

35. VERONICASTRUM Heister ex Fabricius, Enum. 111. 1759.

腹水草属 fu shui cao shu

Botryopleuron Hemsley; *Calorhabdos* Benthams; *Leptandra* Nuttall.

Herbs, perennial. Roots usually densely yellow tomentose when young. Rhizomes short to long, rarely absent. Stems erect or arching and rooting at apex. Leaves alternate, opposite, or whorled. Inflorescences terminal or axillary, spicate. Flowers usually crowded. Calyx 5-lobed, upper lobe slightly smaller than others. Corolla 4-lobed; tube tubular, straight or slightly curved, usually with a ring of villous hairs inside, rarely glabrous; limb actinomorphic or ± 2-lipped; lobes unequal in width, upper widest, lower narrowest. Stamens 2; filaments usually basally villous, rarely glabrous, adnate to upper part of corolla tube; anther locules connivent, not confluent. Stigma small, slightly dilated. Capsule ovoid to ovoid-globose, slightly compressed laterally, 2-grooved, 4-valved. Seeds numerous per capsule.

About 20 species: E Asia, North America; 13 species in China.

1a. Stems winged; corolla tube as long as wide; corolla lobes as long as tube.

2a. Stems ca. 100 cm tall; leaf blade oblong, ovate, or lanceolate 10. *V. caulopterum*

2b. Stems 15–30 cm tall; leaf blade linear to elliptic 11. *V. formosanum*

1b. Stems terete or angular (but usually winged in *V. brunonianum* subsp. *sutchuense*); corolla tube longer than

wide; corolla lobes shorter than tube (equal to tube in *V. rhombifolia* and *V. axillare*).

3a. Corolla slightly to conspicuously 2-lipped, lower lobes ± reflexed, upper often galeate; seed coat transparent.

4a. Stems herbaceous, erect; leaves sessile, narrowly elliptic; corolla conspicuously 2-lipped, lower lobes

strongly reflexed 1. *V. brunonianum*

4b. Stems ± woody, climbing; leaves petiolate, blade ovate to ovate-lanceolate; corolla slightly 2-lipped,

lower lobes not strongly reflexed 2. *V. yunnanense*

3b. Corolla actinomorphic, lobes straight; seed coat not transparent.

5a. Inflorescences terminal on main stems; flowers pedicellate; leaves sessile.

6a. Leaves in whorls of 4–6, oblong to broadly linear, 1.5–4.5 cm wide 12. *V. sibiricum*

6b. Leaves alternate, linear, ca. 0.6 cm wide 13. *V. tubiflorum*

5b. Inflorescences axillary or terminal on branches (sometimes terminal on main stem in *V. stenostachium*); flowers sessile; leaves short petiolate to subsessile.

7a. Bracts ovate-orbicular or ovate-lanceolate; corolla tube subglabrous inside 8. *V. robustum*

7b. Bracts linear-lanceolate to subulate; corolla tube with a ring of villous hairs inside.

8a. Leaves rhomboid, rarely rhomboid-ovate; corolla lobes 1/3–1/2 of corolla length 9. *V. rhombifolium*

8b. Leaves not rhomboid (rhomboid-ovate in *V. villosulum*); corolla lobes 1/6–1/4 of corolla length (1/3–1/2 in *V. axillare*).

9a. Ovaries and young fruit hairy; inflorescence axes, bracts, and calyx lobes densely capitate glandular or hispidulous 3. *V. longispicatum*

9b. Ovaries and young fruit glabrous; inflorescence axes, bracts, and calyx lobes not densely

capitate glandular (bracts and calyx lobes sometimes densely pubescent in *V. villosulum*

var. *villosulum* and var. *hirsutum*).

10a. Corolla lobes 1/3–1/2 of corolla length; stems angular in middle and apically 6. *V. axillare*

10b. Corolla lobes 1/6–1/4 of corolla length; stems terete, sometimes apically angular.

11a. Inflorescences less than 1.5 cm 7. *V. villosulum*

11b. Inflorescences 1.5–8 cm.

12a. Leaves narrowly ovate to lanceolate, 7–20 cm 4. *V. stenostachyum*

12b. Leaves ovate-orbicular to orbicular, 4–7 cm 5. *V. latifolium*

1. *Veronicastrum brunonianum* (Benthams) D. Y. Hong in T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 230. 1979.

美穗草 mei sui cao

Rhizomes to 10 cm. Stems herbaceous, erect, 30–150 cm tall, terete, wingless or rarely winged, basally glabrous, apically with multicellular glandular hairs; branches rarely developed. Leaves alternate, sessile,

narrowly elliptic, 10–20 × 3–5 cm, glabrous or adaxially sparsely puberulent, base cuneate to ± rounded and sometimes slightly amplexicaul, margin dentate to serrate, apex acuminate to caudate-acuminate. Inflorescences terminal, often 1, occasionally 2 or more, long caudate, axis densely glandular with multicellular hairs. Corolla white, yellow-white, grayish yellow, or orange-yellow, 6–8 mm, arching 30° forward; tube apically hairy inside; limb 2–3 mm, conspicuously 2-lipped, unequally lobed; lower lip linear-lanceolate, reflexed; upper lip 3-lobed, middle lobe ovate-orbicular and straight or ± galeate, lateral lobes erect or reversed toward lateral-posterior position. Stamens ± exerted; filaments hairy or sometimes glabrous; anthers to 2.5 mm. Capsule ovoid-globose, ca. 4 mm. Seeds angular; seed coat thick, transparent, reticulate. Fl. Jul–Sep.

Ravines, shaded slopes with grasses, under forests; 1500–3000 m. Guizhou (Fangjing Shan, Panxian Tequ), W Hubei, Sichuan, Xizang (Mainling Xian), Yunnan [Bhutan, Nepal, Sikkim].

- 1a. Stems wingless; filaments hairy
..... 1a. subsp. *brunonianum*
- 1b. Stems usually winged; filaments mostly glabrous 1b. subsp. *sutchuenense*

1a. *Veronicastrum brunonianum* subsp. *brunonianum*
美穗草(原亚种) mei sui cao (yuan ya zhong)

Calorhabdos brunoniana Benth., Bot. Reg. 21: ad t. 1770. no. 72. 1835.

Stems terete, wingless. Filaments hairy. Fl. Jul–Sep.

Ravines, shaded slopes with grasses, under forests; 1500–3000 m. Guizhou (Fangjing Shan, Panxian Tequ), W Hubei, Sichuan (E of Erlang Shan), Xizang (Mainling Xian), Yunnan [Bhutan, Nepal, Sikkim].

1b. *Veronicastrum brunonianum* subsp. *sutchuenense*
(Franchet) D. Y. Hong, Novon 6: 23. 1996.

川鄂美穗草 chuan e mei sui cao

Calorhabdos sutchuenensis Franchet, Bull. Soc. Bot. France 47: 18. 1900.

Stems usually winged. Filaments mostly glabrous. Fl. Jul.

• E Sichuan (Chengkou Xian, Wuxi Xian), W Hubei (Fangxian, Shennongjia Linqu).

The type locality of *Calorhabdos sutchuenensis* is Chengkou, E Sichuan, from where the specimens examined seem to be rather different from typical *Veronicastrum brunonianum* in having stems winged and filaments glabrous. However, the examination of two specimens from the Shennongjia Mountains of W Hubei showed that one had winged stems and hairy filaments, while the other had wingless stems and glabrous filaments.

2. *Veronicastrum yunnanense* (W. W. Smith) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 130. 1957.

云南腹水草 yun nan fu shui cao

Botryopleuron yunnanense W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 9. 1917.

Stems ± woody, climbing, terete, obscurely angular, branched in middle, villous with multicellular hairs or with curly brown hairs. Leaves alternate, petiolate; leaf

blade ovate to ovate-lanceolate, 3–5 × 1–2.5 cm, adaxially dark when dry, sparsely hairy. Inflorescences terminal, 3–6 cm, capitate glandular. Corolla white or blue, 5–6 mm, slightly arching forward; tube sparsely hairy inside; limb slightly 2-lipped, unequally lobed; lower lip 1-lobed, broadly linear, often reflexed; upper lip 3-lobed, middle lobe ± galeate. Stamens exerted; filaments basally hairy. Capsule ca. 2.5 mm. Seeds ovoid; seed coat thin, transparent, conspicuously reticulate. Fl. May–Aug.

• Scrub, forest margins. SW Sichuan, Yunnan (Yongping Xian, Yao'an Xian).

3. *Veronicastrum longispicatum* (Merrill) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 128. 1957.

长穗腹水草 chang sui fu shui cao

Botryopleuron longispicatum Merrill, Philipp. J. Sci. 21: 509. 1922.

Plants rhizomatous. Stems basally ± woody, erect, rarely trailing, to 1 m tall, terete, apically narrowly angular, glabrous to densely with yellow short curly hairs. Leaves alternate; petiole short; leaf blade ovate to ovate-lanceolate, 8–18 × 3–9 cm, papery to leathery, glabrous or abaxially sparsely puberulent, base rounded to rarely cordate, margin deltoid dentate, apex acuminate to caudate-acuminate. Inflorescences axillary, sometimes terminal, 3–10 cm, densely glandular hairy or hispidulous (sometimes excluding corolla); bracts narrow. Calyx much shorter than corolla; lobes subulate. Corolla white or purple, 5–6 mm, slightly curved forward, glabrous or glandular hairy outside; limb actinomorphic; lobes ca. 1/4 of corolla length, narrowly triangular. Stamens conspicuously exerted; filaments basally hairy. Ovary entirely or apically glandular hairy. Capsule ovoid, ca. 3 mm, hairy when young. Seeds ovoid-globose, ca. 0.5 mm; seed coat obscurely reticulate. Fl. Jul–Sep.

• Forests, thickets; below 1000 m. Guangdong, Guangxi (Jiuwan Shan), S Hunan.

The indumentum of *Veronicastrum longispicatum* is variable. Plants with glabrous stems are usually glandular hairy on the inflorescence axis and other floral parts, including the outer surface of the corollas. Plants with short curly hairs on the stems are hispidulous on the inflorescence axis and various floral parts, but the outer surface of the corollas are glabrous. Other combinations are also found.

4. *Veronicastrum stenostachyum* (Hemsley) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 128. 1957.

腹水草 fu shui cao

Rhizomes short, horizontal. Stems erect or arching, glabrous or hairy. Leaves alternate; petiole short; leaf blade ovate to lanceolate, 7–20 cm, membranous to papery, apex narrowly acuminate. Inflorescences axillary, sometimes terminal on main stems, 1.5–8 cm; bracts shorter or equal in length to corolla, sparsely ciliate, rarely glabrous. Calyx shorter or equal in length to corolla, sparsely ciliate, rarely glabrous. Corolla white, pale red, purple, or purple-red, 5–6 mm, straight; limb actinomorphic; lobes subdeltoid, less than 1 mm.

Stamens conspicuously exerted; filaments hairy. Capsule ovoid. Seeds small; seed coat reticulate. Fl. Jun–Sep.

• Scrub, forests, forest margins; below 1300 m. NW Fujian, N to NE Guizhou, W Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan.

1a. Stems erect, branched 4b. subsp. *nanchuanense*

1b. Stems usually arching, simple.

2a. Stems glabrous 4a. subsp. *stenostachyum*

2b. Stems sparsely with yellow curly hairs 4c. subsp. *plukenetii*

4a. *Veronicastrum stenostachyum* subsp. *stenostachyum*

腹水草(原亚种) fu shui cao (yuan ya zhong)

Calorhabdos stenostachya Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 196. 1890; *C. fargesii* Franchet; *C. venosa* Hemsley p.p. excluding syntype from Zhejiang.

Stems more than 1 m, mostly arching and rooting apically, rarely erect, angular, glabrous. Leaf blade narrowly ovate to lanceolate. Inflorescences axillary, sometimes terminal on leafy branches, rarely also on main stems. Bracts and calyces shorter than or rarely as long as corolla, sparsely ciliate. Corolla white, purple, or purple-red. Fl. Jul–Sep.

• N Guizhou, W Hubei, NW Hunan, S Shaanxi, Sichuan (E of Erlang Shan).

Used medicinally.

This subspecies is variable and may be polytypic. Plants from S Shaanxi and NE Sichuan have usually broader leaves and bracts and more coarsely dentate leaf margin, while those from Emei Shan and Ya an have narrower, lanceolate to ovate-lanceolate leaves and sparsely flowered inflorescences also terminal on main stems.

4b. *Veronicastrum stenostachyum* subsp. *nanchuanense* T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 401. 1979.

南川腹水草 nan chuan fu shui cao

Stems erect, 50 cm tall, branched, with yellow short curly hairs. Leaf blade ovate to ovate-lanceolate, margin deltoid dentate to rarely serrate. Inflorescences axillary and terminal. Calyx lobes filiform, shorter than bracts, subglabrous. Corolla pale red. Fl. Jun–Aug.

• Sichuan (Nanchuan Xian).

4c. *Veronicastrum stenostachyum* subsp. *plukenetii* (T. Yamazaki) D. Y. Hong in T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 236. 1979.

腹水草 fu shui cao

Botryopleuron plukenetii T. Yamazaki, J. Jap. Bot. 27: 66. 1952.

Stems arching and rooting apically, sparsely with yellow short curly hairs. Leaf blade narrowly ovate to ovate-lanceolate, 9–16 × 3–6 cm, membranous to papery. Inflorescences 1.5–5 cm. Bracts and calyx lobes subulate, ciliate or glabrous. Fl. Jul–Aug.

• NW Fujian, NE Guizhou, Hubei (Xingshan Xian), Hunan, Jiangxi.

5. *Veronicastrum latifolium* (Hemsley) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 130. 1957.

宽叶腹水草 kuan ye fu shui cao

Calorhabdos latifolia Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 196. 1890.

Stems more than 1 m, apically arching and rooting, terete, apically narrowly angular, usually with yellow, short curly hairs, rarely glabrous. Leaves alternate; petiole short; leaf blade ovate-orbicular to orbicular, 4–7 × 2–5 cm, usually sparsely hispidulous, rarely glabrous, base rounded, truncate, or broadly cuneate, margin deltoid dentate, apex short acuminate. Inflorescences axillary, rarely also terminal, 1.5–4 cm; bracts narrow, ciliate. Calyx lobes ciliate. Corolla pale purple or white, ca. 5 mm, straight, limb actinomorphic; lobes deltoid, less than 1 mm. Stamens conspicuously exerted; filaments hairy. Capsule ovoid, 2–3 mm. Seeds ovoid-globose, ca. 0.3 mm; seed coat reticulate. Fl. Aug–Sep.

• Forests, thickets, sometimes hanging from rocks; 300–500 m. Guizhou, Hubei, Hunan, C to E Sichuan.

6. *Veronicastrum axillare* (Siebold & Zuccarini) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 130. 1957. 爬岩红 pa yan hong

Paederota axillaris Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(3): 144. 1846; *Botryopleuron formosanum* Masamune; *Calorhabdos simadai* Masamune.

Rhizomes short, horizontal. Stems arching and rooting apically, basally terete, angular in middle and apically, glabrous, rarely sparsely hairy on angles. Leaves alternate; petiole short; leaf blade ovate to ovate-lanceolate, 5–12 cm, papery, glabrous, margin obliquely deltoid dentate, apex acuminate. Inflorescences axillary, rarely terminal, 1–3 cm. Bracts and calyx lobes linear-lanceolate to subulate, glabrous or ciliate. Corolla purple to purple-red, 4–5 mm, straight; limb actinomorphic; lobes ca. 2 mm, narrowly triangular. Stamens slightly to conspicuously exerted, exceeding corolla by ca. 2 mm; filaments hairy; anthers 0.6–1.5 mm. Capsule ovoid-globose, ca. 3 mm. Seeds oblong, ca. 0.6 mm; seed coat obscurely reticulate. Fl. Jul–Sep.

Forests, grasslands at forest margins, shaded places in valleys; low elevations. Anhui (Shucheng Xian), Fujian, Guangdong (Ruyuan Yao Zizhi Xian), S Jiangsu, Jiangxi, Taiwan (Xinzhu Xian), Zhejiang [Japan].

7. *Veronicastrum villosulum* (Miquel) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 130. 1957.

毛叶腹水草 mao ye fu shui cao

Rhizomes short. Stems arching and rooting apically, terete, sometimes apically narrowly angular. Leaves alternate; petiole short; leaf blade rhomboid-ovate, 4–15 × 1.5–7 cm, glabrous or hairy, base mostly broadly cuneate to rarely rounded, margin dentate, apex acute to acuminate. Inflorescences capitate, axillary, 1–1.5 cm; bracts lanceolate, as long as or shorter than corolla, ciliate. Calyx shorter than bracts; lobes subulate. Co-

rolla straight; limb actinomorphic; lobes 1–2 mm. Stamens conspicuously exerted; filaments hairy; anthers 1.2–1.5 mm. Capsule ovoid, ca. 2.5 mm. Seeds black, globose. Fl. May–Sep.

Forests, grasslands at forest margins, thickets; 400–900 m. Anhui, N Fujian, E to N Jiangxi, Zhejiang [Japan].

Veronicastrum villosulum is very variable in indumentum, leaf margin, corolla length, and merosity. However, its inflorescences are always short, capitate or subcapitate, bracts and calyx lobes are always ciliate, and by these characters it can be distinguished from *V. axillare* and *V. stenostachyum*. Four varieties can be tentatively recognized although they are not always correlated with distinct geographical distributions.

- 1a. Corolla lobes deltoid, ca. 1 mm 7a. var. *villosulum*
- 1b. Corolla lobes narrowly triangular, 1–2 mm.
 - 2a. Leaves 4–8 cm; corolla 3.5–5 mm
..... 7c. var. *parviflorum*
 - 2b. Leaves 6–15 cm; corolla 5–9 mm.
 - 3a. Stems and leaves hairy . 7b. var. *hirsutum*
 - 3b. Stems and leaves glabrous 7d. var. *glabrum*

7a. Veronicastrum villosulum var. **villosulum**

毛叶腹水草(原变种) mao ye fu shui cao (yuan bian zhong)

Paederota villosula Miquel, Ann. Mus. Bot. Lugduno-Batavum 2: 118. 1866; *Botryopleuron macrophyllum* H. L. Li.

Stems, leaves, bracts, and calyx lobes densely with brown multicellular glandular hairs. Leaf blade 7–12 × 3–7 cm. Corolla purple to purple-blue, 6–7 mm; lobes ca. 1 mm, deltoid. Fl. Jun–Aug.

Forests. S Anhui (Huang Shan, Qimen Xian), N Jiangxi (Lu Shan), Zhejiang (Kaihua Xian) [Japan].

Used medicinally for fever caused by snail-borne diseases.

7b. Veronicastrum villosulum var. **hirsutum** T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 401. 1979.

刚毛腹水草 gang mao fu shui cao

Stems usually with brownish yellow pubescence of multicellular curly hairs, rarely with brown multicellular glandular hairs. Leaf blade mostly ovate to ovate-orbicular, hirsute, rarely with brown multicellular glandular hairs. Bracts and calyx lobes with long to short glandular hairs. Corolla purple, 5–9 mm; lobes 1.5–2 mm, narrowly triangular. Fl. May–Aug.

• Forests; 400–600 m. N Fujian, E Jiangxi, S Zhejiang.

7c. Veronicastrum villosulum var. **parviflorum** T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 401. 1979.

两头忙 liang tou mang

Veronicastrum lungtsuanense M. Cheng & Z. J. Feng.

Stems densely with short curly hairs. Leaf blade ovate to ovate-lanceolate, 4–8 × 1.5–3 cm, with short curly hairs on veins, base truncate to rounded to rarely broadly cuneate, margin crenate with sinuses basally having a pointed process. Corolla white, 3.5–5 mm; lobes 1.2–1.6 mm. Fl. Jul–Sep.

• Forests, grasslands at forest margins; ca. 900 m. S Zhejiang.

7d. Veronicastrum villosulum var. **glabrum** T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 402. 1979.

铁钓竿 tie diao gan

Stems and leaves glabrous. Leaf blade narrowly ovate to ovate-lanceolate, 6–15 × 2.5–6 cm, papery, adaxially lucid, base rounded, margin dentate with teeth oblique toward leaf apex, apex acuminate. Bracts and calyx lobes densely ciliate. Corolla purple, pale purple, or purple blue, 5–6 mm; lobes narrowly triangular, ca. 1.5 mm.

• Forests and thickets. Anhui (Qimen Xian), S Zhejiang.

Used medicinally for fever caused by snail-borne diseases.

8. Veronicastrum robustum (Diels) D. Y. Hong in T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 244. 1979.

粗壮腹水草 cu zhuang fu shui cao

Rhizomes short. Stems erect, to 1 m tall, ± twisted apically at each node, stout, terete, glabrous. Leaves alternate, subsessile; leaf blade lanceolate to ovate-orbicular, 15–27 × 3.5–11 cm. Inflorescences axillary, ascending, patent or ± pendulous, sometimes 2 or 3 in leaf axil, 2–6 cm; bracts ovate-orbicular to ovate-lanceolate, 1.5–5 mm, short ciliate. Calyx lobes shorter than bracts, lanceolate, short ciliate. Corolla purple or white, 4.5–7 mm, straight; tube subglabrous inside; limb actinomorphic; lobes 1–2 mm, narrowly triangular. Stamens conspicuously exerted; filaments hairy.

Capsule 2.5–3 mm. Seeds oblong. Fl. Jun–Jul.

• Sparse forests, thickets. NW Fujian, NW Guangxi, SW Hunan, NE Jiangxi.

- 1a. Leaves ovate to lanceolate, usually serrate, adaxially with curly hairs on lower 1/2 of midrib 8a. subsp. *robustum*
- 1b. Leaves ovate-orbicular, dentate, glabrous 8b. subsp. *grandifolium*

8a. Veronicastrum robustum subsp. **robustum**

粗壮腹水草(原亚种) cu zhuang fu shui cao (yuan ya zhong)

Calorhabdos robusta Diels, Notizbl. Bot. Gart. Mus. Berlin-Dahlem 9: 1031. 1927.

Leaves adaxially lucid, with short curly hairs on basal 1/2 of midrib; leaf blade ovate to lanceolate, 15–20 × 3.5–8.5 cm, green-black, base rounded to broadly cuneate or rarely shallowly cordate, margin usually serrate. Fl. Jun–Jul.

• Sparse forests, thickets; 500–600 m. NW Fujian, NE Jiangxi.

8b. Veronicastrum robustum subsp. **grandifolium** T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 402. 1979.

大叶腹水草 da ye fu shui cao

Leaves glabrous; leaf blade ovate-orbicular, rarely lanceolate, 15–27 × 7–11 cm, green or brown, not lucid, base cordate, truncate, or rounded, margin mostly dentate.

- Sparse forests, thickets. NW Guangxi, SW Hunan.

9. *Veronicastrum rhombifolium* (Handel-Mazzetti) P. C. Tsoong ex T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 245. 1979.

菱叶腹水草 ling ye fu shui cao

Botryopleuron rhombifolium Handel-Mazzetti, Oesterr. Bot. Z. 90: 124. 1941.

Rhizomes short. Stems often erect, ca. 50 cm tall, rarely trailing and rooting and ca. 1 m, angular, wingless, with multicellular hirsute hairs. Leaves alternate; petiole short; leaf blade often rhomboid, rarely rhomboid-ovate, 4–6 × 1.5–3 cm, papery, with multicellular hispid hairs, sometimes abaxially purple, margin serrate to crenate. Inflorescences axillary, sometimes surrounded by several leafy involucrate bracts and appearing terminal, 1–3 cm, horizontal or pendulous in fruit. Bracts and calyx lobes lanceolate to subulate, densely ciliate, slightly shorter or as long as corolla. Corolla purple, red, or white, 5–6 mm, straight; limb actinomorphic; lobes subulate-triangular, 1/3–1/2 of corolla length. Stamens conspicuously exerted; filaments hairy. Capsule ovoid, 3–4 mm. Seeds ovoid-globose, ca. 0.4 mm; seed coat reticulate. Fl. Aug–Sep.

- Thickets; below 2800 m. Sichuan (Ya'an Diqu).

10. *Veronicastrum caulopterum* (Hance) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 127. 1957.

四方麻 si fang ma

Calorhabdos cauloptera Hance in Trimmer, J. Bot. 15: 298. 1877; *Veronica martini* H. Léveillé.

Stems erect, ca. 1 m tall, branched, with wings ca. 1 mm wide, glabrous. Leaves alternate, subsessile or petiole ca. 4 mm; leaf blade oblong, ovate, or lanceolate, 3–10 × 1.2–4 cm. Inflorescences terminal on main stems and on leafy branches; bracts long caudate. Pedicel less than 1 mm. Calyx lobes subulate-lanceolate, ca. 1.5 mm. Corolla red, purple-red, or dark purple, 4–5 mm; tube as long as limb; limb ± actinomorphic; upper lobes ovate-orbicular, lower lobes lanceolate. Stamens slightly exerted; filaments hairy. Capsule ovoid to ovoid-globose, 2–3.5 mm. Fl. Aug–Nov.

- Valley meadows, sparse forests; below 2000 m. Guangdong, Guangxi, Guizhou (Xingren Xian), SW Hubei, Hunan, Jiangxi, SE Yunnan.

Used medicinally to treat dysentery and sore throat.

One specimen from Pingshan, Sichuan (*T. T. Yu 4333*) belongs to *Veronicastrum caulopterum* but differs in having thin stems prostrate basally, petioles ca. 1 cm, short and lax inflorescences, and pedicel ca. 2 mm. Furthermore, it is a distant disjunct from the main area and seems to merit subspecific rank. However, the material is inadequate for a proper taxonomic treatment.

11. *Veronicastrum formosanum* (Masamune) T. Yamazaki, J. Fac. Sci. Univ. Tokyo, sect. 3, Bot. 7: 127. 1957.

台湾腹水草 tai wan fu shui cao

Veronica formosana Masamune, J. Soc. Trop. Agric. 2: 241. 1930; *Calorhabdos kitamurae* Ohwi;

Veronicastrum kitamurae (Ohwi) T. Yamazaki.

Stems erect, 15–30 cm tall, simple or branched, winged, glabrous. Leaves alternate, subsessile to short petiolate; leaf blade broadly linear to elliptic, 4–11 × 0.5–2 cm, glabrous, base attenuate, margin serrate to dentate and with ascending teeth tips, apex acute to acuminate.

Racemes terminal on main stems and leafy branches, 1.5–4.5 cm; bracts subulate-lanceolate, 3–5 × ca. 1 mm. Calyx glabrous; lobes subulate-lanceolate, 3–4 × ca. 1 mm. Corolla greenish to yellowish or purplish, ca. 3 mm, pubescent; tube as long as limb; limb actinomorphic. Stamens nearly as long as corolla; filaments hairy. Capsule ovoid-globose, 3–4 mm, glabrous. Fl. Jul–Aug.

- 2000–3000 m; Taiwan (Hualian Xian).

12. *Veronicastrum sibiricum* (Linnaeus) Pennell, Acad. Nat. Sci. Philadelphia Monogr. 1: 321. 1935.

草本威灵仙 cao ben wei ling xian

Veronica sibirica Linnaeus, Sp. Pl. ed. 2, 12. 1762; *V. sibirica* var. *glabra* Nakai.

Rhizomes horizontal, to 13 cm, internodes short. Stems erect, simple, terete, glabrous or sparsely villous and with multicellular hairs. Leaves in whorls of 4–6, sessile, oblong to broadly linear, 8–15 × 1.5–4.5 cm, glabrous or sparsely hirsute and with multicellular hairs. Inflorescences terminal; bracts long caudate, glabrous. Calyx less than 1/2 as long as corolla; lobes subulate. Corolla red-purple, purple, or pale purple, 5–7 mm; tube tubular, straight, apically hairy inside; limb actinomorphic; lobes 1.5–2 mm. Capsule ovoid, ca. 3.5 mm. Seeds ellipsoid. Fl. Jul–Sep.

Trailsides, grassy slopes, thickets; below 2500 m. E Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, N Shaanxi, N Shanxi, Shandong [Japan, Korea, Mongolia, Russia].

13. *Veronicastrum tubiflorum* (Fischer & C. A. Meyer) H. Hara, J. Jap. Bot. 16: 159. 1940.

管花腹水草 guan hua fu shui cao

Veronica tubiflora Fischer & C. A. Meyer, Index Sem. Hort. Petrop. 2: 53. 1835.

Roots glabrous. Rhizomes absent. Stems erect, 40–70 cm tall, simple, terete, apically villous. Leaves alternate, sessile, linear, 3–9 × ca. 0.6 cm, papery, abaxially densely villous, adaxially hispidulous, glabrescent, margin sparsely serrate, 1-veined. Inflorescences terminal, single, 5–15 cm, axis and pedicels sparsely villous. Calyx lobes lanceolate, ca. 1.5 mm, short ciliate. Corolla blue to pale red, ca. 6 mm; tube tubular, straight, apically hairy inside; limb actinomorphic; lobes ca. 1/4 of corolla length. Capsule ovoid, 2–2.5 mm, apex acute. Fl. Jun–Aug.

Meadows, thickets; low elevations. Heilongjiang, Jilin, Nei Mongol [Mongolia, Russia (Far East, E Siberia)].

Flora of China 18: 57–61. 1998.