
无心菜属 wu xin cai shu

Wu Zhengyi (吴征镒 吴 Cheng-yih), Zhou Lihua (周丽华); Warren L. Wagner

Herbs annual or perennial, rarely biennial. Stems erect or rarely creeping, often caespitose or pulvinate. Leaves opposite, rarely whorled; leaf blade linear to elliptic, ovate, or orbicular, usually flat, margin entire. Flowers solitary or numerous in cymes, actinomorphic. Sepals 4 or 5, apex entire, rarely emarginate. Petals 4 or 5, sometimes absent, apex entire to toothed, 2-cleft, or fimbriate. Stamens (2–5 or 8 or)10. Ovary 1-loculed; ovules numerous. Styles 2 or 3(–5). Capsule ovoid, obovoid, or globose, usually shorter than persistent sepals, rarely equaling or longer than them, 3- or 6-valved. Seeds reniform or subovoid, flattened, smooth, tuberculcate, or narrowly winged.

More than 300 species: N temperate to arctic regions; 102 species (79 endemic) in China. Arenaria has been subdivided into ten subgenera, several of which were further divided into sections and series (McNeill, Notes Roy. Bot. Gard. Edinburgh 24: 79–155. 1962). Six subgenera are represented in China, one of which (A. subgen. Odontostemma) contains more than half the species. Arenaria ladyginii Kozhevnikov (Novosti Sist. Vyssh. Rast. 21: 67. 1984) was described from Xizang. However, the type has not been seen by the present authors and its identity could not be ascertained.

1a. Styles usually 3 and capsules 6-valved or -toothed, or styles rarely 2 and capsules 4-valved or -toothed; petal apex entire or slightly emarginate; sepals never truncate and saccate at base, not excurved.

2a. Sepals not incrassate at base, veins not obviously impressed; leaf blade subulate to ovate, margin and apex incrassate, apex not setiform but spinose.

3a. Sepal apex obtuse, margin scarious; basal leaf blade subulate to linear-lanceolate, cauline leaf blade imbricate in 4 rows (decussate), ovate, less than 5 mm, persistent; flowers solitary or 3 in cymes; plants congested caespitose or pulvinate (4. A. subgen. Dolophragma).

4a. Plants densely caespitose; stems 4–15 cm, villous or glandular hairy. 33. A. przewalskii

4b. Plants densely pulvinate; stems 2.5–15 cm, glandular villous or glabrous.

5a. Stems 4–15 cm, villous or glandular hairy.

6a. Stems 10–15 cm, villous; sepals ovate to lanceolate-ovate 34. A. smithiana

6b. Stems 4–9 cm, glandular villous; sepals elliptic 35. A. oreophila

7a. Pedicels 2–4 cm; petals ca. 2 × as long as sepals; anthers violet 36. A. densissima

7b. Pedicels absent (flowers sessile); petals slightly longer than sepals; anthers yellow 37. A. polytrichoides

3b. Sepal apex acute, acuminate, or obtuse, apex and margin usually hard; leaf blade remote or sometimes approximate (covering each other), but never imbricate in 4 rows, lanceolate, elliptic, ovate, or orbicular, more than 5 mm, deciduous, rarely persistent; flower solitary; plants densely caespitose but never pulvinate (5. A. subgen. Solitaria).

8a. Floral disc large, with 5 obvious glands.

9a. Stems 1–15 cm, villous on one side; leaf blade glabrous except ciliate at base; petals white or pink 42. A. forrestii

9b. Stems 2–6 cm, villous all round; leaf blade glandular pubescent; petals violet 43. A. glanduligera

8b. Floral disc small or not impressed, glands small or degenerate.

10a. Petals violet; anthers violet 41. A. rhodantha

10b. Petals white or pink; anthers pale yellow, green, or black.

11a. Plants hairy throughout; stems diffuse; leaf blade ovate or ovate-ornicular, margin long hairy; petals white; anthers dark green or black 38. A. ciliolata

11b. Plants not hairy throughout; stems erect; leaf blade lanceolate or narrowly ornicular, margin short or hairy or glabrous; petals white or pink; anthers yellow or green.

12a. Stems 4–6 cm; leaf blade lanceolate or ovate-lanceolate, margin short or hairy; inflorescence rachis bracteate proximally; sepals excurved; petals white or pink; anthers pale yellow 39. A. ramellata

12b. Stems 2–5 cm; leaf blade narrowly ornicular, margin glabrous; inflorescence rachis ebracteate proximally; sepals excurved; petals white; anthers green 40. A. stracheyi
2b. Sepals usually (rarely not) incrassate at base, veins usually obvious (rarely not); leaf blade variously shaped, margin and apex not incrassate, or margin scarious, apex spinose when blade aristate.

13a. Leaf blade linear to orbicular, or aristate and narrowly linear, margin not obviously scarious; sepal veins inconspicuous; plants solitary or caespitose, rarely compacted pulvinate; leaves deciduous, rarely persistent.

14a. Sepals slightly or not incrassate at base; leaf blade usually linear to ovate, rarely needle-shaped

(1. A. subgen. Arenaria).

15a. Seeds with a flat wing; petals slightly shorter than or equaling sepals ............................. 6. A. compressa

15b. Seeds wingless; petals shorter than bracts, slightly shorter to longer than sepals.

16a. Seeds tuberculate with raised papillae; petals usually slightly shorter than sepals ...... 1. A. serpyllifolia

16b. Seeds not tuberculate with raised papillae; petals equaling or longer than sepals.

17a. Seeds with curls; inflorescence usually axillary; leaf blade elliptic to ovate or orbicular.

18a. Leaf blade elliptic, ovate, or suborbicular; sepals glabrous abaxially ...................... 2. A. orbiculata

18b. Leaf blade elliptic-lanceolate or obovate; sepals sparsely white villous on veins abaxially 3. A. neelgherrensis

17b. Seeds reticulate; inflorescence of terminal cymes; leaf blade linear to ovate-saccate.

19a. Capsule 1-seeded; leaf blade linear; sepals with papillose spots abaxially ........... 4. A. monosperma

19b. Capsule several seeded; leaf blade elliptic to elliptic-ovate; sepals white glandular villous abaxially ................................................................. 5. A. puranensis

14b. Sepals markedly incrassate or woody at base; leaf blade linear or linear-subulate, graminoid, rarely aristate with a spinose tip (2. A. subgen. Eremogone).

20a. Plants completely woody at base; sepals not herbaceous, veins inconspicuous, apex usually acuminate.

21a. Leaf blade apex acute; pedicels glabrous, rarely sparsely glandular hairy ...................... 14. A. griffithii

21b. Leaf blade apex spinose; pedicels densely glandular hairy ............................ 15. A. androsacea

20b. Plants not completely woody at base; sepals herbaceous throughout or only at middle, veins impressed, apex usually obtuse, rarely acute or acuminate.

22a. Sepals herbaceous only at middle, apex long acuminate, with (1–3 or more parallel veins 7. A. potaninii

22b. Sepals herbaceous ± throughout, apex obtuse, 1-veined.

23a. Stems with congested, pale brown, long, hardened, dead leaves at base; leaves forming a sheath at base ......................................................................................................................... 8. A. juncea

23b. Stems without basal leaves as above; leaves not forming a sheath at base.

24a. Plants pulvinate; stems 4–10 cm; leaf blade linear to subulate, 1.5–5 cm.

25a. Stems 4–10 cm, white glandular hairy distally; sepals ± glandular villous ............. 12. A. formosa

25b. Stems 6–10 cm, villous distally; sepals glabrous ................................................. 13. A. haitzeshanensis

24b. Plants congested caespitose; stems 4–20 cm; leaf blade linear, 2–6 cm.

26a. Stems 4–10 cm, glandular pubescent distally ...................................................... 11. A. grueningiana

26b. Stems 10–20 cm; all or only peduncle proximally glandular hairy, or glabrous.

27a. Stems glabrous proximally, becoming glandular hairy or villous distally; sepals glabrous ................................................................................................. 9. A. capillaris

27b. Stems hirsutulous throughout; sepals densely glandular hairy ......................... 10. A. acicularis

13b. Leaf blade subulate to linear, never setiform or graminoid, margin obviously scarious; sepal veins impressed; plants caespitose to compacted pulvinate; leaves persistent (3. A. subgen. Eremogoneastrum).

28a. Flowers few, in cymes.

29a. Stems sparsely villous, 2–3 cm; leaf blade 5–6 mm; sepals 3-veined ........................ 31. A. taibaishanensis

29b. Stems glandular villous, to 8 cm; leaf blade 0.7–20 mm; sepals usually 1-veined ........ 32. A. festucoideae

28b. Flowers solitary, rarely paired.

30a. Flowers sessile.

31a. Sepals violet abaxially; petals pink, lanceolate or orbicular ............................... 27. A. shannanensis

31b. Sepals green; petals white, ovate, obovate, or saccate.

32a. Flowers ca. 1.8 cm in diam.; sepals ovate-lanceolate; petals broadly obovate, ca. 1.5 × as long as sepals ................................................................. 28. A. edgeworthiana
32b. Flowers ca. 0.8 cm in diam.; sepals elliptic-lanceolate or lanceolate; petals narrowly obovate
  or saccate, shorter or slightly longer than sepals.
33a. Sepals elliptic-lanceolate; petals narrowly obovate, slightly longer than sepals; anthers
equal;
  styles equaling ovary ................................................................. 29. *A. bryophylla*
33b. Sepals lanceolate; petals saccate, shorter than sepals; anthers 5 long and 5 short; styles ca.
  2.5 × as long as ovary ................................................................. 30. *A. zadoiensis*
30b. Flowers pedicellate.
34a. Pedicels glandular villous or villous.
35a. Pedicels villous.
36a. Sepals lanceolate, glabrous .......................................................... 19. *A. kansuensis*
36b. Sepals narrowly lanceolate, sparsely pilose, at least at base .......... 20. *A. ischnophylla*
35b. Pedicels glandular villous.
37a. Sepals ovate-lanceolate, 3-veined; petals ovate, ca. 1/3–1/2 as long as sepals ..... 16. *A. brevipetala*
37b. Sepals lanceolate or ovate-lanceolate, 1-veined; petals elliptic, slightly longer than sepals.
38a. Flowers solitary, rarely paired, pedicel 2.5–5 × as long as bracts; anthers yellow 17. *A. baxoiensis*
38b. Flowers solitary, never paired, pedicel shorter than bracts; anthers black ....... 18. *A. kumaonensis*
34b. Pedicels glabrous.
39a. Pedicels 4–10 mm.
40a. Pedicels 5–10 mm; sepals lanceolate, ca. 5 mm; anthers yellow; petals not callose at base 21. *A. roborowskii*
40b. Pedicels ca. 4 mm; sepals elliptic, 3 mm; anthers white; petals with a yellow, oblong
callus at base ................................................................. 22. *A. lancangensis*
39b. Pedicels 1–2 mm.
41a. Sepals hard, 1-veined, base ciliate, apex greenish brown ...................... 23. *A. gerzensis*
41b. Sepals soft, 1–3-veined, base not ciliate, apex green.
42a. Flowers 6–7 mm in diam. ............................................................ 26. *A. pulvinata*
42b. Flowers ca. 15 mm in diam.
43a. Sepals linear-lanceolate, 7–8 mm, 1–3 veined; petals elliptic-ovate, 8–9 mm; anthers
  yellow ................................................................. 24. *A. qinghaiensis*
43b. Sepals lanceolate, 6–7 mm, closely 3-veined; petals obovate, 4–5 mm; anthers violet 25. *A. aksayqingensis*
1b. Styles usually 2, sometimes 3(or 4 or 5); capsule 4-valved or -toothed, rarely 6-, 8-, or 10-valved or -
toothed;
  petal apex entire to fimbriate; sepals truncate and ± saccate at base, excurved (6. *A. subgen.
  Odontostemma*).
44a. Petal apex toothed or fimbriate; filaments opposite sepals with a gland at base; styles 2.
45a. Petals fimbriate or toothed.
46a. Roots conic.
47a. Leaf blade 0.5–1.5 × 0.2–1 cm; sepals 4–10 mm; petals slightly longer than sepals ...... 101. *A. delavayi*
47b. Leaf blade 1–3 × 0.5–0.6 cm; sepals 3–6 mm; petals ca. 2 × as long as sepals ........ 102. *A. yunnanensis*
46b. Roots fusiform, solitary or caespitose, rarely each node of rhizome globose or clavate, forming a
  moniliform chain.
48a. Roots moniliform ................................................................. 106. *A. monilifera*
48b. Roots fusiform.
49a. Leaves glabrous; sepal margin black ciliate ........................................... 92. *A. salweenensis*
49b. Leaves often glandular pubescent; sepals glandular pubescent but margin not black ciliate.
50a. Anthers yellow, rarely green.
51a. Stems 10–25 cm; leaf blade narrowly elliptic, orbicular-elliptic, or orbicular-lanceolate;
  pedicels villous or glandular hairy ...................................................... 97. *A. fimbriata*
51b. Stems 40–60 cm; leaf blade narrowly elliptic-saccate, ovate-elliptic, or ovate; pedicels
  multicellular pubescent or glandular hairy.
52a. Plants annual or biennial; stems 30–60 cm; leaves to 40 cm; seeds 2 or 3 ............ 98. *A. debilis*
52b. Plants perennial; stems 10–40 cm; leaves to 15 cm; seeds 11 or 12 ............ 99. *A. polysperma*
50b. Anthers black, violet, or yellowish brown (rarely yellow in *A. iochanensis*).
53a. Plants hispid; leaf blade ovate or orbicular-elliptic ...................................... 93. *A. trichophora*
53b. Plants glandular or shortly villous; leaf blade broadly lanceolate, orbicular-ovate, or orbicular.

54a. Stem solitary, branched below middle; leaf blade orbicular-ovate or orbicular, 3–10 mm wide; seeds 2–4, wingless; roots several clustered together ............................................. 96. A. barbata

54b. Stems branched at base, procumbent, diffuse, or erect; leaf blade lanceolate, 1–4 mm wide; seeds numerous, with a narrow wing; root solitary.

55a. Stems procumbent or erect; leaf blade usually broadly lanceolate, 2–4 mm wide; pedicels 0.5–1.5 cm; petal apex fimbriate; anthers violet or black .......... 94. A. yulongshanensis

55b. Stems branched at base, procumbent, diffuse, or erect; leaf blade lanceolate, 1–4 mm wide; seeds numerous, with a narrow wing; root solitary.

56a. Roots solitary or several clustered together, spinose, rarely conic.

56b. Roots conic, fleshy, rarely fibrous.

57a. Stems slender; leaves glabrous or sparsely hairy; petal apex 4-toothed.

57b. Stems rigid; leaves variously hairy; petal apex with small teeth.

58a. Stems glandular pubescent with 2 lines of hairs; leaves sparsely hairy; petals obovate or narrowly elliptic ................................................................. 80. A. quadridentata

58b. Stems and leaves glabrous; petals obovate or cuneate ............................................. 81. A. giraldii

59a. Leaf blade ovate or ovate-ornicul; sepals orbicular-ovate or orbicular-lanceolate ..... 85. A. fridericae

59b. Leaf blade mostly ovate-lanceolate or ovate; sepals lanceolate, rarely ovate.

60a. Sepals long villous; petals longer than sepals, but less than 2 × as long as them ... 82. A. trichophylla

60b. Sepals villous or glandular hairy; petals more than 1.5 × as long as sepals.

61a. Stems to 1.5 cm, with numerous branches; flower solitary, terminal, to 1.5 cm in diam.; anthers violet to yellow-brown .................................................. 83. A. pogonantha

61b. Stems to 30 cm, distally with branched, dichasial cymes; flowers small, to 0.8 cm in diam.; anthers blue-green to yellow ................................................................. 84. A. dimorphophila

62a. Roots fibrous; stems brown glandular villous; leaf blade tuberculate on both surfaces, petiole 2–5 mm .................................................................................................................. 86. A. longicaulis

62b. Roots conic, fleshy; stems glabrous, subglabrous, or glandular hairy; leaf blade not tuberculate, petiole 1–2 cm or leaves sessile.

63a. Stems glabrous or subglabrous; petiole 1–2 cm (at least proximal cauline leaves petiolate) 87. A. longipetiolata

63b. Stems villous or glandular hairy; leaves sessile or shortly petiolate.

64a. Stems pale brown, villous.

64b. Stems green, glandular hairy.

66a. Leaf blade thin, glabrous or glandular hairy; sepals narrowly ovate, glabrous; petals ca. 1.5 × as long as sepals; cymes spreading ...................................................... 90. A. omeiensis

66b. Leaf blade thick, villous with yellowish, small, nodose hairs; sepals orbicular-lanceolate, long pubescent abaxially; petals slightly longer than sepals; cymes compact ........ 91. A. auricoma

44b. Petal apex entire, slightly emarginate, or shallowly 2-cleft, rarely lobes with 3 shallow, round teeth; filaments opposite sepals with a gland at base or not; styles 2 or 3(–5).

67a. Filaments opposite sepals with a gland at base; seeds globose or reniform, smooth or tuberculate.

68a. Stems villous with 2 lines of hairs; sepals glabrous or only ciliate at margin.

68b. Stems glandular villous, or with long, nodose bristles; sepals glandular villous or glandular villous mixed with long, nodose bristles.
70a. Stems and sepals densely hairy mixed with long, nodose bristles; petals ca. 10 mm ........ 77. *A. longiseta*
70b. Stems and sepals hairy, without nodose bristles; petals 5–8 mm.
71a. Leaf blade obscurate, petiole short; sepals 2–3 mm ........................................... 78. *A. chamdoensis*
71b. Leaf blade linear-lanceolate, petiole absent; sepals 5–6 mm ......................... 79. *A. szechuensis*
67b. Filaments opposite sepals without a gland at base or gland not obvious; seeds oblate or reniform, glabrous or with small, raised tubercles, or flat but margin with a narrow wing.
72a. Seeds usually flat, with a narrow wing.
73a. Stems diffuse; flowers usually several in cymes.
74a. Stems sparsely villous; petals oblanceolate or obovate, apex 2- or 3-toothed ........ 67. *A. euodonta*
74b. Stems glandular hairy; petals obovate or broadly ovate, apex entire or emarginate.
75a. Leaf blade orbicular-lanceolate or orbicular; petals broadly ovate, apex emarginate 65. *A. melanandra*
75b. Leaf blade linear-lanceolate; petals ovate, apex entire ......................... 66. *A. pseudostellaria*
73b. Stems erect or suberect; flowers solitary, rarely paired.
76a. Stems 3–6 cm, glabrous proximally .............................................................. 68. *A. dsharaensis*
76b. Stems 4–25 cm, villous or glandular hairy.
77a. Plants to 6 cm tall, white villous in 2 lines or white, yellow, or black nodose villous; petals white.
78a. Plants 5–6 cm tall; stems white villous in 2 lines; petal apex entire .......... 74. *A. monantha*
78b. Plants to 4 cm tall; stems white, yellow, or black nodose villous; petal apex emarginate, often with a few small teeth ................................................................. 73. *A. inornata*
77b. Plants 4–25 cm tall, glandular villous; petals white, pink, or violet.
79a. Petal apex entire or emarginate; cauline leaf blade lanceolate, elliptic, ovate, or orbicular.
80a. Stems white; leaf blade violet; petal apex entire ....................... 69. *A. melandryoides*
80b. Stems violet; leaf blade green; petal apex slightly emarginate ............... 70. *A. rockii*
79b. Petal apex entire or shallowly 2-cleft; cauline leaf blade linear-lanceolate or lanceolate, sometimes elliptic.
81a. Petals pink, apex shallowly 2-cleft ............................................................. 71. *A. roseiflora*
81b. Petals white, apex entire .................................................. 72. *A. melandryiformis*
72b. Seeds reniform, subglobose, globose, or oblate, smooth or tuberculate, wingless.
82a. Plants usually 8–20 cm tall; proximal flowers of stem with petals and anthers reduced, distal flowers of stem with petals and anthers not reduced.
83a. Styles 3(or 5).
84a. Principal root napiform or conic, unbranched.
85a. Petals white; stems white; leaves glabrous ................................................... 47. *A. filipes*
85b. Petals white or pink; stems white or violet; leaves ciliate at base, otherwise glabrous 46. *A. napuligera*
84b. Principal root conic, fleshy, many branched.
86a. Petal apex shallowly 2-lobed, lobes with small, irregular teeth; stems and leaves with sepalate hairs ........................................................................................................ 45. *A. setifera*
86b. Petal apex rounded, emarginate, or bifid to near middle of petal; stems and leaves with non-sepalate hairs .................................................................................. 44. *A. weissiana*
83b. Styles 2.
87a. Leaf blade linear-lanceolate, to 1.5 cm, glabrous, margin not cartilaginous; stamens 5 51. *A. schneideriana*
87b. Leaf blade lanceolate to orbicular, to 4 cm, subglabrous, margin cartilaginous; stamens 10.
88a. Leaf blade narrowly elliptic to suborbicular, 8–15 mm wide ...................... 48. *A. nigricans*
88b. Leaf blade lanceolate to oblanceolate, 1–5 mm wide.
89a. Leaf blade lanceolate or oblanceolate, 1–2 cm × 2–5 mm; sepals lanceolate, pubescent or with white, sepalate, glandular hairs, margin hairy; petal apex 2-cleft .... 49. *A. zhongdianensis*
89b. Leaf blade oblanceolate, 0.5–2.5 cm × 1–5 mm; sepals ovate or ovate-lanceolate, densely shortly hairy at base; petal apex entire ............................................................. 50. *A. xerophila*
82b. Plants rarely more than 8 cm tall, or very slender when more than 8 cm tall; petals and stamens sometimes degenerate or reduced to various degrees, petals (when present) ca. 2/3 as long as or equaling sepals.
90a. Petals absent or only 2 or 3 developed, reduced to various degrees.
91a. Stamens 5; petals absent.
92a. Stamens 2 or 3; leaf blade rhomboid-elliptic to saccate; stem with 1 or 2 lines of hairs ...
91b. Sepals absent; stamens 2 or 3; sepals and leaves fleshy; pedicels and sepals glabrous ...
92b. Stamens 2 or 3; leaf blade linear to linear-lanceolate; stem with 2 lines of hairs ...
90b. All floral parts present.
94a. Styles 3.
95a. Leaf blade subulate, 4–5 × ca. 1 mm ......................................................... 52. A. minima
95b. Leaf blade saccate, 5–12 × 2–3 mm ......................................................... 53. A. bomiensis
94b. Styles 2 (or 3).
96a. Petals shorter than sepals.
97a. Cauline leaf blade ovate, petiole 0.5–1.5 cm; sepals white villous abaxially, margin membranous; petals ca. 2/3 as long as sepals, apex entire; styles 2 ......................... 54. A. longipes
97b. Cauline leaf blade lanceolate, petal absent or inconspicuous; sepals hairy abaxially and at margin; petals shorter than sepals, apex entire, sometimes 2-cleft; styles 2 or 3 55. A. inconspicua
96b. Petals equaling or longer than sepals.
98a. Petals 1.5–2 × as long as sepals; sepals leathery .......................................... 56. A. amdoensis
98b. Petals equaling or up to 1.5 × as long as sepals; sepals herbaceous.
99a. Roots conic, fleshy; leaf blade linear or saccate.
100a. Leaf blade linear; sepals glabrous, with wide membranous margin; petal apex entire ................................................................. 68. A. membranisepala
100b. Leaf blade saccate; sepals densely glandular pubescent abaxially; petal apex slightly emarginate or shallowly lobed ........................................... 57. A. spathulifolia
99b. Roots slender, fibrous, or with a rhizome; leaf blade linear-lanceolate or elliptic.
101a. Leaf blade linear-lanceolate, herbaceous, margin ciliate; petal apex erose 59. A. karakorensis
101b. Leaf blade elliptic, leathery, margin glabrous; petal apex entire ......... 60. A. tumengelaensis

1. Arenaria subgen. Arenaria

Herbs annual or perennial. Stems single or sparsely caespitose, prostrate to diffuse or erect. Leaf blade usually lanceolate to ovate, rarely linear or subulate, herbaceous, rarely leathery. Inflorescence various, terminal or axillary, sometimes reduced to 1–3 flowers. Petals white, often shorter than sepals. Sepals not incrassate or only slightly so at base.

At least 106 species: centered in Europe but extending to Africa, Asia, and North America; six species (two endemic) in China.


Mountain grassland slopes, sandy or stony barrens, fields, gardens; 600–4000 m. Widespread in China [N Africa, Asia, Australia, Europe, North America].

This species is used medicinally.

elliptic, ovate, or suborbicular, 2–10 × 2–7 mm, both surfaces glabrous, or sparsely villous only on petiole, 1-veined, base rounded, apex obtuse or mucronulate. Cymes axillary and few flowered or flower solitary; bracts similar to leaves but smaller. Pedicel 5–10 mm, glabrous or very sparsely pubescent. Sepals 5, lanceolate, ovate-lanceolate, or ovate, 3–4 mm, glabrous, margin narrowly membranous, apex acute. Petals 5, white, obovate, shorter than sepals, base attenuate, apex obtuse. Stamens 10, shorter than sepals. Ovary ovoid. Styles 3, linear. Fl. Jul.

Ovary ovoid, ca. 0.7 mm. Styles 3, linear. Fl. Jul.


Herbs annual. Stems prostrate, many branched, 10–20 cm, white pubescent along 1 side. Leaves basally attenuate into a short petiole; leaf blade elliptic, ellipt-lanceolate, or obovate, 5–10 × 1.5–2 mm, midvein raised, base cuneate, margin ciliate, apex obtuse or mucronulate. Cymes axillary, few to many flowered; bracts elliptic or ovoid, ca. 5 × 1 mm, herbaceous, villous along veins, midvein raised, base cuneate, apex acute or acuminate. Pedicel 2–8 mm, white pubescent. Sepals 5, ova, ca. 3 × 1 mm, white villous on veins abaxially, 1-veined, margin white, membranous, apex acuminate. Petals 5, white, oblong, equaling or slightly longer than sepals. Stamens 10, shorter than sepals. Ovary ovoid, ca. 0.7 mm. Styles 3, linear. Fl. Jul.


Herbs perennial. Rhizome branched, robust. Stems pulvinate. Leaves long linear, graminoid or shortly setiform, apex spinose. Cymes terminal, occasionally contracted into a head or cymose clusters, rarely reduced to a solitary flower. Sepals conspicuously hardened at base, sometimes whole receptacle and calyx proximally becoming woody in fruit. Petals usually white.

• Sands, mountain rock crevices; 3300–3500 m. E Xizang.


普兰无心菜 pu lan wu xin cai
Herbs perennial. Stems many branched at base, usually yellowish, sometimes violet, 8–16 cm, glabrous and lustrous proximally, sparsely white villous distally. Leaves sessile; leaf blade elliptic-ovate, ovate-lanceolate, or elliptic, 5–10 × 1.5–5 mm, densely glandular pubescent abaxially, glabrous adaxially, 1-veined, base rounded, margin ciliate, apex acuminate. Cymes terminal, dichasial, many flowered; bracts herbaceous, similar to leaves but smaller, villous abaxially. Pedicel 1–1.5 cm, densely white glandular hairy. Sepals (4 or)5, ca. 5 × 1 mm, white glandular villous abaxially, margin broadly membranous, apex long acuminate. Petals (4 or)5, white, ovate, apex 2-cleft. Stamens (4 or)5; anthers yellow. Ovary ovoid. Styles 3, linear. Fl. Jul.


扁翅无心菜 bian chi wu xin cai
Arenaria trichotoma Royle ex Edgeworth & J. D. Hooker in J. D. Hooker, Fl. Brit. India 1: 235. 1874, not Boissier (1856); A. lanceolatifolia L. H. Zhou. Herbs perennial. Roots robust, woody. Stems caespitose, trichotomously branched, 50–60 cm, glandular villous. Leaf blade lanceolate, 1–2.5 cm × 1–4 mm, glandular villous, base clasping, apex acute. Cymes trichotomously branched, conic, many flowered; bracts ovate-lanceolate, similar to leaves but smaller, margin broadly membranous. Pedicel 0.5–3 cm, glabrous. Sepals 5, ovate, 3.3–5 × 1.5–3 mm, glabrous, midvein raised, base broadened, margin narrowly membranous, apex acute. Petals 5, white, obovate or elliptic, equaling or slightly longer than sepals. Stamens 10, 5 long and 5 short. Ovary obovoid, ca. 3 mm. Styles 3, linear, ca. 2 mm. Seeds with flat wings. Fl. Jun–Jul.

Mountain gravely and muddy soils. SW Xizang.


扁翅无心菜 bian chi wu xin cai
Arenaria trichotoma Royle ex Edgeworth & J. D. Hooker in J. D. Hooker, Fl. Brit. India 1: 235. 1874, not Boissier (1856); A. lanceolatifolia L. H. Zhou. Herbs perennial. Roots robust, woody. Stems caespitose, trichotomously branched, 50–60 cm, glandular villous. Leaf blade lanceolate, 1–2.5 cm × 1–4 mm, glandular villous, base clasping, apex acute. Cymes trichotomously branched, conic, many flowered; bracts ovate-lanceolate, similar to leaves but smaller, margin broadly membranous. Pedicel 0.5–3 cm, glabrous. Sepals 5, ovate, 3.3–5 × 1.5–3 mm, glabrous, midvein raised, base broadened, margin narrowly membranous, apex acute. Petals 5, white, obovate or elliptic, equaling or slightly longer than sepals. Stamens 10, 5 long and 5 short. Ovary obovoid, ca. 3 mm. Styles 3, linear, ca. 2 mm. Seeds with flat wings. Fl. Jun–Jul.

五蕊老牛筋 五蕊老牛筋


Herbs perennial. Roots compacted, robust, woody. Stems pulvinate, many branched, 20–30 cm, slightly woody, glabrous. Leaves congested; leaf blade subcylindric-subulate, basal ones 2.5–4 cm, cauline ones 1–1.2 cm, base membranous, margin slightly coarsened, apex cuspidate. Cymes terminal, trichotomous; bracts lanceolate, 2.5–3 mm, transparent membranous except at midvein. Pedicel 1–2 cm, glabrous. Sepals 5, lanceolate, 4–4.5 mm, margin broadly membranous, apex long acuminate. Petals 5, white, orbicular, equaling or slightly longer than sepals, apex subtruncate or obtuse. Stamens 5 (also with 5 reduced stamens). Capsule ovoid, enveloped by persistent sepals. Seeds with concentrically ringed tubercles. Fl. Jun–Jul.

Shaded mountain forests; ca. 2400 m. Xinjiang [Kazakhstan, Russia].


老牛筋 老牛筋

Arenaria dahuica Fischer ex Seringe.

Herbs perennial. Stems 12–15 cm; mature branches woody, with withered, persistent leaves at base; new branches slender, firm, glabrous proximally, becoming glandular pubescent distally. Leaf blade linear, 2–5 cm, base broadly membranous, apex acute or acuminate. Sepals 5, ovate, ca. 1.5 mm, scarious, 1-veined, base clasping, apex long acuminate. Petals 5, white, elliptic-oblanceolate or obovate, base shortly clawed, apex obtuse. Ovary ovoid, ca. 2 mm. Styles 3, ca. 3 mm. Capsule ovoid, equaling or slightly longer than persistent sepals, apex 3-valved; valves 2-crenate at apex. Seeds brown or black, triangular-reniform, tuberculate. Fl. and fr. Jul–Sep.

Open forest margins, mountain grasslands, sandy montane grasslands, low-elevation grassland slopes, steppes, desert steppes; 800–2200 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, NW Shaanxi, Shanxi [Korea, Mongolia, Russia].

This species is used medicinally.

8a. Arenaria juncea var. juncet

Arenaria dahurica Fischer ex Seringe.

Herbs perennial. Stems with persistent, pale brown, hardened, withered leaves at base. Pedicel densely glandular villous.

Open forest margins, mountain grasslands, steppes, desert steppes, rock crevices; 800–2200 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, NW Shaanxi, Shanxi [Korea, Mongolia, Russia].


无毛老牛筋 原变种


Herbs perennial. Stems without persistent, pale brown, hardened, withered leaves at base. Pedicel glabrous.

Shady montane grasslands, low-elevation grassland slopes. N Hebei [Russia].


毛叶老牛筋 毛叶老牛筋

Arenaria capillaris var. glabra Fenzl; A. capillaris var. glabra (Seringe) Schischkin; A. subulata Seringe var. glabra Seringe.

Herbs perennial. Stems 12–15 cm; mature branches woody, with withered, persistent leaves at base; new branches slender, firm, glabrous proximally, becoming glandular pubescent distally. Leaf blade linear, 2–5 cm, base broadly margined, margin coarsely and weakly serrate, apex acute; basal leaves densely fasciculate; caudine leaves sheathing at base, clumping at inflated nodes. Cymes few to many flowered; bracts ovate, 2–3 × ca. 1.5 mm, scarious, 1-veined, base clasping, apex long acuminate. Pedicel slender, stiff, glabrous. Sepals 5, yellow abaxially, ovate, ca. 5 × 2 mm, glabrous, 3-veined. Petals 5, white, obovate, ca. 7 × 3 mm, base shortly clawed, apex obtuse. Ovary ovoid. Stamens 10; filaments opposite sepals with a gland at base. Ovary ovoid. Styles 3, linear. Fl. Jul–Aug.
Open montane grasslands, gravelly mountain summits; ca. 900 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Mongolia, Russia; North America].

**10. Arenaria acicularis** F. N. Williams, J. Linn. Soc., Bot. 38: 400. 1909. 针叶老牛筋 zhen ye lao niu jin

Herbs perennial. Roots long, robust, woody. Stems in compact clusters, 6–20 cm, hirsutulous. Leaf blade linear-lanceolate, 3-veined, lateral veins close to margin; distal cauline leaf blade with base broadened, membranous, forming a short sheath, margin scarious, apex acute. Cymes dichasial, densely clustered, 6–9-flowered; rachis long. Pedicel sparsely glandular hairy. Sepals 5, erect, usually violet, lanceolate, 3–5 mm, base broadened, margin narrowly membranous, apex acute. Cymes 1–3-flowered; rachis densely hairy; bracts lanceolate, 6–7 mm, base broadened, margin membranous, apex acute. Petals 5, white, ovate, 5–6 mm, midvein impressed, base membranous, sheathing, apex acute; cauline leaf blade lanceolate, 3–5 mm, base broadened, margin narrowly membranous, apex acute. Petal filaments ca. 5 mm; anthers yellow. Ovary obovoid, ca. 1.5 mm. Styles 3, 2–3 mm. Fl. Jul–Aug.

- River valley grasslands; 300–4600(–5200) m. SE Xizang.
- Alpine meadows; 3700–4400 m. NW Sichuan (Dège Xian), E Xizang (Jomda Xian).


*Arenaria formosa* Fischer ex Seringe var. *angustipetala* Maximowicz.

Herbs perennial. Principal roots slender, woody; rootlets fibrous. Stems densely clustered, erect, 4–10 cm, glandular pubescent distally, with dense, withered, persistent leaves at base. Basal leaf blade linear, 1–3 cm × 0.5–1 mm, glabrous, midvein impressed, base membranous, sheathing, apex acute; cauline leaf blade lanceolate, 3–5 mm, base broadened, margin narrowly membranous, apex acute. Flower solitary, terminal; bracts lanceolate, 3–4 × ca. 1 mm, base broadened, margin membranous, ciliate, apex obtuse or acute. Pedicel 3–10 mm, densely brown glandular hairy. Sepals 5, ovate-oblong, 4–5 × 2–2.5 mm, glandular hairy abaxially, margin narrowly membranous, apex obtuse or acute. Petals 5, white, obovate-saccate, 5–7 × 1.5–2 mm, base attenuate, cuneate, apex obtuse. Floral disc saucer-shaped, with 5 orbicular glands. Stamens 10; filaments ca. 5 mm; anthers yellow. Ovary stipitate, obovoid, ca. 1.5 mm. Styles 3, ca. 2 mm. Stigmas clavate. Fl. Jul.

- Alpine meadows; ca. 3000 m. Hebei, Nei Mongol, Shanxi.

**12. Arenaria formosa** Fischer ex Seringe in de Candolle, Prodr. 1: 402. 1824. 美丽老牛筋 mei li lao niu jin

*Arenaria formosa* var. *latipetala* Maximowicz.

Herbs perennial. Principal roots hard, woody; rootlets slender. Stems densely pubinate, erect, 4–10 cm, white glandular hairy distally, with dense, brown, withered, persistent leaves at base. Leaf blade linear or linear-subsutulate, 1.5–4 × ca. 1 mm, broadened and forming a short sheath at base, margin not involute, apex acuminate. Cymes 1–3-flowered; bracts ovate-lanceolate, 2–3 × 1–1.5 mm, glandular hairy, base broadened, margin narrowly membranous, apex acuminate. Pedicel 5–10 mm, glandular hairy. Sepals 5, ovate-lanceolate or ovate, 5–6 × 2–3 mm, ± glandular hairy, base broadened, apex acute. Petals 5, white, obovate or obovate-orbicular, 0.8–1.2 mm. Floral disc with 5 glands; glands at base of filaments opposite sepals pale brown, orbicular. Stamens 10, 5 long and 5 short; anthers yellow. Ovary obovoid, ca. 2 mm. Styles 3, ca. 6 mm. Fl. Jul–Aug.

- Mountain grasslands; 2000–2200 m. Gansu, Nei Mongol, Ningxia, Xinjiang [Kazakhstan, Mongolia, Russia].


Herbs perennial. Roots black-brown, conic, woody. Stems densely clustered, pulvinate, 6–10 cm, villous distally. Basal leaf blade linear, 2–5 cm × ca. 1 mm, base broadened, apex acute; cauline leaves in 2 or 3 pairs; leaf blade subulate or linear-subsutulate, 1.1–2 cm × 1–2 mm, midvein raised, base broadened, margin narrowly membranous, apex spinose. Cymes 1–3-flowered; rachis densely hairy; bracts lanceolate, 6–7 mm, base broadened, margin membranous, apex spinose. Sepals 5, lanceolate, 6–7(–8) mm, 1–3-veined, base incrassate, margin narrowly membranous, apex acute. Petals 5, white, ovate, ca. 3/5 as long as sepals. Ovary obovoid, ca. 2 mm. Styles 3, 2–3 mm. Fl. Jul–Aug.

- Alpine meadows; 3700–4400 m. NW Sichuan (Dège Xian), E Xizang (Jomda Xian).


Herbs perennial. Principal roots many branched, robust. Stems sparsely clustered, 5–20 cm, glabrous, with withered, persistent leaves at base. Leaves crowded; leaf blade linear-subulate or subulate, 8–10 × ca. 1 mm, midvein raised abaxially, margin hairy, apex acute. Cymes 1–3-flowered; bracts ovate or ovate-subsutulate, ca. 3 × 1.2 mm, margin membranous. Pedicel 1–1.8 cm, glabrous or ± glandular hairy with erect or slightly curved hairs. Sepals 5, orbital-lanceolate, 3–5 × ca. 2 mm, glabrous or glandular hairy, veins not obvious abaxially, margin membranous, apex acute. Petals 5, white, sometimes pink, obovate or ova-elliptic, 1.5–2 × as long as sepals, apex obtuse. Floral disc with 5 impressed glands. Ovary ovoid, ca. 3 mm. Styles 3, ca. 3 mm. Capsule globose, 4–6 mm, 3-valved; valves 2-cleft at apex. Seeds brown, reniform, slightly flattened, ca. 1 mm in diam., smooth. Fl. Jun–Jul.

- Mountains; 2200–3000 m. Xinjiang [Afghanistan, Kazakhstan].


Herbs perennial. Roots robust; rootlets many. Stems pulvinate, with numerous branches, slender, 5–10 cm × ca. 1 mm, glabrous. Leaf blade linear-subsutulate, 0.5–1.5 cm × ca. 1 mm, margin slightly reflexed, apex spinose.

Mountains; 2300–4200 m. Gansu, Nei Mongol, Ningxia, Qinghai, Xinjiang [Mongolia, Russia].

About 20 species: Asia and North America; 17 species (12 endemic) in China.


Herbs perennial. Principal roots robust, woody. Stems pulvinate or caespitose. Leaves sessile, subulate to linear, always persistent, margin narrowly membranous, apex aristate. Flowers solitary or paired, rarely more in terminal inflorescences. Sepals lanceolate to ovate-lanceolate, 3-veined, midvein raised, lateral veins not obvious, margin white membranous, apex acute. Petals white, rarely pink, shorter than or equaling sepals, rarely longer than them. Floral disc scapelloped lobed, glands 5, conspicuous.


Herbs perennial. Principal roots robust, woody. Stems pulvinate, 5–8 cm, with numerous withered, persistent leaves at base; flowering branches much taller than vegetative ones. Leaf blade needle-shaped to linear, 1.5–2 cm × ca. 1 mm, veins raised abaxially, impressed adaxially, base broadened, clasping, margin narrowly membranous, reflexed, apex acuminate, aristate; basal leaves congested, cauline ones in 2 or 3 pairs. Flowers solitary or paired, terminal; bracts lanceolate, ca. 5 × 1–1.5 mm, herbaceous. Pedicel 0.5–1.5 mm, glandular villous. Sepals 5, ovate-lanceolate, 6–7 × ca. 2 mm, 3-veined, midvein raised, lateral veins not obvious, base broadened, margin white membranous, apex acute. Petals 5, white, ovate, 3–4 × ca. 2 mm. Floral disc cupular, with 5 glands. Stamens 10; anthers yellow. Ovary globose, ca. 2 mm in diam. Styles 3, ca. 3 mm. Fl. Jun–Aug.

• Alpine meadows and gravels; 3400–4600 m. Sichuan, NE Xizang.

• Mountain grasslands; 4000–4500 m. Sichuan, E Xizang.


Icy steppes; ca. 4700 m. Xizang [NW India].


Herbs perennial. Principal roots robust, woody. Stems pulvinate, 4–5 cm, with withered, persistent leaves at base. Leaves congested; leaf blade spinose-linear, triangular in cross section, 1–2 cm × ca. 1 mm, hardened, veins raised abaxially, impressed adaxially, base slightly broadened, clasping, margin slightly reflexed, narrowly membranous, with small teeth near base, apex acute, aristate. Flower solitary, terminal; bracts lanceolate, 3–5 × 1–1.5 mm, 1-veined, base forming a short sheath, margin broadly membranous, apex acute. Pedicel 2.5–4 mm, glandular villous. Sepals 5, lanceolate, 5–6 mm, glabrous, 1-veined, base broadened, margin broadly membranous, apex acute. Petals 5, white, ovate, 4–5 mm, base narrowed, cuneate, apex obtuse. Floral disc cupular, with 5 glands. Stamens 10; filaments ca. 4 mm; anthers brown. Ovary globose, 1-loculed; ovules numerous. Styles 3, linear, ca. 3 mm. Fl. Jul.
Herbs perennial. Stems pulvinate, branched at base, 4–5 cm; caulex (root crown) woody, with brown, withered, persistent leaves at base. Leaves congested; leaf blade subulate or linear-subulate, triangular in cross section, 5–10 × ca. 1 mm, veins raised abaxially, impressed adaxially, base broadened, membranous, sheathing, margin thickened, hardened, apex spinose. Flower solitary, terminal. Pedicel ca. 5 mm, villous. Sepals 5, narrowly lanceolate, ca. 4 mm, usually sparsely pilose abaxially, 3-veined, margin narrowly membranous, apex acute. Petals 5, white, ovate-elliptic, ca. 5 mm, base not obviously clawed, apex obtuse. Stamens 10, shorter than sepals; filaments opposite sepals with a gland at base. Ovary globose. Styles 3. Fl. Jul.


Herbs perennial. Stems pulvinate, branched at base, 4–5 cm; caulex (root crown) woody, with brown, withered, persistent leaves at base. Leaves congested; leaf blade subulate or linear-subulate, triangular in cross section, 5–10 × ca. 1 mm, veins raised abaxially, impressed adaxially, base broadened, membranous, sheathing, margin thickened, hardened, apex spinose. Flower solitary, terminal. Pedicel ca. 5 mm, villous. Sepals 5, narrowly lanceolate, ca. 4 mm, usually sparsely pilose abaxially, 3-veined, margin narrowly membranous, apex acute. Petals 5, white, ovate-elliptic, ca. 5 mm, base not obviously clawed, apex obtuse. Stamens 10, shorter than sepals; filaments opposite sepals with a gland at base. Ovary globose. Styles 3. Fl. Jul.


Herbs perennial. Roots robust, woody. Stems densely clustered, 5–8 cm, with crowded, withered, persistent leaves at woody base. Leaves congested; leaf blade linear, triangular in cross section, 1–1.5 cm × ca. 1 mm, veins raised abaxially, impressed adaxially, base broadened, clumping, hardened, margin slightly reflexed, narrowly membranous, sparsely hairy, apex acute. Flower solitary, terminal; bracts linear-lanceolate, 4.5–5 × ca. 1.5 mm, 1-veined, base broadened, margin narrowly membranous, apex acute. Pedicel 5–10 mm, glabrous. Sepals 5, lanceolate, ca. 5 × 1.5 mm, 1–3-veined, base broadened, margin narrowly membranous, apex acute. Petals 5, white, elliptic, ca. 4 × 1.4 mm, base cuneate, apex acute. Floral disc patelliform, with 5 large, impressed glands. Stamens 10; filaments shorter than petals; anthers yellow. Ovary globose, slightly flattened, ca. 1.5 mm in diam., 1-loculed; ovules numerous. Styles 3, linear, ca. 1.5 mm. Fl. Jul.–Aug.


Herbs perennial. Stems caespitose, pulvinate, 4–11 cm, with crowded, withered, persistent leaves at woody base. Leaf blade subulate, 6–8 × ca. 1 mm, base broadened, clumping, apex acute. Flower solitary, terminal; bracts ovate, ca. 2 × 1 mm. Pedicel slightly curved, ca. 4 mm, glabrous. Sepals 5, elliptic, ca. 3 × 1.2 mm, 3-veined, apex obtuse or acute. Petals 5, white, elliptic, 3–3.5 × ca. 1.2 mm, with a yellow, oblong callus at base. Stamens 10; filaments less than 1 mm, those opposite sepals with a gland at base; anthers white. Ovary obovate, ca. 2 mm in diam., smooth; ovules 5 or 6. Styles 3. Capsule globose, ca. 3 mm, 3-valved; valves 2-cleft at apex. Seeds 1–3, gray, triangular-oblate, less than 1 mm in diam., glabrous. Fl. and fr. Jun–Sep.


Herbs perennial. Principal roots robust, woody. Stems clustered, pulvinate, 2–5 cm, with crowded, withered, persistent leaves at woody base. Leaf blade linear, triangular in cross section, 6–10 × ca. 1 mm, subleathery, veins raised abaxially, impressed adaxially, base broadened, clumping, margin with small teeth, apex acute, awned. Flower solitary, terminal; bracts ovate-lanceolate, 2–3 × ca. 1.5 mm, 1-veined, margin membranous, apex acute. Pedicel ca. 1 mm. Sepals 5, lanceolate, 5–6 × 1.5–2 mm, subleathery, 3-veined, midvein raised, lateral veins inconspicuous, base ciliolate, apex greenish brown. Petals 5, white, saccate, 8–10 × 2–3 mm. Stamens 10; filaments opposite sepals with a gland at base. Ovary narrowly ovoid, ca. 4 × 1.5 mm, apex yellow-brown. Styles 3, linear. Fl. Jun–Jul.


Herbs perennial. Roots robust, woody. Stems clustered, pulvinate, 5–8 cm, with crowded, withered, persistent leaves at woody base. Leaf blade linear, 1–1.5 cm × ca. 1 mm, base broadened, clumping, membranous, margin narrowly membranous, sparsely ciliolate, apex slightly reflexed, acute. Flower solitary, terminal; bracts linear-elliptic, 3–4 × ca. 1 mm. Pedicel ca. 1 mm, glabrous. Sepals 5, linear-lanceolate, 7–8 × 1.5–2 mm, 1–3-veined, base broadened, margin membranous, apex acute. Petals 5, white, elliptic-ovate, 8–9 × 2.5–3 mm, apex obtuse. Floral disc patelliform, with 5 large, impressed, elliptic glands. Stamens 10; filaments 4–5 mm; anthers yellow. Ovary ovoid, 2–3 mm, 1-loculed; ovules numerous. Styles 3, linear, 2.5–3 mm. Fl. Jun–Jul.


Herbs perennial. Principal roots robust, woody. Stems clustered, pulvinate, 3–4 cm, with crowded, withered, persistent leaves at woody base. Leaf blade subulate, 5–10 × ca. 1 mm, base broadened, clumping, membranous, margin narrowly membranous, sparsely ciliolate, apex acute. Flower solitary, terminal; bracts subulate, 3–4 × ca. 1 mm. Pedicel ca. 1 mm, glabrous. Sepals 5, lanceolate, 6–7 × 1.5–2 mm, closely 3-veined near margin, base broadened, margin membranous, apex acute. Petals 5, white, obovate, 4–5 mm, apex obtuse.

Arenaria pulvinata (F. N. Williams) Handel-Mazzetti; A. polytrichoides Edgeworth var. perlevis F. N. Williams.  

Herbs perennial. Roots conic, slender. Stems in small, compact, subglobose clusters, pulvinate, branched at base, 4–5 cm, with crowded, withered, persistent leaves at base. Leaf blade subulate-elliptic or ovoate-subulate, 3–6 × ca. 1 mm, base clasping, membranous, margin flat distally, hard, ciliate, apex acute, mucronulate. Flower solitary, terminal, 6–7 mm in diam. Sepals 5, ovate or ovate-lanceolate, 2–2.5 × ca. 1 mm, ca. 1/2 as long as petals, 3-veined, midvein raised, lateral veins short, base rounded, increscates, margin hand, scarious, apex obtuse. Petals 5, white, saccate or obovate, 4–5 × ca. 1.5 mm. Stamens 10; filaments opposite sepals with a gland at base; anthers yellow. Ovary obovoid, ca. 1.5 × 1 mm. Styles 3, less than 1 mm. Fl. Jul.  

Alpine meadows, gravels; 4200–5000 m. SE Xizang [Bhutan, Nepal, Sikkim].
• Alpine scrub, meadows; ca. 4000 m. Shaanxi.


狐茅状雪灵芝 hu mao zhuan xue ling zhi
Herbs perennial. Principal roots robust, woody; lateral roots smaller. Stems densely clustered, pulvinate, 5–8 cm, glandular villous, with crowded, withered, persistent leaves at woody base. Leaf blade linear, 0.7–2 cm × ca. 1 mm, 1-veined, base broadened, clasping, margin narrowly membranous, proximally sparsely ciliate, apex acute; proximal cauline leaves congested, distal middle ones gradually sparser. Cymes 1–3– or more flowered; bracts ovate-lanceolate or broadly ovate, 3–7 × 2.5–3.5 mm, densely glandular hairy, 1–3-veined, base rounded, margin usually involute, broadly membranous, apex acuminate. Pedicels 5, white, obovate, 7–9 × 4–5 mm, apex truncate or obtuse, sometimes emarginate. Floral disc patellate, with 5 glands. Stamens 10; filaments 4–6 mm; anthers yellow. Ovary ovoid, ca. 2 mm. Styles 3, sometimes 4, linear, ca. 2.5 mm. Fl. Jun–Jul.

• Alpine meadows; 2000–4700 m. Qinghai, SW Xinjiang, Xizang [India, ?Kashmir, ?Nepal, Pakistan].

Two varieties have been recognized. The distinguishing characters seem to be only a matter of degree, and the variation pattern should be studied in the field. Perhaps this variation should not be the basis for formal recognition of taxa.

1a. Leaf blade 1–2 cm; pedicel 5–7 mm ........................................... 32a. var. festucoides

1b. Leaf blade ca. 0.7 cm; pedicel to 5 mm ........................................... 32b. var. imbricata

32a. Arenaria festucoides var. festucoides
狐茅状雪灵芝 (原变种) hu mao zhuan xue ling zhi (yuan bian zhong)

Leaf blade 1–2 cm. Pedicel 5–7 mm. Mountain grasslands; 2000–4700 m. Qinghai, SW Xinjiang, Xizang [India, ?Kashmir, ?Nepal, Pakistan].


狐茅状雪灵芝 xiao hu mao zhuan xue ling zhi

Leaf blade ca. 0.7 cm. Pedicel to 5 mm.

• S Xizang.


福禄草亚属 fu lu cao ya shu


Herbs perennial. Roots often slender, woody. Stems usually densely pulvinate, sometimes caespitose. Leaves sessile, linear to subulate or linear-lanceolate, leathery, usually persistent, margin slightly swollen, apex usually acuminate. Inflorescence terminal, 1–3-flowered. Sepals ovate to ovate-lanceolate or elliptic, 3-veined, margin membranous, apex obtuse. Petals white, longer than sepals, sometimes only slightly so, 1–1.5 cm × 2–3 mm, margin slightly involute, broadly membranous, proximally sparsely ciliate, apex obtuse. Floral disc patellate, with 5 glands. Stamens 10; filaments ca. 5 mm; anthers yellow. Ovary stipitate, globose-ovoid. Styles 3, linear, ca. 3 mm. Fl. Jul–Aug.

• Alpine meadows, cirques; 2600–4200 m. Gansu, Qinghai.

Two varieties have been recognized. The distinguishing characters seem to be only a matter of degree, and the variation pattern should be studied in the field. Perhaps this variation should not be the basis for formal recognition of taxa.

1a. Leaf blade 1–2 cm; pedicel 5–7 mm ........................................... 32a. var. festucoides

1b. Leaf blade ca. 0.7 cm; pedicel to 5 mm ........................................... 32b. var. imbricata

32a. Arenaria festucoides var. festucoides

狐茅状雪灵芝 (原变种) hu mao zhuan xue ling zhi (yuan bian zhong)

Leaf blade 1–2 cm. Pedicel 5–7 mm. Mountain grasslands; 2000–4700 m. Qinghai, SW Xinjiang, Xizang [India, ?Kashmir, ?Nepal, Pakistan].


狐茅状雪灵芝 xiao hu mao zhuan xue ling zhi

Leaf blade ca. 0.7 cm. Pedicel to 5 mm.

• S Xizang.

• Alpine meadows; 4000–4500 m. SE Xizang, NW Yunnan.


山生福禄草 shan sheng fu lu cao

Arenaria lichiangensis W. W. Smith.

Herbs perennial. Stems densely pulvinate, 4–9 cm, densely glandular hairy. Basal leaf blade linear, 1–2 cm x ca. 1.5 mm, midvein raised, base broadened, membranous, margin white, hard, apex acute. Cauline leaves in 2 or 3 pairs; leaf blade ovate or ovate-lanceolate, ca. 5 x 1.5 mm, margin hairy, apex obtuse. Flower solitary, terminal. Pedicel 5–8 mm, densely glandular hairy. Petals 5, white, narrowly obovate, 7–8 mm. Stamens 10; filaments 5–8 mm, those opposite sepalcs with a gland at base; anthers yellow. Ovary obovoid, ca. 3 mm. Styles 3, linear. Ca. 2 mm. Capsule ovoid, equaling persistent sepalcs, 3-valved; valves 2-cleft at apex. Seeds brown, reniform-horseshoe-shaped, ca. 1 mm in diam., smooth. Fl. Jun–Jul, fr. Jul–Aug.

Alpine meadows, shifting scree; 3500–5000 m. SE Qinghai, SW Sichuan, NW Yunnan [Sikkim].


密生福禄草 mi sheng fu lu cao

Chelerya juniperina D. Don, Prodr. Fl. Nepal, 214. 1825, not Arenaria juniperina Linnaeus (1767), nor Villars (1789), nor Pursh (1813); Dolophragma juniperinum Fenzl.

Herbs perennial. Stems densely pulvinate, densely branched, 4–5 cm. Leaves congested, imbricate; leaf blade subulate, 5–10 x ca. 1 mm, veins raised abaxially, impressed adaxially, margin involute, apex excused, spinose. Flower solitary, terminal; bracts lanceolate, ca. 2 x 1 mm. Pedicel 2–4 mm, glabrous. Sepals 5, elliptic or ovate, ca. 2.5 x 1.5 mm, 3-veined, base broadened, margin membranous, apex obtuse or acute. Petals 5, white, saccate or narrowly so, ca. 5 x 2 mm. Stamens 10; filaments ca. 2 mm, those opposite sepalcs with a gland at base; anthers violet. Ovary olate, ca. 1.2 mm in diam. Styles 3. Capsule ovoid, ca. 2.5 mm, 3-valved; valves 2-cleft at apex. Seeds brown, trigonous-reniform, glabrous. Fl. and fr. Jun–Aug.

Alpine meadows, shifting scree; 3600–5300 m. SE Qinghai, W Sichuan, S Xizang [Bhutan, India, Nepal, Sikkim].


圆状福禄草 yuan zhuang fu lu cao

Herbs perennial. Principal roots robust, woody. Stems densely clustered, 2.5–11 cm, forming hemispheric cushions 1–1.5 cm in diam.; branches cylindric, woody at base, with congested, withered, persistent leaves along their length. Leaves imbricate; leaf blade subulate, 5–10 x ca. 1 mm, veins raised abaxially, impressed adaxially, base broadened, clasping, membranous, margin involute distally, thickened, sparsely ciliate near base, apex cuspidate. Flower solitary, terminal, sessile; bracts lanceolate, 2.5–3 x ca. 1 mm, base broadened, clasping, forming a membranous sheath, margin reflexed, hard, apex spinose. Sepals 5, ovate, ovate-elliptic, or broadly elliptic, ca. 3 mm, obscurely 3-veined, base broadened, apex obtuse. Petals 5, white, ovate or broadly obovate, slightly longer than sepals. Floral disc patellate, with 5 dark glands. Stamens 10; filaments ca. 1.5 mm; anthers yellow. Ovary ovoid or obovoid, ca. 1 mm. Styles 3. Capsule ovoid, ca. 1.5 mm, 3-valved; valves 2-cleft at apex. Seeds ellipsoid, black-brown, slightly ridged. Fl. Jun–Jul, fr. Aug–Sep.

• Alpine meadows, shifting scree; 3500–5300 m. SE Qinghai, W Sichuan, Xizang.


单花亚属 dan hua ya shu

Herbs perennial. Stems clustered, short. Leaves lanceolate to ovate-orbicular, base narrowed, margin usually slightly hard, cartilaginous. Flowers solitary, rarely paired, terminal, showy. Sepals elliptic or lanceolate to narrowly orbicular, margin membranous, usually cartilaginous, apex acute. Petals white, pink, or violet, obovate to obovate-elliptic.

Six species: Asia; six species (two endemic) in China.


缘毛无心菜 yuan mao wu xin cai

Herbs perennial, hairy throughout. Roots conic, branched at base. Stems densely clustered, yellow, 5–8 cm, white villous. Leaves sessile (rarely petiole 2–3 mm), ovate or ovate-orbicular, 5–10 x 2–5 mm, adaxially sparsely brown hairy, base cuneate, margin thick, ciliate, apex cuspidate or acuminate. Flower solitary, terminal. Pedicel 5–10 mm, white villous. Sepals 5, elliptic or orbicular-lanceolate, 7–8 mm, sparsely hairy abaxially, margin thick, ciliate, apex acuminate. Petals 5, white, obovate or broadly so, 9–10 mm, apex obtuse. Stamens 10; filaments shorter than sepals; anthers dark green or black. Ovary ovoid. Styles 3, linear. Fl. Jul–Aug.

Alpine meadows; 4000–4600 m. S Xizang [Bhutan, Nepal, Sikkim].

嫩枝无心菜  nen zhi wu xin cai
Herbs perennial, glabrous. Stems branched at base, 4–6 cm; branches ascending. Leaves congested, sessile, lanceolate or ovate-lanceolate, 5–9 mm, veins inconspicuous, base attenuate, margin ciliate, apex acute. Flower solitary, terminal. Pedicel 5–10 mm. Sepals 5, elliptic or lanceolate, 5–6 × ca. 2 mm, margin narrowly membranous, ciliate, apex excurved, obtuse. Petals 5, white or pink, obovate, ca. 1.5 × as long as sepal, base shortly clawed, apex obtuse. Stamens 10; filaments ca. 2/3 as long as sepal; anthers pale yellowish. Ovary ovoid. Styles 3, linear, ca. 5 mm. Fl. May.

藏西无心菜  zang xi wu xin cai

红花无心菜  hong hua wu xin cai
Herbs perennial. Stems clustered, 1–15 cm, glabrous or sparsely white villous along 1 side. Proximal cauline leaf blade scalelike, 3–4 × 1–1.5 mm; distal cauline leaf blade orbicular-lanceolate or orbicular-ovate, 5–12 × 1.5–3 mm, leathery, glabrous, midvein raised, base narrowed, margin slightly hard, cartilaginous, apex acute. Flower solitary, terminal. Pedicel 0.5–1.5 cm, villous in a line. Sepals 5, yellow, orbicular-lanceolate, 5–8 × 2–3 mm, base narrowed, margin membranous, apex acute. Petals 5, white or pink, obovate-elliptic, 0.7–1.5 cm × 4–6 mm, base narrowed, cuneate, apex obtuse, sometimes truncate or emarginate. Stamens 10; filaments 5–6 mm; anthers yellow. Ovary ovoid, slightly flattened, ca. 2 mm; ovules 6–8. Styles 3, linear, ca. 2.5 mm. Fl. Jul–Aug.

小腺无心菜  xiao xian wu xin cai
Herbs perennial. Roots conic, branched at base. Stems clustered, yellow, lustrous, slender, 2–6 cm, glabrous proximally, white glandular hairy distally. Leaf blade greenish, ovate-lanceolate, ovate, or elliptic-ovate, 5–10 × 3–4 mm, both surfaces white glandular pubescent, veins inconspicuous, base attenuate into petiole, margin ciliate, apex acute or acuminate. Flowers solitary or paired, terminal; bracts similar to leaves but smaller. Pedicel yellow, slender, 0.5–2 cm, sparsely white villous. Sepals 5, spreading or excurved, lanceolate or ovate-lanceolate, 4–5 × ca. 1.5 mm, glandular hairy abaxially, veins inconspicuous, margin narrowly membranous, apex obtuse or acute. Petals 5, violet, obovate or ovate-elliptic, 5–7 × 2–3 mm, apex obtuse. Stamens 10; filaments ca. 3 mm; anthers greenish or yellow. Ovary ovoid. Styles 3, linear, pillar-shaped or clavate.

Alpine meadows, shifting scree; 4500–5500 m. Xizang [Bhutan, Nepal, Sikkim].


齿瓣亚属  chi ban ya shu

Odontostemma  Bentham ex G. Don, Gen. Hist. 1: 449. 1831; Gooringia  F. N. Williams.

Herbs annual, biennial, or perennial. Leaf blade linear to ovate, rarely subulate. Inflorescences various, but often with vegetative branches arising within them. Sepals curved, often saccate, veins inconspicuous, margin broadly
membranous, apex truncate. Petals usually longer than sepals (but sometimes smaller, cleistogamous flowers present), apex emarginate or shallowly bifid or toothed. Styles usually 2, rarely 3. Seeds often inflated, roughened, without reticulate striae.


多柱无心菜 duo zhu wu xin cai

Herbs perennial. Roots fusiform or conic. Stems clustered, 2–10 cm, glandular hairy in 2 lines or yellow or densely white glandular hairy. Leaves diffusely paired; petiole 2–5 mm; leaf blade lanceolate, elliptic, obovate, or saccate, 5–10 × 3–5 mm, granular, sparsely glandular pubescent or densely villous, midvein impressed, base cuneate, apex rounded or obtuse. Flower solitary or cymes few flowered; bracts similar to leaves but smaller. Pedicel 1–4 cm, sparsely glandular hairy. Sepals 5, greenish abaxially, ovate or lanceolate, 4–7 × 2–3 mm, sparsely glandular pubescent or densely villous, midvein impressed, base broadened, margin narrowly membranous, ciliate, apex acute. Petals 5, white, obcordate, ca. 2 × as long as sepals, base narrowly cuneate, apex rounded or bifid nearly to middle. Floral disc with 5 fleshy glands. Stamens 10, longer than sepals; anthers brown or green. Ovary ovoid, ca. 1.5 × 1.2 mm. Styles usually 2, rarely 3. Seeds often inflated, roughened, without reticulate striae.

A related species, which has not been validly published (Arenaria galiformis C. Y. Wu in W. T. Wang et al., Vasc. Pl. Hengduan Mount. 1: 402, 1993), differs from A. weissiana in having stems dichotomously branched, slender, hard; leaves usually in whorls of 4, blade 5–10 × 3–8 mm, thickened, both surfaces white powdery, densely hairy, base attenuate, apex obtuse; sepals densely and shortly glandular pubescent; petals broadly ovate or suborbicular, apex emarginate; ovary ovoid, 2–3 mm; and styles 3, ca. 2.5 × as long as ovary. It grows in rock crevices, from 4200–4300 m, in SW Sichuan.


微毛无心菜 wei mao wu xin cai

Plants densely white glandular hairy. Leaves and sepals densely villous. Petal apex rounded, entire.


裂瓣无心菜 lie ban wu xin cai

Plants glandular hairy. Petal apex bifid nearly to middle.


刚毛无心菜 gang mao wu xin cai

Herbs. Roots conic. Stems slender, 5–10 cm, hard, densely glandular pubescent and with hard, multicellular hairs. Leaf blade ovate, 5–6 × 2.5–3 mm, base rounded, margin villous with sparse, hard, multicellular hairs, apex acuminate. Cymes several flowered; bracts similar to leaves but smaller. Pedicel 1–2.5 cm, with hard, multicellular hairs. Sepals 5, lanceolate, 4–5 × 1–1.5 mm, with hard, multicellular hairs abaxially, apex long acuminate. Petals 5, white, obovate, ca. 2 × as long as sepals, apex 2-cleft; lobes shallowly toothed. Stamens 10, nearly equally sepal lengths. Ovary ovoid, ca. 2 mm. Styles 3, linear, longer than ovary. Fl. Jun–Jul.


滇藏无心菜 dian zang wu xin cai

Herbs annual. Roots napiform. Stems branched proximally or unbranched, slender, 5–15 cm, hard, white or violet glandular villous. Leaf blade orbicular, narrowly so, or linear, 5–8 × 1.5–4 mm, base cuneate, margin ciliate proximally, apex obtuse. Cymes sometimes conic, few to many flowered, or sometimes flower solitary. Pedicel erect, slender, 0.5–2.5 cm, hard, glandular villous. Sepals 5, violet or green, lanceolate or ovate-lanceolate, 6–7 × ca. 2 mm, glandular pubescent abaxially, margin broadly membranous, apex obtuse. Petals 5, white or pink, ca. 2 × as long as sepals, apex entire, emarginate, or 2-cleft. Stamens 10, ca. 3/4 as long as petals. Ovary obovoid, ca. 2 mm. Styles 2 or 3, linear, ca. 3 mm. Fl. Jun–Jul.
• Alpine grasslands and meadows; 3000–5100 m. W Sichuan, E Xizang, NW Yunnan.

1a. Stems branched proximally; flowers few to many per cyme; styles 3 .... 46a. var. napuligera

1b. Stems unbranched; flower solitary; styles 2 .................................... 46b. var. monocephala

46a. Arenaria napuligera var. napuligera

变黑无心菜 bian hei wu xin cai (yuan bian zhong)

Stems branched proximally. Flowers few to many per cyme. Styles 3.

• Alpine grasslands and meadows; 3000–5000 m. W Sichuan, E Xizang, NW Yunnan.


单头无心菜 dan tou wu xin cai


• Alpine meadows; 3600–5100 m. SE Xizang, NW Yunnan.


细柄无心菜 xi bing wu xin cai

Herbs. Roots napiform, branched at base. Stems clustered, branched distally, 8–12 cm, shortly villous in 1 line. Leaf blade decurved, saccate-oblancoceolate or saccate-oblongoclyrical proximally, oribicular-lanceolate distally, 5–10 × 2–3 mm, glabrous, base obtuse, apex attenuate. Cymes few to many flowered; bracts similar to leaves but smaller. Pedicel 2.5–5 cm, densely glandular pubescent. Sepals 5, oribicular-lanceolate, 3–4 mm, sparsely pubescent, base broadened, margin white, apex acute. Petals 5, white, obovate, ca. 2 × as long as sepals, apex entire or emarginate. Stamens 10; anthers yellowish green. Ovary ovoid; ovules numerous. Styles 3, filiform. Fl. Jul–Aug.

• Montane forest margins; ca. 2800 m. SW Sichuan.


变黑无心菜 bian heti wu xin cai

Herbs. Roots napiform, small; rootlets white, long, fibrous. Stems branched at base, 10–25 cm, black glandular hairy. Basal leaves petiolate; leaf blade suboblicular. Cauline leaves with sheathing petiole; leaf blade narrowly elliptic to suboblicular, 1–4 × 0.7–1.5 cm, thick, bullate, both surfaces glabrous, base attenuate, margin ciliate, apex obtuse. Cymes many flowered; bracts ovate or broadly so, 5–8 mm, apex acute. Pedicel erect in fruit, 1–4 cm, becoming shorter distally on cymes, glandular villous. Sepals 5, orbicular, 4–5 mm, glandular pubescent abaxially, base narrowed, margin membranous, apex rounded. Petals 5, white, obovate, 1–2 × as long as sepals, apex truncate or emarginate. Floral disc small, with 5 subglobose glands. Stamens 10, equaling sepals; anthers yellow. Ovary turbinate-obvoid, ca. 1/3 as long as sepals. Styles 2, equaling ovary.


• Limestone and montane rock crevices; 2600–3500 m. NW Yunnan.

Two varieties have been recognized. The distinguishing characters seem to be only a matter of degree or ecologically induced, and the variation pattern should be studied in the field. Perhaps this variation should not be the basis for formal recognition of taxa.

1a. Leaves 1.5–4 × 0.8–1.5 cm, changing to black when dry; petals 1.5–2 × as long as sepals ...................... 48a. var. nigricans

1b. Leaves 1–3 × ca. 0.7 cm, not changing to black when dry; petals subequaling sepals ........... 48b. var. zhenkangensis

48a. Arenaria nigricans var. nigricans

变黑无心菜 bian hei wu xin cai (yuan bian zhong)

Leaves 1.5–4 × 0.8–1.5 cm, changing to black when dry. Petals 1.5–2 × as long as sepals.

• Montane crevices; 2600–3200 m. NW Yunnan.


Herbs. Stems dichotomously branched at base, yellow or violet, 15–20 cm, sparsely and shortly hairy. Leaf blade lanceolate or oblancoceolate, 1–2 cm × 2–5 mm, thick, both surfaces with raised granulosities, glabrous or with sparse, hard hairs, base attenuate, apex obtuse. Cymes often capitiate; bracts ovate, 3–5 × 2–4 mm, base broadened, both surfaces with raised granulosities, margin hairy, apex obtuse. Pedicel 2–5 mm, densely white villous. Sepals 5, lanceolate, 3–5 mm, abaxially slightly white nodose glandular hairy or white pubescent, margin narrowly membranous, apex obtuse. Petals 5, white, obovate, equaling sepals, apex 2-cleft. Stamens 10. Ovary globose. Styles 2. Fl. Jul–Aug.

• Ravine margins; ca. 3300 m. NW Yunnan (Zhongdian Xian).


中甸无心菜 zhong dian wu xin cai

Herbs. Stems dichotomously branched at base, yellow or violet, 15–20 cm, sparsely and shortly hairy. Leaf blade lanceolate or oblancoceolate, 1–2 cm × 2–5 mm, thick, both surfaces with raised granulosities, glabrous or with sparse, hard hairs, base attenuate, apex obtuse. Cymes often capitiate; bracts ovate, 3–5 × 2–4 mm, base broadened, both surfaces with raised granulosities, margin hairy, apex obtuse. Pedicel 2–5 mm, densely white villous. Sepals 5, lanceolate, 3–5 mm, abaxially slightly white nodose glandular hairy or white pubescent, margin narrowly membranous, apex obtuse. Petals 5, white, obovate, equaling sepals, apex 2-cleft. Stamens 10. Ovary globose. Styles 2. Fl. Jul–Aug.

• Ravine margins; ca. 3300 m. NW Yunnan (Zhongdian Xian).


旱生无心菜 han sheng wu xin cai

Herbs perennial. Roots conic, small; rootlets white, long, fibrous. Stems dichotomously branched at base, violet, 5–20 cm; branchlets numerous, diffuse, pseudodichotomously branched, slender, hair, sparsely white villous or glabrous. Leaf blade oblancoceolate, 0.5–2.5 cm × 1–5 mm, papery, adaxially with or without small, clavate protuberances, base attenuate into a short sheath, apex acute, not cuspidate. Cymes conic,
sparsely many flowered; bracts similar to leaves but smaller. Pedicel slender, 0.5–1.5 cm, soft, hairy. Sepals 5, green abaxially, ovate-lanceolate or ovate, 2–6 × 1–3 mm, midvein and basal veins hairy, base broadened, margin white, ciliate, apex obtuse. Petals 5, white, obovate or broadly so, 3–8 mm, equaling or slightly longer than sepals, apex obtuse. Stamens 10. Ovary ovoid-globose. Styles 2 or 3, 2–5 mm. Fl. Aug–Sep. • Pinus forest margins, mountain grasslands; 2600–3600 m. Sichuan, NW Yunnan.

Two weakly distinguished varieties have been recognized.

1a. Styles 2
1b. Styles 3

50a. Arenaria xerophila var. xerophila
50b. var. xiangchengensis

50a. Arenaria xerophila  xiangchengensis


不显心无心菜 
Herbs perennial. Roots napiform. Stems 1 or 2, branched at base, 1–5 cm, with black, hard hairs. Basal leaf blade saccate; cauline leaf blade lanceolate, 8–10 × 1–2.5 mm, glabrous or with sparse, short, hard hairs, midvein inconspicuous, apex obtuse or acute. Flower solitary, terminal, or cymes few flowered. Pedicel robust, ca. 1 cm. Sepals 5, lanceolate or orbicular, 2–3 mm, herbaceous, abaxially with sparse, brown, hard hairs, base saccate, margin membranous, apex acute. Petals 5, white, elliptic or narrowly ovate, shorter than sepals, apex rounded, acute, or dentate to 2-cleft. Stamens 10; filaments unequal; anthers pale brown. Ovary ovoid. Styles 2 or 3. Capsule ovoid, equaling persistent sepals, 4-lobed. Seeds brown, oblate. Fl. and fr. Jul.–Sep.

• Alpine meadows; 3600–4600 m. NW Yunnan.


安多心无心菜
Herbs small, glandular pubescent. Roots numerous, conic, slender. Stems erect, densely dichotomously branched at base, proximally yellowish and lustrous, distally green or violet, 2–4 cm, glandular villous. Petiole short; leaf blade saccate, 1–3 × 1–3.5 mm, leathery, both surfaces sparsely glandular villous, base attenuate, margin densely ciliate, apex obtuse. Cymes 3–5-flowered, rarely flower solitary. Pedicel green or brown, 2–7 mm, densely glandular villous. Sepals 5, ovate, 2–3 × ca. 1 mm, leathery, glandular villous abaxially, 1-cleft, base broadly connate, margin narrowly membranous, apex obtuse. Petals 5, white, broadly ovate, ca. 1.5–2 × as long as sepals, apex emarginate or 2-cleft. Stamens 10, longer than sepals; anthers black. Ovary ovoid, ca. 1.3 mm. Styles 2, linear, ca. 1 mm. Fl. Jul.

• River beaches; 4800–5000 m. E Xizang (Amdo Xian).


匙叶无心菜
Herbs small. Roots numerous. Stems dichotomously branched at base, 3–10 cm; branches violet, slender, hard, glandular hairy. Leaf blade saccate, 5–6 × 2–3 mm, both surfaces glandular villous, base attenuate, margin ciliate, apex obtuse. Cymes few flowered; bracts similar to leaves but smaller. Pedicel slender, 0.5–1.5 cm, densely glandular villous. Sepals 5, lanceolate, ca. 3 × 1 mm, glandular villous abaxially, base connate, margin ciliate, apex acute. Petals 5, white, ovate, 3–4 mm, apex emarginate or dentate lobed. Stamens 10, shorter than sepals; anthers yellow. Ovary obovoid. Styles 2, linear. Fl. Jul.–Aug.

• Mountain grasslands; 3500–4200 m. SW Sichuan, NW Yunnan.


膜萼无心菜
Herbs slender. Roots conic. Stems dichotomously branched at base, ca. 10 cm, white pubescent, shortly glandular villous. Leaves in several pairs; leaf blade linear, 3–8 × 0.5–1.5 mm, both surfaces glabrous, veins inconspicuous, base shortly sheathed, apex obtuse. Cymes terminal or axillary; rachis slender, 1.5–2.5 cm, densely pubescent, also shortly glandular pubescent in 1 line. Sepals 5, lanceolate-ovarlicular, 3–4 × 1–1.5 mm, glabrous, veins inconspicuous, margin broadly membranous, apex obtuse. Petals 5, white, obovate, equaling sepals, base clawed, apex entire. Stamens 10, equaling sepals. Ovary globose, ca. 1 mm; ovules numerous. Styles 2, equaling ovary. Capsule globose, 3–4 mm, deeply 4-valved. Seeds 2 or 3, flat, orbicular, 1.5–2 mm.

• NW Yunnan (Lijiang Naxi Zu Zizhixian).


克拉克无心菜
Herbs annual. Stems branched at base, ca. 3 cm, glandular hairy. Petiole narrow; leaf blade linear-lanceolate, 1-veined, margin ciliate, apex obtuse. Cymes few flowered; flowers nutant. Pedicel glandular hairy. Sepals 5, narrowly ovate, ca. 1.8 mm, 1-veined, margin white membranous, glandular ciliate. Petals 5, white, narrowly ovate, 2–2.5 mm, apex erose. Floral disc with 5 glands. Stamens 10; filaments ca. 2 mm. Ovary ovoid. Styles 2, sparsely villous. Capsule nutant, 3–3.5 mm, 4-lobed. Seeds gray, flat, ca. 1.5 × 1 mm.

Mountains; 3000–5100 m. Xizang.


土门无心菜
Herbs perennial. Stems branched at base, slender, 2–10 cm. Leaf blade greenish, elliptic, 0.7–1.5 cm × 2–5 mm, leathery, midvein and lateral veins raised and green, base cuneate, margin glabrous, apex obtuse. Cymes compound, corymbose, 3-flowered. Sepals 5, violet, ovate, 5–6 mm, leathery, glabrous abaxially, 3-veined, base broadened, margin ciliate, apex cymbiform. Petals 5, white, broadly ovate or suborbicular, 7–9 mm, apex entire. Stamens 10; filaments 3–5 mm, those opposite sepals with a gland at base; anthers yellow. Ovary obovoid, ca. 2.5 × 1.5 mm. Styles 2, ca. 2 mm, clavate. Fl. Jun.–Jul.

• Rivierside grasslands; 4600–5300 m. NE Xizang.


减缩无心菜
Herbs small. Roots conic, slender, short. Stems dichotomously branched at base, often violet, slender, 2–4 cm,


**64. Arenaria saginoides** Maximowicz, Fl. Tangut. 87. 1889.


**66. Arenaria pseudostellaria** C. Y. Wu, Lihua Zhou & W. L. Wagner, nom. nov.

This species is used medicinally.

**Additional species mentioned:**
- **gooringia littledalei** (Hemsley) F. N. Williams.
- **linea wu xin cai**
- **qi gu wu xin cai**
- **qi li wu xin cai**
- **xian ye wu xin cai**

**Replaced synonym:** **Arenaria linearifolia** Franchet, Pl.
linearifolia Neumayer; Moehringia linearifolia F. N. Williams.

Herbs annual. Roots solitary, spinose or conic. Stems branched at base, violet, slender, 10–12 cm, pubescent. Leaf blade linear-lanceolate, 0.5–1.5 cm × 1–2 mm, both surfaces tuberculate, base cuneate, margin sparsely ciliate, apex acute. Cymes few flowered (sometimes a small, female flower arising from stem base); bracts similar to leaves but smaller. Pedicel 1–1.5 cm, shortly glandular hairy. Sepals 5, lanceolate, 4–5 × 1–1.5 mm, sparsely shortly glandular hairy abaxially (with nodose hairs in female flower from stem base), base broadened, margin membranous, apex acute. Petals 5, white, obovate, 8–9 mm, apex entire (equaling sepals and denticulate in female flower from stem base). Stamens 10, slightly shorter than sepals. Ovary ellipsoid (ovoid or orbicular-lanceolate or orbicular-elliptic, 0.8–1.5 cm × 1.5–3 mm, leathery, glandular pubescent or both surfaces glabrous, 1-veined, base cuneate, apex obtuse. Flower solitary, terminal, rarely lateral. Pedicel recurved, 1–3 cm, white glandular pubescent. Sepals 5, erect or reflexed, ovate-lanceolate, 4–8 mm, sparsely glandular pubescent or glabrous, veins inconspicuous abaxially, margin blue-brown, not membranous, ciliate, apex acute. Petals 5, white or pink, narrowly obovate, ca. 2 × as long as sepals, apex entire. Stamens 10, slightly longer than sepals. Ovary ovoid. Styles 2 (or 3). Capsule 2-valved; valves 2-cleft at apex. Seeds brown, with a ± thin, membranous wing. Fl. Jun–Jul, fr. Jul–Aug.

- Rock crevices at forest margins; 3000–3700 m. SW Sichuan, NW Yunnan.


真齿无心菜 zhen chi wu xin cai

Herbs perennial. Principal root branched, conic, robust. Stems erect or diffuse, branched at base, slender, 10–35 cm, sparsely villous. Petiole short; leaf blade linear or linear-lanceolate, 1–2.5 cm × 1–2 mm, margin hairy or not, apex subobtuse; proximal cauline leaf blade often lanceolate or narrowly orbicular, leaf axes usually with sterile branches at anthesis. Flower solitary or cymes 3–5-flowered; bracts similar to leaves but smaller. Pedicel 2–3(–6) cm, glandular pubescent. Sepals 5, lanceolate or orbicular-lanceolate, 8–11 mm, sparsely black villous below middle abaxially, margin membranous, ciliate, apex acute. Petals 5, white or pink, oblanceolate or obovate, 2–2.5 × as long as sepals, base shortly clawed, apex 2- or 3-toothed. Stamens 10; equaling or slightly longer than sepals; anthers red, ca. 1 mm. Ovary globose, 3–4 mm. Styles 2, linear, ca. 4 mm. Fl. Jul–Aug.

- Alpine meadows; 3000–4200 m. NW Yunnan.


察龙无心菜 cha long wu xin cai

Herbs perennial. Stems diffuse, 3–6 cm, basally glabrous, with withered leaves, distally slightly villous, with congested leaves; internodes elongate. Leaf blade lanceolate or saccate-ombicular, 5–14 mm, base narrowed, margin hairy, apex acute. Flower solitary. Pedicel ca. 5 mm. Sepals obovate, ca. 4 mm, villous abaxially, margin membranous. Petals 5, white, obovate, 6–7 mm, base clawed, apex emarginate or obtuse. Styles 2, equaling sepals.

- Alpine streamsides; ca. 4700 m. W Sichuan.


桃色无心菜 tao se wu xin cai

Herbs perennial. Roots slender. Stems sparsely clustered or solitary, branched at base, 5–10 cm, white glandular villous. Leaves sessile, dark green or violet, ovate- or orbicular-lanceolate or orbicular-elliptic, 0.8–1.5 cm × 1–3 mm, leathery, glandular pubescent or both surfaces glabrous, 1-veined, base cuneate, apex obtuse. Flower solitary, terminal, rarely lateral. Pedicel recurved, 1–3 cm, white glandular pubescent. Sepals 5, erect or reflexed, ovate-lanceolate, 4–8 mm, sparsely glandular pubescent or glabrous, veins inconspicuous abaxially, margin blue-brown, not membranous, ciliate, apex acute. Petals 5, white or pink, narrowly obovate, ca. 2 × as long as sepals, apex entire. Stamens 10, slightly longer than sepals. Ovary ovoid. Styles 2 (or 3). Capsule 2-valved; valves 2-cleft at apex. Seeds brown, with a ± thin, membranous wing. Fl. Jun–Jul, fr. Jul–Aug.

- Alpine meadows; (3700–)4300–4800(–5000) m. E and S Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].


紫红无心菜 zi hong wu xin cai

Herbs perennial. Stems branched at base, 4–10 cm; underground part white, with small, white scales; aerial part violet, pubescent and violet glandular villous, with axillary, sterile branches. Leaves sessile, lanceolate or narrowly elliptic, 0.5–1.5 cm × 1–2 mm, thick, glabrous except sparsely glandular pubescent abaxially and at margin, 1-veined or vein inconspicuous, base cuneate, apex obtuse. Flower solitary, terminal. Sepals 5, green or violet, orbicular, 5–8 × 1–2 mm, 3-veined, base saccate, margin broadly membranous, apex obtuse. Petals 5, violet or white, broadly obovate, ca. 1.5 cm × 6–7 mm, base attenuate, apex emarginate. Stamens 10; filaments equaling sepals. Styles 2. Fl. Jul–Aug.

- Mountains; 3800–4700 m. NW Yunnan.


粉花无心菜 fen hua wu xin cai


Herbs perennial. Stems violet, 10–25 cm, distally with recurved, brown, short hairs and long, glandular hairs.
Basal leaves attenuate into a petiole at base; leaf blade saccate, 1–2 cm × 3–5 mm, apex obtuse. Cauline leaves sessile, lanceolate or elliptic, 0.7–1.5 cm × 2–5 mm, midvein raised abaxially, violet, base rounded, margin ciliate from middle to apex, apex obtuse. Flower solitary, terminal. Pedicel recurved pubescent or long capitate glandular. Sepals 5, violet, lanceolate, 5–10 × 2–3 mm, violet glandular hairy abaxially, base cuneate, apex obtuse. Petals 5, pink or white, obovate, ca. 2 × as long as sepals, apex slightly longer than sepals; anthers yellow. Ovary slightly longer than sepals, apex obtuse. Stamens 10, shorter to slightly longer than sepals; anthers violet. Ovary ovoid, ca. 1/2 as long as sepals. Styles 2, linear. Fl. Jun–Jul.

- Mountains, alpine meadows, shifting screes, barrens; (2700–)3300–4100(–4500) m. NW Yunnan.


Herbs perennial. Stems sparsely clustered, 5–6 cm, proximally hairy in 2 lines, distally retrorsely hairy. Leaf blade elliptic-linear, ca. 8 mm, villous abaxially, glabrous adaxially, veins inconspicuous, margin ciliate, apex acute. Flower solitary, erect; bracts in 2 pairs at base of pedicel. Pedicel slender, ± hairy. Sepals 5, elliptic, violet abaxially, veins inconspicuous, base connate, margin membranous, apex acute. Petals 5, white, ovate, ca. 1.5 × as long as sepals, veins impressed, base shortly clawed, apex entire. Floral disc with raised, yellow-green glands. Fl. Aug.

- Mountains. S Xizang (near Lhasa Shi).

No specimens have been seen by the present authors; the above description is based on the protologue.


长柱无心菜 chang zhu wu xin cai

Herbs small. Roots slender, with numerous branches. Stems slender, 4–10 cm, villous in 2 lines, or brown glandular villous. Leaves aggregated at stem apex; leaf blade broadly linear or linear-lanceolate, 0.5–2 cm × to 2 mm, base connate into a sheath, margin sparsely hairy, apex mucronate. Flowers axillary. Pedicel 0.6–5 cm, glandular pubescent. Sepals 5, lanceolate, 5–10 × 1–1.5 mm, glabrous or glandular pubescent abaxially, base saccate after anthesis, margin broadly white membranous, apex acute, mucronate. Petals 5, white, obovate-orbicular, 5–10 mm, apex obtuse. Stamens 10, slightly shorter than petals; anthers yellow. Ovary subglobose, ca. 2 mm. Styles 2, subulate, 5–7 mm. Fl. Jun–Jul.

- Forest margins, alpine meadows, mountain grasslands, shifting screes; 2800–5000 m. W Sichuan, S Xizang, NW Yunnan.

Three weakly distinguished varieties have been recognized. The distinguishing characters seem to be only a matter of degree, and the variation pattern should be studied in the field. Perhaps this variation (at least for the first two varieties) should not be the basis for formal recognition of taxa.

1a. Leaf blade less than 1 mm wide . 75b. var. eugonophylla
1b. Leaf blade 1–2 mm wide.
   2a. Pedicel 2–5 cm .................... . 75a. var. longistyla
   2b. Pedicel 0.6–0.7 mm . 75c. var. pleurogynoides

75a. Arenaria longistyla var. longistyla

长柱无心菜(原变种) chang zhu wu xin cai (yuan bian zhong)

Stems 4–5 cm. Leaf blade 0.5–1.5 cm × 1–2 mm. Pedicel 2–5 cm. Petals 5–6 mm. Styles 6–7 mm.

- Forest margins, alpine meadows; 3600–5000 m. W Sichuan, SE Xizang, NW Yunnan.

75b. Arenaria longistyla var. eugonophylla Fernald, Rhodora 21: 5. 1919.
长刚毛无心菜  chang gang mao wu xin cai
Herbs. Stems violet, ca. 10 cm, densely glandular pubescent and long nodose bristly. Petiole short; leaf blade obovate, 5–8 mm, both surfaces violet nodose bristly, base attenuate, margin densely ciliate, apex obtuse, Cymes 2- or 3-flowered or flower solitary, terminal; rachis and pedicel densely long bristly; bracts ovate, 3–5 mm, long nodose bristly, base rounded, apex obtuse.


Stamens 10, slightly longer than sepals; anthers violet-white, broadly obovate, 5–8 mm, apex weakly toothed. Abaxially, margin membranous, apex obtuse or acute. Petals 5, ovate, 4–5 × ca. 1.5 mm, densely glandular pubescent. Sepals 5, lanceolate or narrowly so, 4–5 mm, glandular pubescent abaxially, base broadened, margin membranous, apex obtuse or acute. Cymes few to many flowered; bracts similar to leaves but smaller. Pedicel slender, 1–2.5 cm. Sepals 5, lanceolate or narrowly so, 4–5 mm, glandular pubescent. Stamens 10, shorter than petals. Ovary ovoid, 2–2.5 mm. Styles 2, to 5 mm. Capsule globose, apex 4-valved. Seeds brown, ovoid, with curls. Fl. and fr. Jul.–Sep.


Herbs perennial. Roots spinose. Stems lustrous yellowish or violet, 20–25 cm. Leaves sessile, narrowly elliptic, elliptic-lanceolate, or ovate, 0.5–2 cm × 2–5 mm, thin, base broadened, margin membranous, apex obtuse or acute. Cymes few to many flowered; bracts similar to leaves but smaller. Pedicel slender, 1–2.5 cm. Sepals 5, lanceolate or narrowly so, 4–5 mm, glandular pubescent abaxially, base broadened, margin membranous, apex obtuse. Petals 5, white, cuneate or obovate, ca. 2 × as long as sepals, base attenuate, apex 4-toothed. Stamens 10, longer than petals. Ovary ovoid, ca. 3 mm. Styles 2 or 3, ca. 3 mm. Fl. Jun–Jul.


Herbs perennial. Roots spinose or conic. Stems sparingly branched, erect, brown or violet, 15–30 cm, long hairy proximally, nodose hairy and sparsely villous distally. Leaves opposite, sometimes in whorls of 3; petiole 2–4 mm; leaf blade narrowly elliptic, orbicular-lanceolate, or ovate-orbicular, rarely elliptic, 1–2.5 cm × 5–12 mm, both surfaces villous, base attenuate, apex obtuse. Cymes many flowered; bracts ovate, 5–10 mm, both surfaces villous, base broadened. Pedicel 0.5–2.5 cm, glandular pubescent. Sepals 5, lanceolate, 5–6 × ca. 2 mm, glandular pubescent abaxially, margin membranous, apex acute. Petals 5, white, obovate, ca. 1.5 × as long as sepals, apex irregularly toothed. Stamens 10; filaments slightly longer than sepals; anthers blue-green to yellow. Ovary ovoid; ovules few. Styles 2, linear. Capsule ovoid, slightly shorter than persistent sepals, apex 4-lobed. Seeds 3 or 4, black, flat, with curls. Fl. and fr. Aug.–Sep.


Herbs annual or biennial. Roots spinose. Stems sparingly branched, erect, brown or violet, 15–30 cm, long hairy proximally, nodose hairy and sparsely villous distally. Leaves opposite, sometimes in whorls of 3; petiole 2–4 mm; leaf blade narrowly elliptic, orbicular-lanceolate, or ovate-orbicular, rarely elliptic, 1–2.5 cm × 5–12 mm, both surfaces villous, base attenuate, apex obtuse. Cymes many flowered; bracts ovate, 5–10 mm, both surfaces villous, base broadened. Pedicel 0.5–2.5 cm, glandular pubescent. Sepals 5, lanceolate, 5–6 × ca. 2 mm, glandular pubescent abaxially, margin membranous, apex acute. Petals 5, white, obovate, ca. 1.5 × as long as sepals, apex irregularly toothed. Stamens 10; filaments slightly longer than sepals; anthers blue-green to yellow. Ovary ovoid; ovules few. Styles 2, linear. Capsule ovoid, slightly shorter than persistent sepals, apex 4-lobed. Seeds 3 or 4, black, flat, with curls. Fl. and fr. Aug.–Sep.


Herbs annual. Roots fibrous. Stems prostrate, yellowish, 10–20 cm, long hairy proximally, nodose hairy and sparsely villous distally. Leaves opposite, sometimes in whorls of 3; petiole 2–4 mm; leaf blade narrowly elliptic, orbicular-lanceolate, or ovate-orbicular, rarely elliptic, 1–2.5 cm × 5–12 mm, both surfaces villous, base attenuate, apex obtuse. Cymes many flowered; bracts ovate, 5–10 mm, both surfaces villous, base broadened. Pedicel 0.5–2.5 cm, glandular pubescent. Sepals 5, lanceolate, 5–6 × ca. 2 mm, glandular pubescent abaxially, margin membranous, apex acute. Petals 5, white, obovate, ca. 1.5 × as long as sepals, apex irregularly toothed. Stamens 10; filaments slightly longer than sepals; anthers blue-green to yellow. Ovary ovoid; ovules few. Styles 2, linear. Capsule ovoid, slightly shorter than persistent sepals, apex 4-lobed. Seeds 3 or 4, black, flat, with curls. Fl. and fr. Aug.–Sep.


Herbs annual. Roots fibrous. Stems prostrate, yellowish, slender, 10–30 cm, brown glandular villous. Petiole 2–5 mm; leaf blade elliptic or ovate, 5–10 × 3–5 mm, thin, both surfaces puberulent, midvein raised, base cuneate,
margin sparsely hairy, apex acute. Cymes few flowered; bracts narrowly ovate, 3–5 × 1–3 mm, base cuneate, apex acute. Pedicel slender, 0.5–1.5 cm, glandular pubescent. Sepals 5, lanceolate, 1–3 × ca. 1 mm, nodose glandular pubescent abaxially, base broadened, margin narrowly membranous, ciliate, apex acute. Petals 5, white, obovate, equaling or slightly longer than sepals, apex dentate lobed. Stamens 10; anthers yellow. Ovary subglobose, ca. 1.5 mm in diam. Styles 2. Fl. Jul–Aug.


长柄无心菜 chang bing wu xin cai
Herbs. Roots conic, slender. Stems erect or ascending, 15–20 cm, no
dose glandular hairy and nodose villous. Leaf blade ovate, 5–10 × 4–6 mm, glabrous or glandular hairy, midvein raised, base broadened, apex obtuse. Cymes few flowered; bracts narrowly ovate, 4–5 × 1–2 mm, both surfaces sparsely glandular villous, base broadened, apex acute. Pedicel 1–2 cm, densely glandular pubescent. Sepals 5, narrowly ovate, sparsely glandular pubescent abaxially, base broadened, margin membranous, apex obtuse. Petals 5, white, obovate, 8–9 mm, base long clawed, apex dentate lobed. Stamens 10, longer than sepals; anthers dark yellow. Ovary ovoid, ca. 1.5 mm. Styles 2, linear, equaling sepals. Fl. Jul–Aug.


毛萼无心菜 mao e wu xin cai
Herbs perennial. Roots conic, fleshy. Stems densely di
clomately branched at base, suberect, 12–20 cm, yellow or black nodose villous. Petiole short or absent; leaf blade orbicular-lanceolate, 3–5 × 5–7 mm, glabrous, surface raised and coarse adaxially, midvein impressed, lateral veins inconspicuous, base attenuate,


大雪山无心菜 da xue shan wu xin cai
Herbs. Roots conic, slender. Stems long, spinose. Stems densely di
gromously branched at base, suberect, 12–20 cm, yellow or black nodose villous. Petiole short or absent; leaf blade orbicular-lanceolate, 3–5 × 5–7 mm, glabrous, surface raised and coarse adaxially, midvein impressed, lateral veins inconspicuous, base attenuate,
margin dichotomously branched, many flowered; bracts leaflike, smaller than leaves. Pedicel 1–1.5 cm, densely black long nodose villous. Sepals 5, black-red, orbicular, ca. 5 × 1.5 mm, margin membranous, black ciliolate, apex obtuse. Petals 5, white or pinkish, obovate, ca. 1 cm, apex somewhat weakly toothed. Stamens 10, equaling sepals. Ovary ca. 2 mm. Styles 2, ca. 2 mm. Fl. Aug.


具毛无心菜 ju mao wu xin cai

*Arenaria yunnanensis* Franchet var. *trichophora* (Franchet) F. N. Williams.

Herbs perennial. Roots conic or spinose. Stems clustered, simple or branched at base, prostrate or erect, 10–30 cm, long hard hispid and glandular pubescent. Proximal cauline leaves shortly petiolate; leaf blade green abaxially, ovate or orbicular-elliptic, 0.8–2 cm × 3–10 mm, thick, midvein raised, base narrowed, apex obtuse. Cymes few to many flowered; bracts leaflike, very small. Pedicel 0.8–2 cm, densely stiffly hairy and glandular pubescent, hairs erect or recurved. Sepals 5, lanceolate, 5–6 mm, glandular pubescent abaxially, base broadened, margin white membranous, apex acute. Petals 5, white, obovate, ca. 2 × as long as sepals, apex fimbriate. Stamens 10; anthers yellow-brown, or black, ciliate, apex obtuse. Cymes dichotomously branched, few to many flowered; bracts leaflike, small. Pedicel 1–2.5 cm, densely glandular pubescent. Sepals 5, lanceolate, 4–5 × 1–2 mm, glandular pubescent abaxially, base broadened, apex obtuse. Petals 5, obovate, apex toothed. Stamens 10; anthers yellow. Ovary ovoid. Styles 2. Seeds flat, narrowly winged. Fl. Jul.–Aug.


狭叶无心菜 xia ye wu xin cai


Herbs perennial. Roots conic or spinose. Stems branched at base, procumbent or erect, 10–20 cm, glandular pubescent. Leaf blade usually broadly lanceolate, 1–2 cm × 2–4 mm, base attenuate, apex acute. Cymes few to many flowered; bracts leaflike, small. Pedicel 0.5–1.5 cm, densely glandular hairy. Sepals 5, lanceolate, 5–6 mm, glandular hairy abaxially, base broadened, margin white membranous, apex acute. Petals 5, white, obovate, ca. 2 × as long as sepals, apex fimbriate. Stamens 10; anthers violet or black. Ovary ovoid; ovules numerous. Styles 2. Capsule shorter than persistent sepals, 2-valved; valves 2-cleft at apex. Seeds flat, narrowly winged. Fl. and fr. Jul.–Oct.


药山无心菜 yao shan wu xin cai


Herbs. Roots spinose. Stems branched proximally, often diffuse, violet, 10–15 cm, densely violet glandular pubescent in 1 line. Leaf blade narrowly lanceolate, 1–2 cm × 1–3 mm, both surfaces glabrous, midvein raised abaxially, base cuneate, apex obtuse or acute. Flower terminal, or cymes 2–5-flowered; rachis densely violet glandular pubescent; bracts ovate-lanceolate, midvein raised axially, base rounded, margin ciliolate, apex obtuse. Pedicel 0.5–2 cm, densely violet glandular pubescent. Sepals 5, lanceolate, 4–5 × 1–2 mm, glandular pubescent abaxially, base broadened, apex obtuse. Petals 5, obovate, apex toothed. Stamens 10; anthers yellow. Ovary ovoid. Styles 2. Seeds flat, narrowly winged. Fl. Jul.–Aug.


髯毛无心菜 ran mao wu xin cai

Herbs perennial, long nodose hairy and shortly glandular hairy. Roots clustered, spinose or conic. Stems usually solitary, branched below middle, 10–30 cm, densely glandular hairy. Leaf blade pale green abaxially, greenish adaxially, orbicular-ovobate or orbicular, 0.5–1.5 cm × 3–10 mm, both surfaces glandular pubescent, base attenuate, margin long white ciliolate, apex obtuse or acute. Cymes dichotomously branched, few to many flowered; bracts leaflike, small. Pedicel 1–2.5 cm, densely glandular pubescent. Sepals 5, lanceolate, 4–5 mm, densely glandular pubescent abaxially, 3-veined. Petals 5, white or pink, more than 2 × as long as sepals, apex fimbriate. Stamens 10; 5 filaments inflated at base; anthers dark violet or yellow-brown. Ovary ovoid; ovules numerous. Styles 2, linear. Capsule 4-valved. Seeds 2–4. Fl. and fr. Jul.–Sep.

96a. *var. barbata*

96b. *var. hirsutissima*

Two varieties have been recognized. The distinguishing characters seem to be only a matter of degree, and the variation pattern should be studied in the field. Perhaps this variation should not be the basis for formal recognition of taxa.

1a. Stems, leaves, bracts, and sepals white nodose hairy and shortly glandular hairy

1b. Stems, leaves, bracts, and sepals densely white nodose hairy
96a. Arenaria barbata var. barbata

Herbs annual or biennial, violet multicellular glandular hairy. Roots spinose or conic. Stems sparsely clustered or solitary, yellow, 30–60 cm. Proximal caule leaves shortly petiolate; distal caule leaves sessile; leaf blade elliptic or ovate-elliptic, 1–4 cm × 0.5–1.1 cm, both surfaces sparsely glandular hairy, midvein raised abaxially, base cuneate, apex acute. Cymes dichotomously branched, few flowered; bracts ovate-lanceolate, 3–5 mm, glandular hairy. Pedicel 1–2 cm, densely glandular hairy. Sepals 5, lanceolate, 5–6 mm, densely glandular pubescent abaxially, margin narrowly membranous, apex acute. Petals 5, white, obovate or obovate-saccate, 7–8 mm, apex fimbriate. Stamens 10, slightly longer than sepals; anthers yellowish. Ovary ovoid. Styles 2, linear. Capsule ovoid, slightly shorter than or equaling persistent sepals, apex 4-valved. Seeds 2 or 3, flat, ca. 2 mm in diam., weakly striate. Fl. Jul–Aug, fr. Aug–Sep.


Herbs perennial. Roots brown, spinose or conic. Stems sparsely clustered or solitary, yellow or violet, 10–40 cm, glabrous. Leaf blade elliptic or ovate, 1–1.5 cm × 4–6 mm, thin, both surfaces puberulous, base cuneate, apex obtuse. Cymes few flowered; bracts herbaceous. Pedicel 1.5–4.5 cm, densely glandular pubescent. Sepals 5, lanceolate, 5–7 mm, densely glandular hairy, margin narrowly membranous, apex mucronate. Stamens 10, slightly longer than sepals; anthers yellow. Ovary ovoid. Styles 2, linear. Capsule ovoid, slightly shorter than or equaling persistent sepals, apex 4-valved. Seeds 2 or 3, flat, ca. 2 mm in diam., weakly striate. Fl. Jul–Aug, fr. Aug–Sep.


Herbs perennial. Roots brown, spinose or conic. Stems sparsely clustered or solitary, yellow or violet, 10–40 cm, glabrous. Leaf blade elliptic or ovate, 1–1.5 cm × 4–6 mm, thin, both surfaces puberulous, base cuneate, apex obtuse. Cymes few flowered; bracts herbaceous. Pedicel 1.5–4.5 cm, densely glandular pubescent. Sepals 5, lanceolate, 5–7 mm, densely glandular hairy, margin narrowly membranous, apex mucronate. Stamens 10, slightly longer than sepals; anthers yellow. Ovary ovoid. Styles 2, linear. Capsule ovoid, slightly shorter than or equaling persistent sepals, apex 4-valved. Seeds 2 or 3, flat, ca. 2 mm in diam., weakly striate. Fl. Jul–Aug, fr. Aug–Sep.
funnelliform, with 5 globose, septate glands. Ovary ovoid, ca. 2 × 1.8 mm; ovules numerous. Styles 2, relatively long, papillate above middle. Fl. Jun–Jul.


大理无心菜 da li wu xin cai
Herbs perennial. Roots branched at base, gray-brown, conic, robust, fleshy. Stems clustered, solitary or branched at base, often violet, slender, 10–20 cm, sparsely glandular pubescent. Proximal cauline leaves shortly petiolate, larger; distal cauline leaves sessile, smaller; leaf blade gray abaxially, ovate-lanceolate, ovate, elliptic, saccate, or orbicular, 0.5–1.5 cm × 2–10 mm, thick, ± papillate adaxially, ± villous, midvein raised, pale brown. Cymes 3–5-flowered; bracts lanceolate, small, herbaceous, margin membranous, apex excurved, acute. Pedicel slender, 1–2.5 cm, densely violet glandular pubescent. Sepals 5, lanceolate or ovate-lanceolate, 4–10 mm, glandular pubescent abaxially, margin membranous, apex acute or acuminate. Petals 5, white, obovate, slightly longer than sepals, apex ciliate. Stamens 10; anthers violet-black, yellow, or yellowish. Ovary ovoid; ovules numerous. Styles 2, linear. Capsule equaling persistent sepals, apex 4-lobed. Seeds 10, brown. Fl. and fr. Jul–Sep.

• Mountains; 3000–4000 m. W Sichuan, E Xizang.

Leaves lanceolate to orbicular.

• Alpine forest margins, mountain grasslands; 2900–3800 m. SW Sichuan, NW Yunnan.


簇生无心菜 cu sheng wu xin cai
Leaves linear-lanceolate.

• Subalpine meadows; ca. 3500 m. NW Yunnan.