

5. **CYATHULA** Blume, Bijdr. Fl. Ned. Ind. 548. 1826, nom. cons., not Loureiro (1790).

杯苋属 bei xian shu

Herbs or subshrubs. Stem erect or ascending. Leaves opposite, petiolate, margin entire. Flowers clustered in cymose partial inflorescences, 1-3 in each cluster, hermaphroditic, partly accompanied by sterile ones. Bracts ovate, membranous, often spiny. Tepals 5, nearly equal, membranous. Stamens 5; anther 2-loculed, oblong; filaments connate into a short cup at base, alternating with dentate or lacerate staminodes. Ovary obovoid; ovule 1, pendulous from a long funicle; style filiform, persistent; stigma capitate. Utricles included in persistent perianth, globose, ellipsoid, or obovoid, membranous, indehiscent. Seeds oblong or ellipsoid.

About 27 species distributed in Asia, Pacific Islands, Africa, and North and South America; four species in China.

Cyathula semirosulata Masamune (Trans. Nat. Hist. Soc. Taiwan 33: 111. 1943) was described from Hainan, but we have seen no specimens and are therefore unable to treat it in this account. Further revisionary study is necessary.

- 1a. Subshrubs, 10-20 cm; leaves elliptic 4. *C. tomentosa*
- 1b. Herbs perennial; leaves rhombic-obovate, rhombic-oblong, broadly ovate, obovate-oblong, or elliptic.
 - 2a. Stem ascending or erect; leaves rhombic-obovate or rhombic-oblong; flower clusters in racemes 1. *C. prostrata*
 - 2b. Stem erect; leaves not rhombic-obovate or rhombic-oblong; flower clusters in spikes.
 - 3a. Leaves broadly ovate or obovate-oblong; flowers grayish black when dried; staminodes 0.6-1 mm 2. *C. capitata*
 - 3b. Leaves elliptic or narrowly elliptic, rarely obovate; flowers white when dried; staminodes 0.3-0.4 mm ... 3. *C. officinalis*

1. **Cyathula prostrata** (Linnaeus) Blume, Bijdr. Fl. Ned. Ind. 549. 1826.

杯苋 bei xian

Achyranthes prostrata Linnaeus, Sp. Pl., ed. 2, 1: 296. 1762; *Desmochaeta prostrata* (Linnaeus) Candolle; *Pupalia prostrata* (Linnaeus) C. Martius.

Herbs perennial, 30-50 cm tall. Roots slender. Stem ascending or erect, tinged red, obtusely quadrangular, branched, inflated at nodes. Petiole 1-7 mm, long hairy; leaf blade ovate-rhombic or rhombic-oblong, 1.5-6 × 0.6-3 cm, both surfaces densely hairy and ciliate, base rounded, apex obtuse, narrowed from middle. Racemes terminal, erect and straight, with 2 or 3 hermaphroditic and some unisexual flowers, unisexual flowers gradually decreasing upward, with only 1 perfect flower at apex; rachis densely pubescent; flower clusters shortly stalked. Bracts reflexed after anthesis, 1-2 mm, apex acuminate. Tepals of perfect flowers light green, ovate-oblong, 2-3 mm, abaxially villous, adaxially glabrous, apex acuminate, with a mucro. Stamens 5; filaments 1-2 mm, united part only ca. 1 mm; pseudostaminodes rectangular, apex truncate. Tepals of imperfect flowers and bracts yellow, ca. 1.5 mm, base villous, apex hooked. Utricles globose, ca. 0.5 mm in diam., glabrous. Seeds brown, shiny, ovoid-oblong, very small, smooth. Fl. and fr. Jun-Nov.

Hillsides, riverbanks, roadsides. Guangdong, Guangxi, Hainan, Taiwan, Yunnan [Bhutan, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Philippines, Sikkim, Thailand, Vietnam; Africa, Pacific Islands].

2. **Cyathula capitata** Moquin-Tandon in Candolle, Prodr. 13(2): 329. 1849.

头花杯苋 tou hua bei xian

Herbs perennial, 50-100 cm. Roots brownish gray or brownish red, stout. Stem erect, dark purple or yellowish brown, nearly quadrangular, branched, pilose. Petiole 0.5-1.5 cm, pilose; leaf blade broadly ovate or obovate-oblong, 5-14 × 3-7 cm, papery, both surfaces pilose and ciliate, base cuneate,

apex caudate. Flower clusters in dichasial inflorescences, globose or ellipsoid, 2-4 cm in diam., simple or clustered in spikes; rachis 2-4.5 mm, tomentose. Bracts 3-4 mm, glabrous, apex acuminate. Flower clusters at axils of bracts, with some perfect flowers and 1 or 2 unisexual ones. Tepals of perfect flowers dark purple, lanceolate, 3-4 mm, abaxially hairy at base, apex acuminate; imperfect ones yellow, lanceolate-subulate, ca. 3 mm, rigid, apex hooked. Filaments ca. 3 mm, pilose at base; pseudostaminodes rectangular, 0.6-1 mm, parted and fimbriate at apex. Ovary hairy at base. Utricles grayish yellow, ovate-oblong, ca. 3 mm, glabrous. Seeds shiny, ellipsoid, ca. 2 mm, smooth. Fl. Aug, fr. Oct.

Hillsides; 1700-2300 m. Sichuan, Xizang, Yunnan [Bhutan, India, Nepal, Sikkim, Vietnam].

3. **Cyathula officinalis** K. C. Kuan, Acta Phytotax. Sin. 14(1): 60. 1976.

川牛膝 chuan niu xi

Herbs perennial, 50-100 cm tall. Stem erect, slightly quadrangular, much branched or strigose. Petiole 0.5-1.5 cm, densely strigose; leaf blade elliptic or narrowly elliptic, rarely obovate, 3-10 × 1.5-5.5 cm, abaxially densely strigose, adaxially long strigose, base cuneate or broadly cuneate, margin entire, apex acuminate. Flower clusters in terminal spikes, light green, nearly white when dried, 1-1.5 cm in diam. Bracts shiny, 4-5 mm, apex pointed or hooked. Tepals of perfect flowers lanceolate, 3-5 mm, apex acute, inner 3 slightly narrow. Filaments densely hairy at base; pseudostaminodes rectangular, 0.3-0.4 mm, dentate-lobed at apex. Ovary cylindrical or obovoid, 1.3-1.8 mm; style ca. 1.5 mm. Utricles light yellow, ellipsoid or obovoid, 2-3 × 1-2 mm. Seeds shiny, ellipsoid, 1.5-2 mm, smooth. Fl. Jun-Jul, fr. Aug-Sep.

Waste places; above 1500 m. Guizhou, Hebei, Shanxi, Sichuan, Yunnan, Zhejiang [Nepal].

Further study is necessary to compare this taxon with *Cyathula capitata*, of which it may be no more than a cultivar.

4. *Cyathula tomentosa* (Roth) Moquin-Tandon in Candolle, Prodr. 13(2): 327. 1849.

绒毛杯苣 rong mao bei xian

Achyranthes tomentosa Roth, Nov. Sp. Ind. 167. 1821.

Subshrubs 10–20 cm tall. Stem and branches densely gray tomentose. Leaves elliptic, 5–7 × 2–5 cm, both surfaces densely tomentose, base rounded. Flower clusters in dense spikes, 1–2 cm in diam. Bracts shiny, apex pointed or hooked. Tepals of perfect flowers lanceolate, apex acute. Pseudostaminodes ca. 0.5 mm, hairy at margin, apex fimbriate. Utricles yellow, ellipsoid or obovoid. Seeds ellipsoid, smooth. Fl. Jun.

Waste places; 1800–2300 m. Guizhou, Xizang [Bhutan, India, Myanmar, Nepal, Sikkim].

