

6. BLYXA Noronha ex Thouars, Gen. Nov. Madagasc. 4. 1806.

水筛属 shui shai shu

Herbs, submerged freshwater. Stems short or elongated, erect or stoloniferous. Leaves basal or spirally arranged along stem, sessile, lanceolate or linear, with prominent midvein and several lateral veins, sheathed at base, minutely serrulate along margin. Spathe tubular, sessile or pedunculate, bifid at apex, with longitudinal veins, 1-flowered or sometimes several flowered. Flowers bisexual or unisexual. Sepals 3, persistent, green, linear or lanceolate. Petals 3, white, longer than sepals. Stamens 3–9; filaments slender; anthers 4-theous. Pistils 3; ovary linear, attenuate into a long, filiform beak; styles 3; ovules numerous. Fruit linear to terete, long, narrow. Seeds numerous, oblong-fusiform, smooth or with spines, sometimes with a filiform projection from each end.

About 11 species: tropical and subtropical regions; five species in China.

1a. Stems elongate; leaves cauline.

2a. Spathe sessile; anthers 1.8–2.5 mm; styles 3–4 mm; seeds narrowly elliptic 1. *B. japonica*

2b. Spathe shortly pedunculate; anthers 3.5–5 mm; styles 5–6 mm; seeds ovoid 2. *B. leiosperma*

1b. Stems much shortened, or absent; leaves basal.

3a. Flowers unisexual; stamens 9 5. *B. octandra*

3b. Flowers bisexual; stamens 3.

4a. Seeds with a filiform projection from each end, and with prominent acute spines on surface 4. *B. echinosperma*

4b. Seeds without a projection, and with broad, short, obtuse tubercles or ridges 3. *B. aubertii*

1. *Blyxa japonica* (Miquel) Maximowicz ex Ascherson & Gürke in Engler & Prantl, Pflanzenfam. 2(1): 253. 1889.

水筛 shui shai

Hydrilla japonica Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 271. 1866; *Blyxa angustipetala* (Ridley) Masamune var. *laevissima* (Hayata) Masamune; *B. laevissima* Hayata.

Stems elongated, 10–20 cm tall, branched. Leaves cauline, lanceolate, 3–6 cm × 1–3 mm, veins 3, apex acuminate. Spathes sessile, green, 1–3 cm × 1–3 mm. Flowers bisexual. Sepals green with purple midvein, linear-lanceolate, 2–4 × 0.5–1 mm. Petals 6–10 × 0.5–1 mm. Stamens 3; filaments 1–3 mm, smooth; anthers 1.8–2.5 mm. Ovary conic; styles 3–4 mm. Fruit 1–2.5 cm. Seeds 30–60, narrowly elliptic, smooth. Fl. and fr. May–Oct. $2n = 72$.

Paddy fields, ponds, channels. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Sichuan, Taiwan, Zhejiang [Bangladesh, India, Japan, Korea, Malaysia, Myanmar, Nepal, New Guinea, Thailand, Vietnam; Europe].

2. *Blyxa leiosperma* Koidzumi, Bot. Mag. (Tokyo) 31: 257. 1917.

光滑水筛 guang hua shui shai

Stems elongated, 2–6 cm tall, branched from base. Leaves cauline, lanceolate, 6–9 cm × ca. 2.5 mm, veins 3, apex acuminate. Spathes green, 2.5–3 cm × ca. 2 mm, with peduncle 0.2–2.2 cm. Flowers bisexual. Sepals yellowish green, linear-lanceolate, 4–5 × ca. 0.5 mm. Petals 9–10 × ca. 1 mm. Stamens 3; filaments 3–5 mm; anthers 3.5–5 mm. Ovary conic; styles 5–6 mm. Fruit 2.5–3 cm. Seeds 40–60, ovoid, smooth. Fl. and fr. May–Sep. $2n = 72$.

Paddy fields. Anhui, Fujian, Guangdong, Hainan, Jiangxi, Zhejiang [Japan].

3. *Blyxa aubertii* Richard, Mém. Cl. Sci. Math. Inst. Natl. France 1811(2): 19. 1814.

无尾水筛 wu wei shui shai

Blyxa ecaudata Hayata.

Stems shortened. Leaves all in basal rosette, linear, 5–17(–60) cm × 3(–12) mm, veins 5–9, apex acuminate. Spathes green, 3–5 cm × ca. 2 mm, with peduncle 2.7–8 cm. Flowers bisexual. Sepals greenish purple, linear-lanceolate, 5–7 × ca. 1 mm. Petals 9–17 × ca. 0.5 mm. Stamens 3; filaments 3–6 mm; anthers 1–1.8 mm. Ovary narrowly cylindrical, 2.5–4 cm; styles ca. 7 mm. Fruit (2–)4–6(–8) cm. Seeds 30–70, oblong-ovoid, 1.2–1.8 × ca. 0.6 mm, 6–12-ribbed; ribs obscurely tuberculate or ridged. Fl. and fr. May–Sep. $2n = 16$.

Paddy fields and channels. Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bangladesh, Bhutan, India, Indonesia, Japan (Ryukyu Islands), Korea, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Africa, Australia; introduced in North America].

4. *Blyxa echinosperma* (C. B. Clarke) J. D. Hooker, Fl. Brit. India 5: 661. 1888.

有尾水筛 you wei shui shai

Hydrotrichus echinospermus C. B. Clarke, J. Linn. Soc., Bot. 14: 8. 1873; *Blyxa aubertii* Richard var. *echinosperma* (C. B. Clarke) C. D. K. Cook & Lüönd; *B. bicaudata* Nakai; *B. ceratosperma* Maximowicz ex Ascherson & Gürke; *B. shimadae* Hayata; *B. somae* Hayata.

Stems shortened. Leaves all in basal rosette, strap-shaped, 10–20(–40) cm × 4–7 mm, veins 7–9, apex acuminate. Spathes green, 2–5 cm × ca. 2 mm, with slender peduncle 2–12 cm. Flowers bisexual. Sepals green, linear, ca. 6 × 1 mm. Petals 1–1.4 cm × 0.5–0.8 mm. Stamens 3, 4–6 mm. Ovary narrowly cylindrical, 3–7 cm; styles 0.6–1.5 cm. Fruit 4–7 cm. Seeds 30–50, fusiform or oblong-fusiform, 1.5–2 × ca. 0.8 mm, with filiform projections or ridges 2–12 mm from each end, and with prominently acute spines on surface. Fl. and fr. Jun–Oct. $2n = 42$.

Fl. China 23: 98–99. 2010.

Paddy fields and channels. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Sichuan, Taiwan, Zhejiang [Bangladesh, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Nepal, Papua New Guinea, Philippines, Sri Lanka, Thailand, Vietnam; Australia].

5. *Blyxa octandra* (Roxburgh) Planchon ex Thwaites, Enum. Pl. Zeyl. 332. 1864.

八药水筛 ba yao shui shai

Vallisneria octandra Roxburgh, Pl. Coromandel 2: 34. 1802; *Blyxa roxburghii* Richard, nom. illeg. superfl.; *B. saivala* Steudel, nom. illeg. superfl.

Stems shortened or absent. Leaves all in basal rosette, linear, 6–60 cm × 5–7 mm, veins faint, 20 or more, spiny toward apex. Spathes 6–10 cm, with a long peduncle 20–120 cm. Plants dioecious; flowers unisexual, 1 female or 5–10 male flowers in a spathe. Sepals reddish, linear, 9–10 × ca. 1.5 mm. Petals 2–2.5 cm or longer. Stamens 9; filaments 2–5 mm; anthers 1–2 mm. Ovary narrowly cylindric, 6–9 cm, with a beak 8–10 cm; styles ca. 2 cm, hairy. Fruit 7.5–10 cm. Seeds numerous, oblong-elliptic, 1–2 × 0.5–1 mm, with up to 12 longitudinal ridges bearing 8 rows of ± blunt spines ca. 0.5 mm, without filiform projections. $2n = 16, 32$.

Guangdong, S Guangxi (Fangcheng), Sichuan, Yunnan [Bangladesh, India, Myanmar, New Guinea, Sri Lanka, Vietnam; Australia].

Fl. China 23: 98–99. 2010.