

38. VERONICA Linnaeus, Sp. Pl. 1: 9. 1753.

婆婆纳属 po po na shu

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Herbs, perennial with rhizomes or annuals. Roots glabrous. Stems erect, procumbent, or creeping, base sometimes woody. Leaves mostly opposite, rarely whorled or upper ones alternate. Inflorescences terminal or axillary racemes, sometimes spicate, long or short and capitate. Calyx 4-lobed, if 5-lobed upper lobe much smaller than other lobes. Corolla 4-sect or 4-lobed, rarely slightly 2-lipped; tube short and limb subrotate, rarely tube conspicuous, 1/3–1/2 of corolla length, usually hairy inside; lobes usually patent, unequal in width, upper lobe widest, lower lobe narrowest. Stamens 2; filaments adnate to posterior part of corolla tube; anther locules parallel or divergent, apically confluent. Style persistent; stigma capitate. Capsule diverse in shape, slightly to strongly compressed laterally, 1-grooved, loculicidal. Seeds 2–50 per capsule, flattened and convex on both sides, navicular or cupular.

About 250 species: cosmopolitan, mainly in Asia and Europe; 53 species in China.

1a. Inflorescences terminal, sometimes bracts leaflike and flowers appearing axillary.

2a. Perennials with rhizomes or woody roots.

3a. Calyx lobes 4; corolla subrotate, tube inconspicuous; capsule strongly compressed.

4a. Capsule obovoid, longer than wide; inflorescences few flowered; stems erect or ascending, never creeping 6. *V. stelleri*

4b. Capsule subreniform, shorter than wide; inflorescences many flowered; stems often creeping at base 7. *V. serpyllifolia*

3b. Calyx lobes (4 or)5; corolla tube mostly conspicuous, 1.5–2 mm, rarely shorter; capsule slightly compressed.

5a. Plants woolly, white 5. *V. lanuginosa*

5b. Plants tomentose or villous, with multicellular glandular hairs, green or gray-green.

6a. Inflorescences elongated, lax; infructescences 10–20 cm; leaf blade lanceolate to ovate-lanceolate, margin deeply cut 2. *V. lanosa*

6b. Inflorescences capitate; infructescences less than 5 cm; leaf blade orbicular to ovate, margin shallowly cut or subentire.

7a. Style ca. 0.5 mm 3. *V. alpina*

7b. Style 6–7 mm.

8a. Stamens exserted; plants tomentose with white multicellular hairs, gray-green; infructescences slightly elongated 1. *V. densiflora*

8b. Stamens included; plants densely with brown or brown-yellow multicellular glandular hairs; infructescences elongated to 5 cm 4. *V. capitata*

2b. Annuals without rhizomes.

9a. Seeds convex on both sides; pedicel several × shorter than bract (as long as or slightly longer in *V. pusilla*).

10a. Leaves pinnatifid; stems simple or fastigiate; capsule pubescent 9. *V. verna*

10b. Leaves entire, crenate, or dentate; stems branched; capsule glabrous or ciliate and otherwise glabrous.

11a. Pedicel 1.5–2 × longer than calyx 11. *V. pusilla*

11b. Pedicel shorter than calyx.

12a. Stems glabrous or short glandular pubescent; leaves oblanceolate to narrowly oblong, base cuneate, margin entire or dentate above middle; corolla usually white 8. *V. peregrina*

12b. Stems densely villous along 2 lines; leaves ovate-orbicular, base rounded, margin conspicuously crenate; corolla blue 10. *V. arvensis*

9b. Seeds navicular, convex on 1 side, with a deep groove on other; pedicel as long as or longer than bract, rarely slightly shorter.

13a. Plants diffuse; bracts similar in size to leaves.

14a. Pedicel slightly shorter than bract; capsule 4–6 mm wide, with inconspicuous reticulate veins, apically notched nearly at an acute angle, lobes rounded; style ca. 1.5 mm, as long as notch or slightly exserted 12. *V. polita*

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- 14b. Pedicel longer than bract; capsule 6–9 mm wide, with conspicuous reticulate veins, apically notched at a right to an obtuse angle, lobes obtuse; style 2–3 mm, conspicuously exerted 13. *V. persica*
- 13b. Plants erect, simple or branched below middle; bracts smaller than leaves.
- 15a. Leaves 4, under inflorescences, nearly whorled.
- 16a. Pedicel slender, 2–5 × longer than bract; calyx equally parted to base, lobes lanceolate 18. *V. tenuissima*
- 16b. Pedicel slightly longer than bract; calyx unequally parted, laterally parted to middle, lobes rhomboid-ovate 19. *V. cardiocarpa*
- 15b. Leaves more than 4, pairs distant.
- 17a. Seeds smooth; calyx lobes obscurely 3-veined or only midrib visible, red ciliate; plants often reddish 14. *V. rubrifolia*
- 17b. Seeds transversely rugose; calyx lobes conspicuously 3-veined, white ciliate; plants green.
- 18a. Calyx lobes in fruit usually to 1.6 mm wide; seeds usually 8–14 per capsule, 1.3–1.7 × 0.7–0.8 mm, deeply transversely rugose (with 5 folds); pedicel in fruit usually distinctly recurved, usually longer than bract 17. *V. campylopoda*
- 18b. Calyx lobes in fruit usually 2–3.5 mm wide; seeds usually 4–8 per capsule, 1.7–2.5 × 0.9–1.5 mm, obscurely reticulate-rugose; pedicel in fruit usually patent, often shorter than bract.
- 19a. Pedicel slightly recurved in fruit, pedicel and calyx densely glandular pubescent with hairs 0.4–0.7(–1) mm; corolla 4–6 mm in diam.; capsule (4–)5–8 mm wide, notch angle 30–45(–60)°; style (0.8–)1–1.3(–1.7) mm 16. *V. arguteserrata*
- 19b. Pedicel straight in fruit, pedicel and calyx short puberulent with hairs 0.1–0.3 mm; corolla 3–4 mm in diam.; capsule (3–)3.5–5(–6) mm wide, notch angle acute (narrow); style 0.4–0.8 mm 15. *V. biloba*
- 1b. Inflorescences axillary, usually in pairs, sometimes arrested development of stem apex causes inflorescences to appear terminal.
- 20a. Plants aquatic or helophytic; stems ± succulent.
- 21a. Stems creeping; capsule wider than long 53. *V. beccabunga*
- 21b. Stems ± erect; capsule as wide as or narrower than long.
- 22a. Style ca. 3 mm; capsule basally wider than apically, apically notched 49. *V. oxycarpa*
- 22b. Style less than 2.5 mm; capsule basally and apically equal in width, apically rounded or emarginate.
- 23a. Capsule ellipsoid, length exceeding width, apically emarginate; calyx lobes appressed to capsule, outside densely glandular hairy 52. *V. anagalloides*
- 23b. Capsule subglobose, length equal to width, apically rounded; calyx lobes not closely appressed to capsule in fruit, glabrous or sparsely glandular hairy.
- 24a. Pedicel curved, at an acute angle with inflorescence axis; racemes less than 1 cm wide, usually glabrous 50. *V. anagallis-aquatica*
- 24b. Pedicel straight, at a right angle with inflorescence axis; racemes 1–1.5 cm wide, sparsely glandular pubescent 51. *V. undulata*
- 20b. Plants terrestrial; stems not succulent.
- 25a. Rhizomes less than 1 cm, nodes and internodes inconspicuous; calyx 5-lobed, upper lobe much smaller (sometimes 4-lobed in *V. rockii* and *V. filipes*); corolla tube conspicuous; capsule slightly compressed (strongly compressed in *V. filipes*), length exceeding width.
- 26a. Capsule oblong to ovoid-globose, strongly compressed; corolla tube inside with a ring of villous hairs; stamens longer than or as long as corolla 25. *V. filipes*
- 26b. Capsule ovoid to ovoid-conical, slightly compressed; corolla tube inside often glabrous (villous in *V. himalensis*); stamens shorter than corolla.
- 27a. Corolla to 10 mm, outside with multicellular glandular hairs; capsule more than 5 mm wide; leaves ± amplexicaul, margin conspicuously dentate 24. *V. himalensis*

- 27b. Corolla 0.3–0.6 mm, outside glabrous; capsule less than 5 mm wide; leaves never amplexicaul, margin not conspicuously dentate.
- 28a. Ovary and capsule glabrous or sparsely pubescent 22. *V. rockii*
- 28b. Ovary and capsule hirsute with multicellular hairs.
- 29a. Inflorescences long and lax, not capitate at anthesis 20. *V. eriogyne*
- 29b. Inflorescences usually capitate at anthesis (elongated in *V. ciliata* subsp. *zhongdianensis*).
- 30a. Capsule ovoid, 4–5 mm wide; calyx lobes narrowly elliptic to oblanceolate; plants less than 10-flowered; leaves densely villous 23. *V. chinoalpina*
- 30b. Capsule narrowly ovoid to narrowly ovoid-conical, less than 4 mm wide; calyx lobes linear-lanceolate; plants usually more than 10-flowered; leaves glabrescent 21. *V. ciliata*
- 25b. Rhizomes more than 1 cm, with obvious nodes and internodes; calyx 4-lobed (5-lobed in *V. teucrium*); corolla tube inconspicuous; capsule usually strongly compressed (not strongly in *V. teucrium* and *V. morrisonicola*), width exceeding length (length exceeding width in *V. teucrium* and *V. morrisonicola*).
- 31a. Stems densely white villous; lower leaves withered at anthesis 48. *V. tibetica*
- 31b. Above combination of characters absent.
- 32a. Inflorescences less than 3 cm, 1–5-flowered.
- 33a. Flowers 2–5, in corymbs; capsule obcordate-deltoid 30. *V. szechuanica*
- 33b. Flowers 1–3, in fascicles; capsule reniform 31. *V. chayuenensis*
- 32b. Inflorescences usually more than 3 cm, lax, more than 5-flowered.
- 34a. Capsule obcordate to obovoid-cordate.
- 35a. Calyx 5-lobed; pedicel as long as or longer than bract; capsule glabrous 26. *V. teucrium*
- 35b. Calyx 4-lobed; pedicel shorter or rarely longer than bract; capsule hairy or ciliate.
- 36a. Stems creeping; capsule longer than wide 32. *V. morrisonicola*
- 36b. Stems erect or ascending; capsule as long as or shorter than wide.
- 37a. Stems branched at base; style 0.3–0.5 mm; inflorescences usually less than 5 cm, rarely to 10 cm 29. *V. javanica*
- 37b. Stems simple; style 3–6 mm; inflorescences to 30 cm.
- 38a. Stems densely villous with multicellular hairs along 2 lines; pedicel longer than or as long as bract; style 5–6 mm 27. *V. chamaedrys*
- 38b. Stems evenly villous with multicellular hairs; pedicel much shorter than bract; style 3–4 mm 28. *V. laxa*
- 34b. Capsule mostly triangular or pliciform-rhomboid, rarely obcordate-reniform or reniform.
- 39a. Capsule obcordate-reniform or reniform, base truncate-rounded.
- 40a. Stems creeping and rooting at least below middle; bracts and calyces glabrous; style 5–6 mm 34. *V. laxissima*
- 40b. Stems ascending; bracts and calyces ciliate; style less than 5 mm.
- 41a. Inflorescences several flowered; leaf base truncate 33. *V. sutchuenensis*
- 41b. Inflorescences 1- or 2-flowered; leaf base shallowly cordate 35. *V. vandellioides*
- 39b. Capsule pliciform-rhomboid or deltoid-flabellate, base truncate or cuneate-truncate.
- 42a. Stems creeping; leaf blade less than 2 cm.
- 43a. Lower leaves petiole ca. 7 mm; leaf blade triangular-orbicular, margin with 2 or 3 broadly crenate lobes on each side, base truncate; inflorescences 1–4-flowered 47. *V. oligosperma*
- 43b. Lower leaves sessile; leaf blade elliptic, margin serrate, base cuneate; inflorescences ca. 10-flowered 46. *V. forrestii*
- 42b. Stems erect or ascending (sometimes creeping basally or below middle in *V. tsinglingensis*, *V. riae*, and *V. henryi*); leaf blade mostly more than 2 cm (less than 2 cm in *V. taiwanica*).
- 44a. Stems 1–5 cm; leaves often rosulate; inflorescences much longer than stems . 45. *V. piroliformis*
- 44b. Stems (8–)10–30 cm; leaves never rosulate; inflorescences shorter than stems.
- 45a. Leaves sessile, ± amplexicaul 44. *V. deltigera*
- 45b. Leaves conspicuously petiolate.

- 46a. Stamens longer than or as long as corolla; style more than 5.5 mm; pedicel more than 5 mm.
- 47a. Longest petioles 1.5–3 cm; leaves papery, glabrous; capsule almost entirely glabrous 36. *V. fargesii*
- 47b. Longest petioles 0.5–0.7 cm; leaves membranous, adaxially sparsely puberulent; capsule apically sparsely glandular ciliate 37. *V. tsinglingensis*
- 46b. Stamens shorter than corolla; style less than 4 mm (6–7 mm in *V. longipetiolata*); pedicel less than 3 mm (5–7 mm in *V. riae*).
- 48a. Style 6–7 mm; petiole 3–4 cm on lower leaves 38. *V. longipetiolata*
- 48b. Style less than 4 mm; petiole 0.3–1.5 cm.
- 49a. Leaves membranous; inflorescences to 11 cm; peduncle more than 3 cm; pedicel to 5 mm at anthesis, to 7 mm in fruit; style 3–4 mm 40. *V. riae*
- 49b. Leaves papery; inflorescences less than 8 cm; peduncle less than 2 cm; pedicel less than 3 mm; style less than 3 mm.
- 50a. Calyx lobes narrowly elliptic to oblanceolate, sparsely glandular ciliate, apex obtuse; inflorescences axis and pedicels glandular hairy 43. *V. yunnanensis*
- 50b. Calyx lobes linear-lanceolate, glabrous or sparsely ciliate, apex acute or acuminate; inflorescences axis and pedicels villous.
- 51a. Inflorescences 1.5–2 cm; corolla 4–5 mm in diam.; capsule 7–8 mm wide; style 1.5–1.8 mm; leaf blade 1–1.5 × 0.8–1.2 cm 42. *V. taiwanica*
- 51b. Inflorescences 3–7 cm; corolla 10–12 mm in diam.; capsule 9–11 mm wide; style 2–3 mm; leaf blade 2–5 × 1.2–3 cm.
- 52a. Stems basally densely pubescent; lower leaves deltoid-orbicular to shallowly cordate, upper leaves ovate to ovate-orbicular, apex often obtuse; petiole 1–1.5 cm 39. *V. cana*
- 52b. Stems basally subglabrous; leaves ovate to narrowly ovate, apex often acute; petiole less than 1 cm 41. *V. henryi*

1. *Veronica densiflora* Ledebour, Fl. Altaic. 1: 34. 1839.

密花婆婆纳 mi hua po po na

Perennials, caespitose. Rhizomes elongated, branched. Stems ascending, much branched at base, 5–15 cm tall, glabrous or basally obscurely pubescent along 2 lines and apically tomentose with white multicellular hairs. Leaves sessile, lower ones scalelike; leaf blade ovate-orbicular, 1–2 × 0.5–1.5 cm, sparsely villous, margin equally dentate. Inflorescences terminal, racemose, capitate; bracts elliptic, lowermost to 8 mm, densely white tomentose. Pedicel 2–2.5 mm. Calyx 5-lobed, densely white tomentose; lobes obovate-lanceolate, upper lobe much smaller than others. Corolla dark blue, 5–7 mm, pilose; tube 1.5–2 mm; lobes obovate-orbicular to ovate. Stamens exerted. Ovary apically hairy. Capsule obovate, slightly compressed, ca. 4 mm, glabrous or apically hairy. Style ca. 6 mm. Seeds ca. 1 mm. Fl. May–Jun.

Stony slopes, forests, alpine zone; below 3400 m. Xinjiang (Yining Xian) [Kazakhstan, Mongolia, Russia].

2. *Veronica lanosa* Royle ex Bentham, Scroph. Ind. 45. 1835.

长梗婆婆纳 chang geng po po na

Perennials. Rhizomes woody. Stems ascending, simple or apically branched, 20–35 cm tall, white villous. Leaves sessile or short petiolate, lower ones scalelike;

leaf blade lanceolate to ovate-lanceolate, 1.5–3.6 × 0.6–1.5 cm, glabrous or sparsely villous with multicellular hairs, margin deeply serrate. Inflorescences terminal, racemose, elongated, lax, 10–20 cm in fruit, axis and pedicels villous or glandular hairy; lower bracts similar to leaves in shape. Pedicel 3–6 mm at anthesis, to 1.5 cm in fruit, slightly curved. Calyx (4 or)5-lobed; lobes villous ciliate. Corolla blue, ca. 6 mm; tube 1.5–2 mm, hairy inside; lobes orbicular or width exceeding length. Stamens shorter than or nearly as long as corolla. Capsule slightly compressed, 5–7 mm, slightly tapered, apex slightly emarginate. Style ca. 7 mm. Fl. Jul–Aug.

S Xinjiang, W Xizang [NE Afghanistan, NW India, Kashmir, Pakistan].

Veronica lanosa was reduced to synonymy of *V. deltigera* Wallich ex Bentham in FRPS (Fl. Reipubl. Popularis Sin. 67(2): 275. 1979). No Chinese specimens of *V. lanosa* have been seen by the authors, but its occurrence should be expected in S Xinjiang and W Xizang range.

3. *Veronica alpina* Linnaeus subsp. ***pumila*** (Allioni) Dostál, Kvetena CSR. 1303. 1950.

短花柱婆婆纳 duan hua zhu po po na

Veronica pumila Allioni, Fl. Pedem. 1: 75. 1785; *V. alpina* var. *australis* Wahlenberg; *V. lasiocarpa* Pennell. Perennials. Rhizomes short and slender. Stems simple, slightly procumbent, 10–20 cm tall, sparsely woolly.

Leaves sessile, ovate, 0.7–2 × 0.5–1 cm, sparsely pubescent, base obtuse, margin crenate to subentire, apex obtuse. Inflorescences terminal, racemose, short at anthesis, 2–3 cm in fruit, with multicellular hairs; bracts oblanceolate, 4–5 mm. Pedicel ascending, 1.5–2 mm. Calyx 3–4 mm; lobes 4(or 5), elliptic, if 5-lobed upper lobe very small. Corolla slightly longer than calyx; tube 1.5–2 mm, white; lobes orbicular; limb dark blue or blue-purple, margin incised dentate, apex truncate. Capsule obcordate-ovoid, slightly compressed, hirsute with multicellular hairs. Style ca. 0.5 mm. Seeds ca. 0.5 mm. Fl. Jul–Aug.

3000–4500 m. W Xizang [Kashmir, Pakistan, Russia (S Siberia); Europe].

4. *Veronica capitata* Royle ex Benth, Scroph. Ind. 45. 1835.

头花婆婆纳 tou hua po po na

Perennials. Rhizomes horizontal. Stems basally procumbent, apically erect, simple or branched from middle, 7–15 cm tall, basally glabrescent, middle and apically densely with multicellular glandular hairs. Leaves sessile, lower ones scalelike; leaf blade ovate-orbicular, 1–2 × 0.6–1.5 cm, with multicellular glandular hairs, base rounded obtuse, margin entire or obscurely dentate-incised, apex obtuse. Inflorescences terminal, racemose-capitate in flower, elongated to 5 cm in fruit, with multicellular glandular hairs except for corolla; bracts leaflike, elliptic. Pedicel short, elongated to 5 mm after flowering. Calyx 4–5 mm; lobes broadly linear to oblanceolate. Corolla ca. 8 mm; tube 1–1.5 mm, glabrous inside; lobes erect, ovate-orbicular, ovate, or narrowly oblong. Ovary apex sparsely hairy. Capsule slightly compressed; style to 7 mm.

Alpine meadows; 3000–4500 m. W Xizang [NW India, Kashmir].

5. *Veronica lanuginosa* Benth ex J. D. Hooker, Fl. Brit. India 4: 293. 1884.

棉毛婆婆纳 mian mao po po na

Perennials, densely white woolly. Stems ascending, sometimes branched from base and middle, 5–15 cm tall, internodes less than 1 cm. Leaves often crowded, imbricate, sessile, lower ones scalelike; leaf blade orbicular, ca. 1 × 1 cm, margin entire or serrate. Inflorescences terminal, racemose or subcapitate; bracts imbricate, subequal in size. Pedicel ca. 4 mm. Calyx ca. 5 mm, densely woolly, 5-lobed; lobes obovate-lanceolate, upper lobe much smaller than others. Corolla 0.9–1.2 cm; tube 2–2.5 mm; lobes slightly patent, upper lobe to 7 mm wide. Stamens slightly shorter than corolla. Ovary apically pubescent. Capsule ellipsoid, slightly compressed, as long as calyx, pubescent. Style ca. 6 mm. Fl. Jun.

4000–4700 m. S Xizang [Bhutan, Nepal, Sikkim].

6. *Veronica stelleri* Pallas ex Link var. ***longistyla*** Kitagawa, Rep. Inst. Sci. Res. Manchoukuo 6: 127. 1942.

长白婆婆纳 chang bai po po na

Perennials. Rhizomes long, slender. Stems erect or ascending, simple, 5–20 cm tall, sparsely villous. Leaves sometimes alternate apically on stem, 4–7 pairs, sessile, ovate to ovate-orbicular, 1–2 × 0.7–1.3 cm, sparsely pubescent, margin shallowly incised to conspicuously dentate. Racemes terminal, lax, 1–2.5 cm, with multicellular glandular hairs; bracts similar to leaves in shape, margin entire. Pedicel ca. 1.2 cm, longer than bract. Calyx 4-lobed; lobes elliptic to lanceolate. Corolla blue to purple, subrotate, 5–7 mm; lobes patent, with short glandular hairs below middle, upper lobe orbicular, other 3 lobes ovate. Stamens slightly exerted. Capsule obovoid, strongly compressed, ca. 6 × 4 mm, with multicellular glandular hairs, apex obtuse and notched. Style 5–7 mm, curly. Seeds ovoid-globose, flattened, slightly convex on both sides, ca. 1 mm. Fl. Jul–Aug. $2n = 18$.

Alpine meadows, 2200–2700 m. Jilin (Changbai Shan) [Japan, Korea, Russia (Far East)].

7. *Veronica serpyllifolia* Linnaeus, Sp. Pl. 1: 12. 1753.

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Veronica humifusa Dickson; *V. serpyllifolia* subsp. *humifusa* (Dickson) Syme; *V. serpyllifolia* var. *humifusa* (Dickson) Vahl.

Perennials. Rhizomes long, slender. Stems cespitose, creeping, erect from middle, 10–30 cm tall, often branched, villous with multicellular hairs, apically often with multicellular glandular hairs. Leaves sometimes alternate apically on stem, sessile, lower ones sometimes short petiolate; leaf blade ovate-orbicular to ovate-oblong, 0.8–2.5 × 0.7–1.5 cm, margin shallowly incised or rarely entire, veins 3–5 or pinnately veined. Racemes terminal, sometimes also axillary, 10–40-flowered, to 20 cm in fruit, with multicellular glandular hairs; lower bracts similar to leaves in shape. Pedicel 2–4 mm in flower, 4–6 mm in fruit. Calyx 4-lobed. Corolla color variable from almost white with blue lines to solid blue, purple, or purplish red, subrotate, ca. 4 mm. Capsule subreniform, strongly compressed, 2.5–3 × 4–5 mm, base rounded to subtruncate, margin glandular ciliate, apex obtuse and notched. Style ca. 2.5 mm. Seeds flattened, slightly convex on both sides. Fl. Apr–Jun. $2n = 14$.

Mountain meadows; 400–3700 m. Gansu, Guizhou, Hubei, Hunan, Liaoning, Shaanxi, Sichuan, Xinjiang, Xizang, Yunnan [widely distributed in north temperate zones and subtropical alpine mountains].

8. *Veronica peregrina* Linnaeus, Sp. Pl. 1: 14. 1753.

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Annuals, 5–25 cm tall, often many branched from base; main stems erect; branches diffuse, entirely glabrous or densely glandular pubescent. Leaves sessile, lower ones oblanceolate, upper narrowly oblong, 1–2.5 cm × 2–6(–8) mm, margin entire or deltoid dentate above middle.

Racemes terminal and axillary, elongated, lax, to 20 cm in fruit; bracts alternate, similar to but slightly smaller than leaves. Pedicel less than 2 mm. Calyx 4-lobed; lobes broadly linear to narrowly oblong, 3–4 mm. Corolla white or pale blue, rotate, ca. 2 mm; lobes narrowly oblong to ovate. Stamens shorter than corolla. Capsule obcordate, strongly compressed, 3–4 mm, wider than long, margin short glandular ciliate, apex conspicuously notched. Style 0.2–0.3 mm, included in notch. Seeds ca. 40 per capsule, oblong, flattened, convex on both sides, smooth. Fl. May–Jun. $2n = 52$. Moist waste lands, roadsides; below 3000 m. Native to North America, naturalized in Anhui, Fujian, Guangxi, Guizhou, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shandong, Sichuan, Xizang, Yunnan, Zhejiang [Japan, Korea, Mongolia, Russia; Europe].

9. *Veronica verna* Linnaeus, Sp. Pl. 1: 14. 1753.

裂叶婆婆纳 lie ye po po na

Annuals. Stems erect, simple or fastigiate, 5–25 cm tall, hairs white and curly. Leaves early deciduous, lower ones short petiolate, middle sessile; leaf blade ovate, pinnatifid, 5–12 × 4–7 mm, hispidulous, segment margin crenate or entire. Racemes terminal and axillary, elongated, many flowered, glandular or hispid hairy; bracts alternate, lower ones lanceolate and lobed, upper linear and entire. Pedicel 0.5–2.5 mm. Calyx 4-lobed; lobes narrowly lanceolate, 3-veined. Corolla pale blue to blue-purple, rotate, ca. 1/2 as long as calyx; lobes orbicular to ovate. Stamens shorter than corolla. Capsule obcordate, strongly compressed, ca. 3 × 4 mm, base broadly cuneate to rounded, puberulent on surfaces, margin glandular or hispid ciliate. Style less than 1 mm, shorter to almost as high as notch. Seeds ca. 8 per capsule, flattened, convex on both sides, 0.7–0.9 × 0.5–0.7 mm, smooth. Fl. Mar–Jul. $2n = 16$.

Steppes, *Betula* forests, trailsides, fields; below 2500 m. Xinjiang [Afghanistan, NW India, Kashmir, Kazakstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia, Europe].

10. *Veronica arvensis* Linnaeus, Sp. Pl. 1: 13. 1753.

直立婆婆纳 zhi li po po na

Annuals. Stems erect or ascending, simple or branched and diffuse, 5–30 cm tall, with white multicellular hairs often concentrated along 2 lines. Leaves often 3–5 pairs, lower ones short petiolate, upper sessile; leaf blade ovate-orbicular, 5–15 × 4–10 mm, hirsute, margin crenate, veins 3–5. Racemes terminal, lax, elongated to 20 cm, many flowered, with multicellular glandular hairs; bracts alternate, leaflike, lower ones narrowly ovate and sparsely crenate, upper ones narrowly elliptic and entire. Pedicel less than 2 mm. Calyx 4-lobed, 3–4 mm; lobes linear-lanceolate, lower 2 lobes longer than upper 2. Corolla blue to blue-purple, rotate, ca. 2 mm, shorter than calyx; lobes orbicular to narrowly oblong. Stamens shorter than corolla. Capsule obcordate, strongly compressed, 2.5–3.5 × 3–4 mm, glabrous, margin glandular ciliate, apex notch very deep; lobes

rounded-obtuse. Style less than 1 mm, shorter than to equalling notch. Seeds oblong, ca. 1 mm, smooth. Fl. Apr–May. $2n = 16$.

Naturalized in waste grassy places and along roads; below 2000 m. Anhui, Fujian, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shandong, Taiwan [native to S Europe and SW Asia, naturalized over most of the world].

Veronica arvensis is a common weed in many parts of China and is expected to be found in Xinjiang.

11. *Veronica pusilla* Kotschy & Boissier, Pl. Pers. Austr., ed. R. F. Hohenacker, no. 717. 1845, printed label with a descr.

侏倭婆婆纳 zhu wo po po na

Veronica conferta Boissier; *V. glaberrima* Boissier & Balansa; *V. perpusilla* Boissier ex Benth.

Annuals. Stems slender, small, glabrous or apically sparsely short hairy. Stems 2–12(–20) cm tall, simple or basally branched. Lower leaves short petiolate and often early withering, upper subsessile and not withering; leaf blade oblong to ovate-oblong, 3–5 × 1–2.5 mm, base attenuate, margin entire and glandular ciliate. Racemes terminal and axillary, short to ± elongated, lax, few flowered; bracts alternate, leaflike, lower obovate-lanceolate, upper linear. Pedicel 3–7 mm, as long as or slightly longer than bract, curved upward in fruit, 1.5–2 × longer than calyx, glandular hairy. Calyx 4-lobed; lobes linear-lanceolate to ovate-oblong, midrib conspicuous. Corolla pale blue, as long as or shorter than calyx; tube short. Capsule reniform-obcordate, compressed, 2–3 × 3.5–7 mm, glabrous or very sparsely glandular hairy, apex parted 1/3–1/2 of capsule length; lobes ovate-oblong. Style 0.3–0.6 mm, much shorter than notch. Seeds ellipsoid, flattened, ca. 1 mm, smooth. Fl. Apr–Jun. $2n = 14$.

Along rivers and streams, from low mountains to alpine; below 5500 m. Xinjiang [Afghanistan, NW India, Kazakstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan; SW Asia].

12. *Veronica polita* Fries, Novit. Fl. Suec. 5. 63. 1817.

婆婆纳 po po na

Veronica didyma Tenore var. *lilacina* T. Yamazaki.

Annuals. Stems diffuse, 10–30 cm, sparsely pubescent. Leaves opposite, 1–3 pairs; petiole 1–5 mm; leaf blade ovate to suborbicular, 5–11 × 4–9 mm, abaxially whitish hairy, adaxially sparsely pubescent to subglabrous, margin revolute with 2–4 deeply incised teeth per side. Racemes terminal, lax, very long; bracts alternate, sometimes basally opposite, petiolate, leaflike. Pedicel in fruit (3–)6–13(–15) mm, equalling bract or slightly shorter, ± recurved. Calyx 4-lobed; lobes elliptic to ovate, slightly dilated in fruit, 4–6 × 2.5–4 mm, sparsely puberulent, veins 3(–5). Corolla usually blue, rarely white, rotate, 4–7 mm in diam.; lobes orbicular to ovate. Stamens shorter than corolla. Capsule reniform, 3–4 × 4–6 mm, very slightly compressed, apically notched at an acute angle; lobes rounded, densely glandular pubescent, mixed with shorter eglandular hairs, veins inconspicuous. Style usually 1–1.6 mm, about as high as notch to slightly

exserted. Seeds strongly navicular, elliptic, usually 0.9–1.6 × 0.8–1.3 mm; seed coat transversely rugose on dorsal side. Fl. Mar–Oct. $2n = 14$.

Naturalized in waste fields; below 2200 m. Anhui, Beijing Shi, Fujian, Gansu, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Qinghai, Shaanxi, Sichuan, Taiwan, Xinjiang, Yunnan, Zhejiang [native in SW Asia and naturalized over most of the world].

Stems and leaves are sweet and edible.

13. *Veronica persica* Poiret, Encycl. 8: 542. 1808.

阿拉伯婆婆纳 a la bo po po na

Annuals, sometimes biennials. Stems diffuse, ca. 10–20 cm tall, 20–50 cm, densely pubescent with multicellular hairs often more densely so along 2 lines. Opposite leaves in (2 or)3 or 4(or 5) pairs; petiole 1–8 mm; leaf blade ovate-lanceolate to suborbicular, (6–)10–20(–25) × (5–)8–15(–20) mm, evenly sparsely pubescent on both surfaces, margin flat, obtusely crenate-serrate, 3–6(–10)-toothed per side. Racemes terminal, lax, very long; bracts alternate, leaflike, petiolate, uppermost ones smaller than others. Fruiting pedicel (1.2–)1.5–3(–4) cm, usually longer than bract. Calyx 4-lobed; lobes ovate-lanceolate, 5–8(–10) × 2.5–3.5(–4) mm in fruit, sparsely pubescent, veins 3. Corolla usually blue, rotate, 0.8–1.4 cm in diam., throat sparsely hairy; lobes ovate to orbicular. Stamens slightly shorter than corolla. Capsule obcordate, strongly compressed, 4–6 × 6–9 mm, apically notched at right to obtuse angle; lobes obtuse, ± glandular hairy, venation conspicuously reticulate. Style 2–3 mm, exserted. Seeds slightly navicular, usually 1.4–2.3 × 0.9–1.6 mm; seed coat deeply rugose dorsally. Fl. Mar–May. $2n = 28$.

Naturalized in waste fields and roadsides; below 1700 m. Anhui, Fujian, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan, W Xinjiang (Yining Xian), E Xizang, Yunnan, Zhejiang [native to SW Asia and since the 19th century spread over most of the world].

14. *Veronica rubrifolia* Boissier, Diagn. Pl. Orient., ser. 1, 2 (12): 46. 1853.

红叶婆婆纳 hong ye po po na

Veronica ferganica Popov; *V. uncinata* Pennell.

Annuals. Stems erect, often reddish, 1–7 cm tall, simple or branched from middle, white pubescent. Petiole ca. 2 mm to sessile upward; leaf blade ovate to ovate-oblong, 3–10 × 2–5 mm, abaxially sparsely pubescent, adaxially glabrous, margin entire or lower leaves sparsely and shallowly incised. Racemes ca. 2 cm, axis and pedicels pubescent and glandular hairy; bracts alternate, smaller than leaves, linear to lanceolate. Flowers solitary in bract axils. Pedicel 2–4(–5) mm, shorter to longer than bract, apically curved after flowering. Calyx 4-lobed, slightly enlarged, 3–4.5(–6) mm, abaxially villous and with multicellular hairs; lobes ovate, margin reddish glandular ciliate, obscurely 3-veined. Corolla white or pale blue, rotate, shorter than calyx; lobes ovate. Capsule obcordate, 2.5–3.5 mm, slightly shorter than calyx, strongly compressed, ca. 4 mm wide, parted to middle, notch angle 70–90°; lobes ovate, margin red glandular ciliate, otherwise glabrous or eglandular

puberulent. Style ca. 5 mm. Seeds ovoid-navicular, ca. 1 mm; seed coat smooth. Fr. May.

Sandy places, dry slopes; below 3800 m. N Xinjiang [Afghanistan, India, Kashmir, Kazakstan, Kyrgyzstan, Mongolia, Russia, Tajikistan, Uzbekistan; SW Asia].

15. *Veronica biloba* Linnaeus, Mant. Pl. 2: 172. 1771.

两裂婆婆纳 liang lie po po na

Annuals 5–20(–30) cm tall. Stems erect, usually branched basally and from middle, sparsely pubescent. Leaves short petiolate; leaf blade oblong to ovate-lanceolate, 0.5–3 × 0.4–1.3 cm, base broadly cuneate to rounded, margin sparsely shallowly dentate. Racemes terminal, sometimes also axillary, 2–25 cm, puberulent with hairs 0.1–0.3 mm, sparsely glandular hairy; bracts alternate, smaller than leaves, lanceolate to ovate-lanceolate, margin entire. Pedicel 3–7(–11) mm, as long as or shorter than bract, patent and straight in fruit. Calyx 4-lobed, laterally more shallowly parted to 3/4 of length; lobes ovate to ovate-lanceolate, 4–8 × 2–4 mm in fruit, margin entire, apex acute, conspicuously 3-veined. Corolla white, blue, or purple, rotate, 3–4 mm in diam.; upper lobe orbicular and other 3 lobes ovate-orbicular. Filaments shorter than corolla. Capsule strongly compressed, shorter than calyx, 3–4.5 × 3.5–5(–6) mm, short glandular hairy, apex notch 1/2–2/3 of capsule length and forming 2 almost free lobes, notch apex less than 30°; lobes apically rounded obtuse. Style 0.4–0.8 mm, included in notch. Seeds 4–6 per capsule, navicular, 1.5–2.2 × 0.7–1.3 mm; seed coat obscurely transversely rugose. Fl. Apr–Aug. $2n = 28$.

Waste fields, steppes, slopes; 800–3600 m. Gansu, Nei Mongol, Ningxia, Qinghai, Shaanxi, W Sichuan, Xinjiang, Xizang [Afghanistan, India, Kashmir, Kazakstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

16. *Veronica arguteserrata* Regel & Schmalhausen in Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 5: 626. 1878.

尖齿婆婆纳 jian chi po po na

Veronica bartsifolia Boissier ex Freyn; *V.*

bormmuelleri Haussknecht; *V. karatavica* Pavlov ex Nevski.

Annuals. Stems erect, 10–30(–50) cm tall, simple or branched, densely pubescent. Petiole 3–8 mm; leaf blade lanceolate, elliptic, or ovate, 1–3.5 × 0.3–1.5 cm, sparsely pubescent, margin serrate. Racemes terminal, sometimes also axillary, 2–30 cm, glandular pubescent with hairs 0.4–0.7(–1) mm; bracts alternate, ovate-lanceolate, basal ones serrate, apex acute. Pedicel 3–12 mm in fruit, recurved at top, glandular hairy mixed with eglandular hairs. Calyx 4-lobed, laterally more shallowly parted to 3/4 of length; lobes ovate-lanceolate, 5–10 × 2–4 mm in fruit, margin sometimes toothed, apex acute, veins distinctly 3. Capsule obcordate, shorter than calyx, strongly compressed, 3.5–5 × 4–8 mm, apex notch 1/2–2/3 of capsule length and angled at 30–60°. Style, 0.8–1.5 mm, reaching about middle of notch. Seeds 4–8 per capsule, navicular, 1.8–2.5 × 1–1.5 mm;

seed coat reticulate, obscurely transversely rugose. Fl. Mar–Jun.

Steppes, waste fields, sparse woods; 600–3000 m. Xinjiang [Afghanistan, Kazakstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia, naturalized in North America].

Only one Chinese specimen (*Kuan Ke-jie* 4332) from Xinjiang has been seen by the authors.

17. *Veronica campylopoda* Boissier, *Diagn. Pl. Orient.*, ser. 1, 1(4): 80. 1844.

弯果婆婆纳 wan guo po po na

Annuals 5–15(–30) cm tall. Stems erect, slender, simple or branched below middle, curly hairy. Lower leaves short petiolate; leaf blade oblong to lanceolate, 4–12 × 2–5 mm, sparsely hairy, margin entire or dentate.

Racemes terminal, sometimes also axillary, lax, to 10 cm, axis and pedicels with white curly hairs to 0.2 mm mixed with glandular hairs; bracts alternate, narrowly lanceolate, smaller than leaves, margin entire or rarely dentate, apex acute. Pedicel filiform, 4–6(–10) mm in fruit, usually longer and to 2 × as long as bract, usually distinctly recurved in fruit. Calyx 4-lobed, laterally not parted to base; lobes lanceolate, ca. 3–5(–6) × 1–1.6 mm, sparsely with eglandular and glandular hairs, hairs 0.1–0.3 mm, apex short acuminate. Corolla blue to pale blue, rotate, 2–4 mm in diam. Capsule nearly as long as to slightly shorter than calyx, strongly compressed, 3–4 × 3.5–4.5(–6) mm or smaller, notched almost to base; lobes obovate, notch angle 45–60(–75)°. Style (0.5–)0.8–1.2(–1.4) mm, to middle of notch. Seeds 6–14 per capsule, navicular, narrowly ovoid, ca. (1–)1.3–1.7(–2) × 0.6–0.8(–1.1) mm; seed coat transversely 4–6-folded. Fr. Jun. $2n = 42$.

Waste fields, dry slopes. Xinjiang, W Xizang [Afghanistan, India, Kashmir, Kazakstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

18. *Veronica tenuissima* Borissova, *Fl. URSS*. 22: 403. 1955.

丝茎婆婆纳 si jing po po na

Veronica tetraphylla Popov (1922), not Boeber ex Georgi (1800).

Annuals, 5–10 cm tall. Stems erect, glabrous or puberulent. Leaves 4, whorled below inflorescence; leaf blade oblong to oblong-lanceolate, 3–10 mm, glabrous, base attenuate into short petiole, margin entire. Racemes lax, ± twisting; bracts alternate, much smaller than leaves, oblanceolate to sublinear, margin entire. Flower 1 in bract axil. Pedicel long, thin, 3.5–12 mm, 2–5 × as long as bract, curved downward after flowering. Calyx 4-lobed, 2–3 mm, parted to base; lobes linear-lanceolate, subglabrous, midrib conspicuous. Corolla blue, rotate, 1–3 mm in diam. Capsule reniform, strongly compressed, 1.5–2 × 2.5–3 mm, parted to 2/3 length, glabrous, notch angle ca. 90°. Style 0.5–0.7 mm. Seeds 8–12 per capsule, oblong, 0.7–1.3 × 0.5–0.7 mm; seed coat dorsally slightly wavy. Fl. Apr–Jun.

Clay plains, mountain valleys, slopes. N Xinjiang [Afghanistan, Kazakstan, Kyrgyzstan, Pakistan, Tajikistan, Uzbekistan; SW Asia].

19. *Veronica cardiocarpa* (Karelin & Kirilov) Walpers, *Repert. Bot. Syst.* 3: 335. 1844.

心果婆婆纳 xin guo po po na

Diplophyllum cardiocarpum Karelin & Kirilov, *Bull. Soc. Imp. Naturalistes Moscou* 15: 417. 1842.

Annuals. Stems erect, pubescent. Leaves 4, below inflorescence, whorled or nearly so; petiole 2–5 mm; leaf blade ovate-oblong, 1–2.5 × 0.5–1.5 cm, widest in middle or below middle, base rounded, margin dentate. Racemes terminal; bracts alternate, much smaller than leaves, margin sparsely deltoid dentate. Pedicel 5–8(–12) mm in fruit, as long as or longer than calyx, shorter to longer than bract in fruit, ± patent, straight or slightly curved below top. Calyx 4-lobed, 6–12 mm in fruit, ca. 2 × as long as capsule, laterally parted to 1/2–2/3 length; lobes rhomboid-ovate, sparsely ciliate, apex short acuminate, veins 2 or 3. Corolla rotate, 2–4 mm in diam. Capsule obcordate, strongly compressed, 2–4.5 × 4.5–5.5 mm, deeply notched; lobes ovate-orbicular, obtuse. Style 0.5–0.8 mm, ca. 1/2 as long as notch. Seeds 6–8 per capsule, yellow, ovoid, cupular, ca. 1.2–1.8 × 0.9–1.2 mm; seed coat smooth or nearly so. Fl. Mar–Apr. Stony slopes, forests, meadows at forest edges. Xinjiang [Afghanistan, Kazakstan, Kyrgyzstan, Pakistan, Tajikistan, S Turkmenistan, Uzbekistan; SW Asia (N Iran)].

Only *Veronica cardiocarpa* var. *cardiocarpa* occurs in China.

20. *Veronica eriogyne* H. Winkler, *Repert. Spec. Nov. Regni Veg. Beih.* 12: 480. 1922.

毛果婆婆纳 mao guo po po na

Perennials, 20–50 cm tall. Rhizomes short. Stems erect, simple or sometimes branched at base, usually white villous with multicellular hairs along 2 lines. Leaves sessile, lanceolate to linear-lanceolate, 2–5 × 0.4–1.5 cm, villous with multicellular hairs along veins, margin shallowly incised-toothed. Racemes 2–4, axillary from uppermost leaves, 2–7 cm at anthesis, spicate, flowers crowded, elongated to 20 cm in fruit, villous with multicellular hairs; peduncle 3–10 cm; bracts broadly linear, much longer than pedicel. Calyx deeply parted, 5-lobed; lobes broadly linear to linear-lanceolate, 3–4 mm, upper much smaller than other 4. Corolla purple to blue, ca. 4 mm; tube 1/2–2/3 of corolla length, inside glabrous or puberulent; lobes obovate to narrowly oblong. Stamens slightly shorter than corolla; filaments adnate to corolla for most of their length. Capsule narrowly ovoid, slightly compressed, apically tapering, 5–7 × 2–3.5 mm, hairy, apex obtuse. Style 2–3.5 mm. Seeds more than 40 per capsule, oblong-ovoid, flattened, slightly convex on both sides, ca. 0.6 mm; seed coat smooth. Fl. Jul.

• Alpine meadows; 2500–4500 m. SE Gansu, E Qinghai, W Sichuan, E Xizang.

21. *Veronica ciliata* Fischer, *Mém. Soc. Imp. Naturalistes Moscou* 3: 45. 1812.

长果婆婆纳 chang guo po po na

Perennials. Rhizomes less than 1 cm. Stems erect or ascending, simple or branched at base, gray-white hairy throughout, or hairs only along 2 lines. Leaves sessile or lower subsessile; leaf blade oblong to ovate-lanceolate, pubescent, glabrescent, base acute, margin entire, serrate, or deeply incised-dentate, apex acute. Racemes 1–4, axillary from uppermost leaves, villous or hirsute with multicellular hairs (except for corolla); bracts broadly linear, longer than pedicel. Calyx deeply parted, 5-lobed; lobes linear-lanceolate, upper much smaller than other 4. Corolla tube 1/5–2/5 of corolla length, glabrous inside; lobes obovate-orbicular to narrowly oblong. Stamens shorter than corolla. Capsule ovoid-conical, slightly compressed, tapered apically, almost entirely hirsute, apex obtuse and emarginate. Seeds more than 40 per capsule, oblong-ovoid, flattened, slightly convex on both sides, 0.6–0.8 mm, smooth. Fl. Jun–Aug.

Alpine meadows, forests; 2700–4700 m. Gansu, Nei Mongol, Ningxia, Qinghai, Shaanxi, NW to W Sichuan, Xinjiang, Xizang, Yunnan [NW India, Kashmir, Kazakistan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Sikkim, Tajikistan].

- 1a. Racemes elongated, rarely capitate; corolla tube 1/3–2/5 of corolla length 21b. subsp. *zhongdianensis*
- 1b. Racemes capitate at anthesis, elongated or not in fruit; corolla tube 1/5–1/3 of corolla length.
 - 2a. Stems cespitose 21a. subsp. *ciliata*
 - 2b. Stems often 1 21c. subsp. *cephaloides*

21a. *Veronica ciliata* subsp. *ciliata*

长果婆婆纳(原亚种) *chang guo po po na* (yuan ya zhong)

Veronica chingii H. L. Li.

Stems cespitose, 10–30 cm tall. Leaf blade 1.5–3.5 × 0.5–2 cm, margin entire or serrate. Racemes subcapitate, rarely elongated. Pedicel 1–3 mm. Calyx lobes 3–4 × ca. 1.5 mm, slightly enlarged in fruit. Corolla 3–6 mm; lobes 1/5–1/3 of corolla length. Capsule 5–8 × 2–3.5 mm. Style 1–3 mm. Fl. Jun–Aug.

Alpine meadows; 3000–4700 m. Gansu, Nei Mongol (Helan Shan), Ningxia, Qinghai, Shaanxi, NW Sichuan, Xinjiang, N Xizang [Kazakistan, Kyrgyzstan, Mongolia, Russia, Tajikistan].

21b. *Veronica ciliata* subsp. *zhongdianensis* D. Y. Hong, Acta Phytotax. Sin. 16(3): 24. 1978.

中甸长果婆婆纳 *zhong dian chang guo po po na*

Stems often 1, 10–60 cm tall. Leaf blade margin dentate. Racemes usually elongated, very rarely capitate. Pedicel to 6 mm. Calyx lobes to 8 × 2 mm. Corolla tube 1/3–2/5 of corolla length. Capsule 5–7 × 3.5–4 mm. Style 0.7–2 mm. Fl. Jun–Aug.

• Alpine meadows, forests; 2700–4400 m. W Sichuan, SE Xizang, N Yunnan.

21c. *Veronica ciliata* subsp. *cephaloides* (Pennell) D. Y. Hong, Acta Phytotax. Sin. 16(3): 24. 1978.

拉萨长果婆婆纳 *la sa chang guo po po na*

Veronica cephaloides Pennell, Acad. Nat. Sci. Philadelphia Monogr. 5: 84. 1943; *V. nana* Pennell.

Stems often 1, 15–20(–40) cm tall. Leaf blade margin deeply incised-dentate or rarely entire. Racemes capitate at anthesis, elongated or not after flowering. Corolla small; tube ca. 1/3 of corolla length. Capsule ca. 5 × 2.5 mm. Style 0.8–1.5 mm. Fl. Jul–Aug.

Alpine meadows; 3300–5800 m. S Xizang [NW India, Kashmir, Nepal, Pakistan, Sikkim].

The whole plant is used in Tibetan medicine.

22. *Veronica rockii* H. L. Li, Proc. Acad. Nat. Sci. Philadelphia 104: 210. 1952.

光果婆婆纳 *guang guo po po na*

Perennials, 17–40 cm tall. Rhizomes less than 1 cm. Stems erect, simple, rarely basally branched, pubescent with multicellular hairs along 2 lines. Leaves sessile, narrowly oblong to lanceolate, 1.5–8 × 0.4–2 cm, villous or glabrescent, base rounded, margin deltoid dentate. Racemes 2–4, axillary from uppermost leaves, vertical or ascending, 2–7 cm in flower, to 15 cm in fruit, pubescent; bracts linear, usually shorter than pedicel. Calyx deeply parted, 5-lobed; lobes linear-elliptic, ca. 3 mm at anthesis, to 4–6 mm in fruit, upper lobe much smaller or wanting. Corolla blue or purple, 3–4 mm; tube glabrous inside, adaxially parted to ca. 1/2 of corolla length, abaxially lobed to 3/5; lobes ovate-orbicular to elliptic. Stamens much shorter than corolla, adnate to corolla for most of their length. Ovary and capsule glabrous or rarely sparsely hairy. Capsule ovoid to ovoid-conical, tapering, apex obtuse. Style 1–1.5 mm. Seeds more than 40 per capsule, flattened, slightly convex on both sides; seed coat smooth. Fl. Jul–Aug.

• Mountain slopes; 1300–3800 m. Gansu, Hebei, Henan, Hubei, S Nei Mongol, Qinghai, Shaanxi, Shanxi, Sichuan, N Yunnan.

1a. Style ca. 1 mm 22a. subsp. *rockii*

1b. Style ca. 1.5 mm 22b. subsp. *stenocarpa*

22a. *Veronica rockii* subsp. *rockii*

光果婆婆纳(原亚种) *guang guo po po na* (yuan ya zhong)

Racemes erect to ascending. Capsule 4–8 × 2.5–4 mm. Style ca. 1 mm. Fl. Jul–Aug.

• Mountain slopes; 2000–3600 m. Gansu, Hebei, Henan, Hubei, S Nei Mongol, Qinghai, Shaanxi, Shanxi, N Sichuan.

22b. *Veronica rockii* subsp. *stenocarpa* (H. L. Li) D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 402. 1979.

尖果婆婆纳 *jian guo po po na*

Veronica stenocarpa H. L. Li, Proc. Acad. Nat. Sci. Philadelphia 104: 211. 1952.

Racemes ascending, lax. Capsule 4–6 mm. Style ca. 1.5 mm. Fl. Aug.

- Mountain slopes; 1300–3800 m. SW Sichuan, N Yunnan.

23. *Veronica chinoalpina* T. Yamazaki, J. Jap. Bot. 27: 63. 1952.

河北婆婆纳 he bei po po na

Perennials, 8–17 cm tall. Rhizomes less than 1 cm. Stems ascending, simple, densely villous with yellow-gray multicellular hairs. Leaves sessile or lower ones short petiolate; leaf blade of lower leaves elliptic to ovate, upper ovate-lanceolate to lanceolate, 0.8–2 × 0.3–1 cm, villous with multicellular hairs, margin entire or few dentate at middle. Racemes 2 or 3, few flowered in axils of uppermost leaves, forming a head, appearing terminal; peduncle 0.5–1.5 cm, villous with multicellular hairs; bracts oblanceolate, as long as pedicel. Calyx 5-lobed; lobes narrowly elliptic to oblanceolate, ca. 3 mm at anthesis, ca. 5 × 2 mm in fruit, upper much smaller than other 4. Capsule ovoid, slightly compressed, 6–7 × 4–5 mm, apically obtuse and emarginate, hirsute with multicellular hairs. Style 1.5–2 mm. Seeds more than 40 per capsule, oblong, flattened and slightly convex on both sides, ca. 1 mm; seed coat smooth. Fr. Aug.

- Mountain slopes; ca. 3000 m. Hebei (Xiaowutai Shan).

Yamazaki misplaced *Veronica chinoalpina* in sect. *Veronicastrum* which characteristically has terminal inflorescences. Although the inflorescences of this species may superficially appear to be terminal, they are actually axillary.

24. *Veronica himalensis* D. Don, Prodr. Fl. Nepal. 92. 1825.

大花婆婆纳 da hua po po na

Perennials, 40–60 cm tall. Rhizomes less than 1 cm. Stems erect, simple or sometimes basally branched, pubescent. Leaves sessile, ± amplexicaul upward, ovate to ovate-lanceolate, 3–5 × 2–3 cm, pubescent, base broadly cuneate to rounded, margin serrate and double serrate, apex obtuse, acute, or acuminate. Racemes 2–4, axillary from upper leaves, lax, to 15 cm, pubescent with multicellular hairs; bract broadly linear, nearly as long as pedicel. Pedicel straight, to 1 cm. Calyx 5-lobed; lobes broadly linear to lanceolate, ca. 7 mm, upper smaller than other 4. Corolla purple to blue, ca. 1 cm, with multicellular glandular hairs; tube ca. 2.5 mm, villous inside; lobes obovate to elliptic. Stamens slightly shorter than corolla. Capsule ovoid, slightly compressed, ca. 8 × 5 mm, apex obtuse and emarginate, subglabrous or sparsely with multicellular hairs. Persistent style 5–10 mm. Seeds more than 50 per capsule, flattened and slightly convex on both sides, ca. 1 mm; seed coat smooth. Fl. Jun–Aug.

Alpine meadows; 3400–4000 m. S Xizang, Yunnan (Bijiang Xian) [Bhutan, India, NE Myanmar, Nepal, Sikkim].

1a. Pedicel and calyx pubescent with multicellular glandular hairs 24a. subsp. *himalensis*

1b. Pedicel and calyx with multicellular glandular hairs 24b. subsp. *yunnanensis*

24a. *Veronica himalensis* subsp. *himalensis*

大花婆婆纳(原亚种) da hua po po na (yuan ya zhong)

Leaves sparsely pubescent. Pedicel and calyx pubescent with multicellular glandular hairs. Fl. Jun–Jul.

Alpine meadows; 3400–4000 m. S Xizang [Bhutan, India, Nepal, Sikkim].

24b. *Veronica himalensis* subsp. *yunnanensis* (P. C. Tsoong) D. Y. Hong, Novon 6: 23. 1996.

多腺大花婆婆纳 duo xian da hua po po na

Veronica himalensis var. *yunnanensis* P. C. Tsoong, Fl. Reipubl. Popularis Sin. 67(2): 402. 1979.

Leaves densely pubescent. Pedicel and calyx with brown multicellular glandular hairs. Fl. Jun–Aug.

Alpine meadows; ca. 4000 m. Yunnan (Bijiang Xian) [NE Myanmar].

25. *Veronica filipes* P. C. Tsoong, Fl. Reipubl. Popularis Sin. 67(2): 403. 1979.

丝梗婆婆纳 si geng po po na

Perennials, 6–15 cm tall. Rhizomes less than 1 cm. Stems to 7, cespitose, ascending, often basally purple. Lower leaves scalelike; petiole less than 5 mm; leaf blade ovate to orbicular, 1.2–2.5 × 0.6–1.8 cm, hirsute or sparsely with multicellular hairs, base attenuate into petiole, margin entire or crenate on lower leaves, obtuse dentate to serrate on upper leaves, apex rounded to acute. Racemes 2–4, axillary, 2–5-flowered, subcapitate at anthesis, elongated after flowering, pubescent with multicellular hairs except for corolla; bracts broadly linear to oblanceolate. Pedicel 3–10 mm. Calyx lobes 4 or 5, if 5 then upper lobe much smaller and other 4 broadly linear to linear-elliptic, 3–5 mm. Corolla blue to pale purple, 5–7 mm, rotate; tube 0.8–1.8 mm, inside with a ring of hairs; lobes narrowly ovate to orbicular. Stamens as long as or to 2 mm longer than corolla. Capsule oblong to ovoid-globose, strongly compressed, ca. 3 × 2.5 mm, hirsute. Style 5–7 mm. Seeds ca. 8 per locule, flattened, ca. 1.2 × 0.8 mm; seed coat smooth. Fl. Jun–Aug.

- Alpine stony or sandy slopes; 3400–4500 m. S Gansu, E Qinghai, NW Sichuan.

26. *Veronica teucrium* Linnaeus subsp. *altaica* Watzl, Abh. K.K. Zool.-Bot. Ges. Wien 5: 49. 1910.

卷毛婆婆纳 juan mao po po na

Veronica krylovii Schischkin.

Perennials, 10–70 cm. Stems 1 or often several, cespitose, erect or ascending, simple, densely with short and upward curly hairs. Leaves sessile or lower short petiolate; leaf blade ovate, narrowly oblong, or lanceolate, 1.5–4 × 0.2–2 cm, sparsely puberulent, margin with deep incised obtuse teeth and sometimes double dentate. Racemes axillary from upper leaves, 2–4 cm, to 12 cm in fruit, axis and pedicels curly hairy. Pedicel as long as or longer than bract, vertical, to 1 cm in fruit. Calyx lobes 5, lanceolate, ca. 5 mm, upper lobe smaller than others, short ciliate, apex obtuse. Corolla

bright blue, pink, or white, rotate, 6–7 mm; tube less than 1.5 mm; throat hairy; lobes ovate to broadly ovate, apex obtuse. Capsule obcordate-ovoid, 4–6 × 3–4.5 mm, slightly compressed, glabrous. Style 5–6 mm, curved. Seeds 2–10 per locule, ovate, ca. 1.6 × 1.4 mm, flattened. Fl. May–Jun. $2n = 64$.

Sparse forests, grasslands; below 2000 m. NW Heilongjiang, N Nei Mongol, N Xinjiang [Kazakhstan, Russia].

27. *Veronica chamaedrys* Linnaeus, Sp. Pl. 1: 13. 1753.

石蚕叶婆婆纳 shi can ye po po na

Perennials, 10–50 cm tall. Stems ascending, simple, densely pubescent with multicellular hairs along 2 lines. Lower leaves short petiolate, upper ones sessile; leaf blade ovate to ovate-orbicular, ca. 2.5 × 1.5–2 cm, sparsely puberulent, base truncate to slightly cordate, margin with deeply incised obtuse teeth, apex obtuse. Racemes paired, axillary from upper leaves, with multicellular glandular hairs (except corolla); bracts linear-elliptic, shorter or as long as pedicel. Calyx lobes 4, lanceolate, subequal. Corolla blue, rotate, ca. 1.2 cm in diam., subglabrous inside; tube less than 1.5 mm; upper and lateral lobes wider than long, lower lobes obovate. Stamens shorter than corolla. Capsule obcordate, strongly compressed. Style 5–6 mm. Seeds (2–)6–10(–14) per locule, flattened, ca. 1.5 × 1 mm. Fl. May. $2n = 16, 32$.

Liaoning (Fengcheng Xian) [Kazakhstan, Russia; Europe].

Only one Chinese specimen has been collected from a slope near the railway in Fengcheng.

28. *Veronica laxa* Benth., Scroph. Ind. 45. 1835.

疏花婆婆纳 shu hua po po na

Perennials, (15–)50–80 cm tall, entirely with white multicellular hairs. Stems erect or ascending, simple. Leaves sessile or short petiolate; leaf blade ovate to ovate-deltoid, 2–5 × 1–3 cm, margin coarsely dentate and mostly double dentate. Racemes 1 or 2, axillary from middle and upper leaves, lax, to 20 cm in fruit; bracts broadly linear to oblanceolate, ca. 5 mm. Pedicel much shorter than bract. Calyx 4-lobed; lobes linear-elliptic, subequal, ca. 4 mm at anthesis, 5–6 mm in fruit. Corolla purple to blue, rotate, 6–10 mm in diam.; tube less than 1.5 mm; throat hairy; lobes orbicular to rhomboid-ovate. Stamens almost as long as corolla. Capsule obcordate, strongly compressed, 4–6 × 5–6 mm, ciliate with multicellular hairs, base cuneate to rounded. Style 3–4 mm. Seeds 2–10 per locule, ovate, flattened, ca. 1 mm. Fl. Jun. $2n = 46$.

Valleys, forest slopes; 1500–2500 m. SE Gansu, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan [India, Japan, Kashmir, Pakistan].

29. *Veronica javanica* Blume, Bijdr. 742. 1826.

多枝婆婆纳 duo zhi po po na

Veronica murorum Maximowicz.

Annuals or biennials, 10–30 cm tall, pubescent with multicellular hairs. Stems branched at base, main stems erect or ascending, lateral branches procumbent-

ascending. Petiole 1–7 mm; leaf blade ovate to ovate-triangular, 1–4 × 0.7–3 cm, base shallowly cordate to truncate, margin deeply incised dentate, apex obtuse. Racemes axillary, short and subcorymbose at anthesis, elongated and to 10 cm in fruit; bracts linear to oblanceolate, 4–6 mm. Pedicel much shorter than bract. Calyx 4-lobed; lobes linear-elliptic, 2–5 mm, subequal. Corolla white, pink, or red-purple, rotate, ca. 2 mm; tube less than 1.5 mm; throat hairy. Stamens ca. 1/2 as long as corolla. Capsule obcordate, strongly compressed, 2–3 × 3–4 mm, ciliate, base broadly cuneate or ± rounded, notch ca. 1/3 of capsule length. Style 0.3–0.5 mm. Seeds 2–10 per locule, flattened, slightly convex, ca. 0.5 mm. Fl. Feb–Apr.

Trailsides, mountain slopes, by streams; below 2300 m. Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, S Shaanxi, Sichuan, Taiwan, S Xizang, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Laos, Myanmar, Philippines, Sikkim, Vietnam; Africa].

30. *Veronica szechuanica* Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 13: 383. 1894.

四川婆婆纳 si chuan po po na

Perennials, 5–35 cm tall. Stems branched or simple. Petiole laterally ciliate; leaf blade ovate, both surfaces or adaxially hirsute with multicellular hairs, base broadly cuneate to shallowly cordate, apex obtuse to acute. Racemes 2–6, axillary from upper leaves, less than 3 cm, 3–5-flowered, in corymbs; bract sometimes on middle or basal part of pedicel, linear, nearly as long as pedicel, ciliate. Pedicel straight, ca. 5 mm. Calyx 4-lobed; lobes linear to obovate-lanceolate, 3–5 mm, subequal, ciliate with multicellular hairs. Corolla white or rarely pale purple, 5–7 mm; tube 1.5–2 mm, glabrous inside; lobes ovate to ovate-orbicular. Stamens slightly shorter than corolla. Capsule obcordate-deltoid, strongly compressed, 4–6 × 6–7 mm, ciliate with multicellular hairs. Style 2–3 mm. Seeds 2–10 per locule, oblong-ovate, flattened, slightly convex, ca. 1 mm. Fl. Jun–Jul.

Valleys or grassy slopes, forests or forest edges, alpine meadows; 1600–4400 m. SE Gansu, W Hubei, E Qinghai, S Shaanxi, Sichuan, S Xizang, NW Yunnan [Bhutan, NW India, Sikkim].

1a. Leaves hairy only adaxially; plants (5–)15–35 cm tall; stems usually simple or few branched

..... 30a. subsp. *szechuanica*

1b. Leaves hairy; plants 5–15 cm tall; stems often branched 30b. subsp. *sikkimensis*

30a. *Veronica szechuanica* subsp. *szechuanica*

四川婆婆纳(原亚种) si chuan po po na (yuan ya zhong)

Stems simple or few branched, (5–)15–35 cm tall, pubescent along 2 lines. Petiole 5–10 mm on lower leaves, shorter on upper; leaf blade 1.5–5.5 × 1–3 cm, adaxially sparsely hirsute with multicellular hairs, base broadly cuneate, rounded, or shallowly cordate. Fl. Jul.

• Valleys, grassy slopes, forests, forest margins; 1600–3500 m. SE Gansu, W Hubei, E Qinghai, S Shaanxi, E Sichuan.

30b. *Veronica szechuanica* subsp. *sikkimensis* (J. D. Hooker) D. Y. Hong in P. C. Tsoong & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 304. 1979.

多毛四川婆婆纳 duo mao si chuan po po na

Veronica capitata Royle ex Benth. var. *sikkimensis* J. D. Hooker, Fl. Brit. India 4: 295. 1884; *V. umbelliformis* Pennell.

Stems 5–15 cm tall, often branched; branches procumbent or ascending, densely hairy. Petiole 2–10 mm; leaves small, hairy, base mostly shallowly cordate to truncate. Fl. Jun–Jul.

Alpine meadows, forests; 2800–4400 m. W to SW Sichuan, S Xizang, NW Yunnan [Bhutan, NW India, Sikkim].

31. *Veronica chayuensis* D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 403. 1979.

察隅婆婆纳 cha yu po po na

Perennials, 4–6 cm tall. Stems erect or ascending, white pubescent with multicellular hairs along 2 lines. Lower leaves few, small, subsessile, often scalelike; middle ones crowded, large, short petiolate; upper subsessile; leaf blade orbicular to ovate-orbicular, 1–1.5 × ca. 1 cm, subglabrous, margin entire on lower leaves, others 3–5-toothed on each side. Flowers 1–3, fascicled in axils of upper leaves, appearing terminal; bracts broadly linear, ciliate. Pedicel 1–1.5 mm. Calyx 4-lobed; lobes linear-elliptic, ca. 2.5 mm at anthesis, to 4 mm in fruit, sparsely ciliate with multicellular hairs. Corolla white, ca. 4.5 mm; tube ca. 1 mm, glabrous inside; lower lobe obovate-elliptic, lateral 2 lobes obovate, upper lobe broadly oblong and to 4 mm wide, apex subtruncate. Stamens shorter than corolla. Capsule strongly compressed, reniform, laterally rounded, ca. 3.5 × 5 mm, upper margin glandular ciliate. Style 1.8–2.3 mm. Seeds numerous, flattened, slightly convex. Fl. Aug.

• Gravelly slopes by water, meadows, forests; 3500–4200 m. S Xizang, Yunnan (Gongshan).

32. *Veronica morrisonicola* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25(19): 174. 1908.

匍茎婆婆纳 pu jing po po na

Perennials, 10–20 cm tall. Stems long creeping, basally woody, apically ascending, often simple, with brown multicellular glandular hairs. Leaves densely crowded, rarely evenly distributed; leaf blade ovate to obovate-lanceolate, 1–3.2 × 0.3–1 cm, with multicellular glandular hairs, base rounded to cuneate and attenuate into a short petiole, apex acute to slightly obtuse. Racemes in pairs, axillary from upper leaves, elongated, with numerous flowers, with brown multicellular glandular hairs; peduncle to 6.5 cm; bracts linear-oblong, 4–5 mm. Calyx 4-lobed; lobes linear-elliptic, 4–6 mm, subequal. Corolla rotate, 4–7 mm; tube less than 1.5 mm; throat hairy; lobes orbicular to ovate. Stamens longer than corolla. Capsule obcordate,

strongly compressed, 5–6 × 4–5 mm, margin ciliate with multicellular hairs. Style ca. 4 mm. Seeds 2–10 per locule, ovate, flattened, slightly convex, ca. 1 mm. Fl. May–Sep.

• Moist forests, coniferous forests, bamboo thickets, grassy slopes; 2300–3900 m. Taiwan.

33. *Veronica sutchuenensis* Franchet, Bull. Soc. Bot. France 47: 20. 1900.

川西婆婆纳 chuan xi po po na

Perennials, 10–25 cm tall. Stems ascending, densely villous with gray-white multicellular hairs. Petiole 5–10 mm, decreasing in size upward; leaf blade orbicular to deltoid-ovate, 1–3 × 1–2 cm, lower ones smaller, pubescent, base truncate, margin dentate, apex obtuse to acute. Racemes opposite in axils of uppermost leaves, 2–6 cm, 4–8-flowered, with yellow-white multicellular hairs (except for corolla); peduncle 1–3 cm; bracts linear, 3–5 mm. Pedicel straight, 3–5 mm. Calyx 4-lobed; lobes broadly linear to linear-oblong, 4–5 mm, subequal. Corolla pink, rotate, 0.8–1.2 cm in diam.; tube less than 1.5 mm; throat hairy; lobes obovate to orbicular. Stamens slightly shorter than corolla. Capsule obcordate-reniform to reniform, strongly compressed, ca. 4 × 6–7 mm, lateral angles rounded to rounded-obtuse, margin ciliate with multicellular glandular hairs. Style ca. 3 mm. Seeds 2–10 per locule, flattened, slightly convex. Fl. May–Jun.

• Forests, grassy slopes; 2000–2700 m. Sichuan.

34. *Veronica laxissima* D. Y. Hong, Novon 6: 23. 1996.

极疏花婆婆纳 ji shu hua po po na

Perennials. Stems slender, creeping and rooting at least below middle, 10–15 cm, ca. 0.5 mm in diam., villous with multicellular hairs. Leaves more than 6 pairs, evenly or almost evenly distributed on stem; petiole 2–3 mm, upper leaves sessile; leaf blade ovate-orbicular to oblong, 1–1.5 cm × 6–9 mm, lower ones smaller, glabrous, base rounded, margin crenate, apex obtuse. Racemes usually 2, axillary from upper and uppermost leaves, several flowered, lax, 3–12 cm, axis and pedicels densely with multicellular glandular hairs; peduncle 3–6.5 cm; bracts linear to linear-elliptic, 2–4 mm, glabrous. Pedicel straight, 6–7 mm. Calyx glabrous, 4-lobed; lobes elliptic to linear-elliptic, 2.5–3 × ca. 1 mm, subequal. Corolla rotate, 7–8 mm in diam.; tube less than 0.5 mm; lower lobe oblong, other 3 lobes oblong-orbicular. Ovary and young fruit strongly compressed, ciliate, lateral angles rounded. Style 5–6 mm.

• E Sichuan (Chengkou Xian).

Although no mature fruit have been seen, *Veronica laxissima* seems to be closely related to *V. sutchuenensis* Franchet.

35. *Veronica vandellioides* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 32: 514. 1888.

唐古拉婆婆纳 tang gu la po po na

Perennials, 5–25 cm tall, entirely pubescent with ± multicellular hairs. Stems to 25, cespitose, very rarely 1,

slender, ascending to ± diffuse. Leaves subsessile or petiole to 1 cm; leaf blade ovate-orbicular, 0.7–2 × 0.6–1.8 cm, base cordate to truncate, margin 2–5-crenate on each side, apex obtuse. Racemes 4–10, axillary, sometimes only from upper leaves, 1- or 2-flowered; 1-flowered inflorescences with peduncle slender, 0.6–2 cm; bracts (appearing to be bracteoles) at middle of peduncle, broadly linear, less than 5 mm. Pedicel slender, 3–10 mm. Calyx 4-lobed; lobes narrowly elliptic, subequal, ca. 3 mm at anthesis, 4–6 mm in fruit. Corolla pale blue, pink, or white, rotate, slightly longer than calyx; tube less than 1.5 mm; throat hairy; lobes orbicular to ovate. Stamens slightly shorter than corolla. Capsule subobcordate-reniform, strongly compressed, 3–4 × 5–6 mm, base truncate-rounded. Style ca. 2 mm. Seeds 2–10 per locule, ovoid, flattened, slightly convex, ca. 1.5 mm. Fl. Jul–Aug.

• Forests, meadows; 2000–4400 m. Gansu, Qinghai, Shaanxi (Taibai Shan), W Sichuan, C to N Xizang.

36. *Veronica fargesii* Franchet, Bull. Soc. Bot. France 47: 21. 1900.

城口婆婆纳 cheng kou po po na

Perennials, 10–15 cm tall. Stems 1, simple, erect or ascending, subglabrous, entirely villous with multicellular hairs, or hairs only along 2 lines. Leaves 3–5 pairs, lower and middle 1 or 2 pairs distant, with petiole 1.5–3 cm, others often subwhorled below inflorescences and with a shorter petiole or sessile and leaf blade large; leaf blade ovate to ovate-lanceolate, 3–6 × 1.5–3.5 cm, papery, glabrous, abaxially purplish, base rounded to cuneate, margin dentate toothed toward leaf apex, apex acute to obtuse. Racemes 2–4, opposite, axillary in uppermost leaves, 8–12 cm, lax, many flowered, axis and pedicels sparsely pubescent with multicellular hairs; peduncle 3–6 cm; bracts glabrous, slightly shorter than pedicel. Pedicel straight, 5–7 mm, slightly elongated in fruit. Calyx 4-lobed; lobes lanceolate, 3–4 mm, subequal, glabrous. Corolla white or purple striate, rotate, 1–1.3 cm in diam.; tube less than 1.5 mm; throat hairy. Stamens as long as corolla. Capsule pliciform-rhomboid, strongly compressed, ca. 4 × 9–10 mm, almost entirely glabrous, base angle 120°, lateral angles acute, emarginate. Style 6–8 mm. Seeds 2–10 per locule, ovoid, flattened, slightly convex, ca. 1.5 mm. Fl. Jun.

• Shaded and moist places; 1000–2000 m. W Hubei, E Sichuan (Chengkou Xian, Nanchuan Xian).

37. *Veronica tsinglingensis* D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 403. 1979.

陕川婆婆纳 shan chuan po po na

Perennials, 10–20 cm tall. Stems ascending, creeping near base, sparsely with gray-white multicellular hairs, more densely so below nodes. Leaves 3–5 pairs, evenly or unevenly distributed; petiole 5–7 mm; leaf blade ovate to narrowly ovate, membranous, abaxially

glabrous or occasionally hairy, adaxially puberulent, base obtuse, margin 4–9-toothed on each side and rarely double dentate, apex obtuse to acute; upper leaves 1.5–3.5 × 0.8–1.5 cm. Racemes 1 or 2, axillary in upper leaves, 5–10 cm, 5–10-flowered, axis and pedicels puberulent; peduncle 2–3 cm; bracts linear to linear-lanceolate, usually shorter than pedicel, subglabrous. Pedicel straight, 5–8 mm. Calyx 4-lobed; lobes linear-lanceolate to linear-oblong, 3–4 mm, subequal, sparsely ciliate with multicellular glandular hairs. Corolla white, purple striate, rotate, ca. 1 cm in diam.; tube less than 1.5 mm; throat sparsely villous. Stamens slightly longer than corolla. Capsule pliciform-rhomboid, strongly compressed, 3–3.5 × 7–8 mm, base cuneate-truncate, base angle greater than 120°, lateral angles acute to obtuse, margin apically sparsely ciliate with multicellular glandular hairs, emarginate. Style 5.5–8 mm. Seeds 2–10 per locule, oblong-ovoid, flattened, slightly convex, ca. 1.2 mm. Fl. Jun–Jul.

• Forests, meadows; 1500–3000 m. W Hubei, S Shaanxi, NE Sichuan.

38. *Veronica longipetiolata* D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 403. 1979.

长柄婆婆纳 chang bing po po na

Perennials, 20–30 cm tall. Stems erect, rarely ascending, simple, sparsely villous with multicellular hairs. Leaves 4 or 5 pairs, ± evenly distributed; petiole 3–4 cm on lower leaves, shorter on upper; leaf blade shallowly cordate to ovate, 4–8 × 2–4.5 cm, larger upward, papery, abaxially puberulent along midrib, adaxially puberulent, margin deeply incised dentate. Racemes (1 or) 2–4, in axils of uppermost leaves, 10–20 cm, lax; bracts linear, longer than pedicel, glabrous or sparsely ciliate. Pedicel straight, 2–3 mm. Calyx 4-lobed; lobes lanceolate, 3–4 mm, subequal, glabrous or sparsely ciliate. Corolla blue, purple-blue, or pink, rotate, ca. 1.2 cm in diam.; tube less than 1.5 mm; throat sparsely villous with multicellular hairs. Stamens shorter than corolla. Capsule deltoid-flabelliform, strongly compressed, ca. 4 × 7–9 mm, base subtruncate or at an angle of ca. 150°, margin apically sparsely ciliate with multicellular hairs, emarginate. Style 6–7 mm. Seeds 2–10 per locule, ovate-globose, flattened, slightly convex, ca. 1.5 mm. Fl. Jun.

• Grassy places in forests; 2400–2700 m. Xizang (Nyalam Xian).

39. *Veronica cana* Wallich ex Benth, Scroph. Ind. 45. 1835.

灰毛婆婆纳 hui mao po po na

Perennials, 20–25 cm tall. Stems erect or ascending, simple, densely villous with gray-white multicellular hairs. Leaves 4 or 5 pairs; lower leaves petiole 1–1.5 cm; leaf blade shallowly cordate to deltoid-orbicular, smaller than upper leaves; upper leaves shorter petioled, leaf blade ovate-orbicular to ovate, 2.5–4 × 1.5–3 cm; all leaves papery, sparsely with gray-white hairs, base rounded, margin coarsely dentate, apex mostly obtuse.

Racemes usually paired, axillary from uppermost leaves, 3–7 cm, lax, axis and pedicels villous with multicellular hairs; peduncle 1–2 cm; bracts broadly linear, almost as long as pedicel. Calyx 4-lobed; lobes lanceolate, 3–5 mm, subequal, glabrous or sparsely ciliate. Corolla white, rotate, ca. 1.2 cm in diam.; tube less than 1.5 mm; throat hairy. Capsule deltoid-flabelliform, strongly compressed, ca. 5 × 9–10 mm, base subtruncate or with an angle greater than 120°, margin apically sparsely glandular ciliate, emarginate. Style 2–3 mm. Seeds 2–10 per locule, flattened, slightly convex. Fl. Jun.

Forests; 2000–3500 m. S Xizang, NW Yunnan [Bhutan, India, Kashmir, Nepal, Sikkim].

40. *Veronica riae* H. Winkler, Repert. Spec. Nov. Regni Veg. Beih. 12: 481. 1922.

膜叶婆婆纳 mo ye po po na

Perennials, 10–20 cm tall. Stems slender, ascending, creeping at base, simple, pubescent with multicellular hairs. Leaves 3 or 4 pairs, crowded apically on stem; lower petioles 5–10 mm, upper leaves sessile; leaf blade ovate to ovate-oblong, 2–4 × 1–2.5 cm, membranous, abaxially subglabrous, adaxially sparsely pubescent with multicellular hairs, base slightly oblique, margin dentate with teeth toward leaf apex. Racemes (1 or)2(or 3), axillary from upper leaves, 8–11 cm, 5–20-flowered, pubescent with multicellular hairs; peduncle more than 3 cm; bracts broadly linear, 2–3 mm. Pedicel straight, 5–7 mm. Calyx 4-lobed; lobes linear-lanceolate, ca. 3 mm, subequal, glabrous. Corolla red, rotate, ca. 1 cm in diam.; tube less than 1.5 mm; throat hairy. Stamens shorter than corolla. Capsule nearly as long as calyx, ca. 2 × as wide as long, apically ciliate, emarginate. Style 3–4 mm. Seeds 2–10 per locule, flattened, slightly convex. Fl. May–Jun.

• Forests; ca. 2000 m. Sichuan (Ya'an Xian, Tianquan Xian).

41. *Veronica henryi* T. Yamazaki, J. Jap. Bot. 31: 296. 1956.

华中婆婆纳 hua zhong po po na

Veronica cana Wallich ex Benth. subsp. *henryi* (T. Yamazaki) Elenevsky.

Perennials, 8–25 cm tall. Stems erect, ascending, or creeping and rooting below middle, basally subglabrous, apically villous, often red-purple, branched or not. Leaves 4–6 pairs, evenly distributed to crowded apically on stem; lower petioles ca. 1 cm, upper shorter; leaf blade ovate to narrowly ovate, 2–5 × 1.2–3 cm, papery, glabrous, or puberulent, or puberulent only adaxially, base usually cuneate, margin dentate with teeth toward leaf apex, apex often acute. Racemes 1–4 pairs, axillary from upper leaves, lax, 2–7-flowered, 3–6 cm, axis and pedicels villous; peduncle 0.5–1.5 cm; bracts linear-lanceolate, shorter than pedicel, glabrous. Pedicel straight, 1–2 mm at anthesis, ca. 3 mm in fruit. Calyx 4-lobed; lobes linear-lanceolate, subequal, 3–4 mm at anthesis, elongated in fruit, glabrous. Corolla

white or pale red, purple striate, rotate, ca. 1 cm in diam.; tube less than 1.5 mm; throat hairy. Stamens slightly shorter than corolla. Capsule pliciform-rhomboid, strongly compressed, 4–5 × 9–11 mm, base subtruncate or at an angle greater than 120°, margin apically sparsely ciliate with multicellular glandular hairs, emarginate. Style 2–3 mm. Seeds 2–10 per capsule, flattened, slightly convex, ca. 1.5 mm. Fl. Apr–May.

• Shaded moist places; 500–2300 m. Guangxi, Guizhou, Hubei, Hunan, Jiangxi (Wugong Shan), Sichuan, Yunnan.

Veronica henryi has been confused with *V. cana*, but they are distinct and no intermediates have been found. The relationship between *V. henryi* and *V. riae* is not completely understood, and *V. henryi* may be conspecific with *V. riae*.

42. *Veronica taiwanica* T. Yamazaki, J. Jap. Bot. 31: 297. 1956.

台湾婆婆纳 tai wan po po na

Perennials, 10–15 cm tall. Stems ascending, sparsely pubescent basally and densely apically. Leaves 3–6 pairs; petiole 5–8 mm, pubescent; leaf blade broadly ovate to deltoid-orbicular, 1–1.5 × 0.8–1.5 cm, papery, puberulent, base truncate to rounded, margin with 5–7 shallowly incised teeth on each side with tip toward leaf apex, apex acute. Racemes axillary in upper leaves, 1.5–2 cm, (1 or)2- or 3(–5)-flowered, nearly as long as leaves; bracts linear, glabrescent. Pedicel often subtended by a pair of linear bracteoles, ca. 2 mm in fruit, puberulent. Calyx 4-lobed; lobes linear-lanceolate, 2–3 mm, subequal, glabrous or glabrescent, apex acuminate. Corolla pink, rotate, 4–5 mm in diam.; tube less than 1.5 mm; throat hairy. Capsule pliciform-rhomboid, strongly compressed, 3–4 × 7–8 mm, angled, base cuneate-truncate, apically short ciliate on angles, emarginate. Style 1.5–1.8 mm. Seeds 2–10 per locule, ovoid, flattened, slightly convex, ca. 1.2 mm. Fl. Apr–Jul.

• Disturbed slopes along trails; ca. 1600 m. Taiwan (Ilan Xian).

43. *Veronica yunnanensis* D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 404. 1979.

云南婆婆纳 yun nan po po na

Perennials, 10–30 cm tall. Stems slender, ascending, simple, entirely villous with multicellular hairs or hairs only along 2 lines. Leaves 4 or 5 pairs, ± evenly distributed; petiole 3–7 mm, upper ones shorter; lower leaf blades small, ovate, base rounded-obtuse; upper ones narrowly ovate to ovate-lanceolate, 2–3 × 1–1.5 cm, base rounded; all leaf blades glabrous or adaxially sparsely hairy, margin with 4 or more deep incised teeth, teeth curved toward leaf apex, apex acute to acuminate. Racemes (1 or)2(or 3), axillary in upper leaves, ca. 2 cm, to 8 cm in fruit, lax, 2–10-flowered, axis and pedicels with dense multicellular glandular hairs; peduncle 0.5–2 cm; bracts linear, 3–4 mm, subglabrous. Pedicel straight. Calyx 4-lobed; lobes narrowly elliptic

to oblanceolate, ca. 3 mm, subequal, ciliate with multicellular glandular hairs. Corolla pink, rotate, ca. 1.1 cm in diam.; tube less than 1.5 mm; throat villous; lower lobe obovate, other 3 obovate-orbicular. Stamens much shorter than corolla. Capsule pliciform-rhomboid, strongly compressed, 4–5 × 8–10 mm, base angle slightly larger than 120°, margin apically glandular ciliate, emarginate. Style ca. 3 mm. Seeds 2–10 per locule, ovoid, flattened, slightly convex, ca. 0.6 mm. Fl. Jun–Aug.

• Forests, meadows, forest edges; 3000–4000 m. NW Yunnan.

44. *Veronica deltigera* Wallich ex Benth, Scroph. Ind. 45. 1835.

半抱茎婆婆纳 ban bao jing po po na

Veronica semiamplexicaulis D. Y. Hong.

Perennials, ca. 25 cm tall. Stems erect or ascending, sometimes rooting at base, simple or with underdeveloped branches from middle or apically, densely villous with multicellular hairs or hairs only along 2 lines. Leaves 6–8 pairs, evenly distributed, sessile and ± amplexicaul; leaf blade ovate, 2–3 × 1–2 cm, lower ones smaller, glabrous, base rounded to truncate, margin dentate to crenate toward leaf apex, apex acute to short acuminate. Racemes 1 or 2, axillary in upper leaves, 7–9 cm in flower, to 10-flowered, axis basally puberulent, densely glandular hairy in middle and apically; peduncle 2–3.5 cm; bracts broadly linear to lanceolate. Pedicel straight, shorter than bract. Calyx 4-lobed; lobes lanceolate, 4–5 mm, subequal, with sparse multicellular glandular hairs. Corolla blue-purple, rotate, to 1.3 cm in diam.; tube less than 1.5 mm, glabrous inside. Stamens shorter than corolla. Young fruit strongly compressed, base truncate, lateral angle acute, margin apically ciliate with multicellular glandular hairs, emarginate. Style 4–5 mm. Seeds 2–10 per locule, flattened, slightly convex. Fl. Jun.

Slope thickets, meadows; 2700–3100 m. S Xizang (Qomolangma Feng) [E Nepal].

45. *Veronica piroliformis* Franchet, Bull. Soc. Bot. France 47: 20. 1900.

鹿蹄草婆婆纳 lu ti cao po po na

Perennials. Rhizomes thick, branched. Roots ca. 1 mm in diam. Stems 1–5 cm, ascending or erect, hairy, internodes to 2 cm. Leaves crowded, often rosulate, rarely evenly distributed; petiole long to short, winged or wingless; leaf blade mostly spatulate, rarely elliptic or orbicular, 3–8 × 1–3.5 cm, larger upward, subglabrous to densely pubescent with multicellular hairs, base cuneate and attenuate into petiole, margin dentate, apex acute to obtuse. Racemes 1(–3), axillary, erect, scapose, to 20 cm, densely with brown-yellow multicellular glandular hairs (except for corolla). Pedicel straight, nearly as long as bract. Calyx 4-lobed; lobes linear-oblong to obovate-lanceolate, ca. 4 × 2 mm, subequal. Corolla blue, purple, or white, rotate, 1–1.2 cm in diam.; tube less than 1.5 mm; throat hairy.

Capsule pliciform-rhomboid, strongly compressed, 4–5 × 7–9 mm, base subtruncate or at an angle greater than 120°, lateral angles acute to obtuse, emarginate. Style ca. 1.5 mm. Seeds 2–10 per locule, ovoid-rounded, flattened, slightly convex, ca. 1.5 mm. Fl. Jun–Jul.

• Slope meadows, forests, limestone crevices; 2600–4000 m. SW Sichuan (Puge Xian), NW Yunnan.

46. *Veronica forrestii* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 282. 1912.

大理婆婆纳 da li po po na

Perennials. Stems creeping at least basally, 5–20 cm, villous, internodes 0.2–1(–3) cm and leaves crowded, to internodes ca. 3 cm and leaves evenly distributed. Leaves sessile or subsessile; leaf blade elliptic, 1–2 cm × 3–7 mm, papery, glabrous, base cuneate and attenuate into an inconspicuous petiole, margin entire basally, serrate at middle and apically, apex obtuse to acute. Racemes 1 or 2, axillary from lower and middle leaves, 5–15 cm, ca. 10-flowered, axis and pedicels densely with multicellular glandular hairs; bracts linear to linear-lanceolate, shorter than pedicel. Pedicel straight, ca. 1 cm in fruit. Calyx 4-lobed; lobes linear-elliptic, ca. 5 mm, subequal, with multicellular glandular hairs. Corolla red or white, rotate, 1–1.2 cm in diam.; tube less than 1.5 mm; throat hairy. Capsule pliciform-rhomboid, strongly compressed, ca. 5 × 7 mm, glandular, base angle ca. 120°, lateral angles acute to obtuse, margin apically with multicellular glandular hairs, emarginate. Style ca. 3 mm. Seeds 2–10 per locule, flattened, slightly convex, ca. 1 mm. Fl. Jun.

• Forests; 2000–3000 m. Yunnan (Dali Xian, Yangbi Xian).

47. *Veronica oligosperma* Hayata, Icon. Pl. Formosan. 5: 128. 1915.

少籽婆婆纳 shao zi po po na

Perennials. Stems creeping, densely villous with multicellular hairs. Petiole of lower leaves ca. 7 mm, shorter upward; leaf blade triangular-orbicular, 0.6–2 × 0.6–1.5 cm, sparsely villous with multicellular hairs, margin with 2 or 3 pairs of deeply incised coarse teeth with tips toward leaf apex, teeth margin recurved and thickened. Racemes 1, axillary from upper leaves, 1–4-flowered, villous with multicellular hairs (except for corolla); peduncle 1–3 cm; bracts linear to linear-lanceolate, shorter than pedicel. Pedicel ca. 6 mm, curved at anthesis, straight in fruit. Calyx 4-lobed; lobes narrowly elliptic, ca. 4 × 1.5 mm, subequal, with sparse multicellular glandular hairs, apex obtuse. Corolla rotate; tube less than 1.5 mm; throat hairy. Capsule pliciform-rhomboid, strongly compressed, 4–5 × 8–9 mm, margin apically ciliate with multicellular glandular hairs, emarginate. Style 2.5–3 mm, reflexed. Seeds 2–10 per locule, oblong-ovoid, flattened, slightly convex, ca. 1.6 mm. Fl. May–Sep.

• Moist forests; 2500–3500 m. Taiwan.

48. *Veronica tibetica* D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 404. 1979.

西藏婆婆纳 xi zang po po na

Perennials, ca. 10 cm tall. Roots thick, to 1 mm in diam. Rhizomes horizontal. Stems several, cespitose, ascending, simple, densely villous with white multicellular hairs. Leaves basally crowded, withered at anthesis; middle and upper leaves 3 or 4 pairs and larger upward; petiole 5–7 mm, shorter on lower leaves; leaf blade deltoid-ovate to ovate, 1–2 × 1–1.5 cm, papery, densely villous with white multicellular hairs, margin deeply incised with 5–7 and often obtuse teeth on each side, apex obtuse to acute, veins conspicuously reticulate. Racemes 1 or 2, axillary from uppermost leaves, appearing terminal, 2–3 cm in flower, axis and pedicels with multicellular glandular hairs; peduncle ca. 1 cm; bracts linear-elliptic, longer than pedicel, very sparsely hairy. Pedicel ca. 2 mm at anthesis. Calyx 4-lobed; lobes narrowly elliptic, 3–4 mm, subequal, sparsely ciliate. Corolla white, rotate, ca. 1.1 cm in diam.; tube less than 1.5 mm, glabrous in throat; lower lobe obovate, other 3 lobes orbicular. Stamens slightly shorter than corolla. Ovary and young fruit strongly compressed, margin apically ciliate. Style ca. 3.5 mm. Fl. Jun.

• Valley forests; ca. 2500 m. S Xizang (Gyirong Xian).

No mature fruit have been seen, but the glabrous corollas, dwarf habit, several pairs of withered leaves basally on stem at anthesis, short and thick rhizomes, and thick roots indicate that this is a distinct species.

49. *Veronica oxycarpa* Boissier in Kotschy, Pl. Pers. Austr., ed. R. F. Hohenacker, no. 639. 1845, printed label with a descr.

尖果水苦蕒 jian guo shui ku mai

Veronica anagallis-aquatica Linnaeus subsp. *oxycarpa* (Boissier) Elenevsky.

Perennials, rhizomes often more than 20 cm. Stems 30–100 cm tall, erect or procumbent at base, simple or with procumbent branches, ± succulent, glabrous or apically sparsely glandular hairy. Lower leaves short petiolate, others sessile and semiamplexicaul; leaf blade ovate to elliptic, lanceolate upward, 3–8 × 1–3 cm, margin entire or serrate; leaves on branches smaller than others, short petiolate. Racemes axillary, many flowered, to 15 cm, often curved and ascending. Pedicel 4–10 mm in fruit, longer than bract, curved and ascending. Calyx 4-lobed, as long as capsule or slightly shorter; lobes ovate-lanceolate, slightly unequal in width. Corolla blue, pale purple, or white, ca. 6 mm in diam.; tube short; lobes slightly unequal in width. Capsule ovoid-deltoid, slightly compressed, apically tapering, 3–4 × 2.5–3 mm, apex slightly notched. Style ca. 3 mm. Seeds ca. 30 per capsule, slightly flattened, ca. 0.5 mm. Fl. Jun–Aug. $2n = 18$.

By water near forests, open places near water. N Xinjiang, Xizang [Afghanistan, Bhutan, Kazakstan, Kyrgyzstan, Pakistan, Sikkim, Tajikistan, Turkmenistan; SW Asia].

50. *Veronica anagallis-aquatica* Linnaeus, Sp. Pl. 1: 12. 1753.

北水苦蕒 bei shui ku mai

Perennials or rarely annuals, usually glabrous, rarely sparsely glandular hairy on inflorescence axes, pedicels, calyces, and capsules. Rhizomes inclined. Stems erect or procumbent at base, branched or not, 10–100 cm tall, ± succulent. Leaves sessile, amplexicaul upward; leaf blade elliptic to ovate, sometime ovate-oblong, rarely lanceolate, 2–10 × 1–3.5 cm, margin entire or sparsely serrate. Racemes axillary, many flowered, longer than leaves, often less than 1 cm wide. Pedicel 4–10 mm in fruit, as long as or longer than bract, ascending, at acute angle with inflorescence axis, curved upward in fruit and thus capsule close to inflorescence axis. Calyx 4-lobed; lobes ovate-lanceolate, ca. 3 mm, equal in size, erect or patent, not appressed to capsule in fruit, apex acute. Corolla pale blue, pale purple, or white, rotate, 4–5 mm in diam.; tube short; lobes broadly ovate, slightly unequal in width. Stamens shorter than corolla. Capsule subglobose, as long as wide, slightly compressed, as long as calyx, apex rounded and slightly notched. Style 1.5–2 mm. Seeds numerous, slightly flattened, convex on both sides. Fl. Apr–Sep. $2n = 36$.

By water or in swamps; below 4000 m. Anhui, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jilin, Liaoning, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Kazakstan, Korea, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; Europe, naturalized in North America].

Young plants are edible. Fruit are abnormally swollen when parasitized by insects. These galls are called *xian tao cao* and are used medicinally.

Veronica anagallis-aquatica is an extremely widespread species. Its geographic variation and its relations to other species (e.g., *V. anagalloides*, *V. oxycarpa*, and *V. undulata*, as well as other species in *V. sect. Beccabunga* that do not occur in China) is still not fully understood.

51. *Veronica undulata* Wallich ex Jack in Roxburgh, Fl. Ind. 1: 147. 1820.

水苦蕒 shui ku mai

Veronica anagallis-aquatica Linnaeus subsp. *undulata* (Wallich ex Jack) Elenevsky.

Perennials, rarely annuals; stems, inflorescence axes, pedicels, calyces, and capsules sparsely with capitate glandular hairs. Rhizomes inclined. Stems erect or procumbent at base, branched or not, 10–100 cm tall, ± succulent. Leaves sessile, amplexicaul upward; leaf blade mostly elliptic to ovate, sometime ovate-oblong or linear-lanceolate, rarely lanceolate, 2–10 × 1–3.5 cm, margin usually serrate. Racemes axillary, longer than leaves, 1–1.5 cm wide, many flowered. Pedicel 3–5 mm, as long as or shorter than bract, straight, at a right angle with inflorescence axis, patent in fruit. Calyx 4-lobed; lobes ovate-lanceolate, ca. 3 mm, equal in size, erect or patent, not appressed to capsule in fruit, apex acute. Corolla pale blue, pale purple, or white, rotate, 4–5 mm in diam.; tube short; lobes broadly ovate, slightly unequal in width. Stamens shorter than corolla. Capsule subglobose, as long as wide and as calyx, slightly com-

pressed, apex rounded and slightly notched. Style 1–1.5 mm. Seeds ca. 30 per capsule, slightly flattened, convex on both sides. Fl. Apr–Sep. $2n = 18$.

By water or in swamps; below 2800 m. Throughout China except Nei Mongol, Ningxia, Qinghai, Xizang [E Afghanistan, N India, Japan, Korea, Laos, Nepal, Pakistan, Thailand, Vietnam].

Veronica undulata and *V. anagallis-aquatica* differ morphologically and geographically, with the latter not occurring in SE China.

Plants with galls are used to stimulate blood circulation, relieve pains, stimulate menstrual flow, and stop bleeding.

52. *Veronica anagalloides* Gussone, Pl. Rar. 5: t. 3. 1826.

长果水苦茛 chang guo shui ku mai

Annuals; inflorescence axes, pedicels, calyces, and capsules usually sparsely glandular hairy. Stems 15–50 cm tall, erect, simple or branched at base, \pm succulent, very sparsely glandular hairy, sometimes glabrous. Leaves sessile, semiamplexicaul, lanceolate to linear-lanceolate, 2–5 \times 0.5–1 cm, margin subentire to serrate. Racemes axillary, to 15 cm, many flowered. Pedicel 3–7 mm, straight or apically slightly curved, at an angle of 60–70° with inflorescence axis. Calyx 4-lobed; lobes elliptic, equal in size, obscurely 3-veined, outside glandular hairy, apex acute, erect and appressed to capsule in fruit. Corolla blue to pale purple, rotate, 3 mm in diam.; tube short; lobes slightly unequal in width. Capsule ellipsoid to broadly so, slightly compressed, 2.5–4 \times 2–2.5 mm, longer than calyx, emarginate. Style ca. 1.5 mm. Seeds ca. 30 per capsule, slightly flattened, convex on both sides, ca. 0.7 mm. Fl. Jun–Jul, fr. Jul–Sep. $2n = 18$.

Ditches, river sides, wet places; 300–2900 m. Gansu (Yumen Shi), Heilongjiang (Harbin Shi), Nei Mongol (Tongliao Xian, Wulabu Meng), Qinghai (Delingha), N Shaanxi, Shanxi, N Xizang [Afghanistan, Japan, Kazakstan, Korea, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan; SW Asia, C to S Europe].

53. *Veronica beccabunga* Linnaeus subsp. *muscosa* (Korshinsky) Elenevsky, Byull. Moskovsk. Obshch. Isp. Prir., Otd. Biol. 82: 153. 1977.

有柄水苦茛 you bing shui ku mai

Veronica beccabunga var. *muscosa* Korshinsky, Zap. Imp. Akad. Nauk. Fiz.-Mat. Otd. 4(4): 96. 1896; *V. hjuleri* Paulsen.

Perennials, 2–10 cm tall, glabrous. Rhizomes elongated. Stems repent, 10–30 cm, apically slightly ascending, branched, \pm succulent. Petiole 1–5 mm, conspicuous; leaf blade suborbicular, ovate, or oblong, 0.5–2.5 \times 0.3–1.5 cm, margin subentire or shallowly serrulate to crenulate and 5–9-toothed per side. Racemes axillary, 1–3 cm, 3–15-flowered; peduncle 0.3–1.5 (–2) cm in fruit, to 1/2 as long as subtending leaf. Pedicel 3–8 mm, straight, almost horizontally patent. Calyx 4-lobed; lobes ovate-lanceolate, equal in size, reflexed or \pm distant from capsule. Corolla pale purple to pale blue, rotate, ca. 5 mm in diam., tube short; lobes slightly unequal in width. Capsule subrounded, slightly compressed, 3–4 \times 3–5 mm, apex notch inconspicuous.

Style 1–2 mm. Seeds ca. 30 per capsule, slightly flattened, convex on both sides; seed coat shallowly reticulate. Fl. Apr–Sep.

By water; 1200–2500 m. SW Sichuan (Muli Zangzu Zizhixian), Xinjiang, NW Yunnan, [Afghanistan, Kashmir, Kazakstan, Kyrgyzstan, Nepal, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia (E Iran)].

Veronica beccabunga subsp. *abscondita* M. A. Fischer occurs in the mountains of SW Asia, whereas *V. beccabunga* subsp. *beccabunga* occurs widely in Europe to N and W Turkey and is naturalized in North America.

