulent. Fruit and seeds unknown. Fl. Oct.

• On trees and rocks in densely forested valleys; ca. 1200 m. SE Yunnan (Yanshan Xian).

This species is known only from the type specimen, which has only a detached flower.


筒花芒毛苣苔 tong hua mang mao ju tai

Stems 40–140 cm, glabrous. Leaves opposite; petiole 2–5 mm; leaf blade narrowly elliptic to narrowly ovate, 1.7–3 × 0.6–1.4 cm, thin leathery to papery, glabrous, adaxially drying smooth, abaxially punctate, base cuneate to broadly cuneate, margin entire, apex acute to acuminate; lateral veins invisible. Cymes axillary, 1-flowered; peduncle absent; bracts deciduous. Pedicel 4–7 (–10) mm, glabrous. Calyx green, 5-sect from base; segments narrowly lanceolate to linear or narrowly triangular, 5–9 × 0.8–1.2 mm, outside glabrous. Corolla red, 3–3.7 cm, outside glabrous, inside sparsely puberulent basally, without tufts of hairs, mouth slightly oblique; limb indistinctly 2-lipped, lips nearly equal, 3–5 mm. Stamens exserted; filaments 2.3–3.1 cm; anthers coherent in pairs at apex, 2–3 mm; staminode ca. 1 mm. Pistil ca. 2.5 cm; ovary glabrous. Style ca. 9 mm, glabrous. Capsule 3–3.5 cm. Seeds unknown. Fl. Aug–Oct.

Rocks and trees in forests; 2200–2300 m. SW and W Yunnan [N Myanmar].

No material of var. tubulosus has been seen by the authors.

1a. Leaf blade elliptic or narrowly so; calyx segments linear-lanceolate, 5–6 × ca. 1.2 mm .................. 11a. var. tubulosus

1b. Leaf blade narrowly ovate or narrowly elliptic; calyx segments narrowly linear, 6–9 × ca. 1 mm .................. 11b. var. angustilobus

11a. Aeschynanthus tubulosus var. tubulosus

筒花芒毛苣苔(原变种) tong hua mang mao ju tai (yuan bian zhong)

Leaf blade elliptic to narrowly so. Calyx segments linear-lanceolate, 5–6 × 1.2 mm. Fl. Aug–Oct.

On trees in forests; ca. 2200 m. SW Yunnan [N Myanmar].


筒花芒毛苣苔(原变种) tong hua mang mao ju tai (yuan bian zhong)


On trees and rocks in broad-leaved forests; ca. 2300 m. SE Xizang (Medog Xian).

Stems ca. 30 cm, glabrous. Leaves opposite; petiole 5–10 mm; leaf blade narrowly ovate to broadly elliptic, 4–6.5 × 2–3.4 cm, thick leathery, glabrous, adaxially drying smooth, abaxially impressed punctate, base broadly cuneate to rounded, margin entire, apex acuminate to abruptly acuminate; lateral veins indistinct. Cymes axillary, 1- or 2-flowered; peduncle absent; bracts deciduous. Pedicel 4–8 mm, sparsely puberulent. Calyx green, 5-sect from base; segments lanceolate-linear, 4–5 × 0.5 mm; stamen to 1.0 mm; ovary ca. 0.8 mm; style 0.8–1.2 mm, hairlike appendages 0.9–1.5 cm. Fl. Sep.

Riverside rocks, trees, and cliffs of limestone hills in forests; 400–1500 m. W Guangxi, SW Guizhou, S and SE Yunnan.


Stems 12–30 cm, glabrous. Leaves opposite; petiole 2–5 mm; leaf blade narrowly oblong to oblong lanceolate or narrowly elliptic, (1.8–)3–5.4 × (0.8–)1–1.5 cm, papery, glabrous, adaxially drying wrinkled, abaxially not punctate, base attenuate, margin entire, apex attenuate; lateral veins indistinct. Cymes axillary, 1-flowered; peduncle absent; bracts deciduous. Pedicel 1–2.2 cm, glabrous. Calyx green, 5-sect from base; segments narrowly lanceolate, 0.9–1.1 cm × 1.6–2.1 mm, outside glabrous. Corolla red, 2.2–2.7 cm, glabrous, inside glabrous. Style ca. 1.5 cm, glandular puberulent. Fruit and seeds unknown. Fl. Sep.

On trees on hills along roadsides; ca. 1600 m. S Yunnan (Menghai Xian).

The species is probably now extinct.

Aeschynanthus austroyunnanensis var. austroyunnanensis

Stems to 1 m, glabrous. Leaves opposite; petiole 3–8 mm; leaf blade elliptic to broadly elliptic, ovate, or obovate, 2.2–7.2 × 1.4–3.9 cm, thin leathery to papery, glabrous, adaxially drying wrinkled, abaxially not punctate, base cuneate to rounded, margin entire, apex acute to rounded or acuminate; lateral veins indistinct to somewhat distinct. Cymes axillary, 1- or 2-flowered; peduncle absent; bracts deciduous. Pedicel 4–8 mm, sparsely puberulent. Calyx green, 5-sect from base; segments linear-lanceolate, 4–5 × 1 mm, outside puberulent to glabrous. Corolla red, 2–2.7 cm, outside puberulent to glabrous, inside glabrous, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 7 mm; abaxial lip ca. 1.4 cm; stamens exserted: filaments ca. 1–1.5 cm; pistil ca. 0.8 mm; ovary glabrous. Style ca. 1 cm, sparsely puberulent. Capsule 8–26 cm. Seeds with 1 hairlike appendage at each end, appendages 0.9–1.5 cm. Fl. Jul, Oct, fr. Dec.

On trees in forested valleys; ca. 1500 m. NW Yunnan (Gongshan Xian).

Aeschynanthus austroyunnanensis var. guangxiensis

Stems 12–30 cm, glabrous. Leaves opposite; petiole 2–5 mm; leaf blade narrowly oblong to narrowly elliptic. Calyx segments linear, 6–9 × 1 mm. Fl. Aug.

On trees and bushes in forests; ca. 2300 m. W Yunnan.


Stems ca. 30 cm, glabrous. Leaves opposite; petiole 5–10 mm; leaf blade narrowly ovate to narrowly elliptic or narrowly elliptic-oblong, 4–6.5 × 2–3.4 cm, thick leathery, glabrous, adaxially drying smooth, abaxially impressed punctate, base broadly cuneate to rounded, margin entire, apex acuminate to abruptly acuminate; lateral veins indistinct. Cymes axillary, 1-flowered; peduncle absent; bracts deciduous. Pedicel 4–8 mm, sparsely puberulent. Calyx green, 5-sect from base; segments linear-lanceolate, 4–5 × 1 mm, outside puberulent to glabrous. Corolla red, 2–2.7 cm, outside puberulent to glabrous, inside glabrous, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 7 mm; abaxial lip ca. 1.4 cm; anthers cohered in pairs at apex, 1.2–1.5 mm; staminode ca. 0.8 mm; style ca. 1 cm, ovary glabrous. Style ca. 1 cm, glandular puberulent. Fruit and seeds unknown. Fl. Sep.

On trees in forested valleys; ca. 1500 m. NW Yunnan (Gongshan Xian).


Stems 12–30 cm, glabrous. Leaves opposite; petiole 3–8 mm; leaf blade narrowly obovate, ovate, or oblong, 2.2–7.2 × 1.4–3.9 cm, thin leathery to papery, glabrous, adaxially drying wrinkled, abaxially not punctate, base cuneate to rounded, margin entire, apex acute to rounded or acuminate; lateral veins indistinct to somewhat distinct. Cymes axillary, 1- or 2-flowered; peduncle absent; bracts deciduous. Pedicel 4–8 mm, sparsely puberulent. Calyx green, 5-sect from base; segments linear-lanceolate, 4–5 × 1 mm, outside puberulent to glabrous. Corolla red, 2–2.7 cm, outside puberulent to glabrous, inside glabrous, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 7 mm; abaxial lip ca. 1.4 cm; stamens exserted; filaments ca. 1–1.5 cm; pistil ca. 0.8 mm; ovary glabrous. Style ca. 1 cm, glandular puberulent. Capsule 8–26 cm. Seeds with 1 hairlike appendage at each end, appendages 0.9–1.5 cm. Fl. Jul, Oct, fr. Dec.

On trees in forested valleys; ca. 1500 m. NW Yunnan (Gongshan Xian).
to nearly glabrous. Capsule 8–20 cm. Seeds 1.2–1.5 mm, appendages 0.9–1.5 cm. Fl. Jul, fr. Dec.

- On trees, rocks, and cliffs on limestone hills; 400–1000 m. W Guangxi, SW Guizhou (Zhengu Xian).


毛花芒毛苣苔  mao hua mang mao ju tai
Stems 40–120 cm, brown sericeous, glabrescent. Leaves opposite; petiole 3.5–10 mm; leaf blade narrowly ovate to ovate or elliptic, 2.9–8 × 1.4–2.9 cm, thin leathery, glabrous, adaxially drying smooth or slightly wrinkled, abaxially not punctate, base cuneate to rounded, margin entire, apex acuminate to acute; lateral veins indistinct. Cymes axillary, 1- or 2-flowered; peduncle absent; bracts deciduous. Petiol 0.8–1.4 cm, puberulent. Calyx green, 1–1.8 cm, 5-lobed from slightly below middle to -sect from near base in the same flower; tube 3.5–4 mm in diam. at mouth; lobes linear-lanceolate, 4.5–13 × 0.6–2 mm, outside sparsely to densely pilose. Corolla red, 2.5–2.8 cm, outside sparsely puberulent, inside with short thick hairs near base, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped; adaxial lip 3 mm; abaxial lip 2.5 mm. Stamens exserted; filaments 2.5–2.9 cm; anthers coherent in pairs at apex, 1.2–2 mm; staminode ca. 4 mm. Pistil ca. 4 mm; ovary glabrous. Style 1.1–1.7 cm, sparsely puberulent. Capsule 4.5–6 cm. Seeds with 1 hairlike appendage at each end, appendages 0.9–1.5 cm. Fl. Aug–Sep, fr. Dec.

- On trees at forest margins, rocky streamside cliffs; 1700–2600 m. W Yunnan [Gongshan Xian].


伞花芒毛苣苔  san hua mang mao ju tai

Stems over 40 cm, glabrous. Leaves opposite; petiole ca. 7 mm; leaf blade narrowly lanceolate to lanceolate, 10–13 × 2.4–2.8 cm, leathery, glabrous, adaxially drying smooth, abaxially not punctate, base cuneate to broadly cuneate, margin entire to indistinctly denticulate, apex attenuate; lateral veins indistinct. Cymes pseudoterminal, ca. 8-flowered; peduncle absent; bracts deciduous. Pedicel ca. 1 cm, glabrous. Calyx green, 1.2–1.5 cm, shallowly 5-lobed; tube 6.5–8 mm in diam. at mouth; lobes triangular, 2–3 × 1.5–2 mm, outside glabrous. Corolla orange-red, ca. 5.2 cm, outside sparsely puberulent apically, inside sparsely pubescent basally, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 6 mm; abaxial lip ca. 5.5 mm. Stamens exserted; filaments 2.3–3.2 cm; anthers coherent in pairs at apex, 1.2–2 mm; staminode ca. 5 mm. Pistil ca. 3 cm; ovary glabrous. Style ca. 1.8 cm, puberulent. Capsule 19–29 cm. Seeds with 1 hairlike appendage at each end, appendages ca. 1 cm. Fl. Jun.

On trees of forest margins in valleys; ca. 800 m. SE Yunnan [Laos, Thailand, N Vietnam].


矮花芒毛苣苔  ai mang mao ju tai
Stems 5–24 cm, puberulent to glabrescent. Leaves opposite or in whors of 3; petiole to 2 mm; leaf blade obovate to oblong-obovate to oblong-elliptic, 0.8–2.2 cm × 4–8(–12) mm, leathery, adaxially glabrous and dying finely wrinkled, abaxially puberulent, sparsely impressed-punctate; base attenuate to broadly cuneate, margin entire, apex rounded to obtuse, seldom acute; lateral veins invisible. Cymes pseudoterminal, 1–3-flowered; peduncle absent; bracts deciduous. Pedicel 4–10 mm, glabrous to sparsely puberulent. Calyx often tinged red-purple, 4–6 mm, 5-lobed from near to above middle; tube 3–4 × 0.8–1 mm, outside puberulent. Corolla red, 1.6–2.7 cm, outside sparsely puberulent, inside with short thick hairs near base, without tufts of hairs, mouth slightly to strongly oblique; limb distinctly 2-lipped; adaxial lip nearly erect, 2–2.5 mm; abaxial lip 2–4.5 mm, 3-sect from to near base. Stamens exserted; filaments 0.9–2 cm; anthers coherent in pairs at apex, ca. 1.2 mm; staminode ca. 1 mm. Pistil 1.5–3 cm; ovary glabrous. Style 1.1–1.7 cm, sparsely puberulent. Capsule 4.5–6 cm. Seeds with 1 hairlike appendage at each end, appendages 6–10 mm. Fl. Sep–Jan.

- On trees in forested valleys; 1300–2100 m. Yunnan (Jingdong Xian, Pingbian Xian, Simao Xian).


轮叶芒毛苣苔  lun ye mang mao ju tai
Stems 10–20 cm, densely spreading short hispid, glabrescent. Leaves mostly clustered near stem apex; petiole 1–4(–8) mm; leaf blade oblong-obovate or oblong-elliptic, 0.8–2.2 cm × 4–10 mm, leathery, puberulent, adaxially sometimes glabrescent, drying smooth, abaxially sparsely punctate, base attenuate to cuneate, margin entire, apex nearly rounded to acute, rarely attenuate; lateral veins obscure. Cymes pseudoterminal, 2–5-flowered; peduncle absent; bracts deciduous. Pedicel 7–10 mm, glabrous to sparsely ciliate. Calyx green tinged reddish, 5-sect from base; segments linear-lanceolate to narrowly triangular, 3–4 × 0.5 mm, outside glabrous, margin ciliate. Corolla red, 1.7–2 cm, outside sparsely puberulent, inside puberulent basally, without tufts of hairs, mouth strongly oblique; limb distinctly 2-lipped; adaxial lip erect, indistinctly 4-lobed near apex, 5–8 mm; abaxial lip 4–7 mm, entire. Stamens exserted; filaments 1.3–2 cm; anthers coherent in pairs at apex, 1–2 mm; staminode ca. 0.5 mm. Pistil ca. 4 mm; ovary glabrous.

• On trees at forest margins; 1300–2100 m. Yunnan (Jingdong Xian, Pingbian Xian, Simao Xian).

- On trees in forested valleys; 1300–2100 m. Yunnan (Jingdong Xian, Pingbian Xian, Simao Xian).

12 cm. Seeds with 1 hairlike appendage at each end, ovary glabrous. Style ca. 5 mm, puberulent. Capsule 9–2 mm; staminode ca. 6.5 mm. Pistil ca. 1.7 cm; filaments 1.4–1.8 cm; anthers coherent in pairs at apex, ca. 2 mm; abaxial lip ca. 9 mm, 3-parted from slightly below middle. Stamens included; filaments 0.8–1.2 mm; anthers coherent at apex, ca. 3 mm; staminode ca. 5 mm. Pistil ca. 1.7 cm; ovary glabrous. Style ca. 3 mm, glabrous. Capsule ca. 8 cm. Seeds with 1 hairlike appendage at each end, appendages 0.5–1 mm. Fl. Jun–Nov, fr. Nov.

On trees and rocks in forests; 1300–2200 m. Guangxi, SW Guizhou, Yunnan [Vietnam].


On trees in forested valleys; 1300–1700 m. S Yunnan [Bhutan, N Myanmar, Sikkim, Thailand, N Vietnam].
Aeschynanthus chorisepalus Orr.
Stems to 1 m, glabrous. Leaves opposite; petiole 6–21 mm; leaf blade narrowly to broadly elliptic or lanceolate to obovate, 5–12 × 2–4.2 cm, leathery to thin leathery, glabrous, adaxially drying wrinkled, abaxially not punctate, base broadly cuneate to cuneate, margin entire, apex acuminate; lateral veins indistinct. Cymes pseudoterminal, 1–4-flowered; peduncle absent; bracts persistent, green, linear to lanceolate, ca. 6 × 1–2 mm. Pedicel 3–20 mm, puberulent to glabrous. Calyx green, 5-vein from base; segments lanceolate-linear to lineare-oblancoate, 4–7 × 1.5–2 mm, outside glabrous to rust-brown pubescent. Corolla red to yellow, 1.9–3 cm, outside sparsely puberulent, inside glabrous, mouth not oblique; limb indistinctly 2-lipped, lips nearly equal, 3.8–4 mm. Stamens exerted; filaments 1.8–2 cm; anthers coherent in pairs at apex, 1.8–2.2 mm; staminode 0.5–1 mm. Pistil 2.4–3 cm; ovary with small glands. Style ca. 8 mm, puberulent. Capsule 15–25 cm. Seeds with 2 hairlike appendages at hilar end, appendages, 0.8–1.2 cm, opposite end with 1 hairlike appendage 1.5–2 cm. Fl. Jul.–Oct, fr. Nov.

On trees in forested valleys; 1500–2500 m. S and W Yunnan [N Thailand].


长花芒毛苣苔 chang hua mang mao ju tai
Stems ca. 30 cm, glabrous. Leaves opposite; petiole 4–9 mm; leaf blade oblong to narrowly elliptic, 5–9.5 × 1.7–3.4 cm, papery, glabrous, adaxially drying smooth, abaxially not punctate, base cuneate, margin entire, apex acuminate; lateral veins distinct. Cymes pseudoterminal, ca. 6-flowered; peduncle absent; bracts persistent, green, linear, 2.8–4 × 0.8–1.2 mm. Pedicel 9–10 mm, glabrous. Calyx green, ca. 1.2 cm, 5-lobed from near to below middle; tube ca. 4 mm in diam. at mouth; lobes narrowly triangular, 5–9 × 1–1.2 mm, outside glabrous. Corolla red, ca. 5 cm, outside puberulent, inside glabrous. Style puberulent. Fruit and seeds unknown. Fl. Jul.

On trees in forests; ca. 1900 m. SE Xizang (Medog Xian).


毛萼芒毛苣苔 mao e mang mao ju tai
Stems ca. 30 cm, glabrous. Leaves opposite; petiole 5–9 mm; leaf blade narrowly elliptic, 7–9 × 1.8–3.3 cm, papery to thin leathery, glabrous, adaxially drying smooth, abaxially not punctate, base cuneate, margin entire, apex acuminate; lateral veins indistinct. Cymes pseudoterminal, ca. 4-flowered; peduncle absent; bracts deciduous. Pedicel ca. 1.2 cm, puberulent. Calyx greenish, ca. 7 mm, 5-lobed from near to below middle; tube ca. 5 mm in diam. at mouth; lobes triangular to triangular-linear, 3.2–5 × 1–2 mm, outside puberulent. Corolla red, ca. 5.8 cm, outside puberulent, inside with sparse triangular hairs basally, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 5 mm; abaxial lip slightly longer. Stamens exerted; filaments 2.8–3.5 cm; anthers coherent in pairs at apex, 2–2.5 mm; staminode ca. 1. mm. Ovary glabrous. Style puberulent. Fruit and seeds unknown. Fl. Jul.

• Riverside rocks in forests; ca. 800 m. SE Xizang (Medog Xian).


墨脱芒毛苣苔 mo tuo mang ju tai
Stems ca. 30 cm, glabrous. Leaves opposite; petiole 0.9–1.5 cm; leaf blade oblong to oblancoate-oblong, 11–13 × 2.8–4.5 cm, thick leathery, glabrous, adaxially drying nearly smooth, abaxially not punctate, base cuneate, margin entire, apex acuminate; lateral veins indistinct. Cymes pseudoterminal, ca. 4-flowered; peduncle absent; bracts persistent, green, linear, ca. 3 × 0.8 mm. Pedicel 4–5 mm, glandular puberulent. Calyx green, ca. 4 mm; 3–5-lobed from near middle; tube ca. 3 mm in diam. at mouth; lobes narrowly triangular, 1.5–1.8 × ca. 0.8 mm, outside glandular puberulent. Corolla red, ca. 3 cm, outside glandular puberulent, inside glandular below abaxial lip, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 3 mm; abaxial lip ca. 3.5 mm. Stamens exerted; filaments 1.2–1.6 cm; anthers coherent in pairs at apex, 1.2–1.8 cm; staminode ca. 1.5 mm. Immature pistil glabrous. Fruit and seeds unknown. Fl. Jul.

• On trees in forests; ca. 1900 m. SE Xizang (Medog Xian).


大花芒毛苣苔 da hua mang mao ju tai
Stems 30–60(–100) cm, glabrous. Leaves opposite; petiole 3–11 mm; leaf blade narrowly elliptic to broadly ovate or obovate, 5.5–14 × 1.4–4.6 cm, leathery, glabrous, adaxially drying wrinkled, abaxially not punctate, base attenuate to rounded, margin entire, apex acuminate to narrowly acuminate; lateral veins indistinct. Cymes pseudoterminal, 2–11-flowered; peduncle absent; bracts persistent, green, triangular, 2–10 × 0.5–1.5 mm. Pedicel 7–12 mm, glabrous. Calyx green, 1.2–1.5 cm, shallowly 5-lobed; tube 4–6 mm in diam. at mouth; lobes narrowly triangular, 3.5 × 1.2–2 mm, outside glabrous. Corolla orange-red, 4–5.5 cm, outside glabrous to puberulent in apical half, inside puberulent below middle, without tufts of hairs, mouth slightly oblique; limb indistinctly 2-lipped, lips nearly equal, 5–6 mm. Stamens exerted; filaments 2.6–3.5 cm; anthers coherent in pairs at apex, 3–4 mm; staminode ca. 6 mm. Pistil ca. 5.2 cm; ovary glabrous. Style ca. 1 cm, puberulent apically. Capsule 16–34 cm. Seeds with 2
hairy appendages at hilar end, appendages 1–1.5 cm, opposite end with 1 hairy appendage 1–1.5 mm. Fl. Jun–Sep, fr. Oct–Nov.

On trees in forests; 1000–2500 m. SE Xizang, S and W Yunnan [NE India].


粗毛芒毛苣苔 cu mao mang mao ju tai
Stems ca. 20 cm, glabrous. Leaves opposite; petiole 4–8 mm; leaf blade lanceolate to narrowly oblong, 8.5–14.8 × 2–3.8 cm, papery to thin leathery, glabrous, adaxially drying nearly smooth, abaxially not punctate, base attenuate, margin entire, apex long acuminatae; lateral veins indistinct. Cymes pseudoterminal, 2–4-flowered; peduncle absent; bracts persistent, green, subulate, ca. 1 × 0.2 mm. Pedicel 6–10 mm, glabrous. Calyx green, 9–10 mm, shallowly 5-lobed; tube ca. 5 mm in diam. at mouth; lobes slightly unequal, triangular, 3–5 × 1.8–2 mm, outside glabrous. Corolla red, 5–5.5 cm, outside sparsely puberulent apically, inside with subulate and triangular hairs basally, without tufts of hairs, mouth not oblique; limb indistinctly 2-lipped; adaxial lip ca. 5 mm; abaxial lip ca. 1 cm. Stamens exerted; filaments 3–4 cm; anthers coherent in pairs at apex, 3–3.5 mm; staminode ca. 0.5 mm. Pistil ca. 6.5 cm; ovary glabrous. Style ca. 3.2 cm, sparsely puberulent. Fruit and seeds unknown. Fl. Aug. • On trees in forests of montane regions; ca. 1000 m. W Yunnan (Yingjiang Xian).


束花芒毛苣苔 shu hua mang mao ju tai
Stems ca. 40 cm, glabrous. Leaves opposite; petiole 6–10 mm; leaf blade lanceolate to narrowly elliptic, 5–12.5 × 1–2.5 cm, leathery, glabrous, adaxially drying wrinkled, abaxially not punctate, base attenuate, margin entire, apex caudate to caudate-acuminate; lateral veins invisible. Cymes pseudoterminal, 2–6-flowered; peduncle absent; bracts persistent, green, lanceolate, ca. 3 × 1 mm. Pedicel 5–11 mm, glabrous. Calyx green tinged purple-red, ca. 1.4 cm, 5-lobed from above middle; tube ca. 5 mm in diam. at mouth; lobes triangular, ca. 4 × 2.2 mm, outside glabrous. Corolla red-orange, 2–2.5 cm; mouth not or slightly oblique; limb indistinctly 2-lipped, lips nearly equal. Stamens exerted; anthers 2–3 mm. Ovary glabrous. Style glandular puberulent. Capsule ca. 12 cm. Seeds with 2 hairlike appendages at hilar end, appendages to 1.5 cm, opposite end with 1 hairlike appendage to 1.5 cm. On trees in forests; 2000–2500 m. S Xizang [Bhutan, Nepal]. Specimens from China are known only from flower buds.


腾冲芒毛苣苔 teng chong mang mao ju tai
Stems ca. 1 m, glabrous. Leaves opposite; petiole 5–10 mm; leaf blade nearly linear to narrowly oblanceolate or narrowly elliptic, (5–)17–23 × 0.8–2(–3) cm, leathery to thick leathery, glabrous, adaxially drying wrinkled, abaxially not punctate, base attenuate, margin entire, apex acuminate to narrowly acuminate; lateral veins invisible. Cymes pseudoterminal, 1–4-flowered; peduncle absent; bracts persistent, green tinged purple, lanceolate, ca. 5 × 2 mm. Pedicel 3–6 mm, puberulent. Calyx green tinged purple, ca. 5 mm, 5-lobed from above middle; tube ca. 4.5 mm in diam. at mouth; lobes triangular, 1–2 × ca. 1.6 mm, outside sparsely puberulent. Corolla red, 2.4–3.4 cm, outside puberulent, inside very sparsely puberulent, without tufts of hairs, mouth slightly oblique; limb indistinctly 2-lipped, lips nearly equal, ca. 5 mm. Stamens exerted; filaments 1.5–2 cm; anthers coherent in pairs at apex, 1–1.5 mm; staminode ca. 1.1 mm. Pistil ca. 2.5 cm; ovary glabrous. Style ca. 8 mm, glandular puberulent. Capsule 20–30 cm. Seeds with 2 hairlike appendages at hilar end, appendages to 3 cm, opposite end with 1 hairlike appendage to 3.5 cm. Fl. May–Jun, fr. Jul–Nov. • On trees in broad-leaved forests; 1700–2300 m. Yunnan (Gongshan Xian, Tengchong Xian). Nearly all of the Chinese material that has been determined as Aeschynanthus maculatus by previous authors is now included in A. tengchungensis.
长茎芒毛苣苔 chang jing mang mao ju tai

*Aeschynanthus marmoratus* T. Moore.  
Stems to 40 cm, glabrous. Leaves opposite; petiole absent to 5 mm; leaf blade elliptic to lanceolate or oblanceolate, 6.5–12 × 2.1–3.3 cm, papery to leathery, glabrous, adaxially drying wrinkled, abaxially sparsely punctate, base cuneate, margin crenulate and undulate, apex acuminate; lateral veins indistinct. Cymes axillary, 1–3-flowered; peduncle absent; bracts deciduous. Pedicel 0.5–1.7 cm, glabrous. Calyx green, 5-sect from base; segments lanceolate-linear, ca. 1.5 cm × 2 mm, glabrous. Capsule 17–32 cm. Seeds with 1 hairlike appendage ca. 1.8 cm, opposite end with 1 hairlike appendage ca. 1.8 cm. Fl. Nov.  
On trees in forests; 500–1800 m. S Yunnan [Malaysia, Myanmar, Thailand, Vietnam].  

药用芒毛苣苔 yao yong mang mao ju tai

*Stems ca. 30 cm, glabrous. Leaves opposite or in whorls of 3; petiole 3–6 mm; leaf blade narrowly oblanceolate, 7–10 × 1.6–3 cm, leathery, glabrous, adaxially drying nearly smooth, abaxially not punctate, base attenuate, margin repand-crenate, apex acuminate; lateral veins invisible. Cymes axillary, 5-sect from base; segments broadly lanceolate, ca. 5 × 2 mm, outside glabrous. Corolla red, 1.8–2 cm, outside sparsely puberulent, inside with 5 tufts of hairs above base, mouth not obtuse; limb indistinctly 2-lipped, lips nearly equal, ca. 2 mm. Stamens exerted. Pistil ca. 8 mm; ovary glabrous. Style ca. 5 mm, glabrous. Capsule ca. 27 cm. Seeds with 1 hairlike appendage ca. 2 cm. Fr. Mar.*  
On tree trunks in forests; 900–1000 m. SE Yunnan [Vietnam]. Flower description is based on literature.

长萼芒毛苣苔 chang e mang mao ju tai

*Stems to 5 m, glabrous. Leaves opposite; petiole 3–10 mm; leaf blade oblong lanceolate, 6.5–13 × 2.5–3.5 cm, papery to thin leathery, glabrous, adaxially drying smooth, abaxially not punctate, base cuneate, margin repand-crenate, apex long acuminate to caudate; lateral veins indistinct. Cymes axillary, 1–3-flowered; peduncle absent; bracts deciduous. Pedicel 1–1.3 cm, glabrous. Calyx reddish, 5-sect from base; segments lanceolate-linear, 3–3.3 cm × 1.5–2.5 cm, outside glabrous. Corolla red, 2.4–2.8 cm, outside puberulent, inside with 5 tufts of hairs above base, mouth not obtuse; limb indistinctly 2-lipped, lips nearly equal, ca. 4 mm. Stamens exerted; filaments ca. 2.2 cm; anthers coherent in pairs at apex, 2.5–2.8 mm; staminode ca. 0.5 mm. Pistil 2–3.3 cm; ovary glabrous. Style ca. 1.5 cm, glabrous. Fruit and seeds unknown. Fl. Sep.*  
Shrubs in forests and bamboo thickets of montane regions; ca. 800 m. SE Yunnan (Pingbian Xian).

吊石苣苔属 diao shi ju tai shu

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

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

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

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

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

3b. Flowers solitary; leaf margin entire or denticate with small glands; calyx 1.6–2.2 cm, tube 12–18 mm; staminodes 2, ca. 2 mm; anther connective unappendaged; capsule 6.5–9 cm; seed appendage 0.3–0.5 mm; prostrate herbs, scandent subshrubs, or lianas, stems sometimes thick corky, to 9 m ........................... L. gamosepalus

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

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

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

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

6b. Stamens 4–5 mm; pedicel 0.6–1 cm.

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

7b. Leaf blade 8–14 × 2–4 cm, papery; peduncle 5.5–7.5 cm; calyx segments 4–5 mm; corolla inner surface glabrous, tube funnelform-tubular, ca. 2 cm, mouth ca. 8 mm in diam. ... L. atropurpureus

5b. Corolla 1.7–1.9 cm, outer surface at least sparsely puberulent, adaxial lip 2–3 mm, abaxial lip 5.5–7 mm; staminodes 3; peduncle 0.2–1 cm.

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

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

4b. Seed appendages at least 0.5 mm long.

9a. Seed appendages 1.5–3.2 mm; capsule 13–21 cm ............................................................................................................ L. serratus

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

10a. Anther connective with hornlike appendage.

11a. Leaf blade herbaceous, seldom papery, 4–14(–18) cm; bracts ovate to orbicular, 4–8.5 mm wide; corolla sparsely puberulent outside, sparsely glandular puberulent basalay inside .......................... L. serratus

11b. Leaf blade leathery, 1.2–10 cm; bracts linear to ovate, obovate, or oblanceolate, 0.4–3 mm wide; corolla glabrous or puberulent basalay outside, glabrous inside.

12a. Leaf blade apex abruptly acuminate to obtuse; calyx segments 9–12 mm; staminodes 8–10 mm .................................................. L. kwangsiensis

12b. Leaf blade apex acute to subtruncate; calyx segments (1–)2–7(–8) mm; staminodes 0.6–5(–8) mm .................................................. L. pauciflorus

10b. Anther connective unappendaged.

13a. Calyx 12–20 mm, deeply 5-lobed, tube 3–3.5 mm; peduncle ca. 0.8 cm ................................. L. metuoensis

13b. Calyx 1.5–14 mm, 5-sect from base or near base, tube absent or 0.2–1 mm; peduncle (absent or)1.5–10 cm.

14a. Stems glabrous.
15a. Bracts orbicular-ovate, nearly as long as wide; leaf blade 4–7 mm wide; ovary with a few short hairs; capsule 2–2.7 cm. 8. *L. involucratus*

15b. Bracts linear, lanceolate to ovate, or elliptic, at least 2 x as long as wide; leaf blade (0.7–)1–8 cm wide; ovary glabrous; capsule 2.5–12 cm (fruits unknown in *L. atropurpureus*).

16a. Calyx segments 11–14 mm; corolla 5–6.5 cm; staminodes ca. 6 mm. 7. *L. petelotii*

16b. Calyx segments 4–9 mm; corolla 1.7–5 cm; staminodes 0.6–3 mm.

17a. Leaf blade margin entire or repand, glandular; corolla 1.7–2.1 cm, sparsely glandular puberulent basally inside, tube 1–1.3 cm. 4. *L. aeschynanthoides*

17b. Leaf blade margin serrulate to serrate or denticulate; corolla 2.6–5 cm, glabrous inside, tube 1.7–3.4 cm.

18a. Peduncle 1.5–4.4 cm; bracts 1–1.5 mm; corolla white, purple striate; filaments 8–12 mm; pistil 1.8–2.8 cm. 6. *L. heterophyllus*

18b. Peduncle 4.5–10 cm; bracts 2–8 mm; corolla purple; filaments 2.5–5 mm; pistil 1.2–1.4 cm.

19a. Leaf blade margin serrate; bracts lanceolate to ovate, 1.2–4 mm wide; corolla mouth 4–5 mm in diam., adaxial lip ca. 2.5 mm. 9. *L. sessilifolius*

19b. Leaf blade margin denticulate; bracts linear, 0.2–0.8 mm wide; corolla mouth ca. 8 mm in diam., adaxial lip ca. 6 mm. 10. *L. atropurpureus*

14b. Stems puberulent at least near apex.

20a. Leaf blade 0.35–2.2 × 0.25–0.9 cm; flowers solitary.

21a. Leaf blade 0.35–1.1 cm, apex obtuse; corolla ca. 1.3 cm, inner surface glabrous; staminodes 3; calyx segments 1.5–4 mm; pistil ca. 8 mm. 17. *L. microphyllus*

21b. Leaf blade 0.8–2.2 cm, apex acute to acuminate; corolla 3.8–5 cm, inner surface sparsely puberulent near base or near filament bases; staminodes 2; calyx segments 4–8.5 mm; pistil 17–32 mm.

22a. Leaf blade glabrous, papery, narrowly elliptic to ovate; calyx segments 4–7 mm, glabrous on both sides; corolla outer surfaces glabrous; petiole 1–5 mm; disc ringlike, margin entire. 14. *L. sulphureus*

22b. Leaf blade densely puberulent, leathery, lanceolate to narrowly lanceolate; calyx segments 7.5–8.5 mm, outside puberulent, inside glabrous; corolla outer surface sparsely puberulent; petiole 0.5–1 mm; disc cupular, margin shallowly dentate. 15. *L. levipes*

20b. Leaf blade (1–)2–14 × (0.5–)1–4 cm; flowers solitary or in 2–6-flowered cymes.

23a. Bracts broadly obovate to ovate or deltoid; calyx segments narrowly ovate to obovate or oblong ovate; leaf blade abaxially sparsely pilose; corolla outer surface pilose; staminodes 5–6 mm. 13. *L. pubescens*

23b. Bracts linear or linear-oblong; calyx segments lanceolate-linear to triangular-linear; leaf blade abaxially puberulent to glabrous; corolla outer surface glabrous or sparsely puberulent; staminodes 0.6–3 mm.

24a. Corolla inner surface glandular puberulent below abaxial lip, tube subtubular, ca. 1.5 cm, mouth ca. 5 mm in diam. 12. *L. gracilis*

24b. Corolla inner surface glabrous, tube funnelform-tubular to slender funnelform, 1.9–3.4 cm, mouth 6–12 mm in diam.
25a. Stems apically sparsely puberulent; calyx segments 4–5 mm; pistil ca. 12 mm ....................................................... 10. *L. atropurpureus*
25b. Stems apically puberulent to densely puberulent; calyx segments 4–13 mm; pistil 13–28 mm.
26a. Bracts 1–1.5 mm; calyx segments 4–8 mm; corolla mouth 9–12 mm in diam.; seeds 1–1.2 mm, appendages subulate, 0.5–0.8 mm ..................................................... 6. *L. heterophyllus*
26b. Bracts 2.2–4.5 mm; calyx segments (6–)8–13 mm; corolla mouth 6–9 mm in diam.; seeds ca. 0.8 mm, appendages hairlike, ca. 2 mm .................................................. 11. *L. forrestii*


长梗吊石苣苔  chang geng diao shi ju tai


Subshrubs, sometimes twining. Stems erect, 35–80 cm, apically puberulent. Petiole 0.9–2.5 cm; leaf blade narrowly elliptic or oblong lanceolate to ob lanceolate, often falcate, 4–21 × 1.6–5.5 cm, papery, appressed pubescent, sometimes glabrescent, base cuneate to narrowly so, margin denticulate or subentire to serrate, apex acuminate; lateral veins 7–12 on each side of midrib, flat to abaxially prominent. Cymes 2–4-flowered; peduncle 4–8 cm, puberulent and sparsely glandular puberulent; bracts linear to lanceolate, 2–3(–8) × 1–2 mm. Pedicel 1.5–2.9 cm. Calyx 5-sect from base; segments 5–6 mm, outside puberulent, inside glabrous. Corolla purple with tube tinged yellow, (2–)2.7–3 cm, glabrous; tube tubular, 1.2–1.5 cm × 5–7 mm; adaxial lip 4–6 mm; abaxial lip 0.8–1.4 cm. Stamens ca. 1.2 cm; filaments ca. 1 cm; anthers subreniform; connective unappendaged; staminodes 2, 2.2–3.4 mm. Disc ringlike, margin entire. Pistil ca. 1 cm; ovary glabrous. Capsule 2.8–3.2 cm. Seed appendages subulate, 0.1–0.25 mm. Fl. Sep–Oct, fr. Oct.

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


长圆吊石苣苔  chang yuan diao shi ju tai

Subshrubs. Stems erect, to 80 cm, apically densely rust-brown pubescent. Petiole 1–4 cm; leaf blade oblong to ovate-oblong, 9–20 × 2.5–8 cm, papery, adaxially appressed puberulent, glabrescent, abaxially appressed puberulent, appressed pilose along veins, base cuneate, margin subentire with glands or indistinctly denticulate, apex acuminete; lateral veins 7–10 on each side of midrib, abaxially prominent. Cymes 2–4-flowered; peduncle 0.2–1 cm, densely rust-brown glandular pubescent; bracts narrowly triangular, 2–6 × ca. 0.7 mm. Pedicel 0.5–1.5 cm. Calyx 5-sect from base; segments 6–7 mm, outside rust-brown velutinous, inside glabrous. Corolla purple-red, ca. 1.9 cm, outside puberulent, inside glabrous; tube tubular, ca. 1.3 cm × 4–5 mm; adaxial lip ca. 2.2 mm; abaxial lip ca. 5.5 mm. Stamens ca. 5.5 mm; filaments ca. 4.5 mm; anthers ovoid; connective unappendaged; staminodes 3, 1–3 mm. Disc ringlike, margin entire. Pistil ca. 1 cm; ovary glabrous. Style glandular puberulent. Capsule 3–4 cm. Seed appendages subulate, 0.1–0.2 mm. Fl. Sep–Oct, fr. Oct.

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


多齿吊石苣苔  duo chi diao shi ju tai

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

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


桂黔吊石苣苔  gui qian diao shi ju tai
Subshrubs. Stems erect, to 1 m, glabrous. Petiole 2–35 mm; leaf blade sometimes asymmetric, narrowly elliptic to elliptic-ovate or obovate, 4.5–13.6 × 2.2–8 cm, papery, glabrous, base sometimes oblique, cuneate to rounded, margin entire to repand, glandular, apex acuminate to abruptly acuminate; lateral veins 4–7–(9) on each side of midrib, flat to prominent below. Cymes 2–8-flowered; peduncle 1–2 cm, glabrous, bracts elliptic, 3–4 × 1.2–2 cm, papery, glabrous; pedicel 3–6 mm, glabrous, sometimes with small basal-abaxial swelling; anthers globose; connective unappendaged; staminodes 2–4, 2–4 mm. Disc ringlike, margin entire. Pistil 1.8–2.8 cm, glabrous. Capsule 2.5–5.5 cm. Seed appendages subulate, 0.5–0.8 mm. Fl. Jun–Sep, fr. Aug–Oct.

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

1a. Stems and pedicel glabrous; corolla outside glabrous to puberulent near base 6a. var. heterophyllus

1b. Stems densely puberulent or apically puberulent; pedicel densely puberulent or glabrous to sparsely puberulent near apex; corolla outside sparsely puberulent.

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

6a. Lysionotus heterophyllus var. heterophyllus

- On trees in forested valleys; 700–1800 m. W Sichuan, NE Yunnan.

1b. Stems densely puberulent or apically puberulent; pedicel densely puberulent or glabrous to sparsely puberulent near apex; corolla outside sparsely puberulent.

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

2a. Stems apiately puberulent; petiole puberulent; leaf blade leathery, abaxially sparsely puberulent, glabrescent, abaxially puberulent; peduncle densely puberulent; pedicel densely puberulent near apex ............... 6c. var. lasianthus

6a. Lysionotus heterophyllus var. heterophyllus

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

1b. Stems densely puberulent; pedicel puberulent; leaf blade leathery, adaxially sparsely puberulent, glabrescent, abaxially puberulent; peduncle densely puberulent; pedicel densely puberulent near apex ................ 6b. var. mollis

2b. Stems densely puberulent; pedicel puberulent; leaf blade leathery, adaxially sparsely puberulent, glabrescent, abaxially puberulent; peduncle densely puberulent; pedicel densely puberulent near apex ................ 6c. var. lasianthus

- On trees in forested valleys; 1100–2800 m. S and W Sichuan, NE Yunnan.

Lysionotus brachycarpus Rehder.


- On trees in forested valleys; 1100–2800 m. S and W Sichuan, NE Yunnan.


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


- Territorial or on trees in forests in stream valleys: 1100–1700 m. N Guangxi (Longsheng Xian, Xing’an Xian).


Subshrubs. Stems 12–50 cm, glabrous. Petiole 0.4–1.7–3 cm; leaf blade lanceolate to lanceolate-oblong, oblong, or ovate, seldom obovate to obovate, 1.5–9–(11) × 1–2.5–(4.6) cm, leathery to papery, glabrous, base narrowly cuneate to rounded, margin serrate, denticate, or crenulate to subentire, apex acuminate; lateral veins 4 or 5 on each side of midrib, flat. Cymes 1–3-flowered; peduncle 2–6 cm, glabrous; bracts lanceolate, ca. 3–4 × 0.8–1 mm. Pedicel 0.7–1.7 cm. Calyx 5–sect from base; segments 1.1–1.4 cm, glabrous. Corolla purplish to yellow, 5–6.5 cm, glabrous; tube funnel-form-tubular, 3.6–4 × 1.2–1.4 cm; adaxial lip 1–1.1 cm; abaxial lip 1.2–1.8 cm. Stamens ca. 1 cm; filaments ca. 9 mm; anthers broadly ovate; connective unappendaged; staminodes 2, ca. 6 mm. Disc ringlike, margin entire. Pistil ca. 2.8 cm, glabrous. Capsule 6–12 cm. Seed appendages hairlike, ca. 1.5 mm. Fl. Aug–Oct, fr. Sep–Oct.

- Territorial, epipetric, or epiphytic in forests in stream valleys; 1200–2800 m. NE Yunnan.


Subshrubs. Stems at least 20 cm, glabrous. Petiole 2–3.5 mm; leaf blade obovate to narrowly oblong, 1.2–2.4 cm × 4–7 mm, leathery, glabrous, base narrowly cuneate, margin serrate, apex acute to subtruncate; lateral veins 3–5 on each side of midrib, inconspicuous. Cymes 1- or 2-flowered; peduncle 2–6 cm, glabrous; bracts orbicular-ovate, ca. 4 × 4 mm. Pedicel 3–5 mm. Calyx 5–sect from base; segments 6–9.5 mm, glabrous. Corolla purple, 2–2.6 cm, glabrous; tube slender funnel-form, 1.2–1.3 cm × ca. 5 mm; adaxial lip ca. 3.5 mm; abaxial lip 7–9 mm. Stamens ca. 9.5 mm; filaments ca. 8 mm; anthers subglobose; connective unappendaged; staminodes 2, ca. 2.5 mm. Disc ringlike, margin entire. Pistil ca. 9 mm; ovary with a few short hairs. Style glabrous. Capsule 2–2.7 cm. Seed appendages subulate, 0.5–0.7 mm. Fl. Jul, fr. Sep.

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


短柄吊石苣苔 *L. sessilifolius* var. *saururus* T. Wang.

Subshrubs, sometimes climbing. Stems 25–45 cm or more, glabrous. Petiole 1–6 mm or absent; leaf blade oblong to narrowly elliptic, lanceolate, or ovate, 3.5–14 × 2–5.8 cm, thin leathery to papery, glabrous, base broadly cuneate to subcordate, margin serrate, apex acute to acuminate; lateral veins 5–9 on each side of midrib, flat to prominent below. Cymes 2–7-flowered; peduncle 4.5–10 cm, glabrous or with a few hairs; bracts lanceolate to ovate, 3–8 × 1.2–4.4 mm. Pedicel 4–10 mm. Calyx 5–sect from base; segments 4–6 mm, glabrous, sometimes margin sparsely ciliolate. Corolla purple, 2.8–3.4 cm, glabrous; tube slender funnel-form, 1.7–2.8 cm × 4–5 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 9 mm. Stamens 3.5–5 mm; filaments 2.5–5 mm; anthers broadly ovoid; connective unappendaged; staminodes 2, ca. 1 mm. Disc ringlike, margin entire. Pistil ca. 1.4 cm, glabrous. Capsule 5–7.5 cm. Seed appendages hairlike, ca. 1.5 mm. Fl. Aug–Oct, fr. Sep–Oct.

- Territorial, epipetric, or epiphytic in forests and streambeds in valleys; 1200–2800 m. NE Yunnan.
acute to acuminate; lateral veins 4–8 on each side of midrib, flat. Cymes 1–4-flowered; peduncle 3–6 cm, basally sparsely puberulent to glabrescent; bracts linear, 2.2–4.5 × 0.3–0.5 mm. Calyx 5-sect from base; segments (0.6–)0.8–1.3 cm, glabrous. Corolla purple, 3.2–4.8 cm, glabrous; tube slender funnelform, 1.9–3 cm × 6–9 mm; adaxial lip ca. 6 mm; abaxial lip 1.2–1.4 cm. Stamens 5–10 mm; filaments 3–8 mm; anthers oblate; connective unappendaged; staminodes 2, ca. 1 mm. Disc ringlike, margin entire. Pistil 1.3–2 cm, glabrous. Capsule 3.8–6.6 cm. Seed appendages hairlike, ca. 2 mm. Fl. Jul.–Sep., fr. Oct.

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


纤细吊石苣苔 xian xi diao shi ju tai Subshrubs. Stems 15–30 cm, apically appressed puberulent. Petiole 1–3 mm; leaf blade narrowly oblong to lanceolate, 2.2–5.7 × 0.8–1.5 cm, leathery, adaxially glabrous, abaxially glabrous. Stamens sometimes puberulent, base cuneate to subrounded, margin repand-denticulate to serrate, apex acuminate to acute; lateral veins 4–6 on each side of midrib, flat. Cymes 1–6-flowered; peduncle 3–4.5 cm, sparsely puberulent to glabrescent; bracts linear-oblong, 2.3–3 × 0.2–0.5 mm. Pedicel ca. 6 mm. Calyx 5-sect from base; segments ca. 7 mm, glabrous. Corolla white, purplish, purple striate, ca. 1 cm; abaxial lip ca. 1.4 cm. Stamens ca. 4 mm; filaments ca. 3 mm; anthers oblate; connective unappendaged; staminodes 2, ca. 0.6 mm. Disc ringlike, margin entire. Pistil ca. 1.1 cm, glabrous. Capsule 6–10 cm. Seeds unknown. Fl. Jul.–Aug., fr. Aug.

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


毛枝吊石苣苔 mao zhi diao shi ju tai

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

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


狭萼吊石苣苔 xia e diao shi ju tai

Subshrubs. Stems 20–30 cm or more, apically puberulent. Petiole 1–5 mm; leaf blade narrowly elliptic to ovate, 0.8–2.2 cm × 4–9 mm, papery, glabrous, base cuneate, margin denticulate to serrulate, apex acute to acuminate; lateral veins obscure. Cymes 1-flowered; peduncle 2.3–4 cm, glabrous or sparsely puberulent; bracts linear, 1–2 × ca. 0.5 mm. Pedicel ca. 5 mm. Calyx 5-sect from base; segments 4–7 mm, glabrous. Corolla yellowish to pale purple with darker markings and yellow base, 3.8–4.6 cm, outside glabrous, inside sparsely puberulent at filament bases; tube funnelform-tubular, 2.7–3.2 cm × ca. 9 mm; adaxial lip ca. 4 mm; abaxial lip 1.1–1.3 cm. Stamens ca. 1.3 cm; filaments ca. 1 cm; anthers oblate; connective unappendaged; staminodes 2, ca. 5 mm. Disc ringlike, margin entire. Pistil ca. 1.7 cm, glabrous. Capsule 2.8–8 cm. Seed appendages subulate, 0.6–1.1 mm. Fl. Jul.–Sep., fr. Sep.

• Terrestrial or epiphytic on trees near streams; 2300–2900 m. NW Yunnan.


狭萼吊石苣苔 xia e diao shi ju tai

Aeschynanthus levipes C. B. Clarke in A. & C. de Candolle, Monogr. Phan. 5: 28. 1883; Lysionotus angustisepalus W. T. Wang. Subshrubs. Stems 30–60 cm, apically densely spreading puberulent. Petiole 0.5–1 mm; leaf blade lanceolate to narrowly so, 1.2–2.2 cm × 2.5–4 mm, leathery, densely puberulent, base cuneate, margin sparsely denticulate or glandular, apex acuminate to acute; lateral veins obscure. Cymes 1-flowered; bracts apparently absent. Pedicel ca. 6 mm. Calyx 5-sect from base; segments 7.5–8.5 mm, outside puberulent, inside glabrous. Corolla light purple with darker veins, ca. 5 cm, outside sparsely puberulent, inside below sparsely puberulent; tube slender funnelform, ca. 3.6 × 0.9 cm; adaxial lip ca. 3 mm; abaxial lip ca. 1.4 cm. Stamens ca. 1.4 cm; filaments ca. 1.2 cm; anthers broadly ovoid; connective unappendaged; staminodes 2, ca. 5 mm. Disc cupular, ca. 1.2 mm, margin shallowly dentate. Pistil ca. 3.2 cm, glabrous. Capsule 5–8.5 cm. Seed appendages hairlike, 1.2–1.8 mm. Fl. Aug.–Sep., fr. Sep.

On trees in forested valleys; 1200–2400 m. SE Xizang (Nyingchi Xian), NW Yunnan (Gongshan Xian) [NE India, Laos, N Myanmar].
墨脱吊石苣苔 mo tuo diao shi ju tai
Subshrubs. Stems ca. 34 cm, densely spreading pubescent. Leaves nearly sessile; leaf blade linear-oblong to narrowly elliptic, 2.4–3.5 cm × 4–7 mm, leathery, densely puberulent, base cuneate, margin sparsely denticulate to subentire, apex acuminate to acute; lateral veins obscure. Cymes 1-flowered; peduncle ca. 8 mm, densely puberulent; bracts narrowly elliptic to narrowly ovate, ca. 9 × 2–3.2 mm. Pedicel ca. 1 cm. Calyx 1.2–2 cm, 5-lobed; tube 3–3.5 mm; lobes 0.9–1.7 cm, outside densely puberulent, inside sparsely puberulent. Corolla white, 4.2–5 cm, outside sparsely puberulent, inside glabrous; tube funnelform-tubular, 2.4–3.5 × ca. 1.2 cm; adaxial lip ca. 3 mm; abaxial lip 8–10 mm. Stamens 1.2–1.6 cm; filaments 1–1.4 cm; anthers broadly ovoid; connective unappendaged; staminodes 2, 4–7 mm. Disc ringlike, margin entire. Pistil 2–2.8 cm, sparsely puberulent. Capsule 6.5–13 cm. Seed appendages hairlike, ca. 1.5 mm. Fl. and fr. Aug–Sep.
• On trees in broad-leaved forests; ca. 1300 m. SE Xizang (Medog Xian).

小叶吊石苣苔 xiao ye diao shi ju tai
Subshrubs. Stems 25–30 cm, sparsely puberulent. Petiole 0.3–1.5 mm; leaf blade obovate to elliptic, 3.5–11 × 3–6 mm, leathery, adaxially puberulent near margin or glabrous, abaxially glabrous, base cuneate to rounded, margin 1–3-denticulate to crenate or entire, apex obtuse; lateral veins obscure. Cymes 1-flowered; peduncle 1.8–2.6 cm, glabrous; bracts subulate, ca. 0.8 × 0.2 mm. Pedicel 1–1.2 cm. Calyx 5-sect from base; segments 1.5–4 mm, glabrous. Corolla ca. 1.3 cm, glabrous; tube funnelform-tubular, ca. 9 × 3–4 mm; adaxial lip ca. 2 mm; abaxial lip ca. 4.5 mm. Stamens ca. 7 mm; filaments ca. 5 mm; anthers subglobose; connective unappendaged; staminodes 3, central 1 ca. 0.4 mm, laterals ca. 1.5 mm. Disc ringlike, margin entire. Pistil ca. 8 mm, glabrous. Capsule 6.5–8 cm. Seed appendages subulate, 0.5–0.7 mm. Fl. Jul, fr. Jul, Sep.
• On trees in broad-leaved forests; ca. 1300 m. SE Xizang (Medog Xian).

广西吊石苣苔 guang xi diao shi ju tai
Subshrubs. Stems ca. 30 cm, glabrous. Petiole 0.9–2.1 cm; leaf blade ovate to narrowly elliptic or narrowly oblong, 5–10 × 1.4–4.5 cm, leathery, glabrous, base rounded to broadly cuneate, margin denticulate to serrate or subentire, apex abruptly acuminate to obtuse; lateral veins 5–7 on each side of midrib, often obscure, flat. Cymes 1–4-flowered; peduncle 1.5–4 cm, glabrous; bracts linear to ovate or obovate, 4–5 × 1.2–3 mm. Pedicel 6–12(–20) mm. Calyx 5-sect from base; segments 0.9–1.2 cm, glabrous. Corolla purplish, ca. 4 cm, glabrous; tube slender funnelform, ca. 3 × 1 cm; adaxial lip ca. 5 mm; abaxial lip 1–1.3 cm. Stamens ca. 1.6 cm; filaments ca. 1.5 mm; anthers obsolete; connective appendages hornlike, 0.5–1.5 mm; staminodes 2, 8–10 mm. Disc ringlike, margin entire. Pistil ca. 2.3 cm, glabrous. Capsule 5–6 cm. Seed appendages hairlike, 0.9–1.2 mm. Fl. Jul–Sep, fr. Jul–Oct.
• Forests on trees or rocks in montane regions; 1300–1700 m. N Guangxi (Rongshui Xian, Tiane Xian).

吊石苣苔 diao shi ju tai
Subshrubs. Stems 7–100 cm, glabrous to puberulent. Petiole 1–4(–15) mm; leaf blade linear to broadly elliptic, oblong to ovate, or rarely lanceolate to ovate, 1.5–6(–9) × (0.4–)0.8–2(–3.8) cm, leathery, glabrous, rarely puberulent, base narrowly to broadly cuneate, rarely rounded, margin apically serrate to dentate, or subentire, basally subentire, apex acute to subobtuse; lateral veins 3–6 on each side of midrib, often obscure, flat. Cymes 1–3(–12)-flowered; peduncle 0.3–2.6(–5) cm, glabrous; bracts linear to ovate or oblong to ovate, 1–4 × 0.4–1 mm. Pedicel 3–10(–17) mm. Calyx 5-sect from near base; tube to 1 mm; segments (1–)2–7(–8) mm, glabrous, sometimes sparsely puberulent or with a few hairs at tip. Corolla white to light purple or pink, inside with purple lines

17a. Lysionotus microphyllus var. microphyllus

峨眉吊石苣苔 e mei diao shi ju tai
Stems ca. 25 cm. Leaf blade 4–11 × 3–6 mm, margin 1- or 2-crenate apically to entire. Calyx segments narrowly triangular, 3–4 mm. Fl. Sep.
• On trees in valleys; ca. 1500 m. Sichuan (Emei Xian).
and sometimes yellow throat, 2.8–5.5 cm, outside glabrous to puberulent basally, inside glabrous; tube slender funnelform, 2.1–3.5 × (0.7–)1.2–1.5 cm; adaxial lip 3–5 mm; abaxial lip (0.7–)0.9–1.5 cm. Stamens 1–1.7 cm; filaments 1–1.6 cm; anthers oblate to broadly ovoid; connective appendage hornlike, ca. 0.5–1(–3) mm; staminodes (2 or)3, 0.6–5(–8) mm. Disc ringlike to cupular, to 4 mm, entire or with few acute to obtuse teeth. Pistil 1.2–2.8 cm, glabrous. Capsule (1.7–)4.5–13 cm. Seed appendages hairlike, 0.7–2 mm. Fl. Jun–Dec, fr. Aug–Jan.

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

1a. Stems and leaf blade puberulent .. 19b. var. *indutus*
1b. Stems glabrous or puberulent at apex; leaf blade glabrous.

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

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

吊石苣苔 (原变种) 19a. *Lysionotus pauciflorus* var. *pauciflorus*

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

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

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

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

齿叶吊石苣苔 (原变种) 20a. *Lysionotus serratus* var. *serratus*

齿叶吊石苣苔 chi jing diao shi ju tai

Forests, rocks, or cliffs, terrestrial, on trees or rocks in forests, stream sides, grassy slopes, valleys; 300–2200 m. NW Guangxi, SW Guizhou, SE Xizang, S and W Yunnan [Bhutan, N India, N Myanmar, Nepal, Thailand, N Vietnam].


翅茎吊石苣苔 chi jing diao shi ju tai

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


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

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


桑植吊石苣苔 sang zhi diao shi ju tai

Subshrubs. Stems ca. 12 cm, glabrous or glabrescent, branches appressed puberulent. Petiole 1.2–4 mm; leaf blade oblanceolate to narrowly oblong, 0.9–3.1 cm × 3–7 mm, leathery to thin leathery, glabrous, base cuneate, margin serrulate to denticulate apically, apex acute to obtuse; lateral veins obscure. Cymes 1- or 2-flowered; peduncle 2–5 cm, glabrous; bracts orbicular-ovate to obovate, 3–6 × 2–4 mm. Pedicel 3–5.4 cm. Calyx 7–10 mm, 5-lobed from above middle; tube 5–8 mm; lobes 2–5 × 1.2–3 mm, glabrous. Corolla pink, ca. 3.7 cm, glabrous; tube funnelform-tubular, ca. 2.6 × 0.9 cm; adaxial lip ca. 2 mm; abaxial lip ca. 1.1 cm. Stamens ca. 1.2 cm; filaments ca. 1.2 cm; anthers oblate; connective abaxial-basal, with appendage protruding, ca. 0.4 mm; staminodes 3, central 1 ca. 1 mm, laterals ca. 7 mm. Fl. Aug.

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


攀援吊石苣苔 pan yuan diao shi ju tai

Prostrate herbs, climbing subshrubs or lianas. Stems sometimes thick corky, to 9 m, glabrous. Petiole 6–23 mm; leaf blade elliptic to narrowly elliptic or oblong, 4.5–13 × 2.2–5 mm, papery, glabrous, base broadly cuneate to cuneate, margin entire to denticulate with small glands, apex acuminate; lateral veins 4–6 on each side of midrib, abaxially prominent. Cymes 1-flowered; peduncle 1.4–2.8 cm, glabrous; bracts orbicular-ovate to ovate, 4–7 × 7–9 mm. Pedicel 2–7 mm. Calyx 1.6–2.2 cm, 5-lobed from above middle; tube 1.2–1.8 cm; lobes 4–5 × ca. 5 mm, glabrous. Corolla white or tinged greenish, ca. 4 cm, outside glabrous, inside puberulent basally; tube slender funnelform, ca. 3.3 × 1.2–1.4 cm; adaxial lip ca. 6 mm; abaxial lip ca. 7 mm. Stamens ca. 1.3 cm; filaments ca. 1 cm; anthers oblate; connective unappendaged; staminodes 2, ca. 2 mm. Disc ringlike, margin entire. Pistil ca. 2.5 cm, glabrous. Capsule 6.5–9 cm. Seed appendages subulate, 0.2–0.6 mm. Fl. Jul–Sep, fr. Sep.

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

49. RHYNCHOTECHUM Blume, Bijdr. 775. 1826.

线柱苣苔属 xian zhu ju tai shu

Chiliandra Griffith.

Shrubs small, terrestrial, not rhizomatous. Stems branched or simple. Leaves usually few, along stem, opposite, seldom alternate, equal to subequal in a pair; leaf blade surfaces sericeous to hirsute or woolly, often glabrescent, base attenuate to rounded. Inflorescences lax, axillary, (few)- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-sect from base; segments equal. Corolla white to reddish or purple, zygomorphic, inside glabrous; tube campanulate tubular, not swollen, shorter than limb, 1–2 mm in diam.; limb indistinctly 2-lipped; adaxial lip 2-lobed, shorter than to equalling abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded to obtuse. Stamens 4, adnate to corolla tube near base or rarely near middle, included; anthers basifixed, free, thecae parallel, confluent at apex, dehiscing longitudinally; connective not projecting; staminode absent or 1, adnate to adaxial side of corolla tube. Disc ringlike or absent. Ovary ovoid, 1-loculed; placenta 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, depressed globose, undivided. Berry ovoid to globose, slightly longer than calyx, indehiscent. Seeds unappendaged.

About 13 species: SE Asia, Pacific Islands; five species in China.

1a. Stems, petiole, peduncle, and calyx outside densely spreading yellowish hirsute; peduncle 0.8–1.5(–2.4) cm ................................................................. 5. R. vestitum

1b. Stems, petiole, peduncle, and calyx outside brown or rusty pubescent to villous or woolly; peduncle (0.9–)2–6.5 cm.

2a. Leaves alternate, or sometimes lower ones opposite; pedicel 1–4 mm; upper corolla lip ca. 3 mm 4. R. discole

2b. All leaves opposite; pedicel 2–16(–22) mm; upper corolla lip 1–2 mm.

3a. Pistil and berry glabrous; cymes 15–70-flowered; bracts 3–13 mm; pistil 5–7 mm .......... 1. R. ellipticum

3b. Pistil and berry at least sparsely puberulent near base of style; cymes 5–30-flowered; bracts 3–8 mm; pistil 4–5.2 mm.

线柱苣苔 xian zhu ju tai
Corysanthera elliptica Wallich ex D. Dietrich, Syn. Pl. 3: 582. 1842; Chiliandra obovata Griffith; Rhynchotechum latifolium J. D. Hooker & Thomson ex C. B. Clarke; R. obovatum (Griffith) B. L. Burtt.

Stems 0.7–2 m, basally glabrescent, apically densely appressed rust-brown to brown woolly. Leaves opposite; petiole 0.8–5 cm, appressed rust-brown to brown woolly; leaf blade oblong to ovate or elliptic, 9.5–32 × 3–10 cm, adaxially rust-brown to brown woolly, glabrescent, abaxially densely woolly to fulvous pubescent, glabrescent except along veins, base cuneate to attenuate, rarely nearly rounded, margin denticulate to serrate, apex acute to acuminate. Cymes 10–30-flowered; peduncle 0.9–4 cm, densely appressed rust-brown to brown woolly to pubescent; bracts 3–13 mm. Pedicel 2–13 mm. Calyx segments lanceolate, 2.2–5 mm, outside brown woolly to pubescent, inside glabrous. Corolla white or tinged pink, 3.5–6 mm; tube 1.5–2.5 mm; adaxial lip 1.6–1.8 mm; abaxial lip 2.2–4 mm. Stamens adnate to corolla near base, 0.5–1.1 mm; staminode 0.2–0.3 mm. Pistil 5–7 mm, glabrous; ovary 1–2 mm. Berry white, 2–6 mm, glabrous. Fl. Jun–Oct, fr. Aug–Jan.

Forests, shaded streambeds; 100–1800 m. S Fujian, Guangdong, Guangxi, SW Guizhou, Hainan, S Sichuan, SE Xizang, Yunnan [Bhutan, Cambodia, NE India, Laos, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

Rhynchotechum ellipticum and R. formosanum are very closely related, and all of the characters used to distinguish them intergrade. Weitzman and Skog believe that they represent a single species.


冠萼线柱苣苔 guan e xian zhu ju tai
Lysimachia saurauifolia S. Ying; Rhynchotechum ellipticum (Wallich ex D. Dietrich) A. de Candolle var. saurauifolia (S. Ying) S. Ying.

Stems 0.3–2 m, apically densely appressed, rust-brown woolly. Leaves opposite; petiole 0.5–2.5 cm, densely appressed, rust-brown woolly; leaf blade usually elliptic to ovate, rarely ovate, (6.5–)13–30 × (2.5–)6.5–12 cm, densely rust-brown woolly, glabrescent, abaxially veins remaining densely woolly, base cuneate to attenuate, rarely rounded, margin denticulate to serrate, apex abruptly acuminate to acute. Cymes 5–30-flowered; peduncle 1.2–3(–5.7) cm, rust-brown villous; bracts 3–8 mm. Pedicel 3–9(–22) mm. Calyx segments lanceolate, 2–5 mm, outside rust-brown villous, inside glabrous. Corolla white to red or purple, 4–5 mm; tube ca. 2 mm; adaxial lip ca. 1 mm; abaxial lip ca. 2 mm. Stamens adnate to corolla base, ca. 1.4 mm; staminode ca. 0.2 mm. Pistil ca. 4 mm, puberulent at least sparsely near style base; ovary ca. 1 mm. Berry white to greenish, 3–4 mm, puberulent, at least sparsely. Fl. May–Nov, fr. Jul–Mar.

Dense forests, shaded streambeds, rocky areas in valleys; 200–1500 m. S Guangdong, SW Guangxi, SW Guizhou, Hainan, Taiwan, SE Yunnan [N Thailand].

Cyrtandra hillii H. Léveillé (1911) is probably conspecific with Rhynchotechum formosanum, but the combination in Rhynchotechum has never been made.


长梗线柱苣苔 chang geng xian zhu ju tai
Stems ca. 35 cm, basally glabrescent, apically brown woolly. Leaves opposite; petiole 0.5–3 cm, brown woolly; leaf blade oblong to ovate or elliptic, 10–19 × 3.5–5.8 cm, adaxially glabrescent, abaxially densely brown woolly, base attenuate, margin denticulate, apex acute to acuminate. Cymes 10–30-flowered; peduncle 3.5–6.5 cm, brown pubescent; bracts 6–7 mm. Pedicel 0.5–1.6 cm. Calyx segments narrowly lanceolate, 4.5–5.2 mm, outside densely appressed villous, inside glabrous. Corolla white, 3–3.5 mm; tube 1.3–1.8 mm; adaxial lip 1.5–2 mm; abaxial lip 2–3 mm. Stamens adnate to corolla near base, 0.8–1 mm above base, ca. 1.2–1.5 mm; staminode 0.3–0.5 mm. Pistil 4–5.2 mm, puberulent; ovary 1–1.2 mm. Immature berry puberulent. Fl. Jul.

• S Guangxi (Ningming Xian, Shanglin Xian).


异色线柱苣苔 yi se xian zhu ju tai
Stems 15–60 cm, basally glabrescent, densely brown woolly. Leaves alternate or some opposite or nearly so; petiole 0.4–3.7 cm, densely appressed, brown woolly; leaf blade oblanceolate to ovate or elliptic, (4.5–)6.5–17 × (1.2–)2.5–6.5 cm, adaxially appressed villous, glabrescent, abaxially villous, glabrescent, woolly along veins, base sometimes oblique, attenuate, margin denticulate to serrate or pinnately lobed to coarsely dentate, apex acute to acuminate. Cymes (5–)10–25-flowered; peduncle 1.8–6 cm, densely appressed brown woolly; bracts 5–10 mm. Pedicel 1–4 mm. Calyx segments linear to narrowly triangular, 4–6 mm, outside...
Herbs (outside China), shrubs, or seldom small trees, perennial, terrestrial, not rhizomatous. Stems branched or simple. Leaves usually few, along stem, opposite, whorled, or rarely alternate, equal to subequal in a pair; leaf blade glabrous to densely pubescent, pilose, villous, or sericeous, base attenuate to cuneate, rarely to cordate. Inflorescences lax or dense, axillary or rarely cauliflorous, 1- to many-flowered cymes; bracts 2 or absent, opposite. Calyx actinomorphic or zygomorphic; 2–5(or 6)-lobed; lobes equal to unequal. Corolla white to yellow, occasionally green, orange, reddish, or purplish, zygomorphic or rarely actinomorphic, inside glabrous to pubescent; tube campanulate to salverform, funnelform, or cylindric, not swollen, usually much longer than limb; limb usually 2-lipped; adaxial lip 2-lobed, shorter than to slightly exceeding abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded or obtuse, rarely acute. Stamens 2, adnate to abaxial side of corolla tube near middle, usually included; anthers basifixied to dorsifixied, coherent or free, thecae slightly divergent to divergent, confluent or not, dehiscing longitudinally; connective not projecting or apiculate; staminodes 2 or 3, adnate to adaxial side of corolla tube. Disc ringlike or rarely cupular. Ovary ovoid to oblong, 1-loculed; placenates 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, capitiate to ovoid or obtriangular, undivided or sometimes 2-lobed. Berry fleshy to leathery, ovoid to oblong, slightly longer to shorter than calyx, indehiscent. Seeds unappended.

About 350–600 species: SE Asia, Pacific Islands; one species in China.

1. **Cyrtandra umbellifera** Merrill, Philipp. J. Sci. 3: 435. 1908.

2. **Cyrtandra kotoensis** Hosokawa.


filaments glandular puberulent; anthers dorsifixed; staminodes 2, ca. 1 mm. Disc cupular, 1–1.8 mm. Pistil exserted or not, ca. 8 mm; ovary glabrous. Style 4–5 mm, sparsely glandular puberulent. Berries ellipsoid, ca. 8 mm. Fl. Feb–May, Dec, fr. May.

Mist shady forests; near sea level to 400 m. S Taiwan (Lanyu Island) [Philippines].


Herbs, perennial, terrestrial, rhizomatous. Stems erect, simple. Leaves few, along stem, opposite, slightly unequal in a pair; leaf blade adaxially sparsely pubescent, abaxially sparsely puberulent, base broadly cuneate to rounded. Inflorescences dense, terminal, few-flowered cymes; bracts apparently absent. Calyx slightly zygomorphic, 5-lobed, plicate between adjoining lobes; lobes subequal. Corolla white, zygomorphic, inside glabrous; tube campanulate, saccate at base, slightly longer than limb, ca. 5 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, ca. 1/2 length of abaxial lip; abaxial lip 3-lobed, central lobe longer, apex rounded. Stamens 4, adnate to corolla tube near base, included; anthers basifixed, free, thecae slightly divergent, not confluent, dehiscing longitudinally; connective projecting apically; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary depressed globose, 1-loculed; placentas 2, parietal, projecting together from 1 place on ovary wall into locule. Stigma 1, terminal, depressed-globose, undivided. Fruit and seeds unknown.

• One species: endemic to China.


Stems 9.5–15.5 cm, brownish puberulent. Petiole 0.3–2.7 cm; leaf blade ovate, 4–8 × 3.4–5.8 cm, adaxially puberulent, abaxially sparsely puberulent along veins, base slightly oblique, broadly cuneate to rounded, margin irregularly dentate, apex acute to abruptly acuminate. Peduncle ca. 1 cm, puberulent. Calyx ca. 7 mm in diam.; tube ca. 2.5 mm; lobes triangular, ca. 2.5 mm. Corolla ca. 1 cm; tube ca. 5 mm; adaxial lip ca. 2.5 mm; abaxial lip ca. 4 mm. Stamens ca. 2.4 mm; staminode ca. 0.8 mm. Pistil ca. 5.5 mm, glabrous; ovary ca. 1.5 mm. Fl. Jun.

Shaded waysides in hilly regions at low elevations. W Guangxi (Bose Xian).

52. STAUANTHERA Bentham, Scroph. Ind. 57. 1835.

Cyananthus Griffith.

Herbs, perennial, terrestrial, not rhizomatous. Stems branched or simple. Leaves few, along stem, alternate or opposite and strongly unequal; leaf blade glabrescent to sparsely puberulent, base strongly oblique, cuneate to rounded. Inflorescences lax, pseudoterminal, few- to many-flowered cymes; bracts 2, opposite. Calyx actinomorphic, 5-lobed, plicate between adjoining lobes; lobes equal. Corolla white, blue, or purple, zygomorphic, inside glabrous; tube campanulate, spurred or saccate at base, slightly longer than limb, ca. 4 mm in diam.; limb indistinctly 2-lipped; adaxial lip 2-lobed, nearly as long as abaxial lip; abaxial lip 3-lobed, lobes equal or subequal, apex rounded. Stamens 4, adnate to corolla tube near base, included; anthers basifixed, coherent laterally to form a shallow cone, thecae slightly divergent, confluent at apex, dehiscing longitudinally; connective not projecting; staminode unknown. Disc absent. Ovary subglobose, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, broadly funnelform, undivided. Capsule straight in relation to pedicel, depressed-globose, shorter than calyx, dehiscing transversely or irregularly. Seeds unappendaged.

About 10 species: SE Asia, Pacific Islands; one species in China.


Stems 4–22 cm, apically rust-brown puberulent. Normal leaves with petiole 0.5–1(–2.3) cm; leaf blade strongly oblique, often falcate, ovate to obovate, 7–28 × 3.5–10 cm, adaxially glabrescent, abaxially sparsely puberulent along veins, base oblique, cuneate to rounded, margin repand-crenate, apex acuminate; reduced leaves sessile, oblique, obovate, 3–4 mm. Peduncle 2–4 cm, densely puberulent; bracts linear, 3–4 mm, adaxially puberulent. Calyx ca. 4 mm; lobes broadly triangular, ca. 2 mm. Corolla white to purple, 5–7 × ca. 1 cm in diam.; tube ca. 2.6 × 4 mm; adaxial lip ca. 4 mm; abaxial lip ca. 4.5 mm. Stamens 3.2–5.2 mm. Pistil ca. 2 mm; ovary densely puberulent. Fl. Feb–Jun.

Forests, forest margins in valleys; 400–1100 m. W Guangxi, Hainan, S Yunnan [NE India, Malaysia, Myanmar, Vietnam].

Oshimella Masamune & Suzuki.

Herbs, perennial, terrestrial, not rhizomatous. Stems erect or ascending, simple or branched. Leaves few, along stem, opposite, very unequal in each pair; leaf blade sparsely puberulent, base strongly oblique, cuneate to cordate. Inflorescences lax, axillary or pseudoterminal, few- to many-flowered cymes; bracts apparently absent. Calyx actinomorphic, 5-sect from base or 5-lobed; segments equal, with many longitudinal secretory canals. Corolla white, reddish, or purple, zygomorphic, inside sparsely puberulent below abaxial lip or with lines of hairs; tube subtubular to funnelform-tubular, not swollen, longer than limb, 4–6 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, slightly shorter than to subequal to abaxial lip; abaxial lip 3-lobed, lobes equal or central lobe longer, apex rounded. Stamens 4, adnate to corolla tube near base, included; anthers dorsifixed, coherent, thecae divergent, confluent at apex, dehiscing longitudinally; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary ovoid to depressed globose, 2-loculed; placenta 1, axile, projecting inward, 2-cleft. Stigmas 2, equal, suborbicular, undivided, or 1, terminal, disclike, undivided. Capsule straight in relation to pedicel, subglobose, globose, or dehisced globose, shorter than calyx, dehiscing loculicidally to base; valves 2, or dehisced irregularly. Seeds unappended.

- Six species: endemic to China.


to subsessile, ovate to broadly ovate, 0.6–2.1 cm. Cymes axillary, often near branch apex; peduncle 2–6 cm, pubescent and glandular. Calyx 5-sect from base; segments ovate to triangular-ovate, 3–4 × ca. 2 mm, outside puberulent. Corolla reddish, 1.7–2 cm, outside glabrous, inside with orangish clavate hairs between abaxial lip lobes near mouth; tube funnelform-tubular, ca. 1 cm; adaxial lip ca. 3 mm; abaxial lip 5–6 mm. Adaxial filaments ca. 4 mm, abaxial ones ca. 6 mm, puberulent; anthers ca. 1.1 mm wide; staminode narrowly ovate, ca. 1.1 mm. Pistil ca. 8 mm, glabrous. Style ca. 4.8 mm; stigmas 2, ovate. Capsule ca. 6 mm in diam. Fl. and fr. Sep–Oct.

- Shady and moist places by streams; ca. 1500 m. W Guizhou (Bijie Xian).


白花异叶苣苔 bai hua yi ye ju tai

Stems 14–30(–40) cm, erect, brownish to whitish puberulent. Normal leaves sessile or with petiole to 7 mm; leaf blade whitish to green or purplish, oblique, ovate to ovate-oblong, 3.2–13 × 1–4.5 cm, adaxially sparsely puberulent, abaxially sparsely puberulent along veins, base strongly oblique, cuneate on narrow side, subcordate to broadly cuneate on other, margin indistinctly or distinctly denticulate to serrate, seldom dentate, apex acute to acuminate; reduced leaf blade broadly ovate, 4–14 mm. Cymes axillary; peduncle 3–4.5(–6) cm, glandular puberulent. Calyx 5-sect from base; segments ovate, 3–4(–5) × 1.5–3 mm, outside puberulent. Corolla white to purplish or reddish, 1–1.8 cm. Filaments 4–5 mm. Fl. Jul–Aug, fr. Sep–Oct.

- Shaded streamsid rocks, shaded areas in montane regions, valley forests; 500–1200 m. N Guangxi, Guizhou, SW Hubei, W Hunan, S Sichuan, SE Yunnan.

1a. Leaf blade to 9.5 cm, margin distinctly denticulate to dentate, teeth to 2 mm; corolla ca. 1.8 cm; filaments 4–5 mm; stems to 40 cm .......................... 1b. Leaf blade to 13 cm, margin indistinctly denticulate to subcrenate, teeth 0.2–0.5 mm, or merely glands; corolla ca. 1 cm; filaments 2–3.5 mm; stems to 30 cm.

1b. Leaf blade to 13 cm, margin indistinctly denticulate to crenate, teeth 0.2–0.5 mm, or rarely glands; corolla ca. 1 cm; filaments 2–3.5 mm; stems to 30 cm.

2a. Corolla white; leaf blade green or greenish, to 13 cm ............ 2b. Corolla purplish or reddish; leaf blade purplish, to 11.5 cm .......................... 3a. Whytockia tsiangiana var. tsiangiana

3a. Whytockia tsiangiana var. tsiangiana

白花异叶苣苔(原变种) bai hua yi ye ju tai (yuan bian zhong)


Stems to 30 cm. Leaf blade whitish to green or purplish, to 13 cm, margin indistinctly denticulate to crenate, teeth 0.2–0.5 mm, or merely glands. Corolla white, ca. 1 cm. Filaments 2–3.5 mm. Fl. Aug–Sep, fr. Sep–Oct.

- Shaded streamsid rocks, valley forests; 500–1500 m. N Guangxi, Guizhou, SW Hubei, W Hunan, S Sichuan, SE Yunnan.


屏边异叶苣苔 ping bian yi ye ju tai


Stems to 30 cm. Leaf blade green or greenish, to 11.5 cm, margin indistinctly denticulate to crenate, teeth 0.2–0.5 mm, or merely glands. Corolla purplish or reddish, ca. 1 cm. Filaments 2–3.5 mm. Fl. Jul.

- Shaded rocks, valley forests; 1300–2200 m. SE Yunnan (Pingbian Xian).


峨眉异叶苣苔 e mei yi ye ju tai

Stems to 40 cm. Leaf blade purplish, to 9.5 cm, margin distinctly denticulate to dentate, teeth to 2 mm. Corolla purplish or white, ca. 1.8 cm. Filaments 4–5 mm. Fl. Jul–Aug.

- Shaded areas in montane regions; 800–1200 m. W Guizhou (Bijie Xian), S and W Sichuan.


河口异叶苣苔 he kou yi ye ju tai

Stems 20–40 cm, erect, brownish pubescent and glandular, glabrescent. Normal leaves sessile or with petiole to 10 mm; leaf blade green or greenish, sometimes oblique, oblone to ovate-oblong, 4–13 × 2–5 cm, adaxially sparsely pubescent, abaxially pubescent along veins, base strongly oblique, cuneate on narrow side, cuneate to cordate on other, margin repand-serrulate and glandular, apex acuminate; reduced leaves sessile, broadly ovate to ovate, 0.8–2.5 cm. Cymes pseudoterminal; peduncle 2–5 cm, pubescent and glandular. Calyx ca. 4.5 mm, 5-lobed; tube ca. 1.5 mm; lobes broadly ovate to ovate-triangular, ca. 3 × 2.5–3 mm, outside puberulent. Corolla pink, 1.8–2.1 cm, outside glabrous, inside with 2 longitudinal series of yellowish green clavate hairs below mouth and between abaxial lip lobes; tube funnelform-tubular, ca. 1.4 cm ×
4 mm; adaxial lip ca. 3 mm; abaxial lip ca. 6 mm. Adaxial filaments ca. 4 mm, abaxial ones ca. 6.5 mm, puberulent near apex; anthers ca. 1.2 mm wide; staminode linear, ca. 1.5 mm. Pistil ca. 9 mm, glabrous. Style ca. 6 mm; stigma 1, elliptic. Capsule 5–6 mm in diam. Fl. Jul–Dec, fr. Dec–Jan.

- Shaded areas in stream valleys; ca. 1300 m. SE Yunnan (Hekou Xian).


台湾异叶苣苔 tai wan yi ye ju tai

*Rhynchoglossum* sasakii Hayata, Icon. Pl. Formos. 6: 34. 1916; *Oshimella* formosana Masamune & Suzuki; *O. sasakii* (Hayata) Masamune & Suzuki.

Stems 18–50 cm, ascending, basally procumbent, brownish puberulent, glabrescent. Normal leaves sessile or petiole to 2(–3) mm; leaf blade green or greenish, oblique, ovate to ovate-oblong, 1.8–10.5 × 0.6–3.5 cm, adaxially sparsely puberulent, abaxially sparsely puberulent along veins, base strongly oblique, cuneate on narrow side, rounded, subcordate, or cuneate on other, margin indistinctly denticulate to serrate, apex acuminate; reduced leaf blade ovate to lanceolate, 0.5–1.5 cm. Cymes axillary; peduncle 0.8–4.5 cm, sparsely white or brown puberulent. Calyx 5-sect from base; segments ovate, 2.5–3.5 × 1.8–3 mm, outside glabrescent. Corolla white, 0.8–1.5 cm, outside glabrous, inside sparsely puberulent below abaxial lip; tube subtubular, 4–7 × 4–6 mm; adaxial lip 4–8 mm. Filaments 2–2.5 mm, puberulent; anthers ca. 0.6 mm wide; staminode ovate, ca. 0.6 mm. Pistil ca. 2.2 mm, glabrous. Style 1–2 mm; stigma 1, orbicular. Capsule 2–4 mm in diam. Fl. Jun–Sep, fr. Sep–Oct.

- Forests on wet hillsides and streambanks; 500–1900 m. Taiwan.

Whytockia sasakii is unusual in having ovaries 2-loculed basally and 1-loculed above.


紫红异叶苣苔 zi hong yi ye ju tai

Stems ascending, basally procumbent, purple pubescent, glabrescent. Normal leaves sessile or with petiole to 1 mm; leaf blade purple abaxially, sometimes oblique, ovate to ovate-oblong, 6–14 × 3.3–6.7 cm, adaxially purple pilose, abaxially purplish pubescent, base strongly oblique, cuneate on narrow side, rounded to auriculate on other, margin nearly entire to repand-crenate, apex acute to narrowly obtuse; reduced leaves sessile, ovate to broadly ovate, 3–13 mm. Cymes pseudoterminal; peduncle 2.6–4 cm, purple pubescent and purple glandular. Calyx 5-sect from base; segments narrowly oblong to ovate-lanceolate, 3.5–5.5 × 1–1.7 mm, outside purple pubescent and purple glandular pubescent. Corolla blue-purple, 1.5–1.8 cm, outside purple pubescent and purple glandular, inside with yellow-green clavate hairs between abaxial lip lobes near mouth; tube funnelform-tubular, ca. 8 × 6 mm; adaxial lip ca. 2.5 mm; abaxial lip 5–7 mm. Adaxial filaments ca. 3 mm, abaxial ones ca. 4.5 mm, puberulent near apex; anthers ca. 0.9 mm wide; staminode broadly ovate, ca. 0.8 mm. Pistil 5–6.5 mm, glabrous. Style 4–4.7 mm; stigma 1, elliptic-reniform elliptic. Capsule 3–3.5 mm in diam. Fl. Jul–Dec, fr. Dec–Jan.

- Shaded and moist areas in stream valleys; ca. 1300 m. SE Yunnan (Hekou Xian).

54. RHYNCHOGLOSSUM Blume, Bijdr. 741. 1826, nom. conserv.

尖舌苣苔属 jian she ju tai shu

*Klugia* Schlechtendal.

Herbs, perennial or annual, terrestrial, not rhizomatous or rhizomatous. Stems branched or simple. Leaves few, along stem, alternate; leaf blade puberulent to glabrous, base sometimes strongly oblique, cuneate to cordate. Inflorescences racemose, lax and later appearing scorpioid, pseudoterminal and/or axillary, few- to many-flowered cymes; bract 1, opposite each flower, alternate [or absent]. Calyx actinomorphic, 5-lobed, sometimes winged; segments equal. Corolla blue to purple, zygomorphic, inside glabrous or sparsely puberulent near mouth; tube funnelform-tubular, ca. 8 × 6 mm; adaxial lip ca. 2.5 mm; abaxial lip 5–7 mm. Adaxial filaments ca. 3 mm, abaxial ones ca. 4.5 mm, puberulent near apex; anthers ca. 0.9 mm wide; staminode broadly ovate, ca. 0.8 mm. Pistil 5–6.5 mm, glabrous. Style 4–4.7 mm; stigma 1, elliptic-reniform elliptic. Capsule 3–3.5 mm in diam. Fl. Jul–Dec, fr. Dec–Jan.

- Shaded and moist areas in stream valleys; ca. 1300 m. SE Yunnan (Hekou Xian).

1a. Calyx 1.6–2 cm; corolla ca. 2.1 cm, inside glabrous; fertile stamens 4, thecae divergent; perennials, rhizomatous; leaves 6–22 cm; peduncle 0.6–0.8 cm; capsule ca. 9 mm ........................................ 1. *R. omeiense*
1b. Calyx 3–8 mm; corolla 0.8–1 cm, inside puberulent near mouth; fertile stamens 2, thecae nearly parallel; annuals, not rhizomatous; leaves 4–12 cm; peduncle 2–5.5(–8) cm; capsule 3–4.5 mm ............................... 2. *R. obliquum*

峨眉尖舌苣苔 e mei jian she ju tai
Perennials, rhizomatous. Stems 40–90 cm, glabrous. Petiole 0.2–4 cm; leaf blade oblique, 1 side elliptic, other side ovate, 6–22 × 2–8 cm, adaxially sparsely puberulent, abaxially glabrous, base strongly oblique, cuneate on smaller side, broadly cuneate, rounded, or subtruncate on other, margin subentire, indistinctly denticulate, apex long acuminate. Cymes 2.5–6 cm, 2–12-flowered, puberulent, glabrescent; peduncle 6–8 mm, glabrous. Calyx 1.6–2 cm; lobes 5–8 mm. Corolla deep purple, ca. 2.1 cm, inside glabrous; tube ca. 1.5 cm × 4 mm; adaxial lip ca. 3.5 mm; abaxial lip ca. 5 mm, 3-lobed. Stamens 4; anthers ca. 1.8 mm, thecae divaricate; staminodes absent. Disc ca. 0.2 mm. Pistil ca. 6 mm, glabrous. Style ca. 2 mm. Capsule surrounded by persistent calyx, ca. 9 mm. Fl. Aug–Sep.

- Streamsides, shaded areas on slopes in valleys; 900–1700 m. Sichuan (Emei Xian, Leibo Xian, Meigu Xian).

尖舌苣苔 jian she ju tai
*Loxotis obliqua* (Wallich) Bentham; *Rhynchoglossum hologlossum* Hayata; *R. obliquum* f. albilflorum Kuntze; *R. obliquum* f. coerulum Kuntze; *R. obliquum* var. *hologlossum* (Hayata) W. T. Wang; *R. obliquum* var. *parviflorum* C. B. Clarke; *R. zeylanicum* W. J. Hooker; *Wulfenia obliqua* Wallich.
Annuals, not rhizomatous. Stems 18–100 cm, glabrous to sparsely puberulent. Petiole 0.5–1.5(–3.5) cm; leaf blade oblique, 1 side elliptic, other side ovate, 4–12 × 2–6 cm, adaxially glabrous, sometimes minutely sparsely puberulent, abaxially glabrous, base strongly oblique, cuneate to narrowly cordate on smaller side, cordate on other, margin entire to undulate, apex acuminate. Cymes 3–24 cm, 10–30-flowered, appressed puberulent, glabrescent; peduncle 2–5.5(–8) cm, glabrous. Calyx often tinged blue, 3–8 mm; lobes 1–3 mm. Corolla pale to dark purple or blue, 8–11 mm, inside puberulent near mouth; tube 5–6 × 1.5–2 mm; adaxial lip 1.5–2.5 mm; abaxial lip 3.5–5 mm, 3-lobed to undivided. Stamens 2; anthers 0.7–1 mm, thecae nearly parallel; staminodes 2, ca. 0.8 mm. Disc ca. 1 mm. Pistil ca. 6.5 mm, glabrous. Style 4–6 mm. Capsule 3–4.5 mm. Fl. Jul–Nov, fr. Aug–Nov.

- Forest margins, forests, caves, shaded cliffs; 100–2800 m. W Guangxi, SW Guizhou, SW Sichuan, Taiwan, E Xizang, Yunnan [Cambodia, India, Indonesia, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Vietnam].

In recent treatments of *Rhynchoglossum* in China two varieties were recognized. However, the only character that separates them is lobing of the abaxial corolla lip, which varies from entire to deeply 3-lobed even on the same specimen. The entire-lipped variety was described from and previously reported only from Taiwan. Entire abaxial corolla lips have been observed in W Guangxi, SW Guizhou, SW Sichuan, S & W Yunnan, India, Philippines, and Thailand.

55. *EPITHEMA* Blume, Bijdr. 737. 1826.
盾座苣苔属 dun zuo ju tai shu
Herbs, possibly perennial, terrestrial, rhizomatous. Stems usually simple. Leaves 1 to few, lowest leaf unpaired, those near apex usually opposite, equal or nearly so; leaf blade puberulent, base cordate. Inflorescences scorpioid, dense, pseudoterminal or axillary, many-flowered cymes; bract 1. Flowers zygomorphic, often reduced, cleistogamous, sometimes autogamous and intermediate. Calyx actinomorphic, 5-lobed from just above middle; segments equal. Corolla blue to reddish or white, zygomorphic, inside sparsely puberulent centrally or with a ring of hairs; tube tubular, not swollen, longer than limb, 2–3 mm in diam.; limb 2-lipped; adaxial lip 2-lobed, nearly equalling abaxial lip; abaxial lip 3-lobed, lobes subequal, apex rounded. Stamens 2, adnate to adaxial side of corolla tube above middle, included; anthers dorsifixed, apically coherent, thecae divaricate, confluent at apex, dehiscing longitudinally; connective not projecting; staminodes 2, adnate to abaxial side of corolla tube. Disc ringlike, cupular, interrupted, or 2-lobed. Ovary ovoid to globose, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, subcapitate, undivided. Capsule straight in relation to pedicel, globose to subglobose, shorter than calyx, dehiscence circumsessile. Seeds with long deciduous funicle.

About 10 species: Africa, SE Asia; two species in China.

1a. Leaf blade of apical stem leaves (0.8–)3.5–8 × (0.5–)2–5.5 cm; stems (1.5–)8–16 cm; leaf blade of basal stem leaves (1–)7.5–12(–14) × (0.8–)4.5–6.5(–9.2) cm; bract hoodlike, obovate, 6–10 mm; pedicel 2–4 mm; corolla inside sparsely puberulent centrally, tube ca. 4.5 mm ................................. 1. *E. carnosum*
1b. Leaf blade of apical stem leaves 0.4–3 × 0.3–2.5 cm; stems 2–7 cm; leaf blade of basal stem leaves 2–5 × 1.2–4 cm; bract ovate, 4–6 mm; pedicel ca. 0.1 mm; corolla inside with a ring of hairs, tube ca. 2.5 mm; E. taiwanensis

1. Epithema carnosum Bentham, Scroph. Ind. 57. 1835.

盾座苣苔 dun zuo ju tai

Aikinia carnosa (Bentham) G. Don.

Stems (1.5–)8–16 cm, spreading puberulent. Basal stem leaves 1; petiole (0.3–)1.8–7.5 cm; leaf blade elliptic to ovate, (1–)7.5–12(–14) × (0.8–)4.5–6.5(–9.2) cm, puberulent, base sometimes slightly oblique, cordate, margin undulate-denticulate to serrate, apex obtuse; apical stem leaves usually 2, opposite, short petiolate or subsessile, leaf blade ovate-elliptic, (0.8–)3.5–8 × (0.5–)2–5.5 cm, base subcordate. Peduncle 0.2–2.2–5.5 cm; bract hoodlike, obovate, 6–10 mm. Pedicel 2–4 mm. Calyx 3.5–4 mm; lobes triangular. Corolla reddish to purplish or white, ca. 6 mm, inside sparsely puberulent centrally; tube ca. 4.5 mm; lips ca. 2 mm. Stamens ca. 2 mm; staminodes ca. 1 mm. Pistil ca. 3 mm; ovary puberulent toward style. Capsule ca. 2 mm in diam. Fl. Jun-Sep, fr. Sep.

Shaded rocks, caves in valleys; 300–1400 m. N Guangdong, Guangxi, SW Guizhou, Taiwan, SE Yunnan [Bhutan, NE India, Myanmar, Nepal, Thailand].


台湾盾座苣苔 tai wan dun zuo ju tai

Epithema brunonis (Wallich) Decaisne var. fasciculata C. B. Clarke.

Stems 2–7 cm, puberulent. Basal stem leaves 1; petiole 0.3–2.5 cm; leaf blade ovate to broadly ovate, 2–5 × 1.2–4 cm, puberulent, base sometimes slightly oblique, cordate, margin obscurely crenulate to serrate or denticulate, apex obtuse; apical stem leaves 2, opposite, subsessile, leaf blade broadly ovate, 0.4–3 × 0.3–2.5 cm, base subcordate. Peduncle 1–4 cm; bract ovate, 4–6 mm. Pedicel ca. 0.1 mm. Calyx ca. 3 mm; lobes triangular. Corolla pinkish white, ca. 4 mm, inside with a ring of hairs; tube ca. 2.5 mm; lips ca. 1.5 mm. Stamens ca. 1.5 mm; staminodes ca. 0.5 mm. Pistil 1.5–3 mm; ovary with straight hairs toward style. Capsule 2–3 mm in diam. Fl. Jul–Aug, fr. Sep.

Partially shaded, moist coral rock; 200–500 m. S Taiwan [Philippines].


台闽苣苔属 tai min ju tai shu

Matsumuria Hemsley.

Herbs, perennial, terrestrial, rhizomatous. Stems simple. Leaves few, along stem, opposite, those near apex sometimes alternate, often unequal in a pair; leaf blade puberulent to scabrous, base attenuate to rounded. Inflorescences compound racemose, lax, pseudoterminal, few to many flowered; bract 1, subtending each flower, alternate. Flowers zygomorphic, sometimes replaced by propagules in upper part of inflorescence. Calyx actinomorphic, 5-sect from base; segments equal. Corolla yellow, zygomorphic, inside glabrous; tube subtubular to funnelform-tubular, not swollen, longer than limb, 0.9–1.6 cm in diam.; limb 2-lipped; adaxial lip 2-lobed, slightly shorter than abaxial lip; abaxial lip 3-lobed, lobes subequal to unequal, apex rounded. Stamens 4, adnate to corolla tube near base, included; anthers basifixied, coherent in pairs, thecae parallel, not confluent, dehiscing longitudinally; connective not projecting; staminode 1, adnate to adaxial side of corolla tube. Disc ringlike. Ovary ovoid, 1-loculed; placetas 2, parietal, projecting inward, 2-cleft. Stigmas 2, strongly unequal; adaxial 1 small, deltoid to suborbicular, undivided; abaxial 1 narrowly obtriangular to ligulate, 2-lobed to emarginate. Capsule straight in relation to pedicel, ovoid, nearly as long as calyx, dehiscing loculicidally to base; valves 4, straight, not twisted. Seeds with scalelike membranous appendages at each end.

One species: China, Japan.


台闽苣苔 tai min ju tai


Rhizomes with fleshy scales. Stems 20–50 cm, pilose, glabrescent. Petiole 0.3–6.5 cm; leaf blade elliptic to ovate, (2.5–)10–27 × (1.2–)4.5–12.5 cm, appressed puberulent to scabrous, base oblique, attenuate to rounded, margin repand to coarsely double serrate or dentate, apex acute to acuminate. Inflorescences many flowered; rachis pilose; bracts lanceolate to linear, (2–)5–10 mm. Calyx segments lanceolate to narrowly triangular, 0.7–1.3 cm. Corolla yellow, inside purple spotted from lobes to base, 3–4.5 cm; tube 2.6–3.7 cm; adaxial lip 4.5–6 × ca. 5 mm; abaxial lip 6–8 × ca. 8 mm. Stamens glabrous; filaments 2.2–2.7 cm; staminode ca. 0.5 mm. Pistil 2–3 cm; ovary densely appressed puberulent. Style 1.8–2.8 cm, glabrous; adaxial stigma 0.4–0.8 mm, abaxial ca. 1.2 mm. Capsule 6–8 × 3–5.5 mm. Fl. Jul–Nov.
Shaded areas in valleys; 100–1200 m. Fujian, Taiwan [Japan (including Ryukyu Islands)].

*Titanotrichum oldhamii*, with its truly racemose inflorescence, scaly rhizomes, and appendiculate seeds, is distinct within the Gesneriaceae. Its relationship with other genera and its systematic position within the family are unclear.