

2. NYMPHOIDES Séguier, Pl. Veron. 3: 121. 1754.

□ 荇菜属 xing cai shu

Limnanthemum S. G. Gmelin.

Perennials [or annuals], aquatic, usually carpeting surface of lakes and ponds, with short basal rhizomes producing many, slender, and petiolelike stolons [or lacking rhizomes]. Stems usually long, floating, sometimes producing rootlets from nodes. Leaves alternate, rarely apparently opposite; leaf blade floating, veins palmate. Flowers clustered at nodes, (4- or) 5-merous, distylous or occasionally homostylous. Calyx lobed to near base. Corolla rotate, lobed to near base, rarely less deeply lobed and campanulate, throat with 5 bundles of long fimbriae. Stamens inserted on corolla tube. Style linear. Nectaries 5, attached at ovary base. Capsules indehiscent, few seeded. Seeds compressed or globose, smooth or ornamented.

About 40 species: temperate and tropics; six species in China.

- 1a. Stem unbranched; leaves apparently opposite at stem apex, alternate at stem node; corolla, 2.5–3 cm in diam., lobe margins broadly membranous; capsules 1.7–2.5 cm; seeds compressed, 4–5 mm, densely ciliate 1. *N. peltata*
- 1b. Stem branched; leaves solitary at stem apex, sometimes also 1–3 leaves at stem nodes; corolla 0.5–1.5 cm in diam., lobe margins not membranous; capsules 0.2–0.6 cm; seeds not compressed, 1–1.5 mm, not ciliate.
 - 2a. Flowers 2 per node; corolla yellow; seed coat reticulate 2. *N. aurantiaca*
 - 2b. Flowers many per node; corolla white or white with a yellow center; seed coat smooth, scabrous, or spinescent.
 - 3a. Leaves densely glandular and abaxially scabrous; corolla white with a yellow center.
 - 4a. Corolla lobes densely long pilose inside, without a longitudinal fold 3. *N. indica*
 - 4b. Corolla lobes glabrous inside, with a longitudinal fold 4. *N. cristata*
 - 3b. Leaves glabrous on both surfaces; corolla pure white.
 - 5a. Corolla campanulate, lobes shorter than tube; seed coat irregularly short spinescent 5. *N. hydrophylla*
 - 5b. Corolla rotate, lobes longer than tube; seed coat smooth or with a denticulate margin 6. *N. coreana*

1. *Nymphoides peltata* (S. G. Gmelin) Kuntze, Revis. Gen. Pl. 2: 429. 1891.

Nymphoides peltata.

荇菜 xing cai

Limnanthemum peltatum S. G. Gmelin, Novi Comment. Acad. Sci. Imp. Petrop. 14(1): 527. 1770; *Menyanthes nymphoides* Linnaeus.

Rhizomes horizontal. Stem cylindric, unbranched, sometimes producing rootlets from nodes. Leaves alternate at stem base but opposite at apex; petiole cylindric, 5–10 cm, base widened into an amplexicaul sheath; leaf blade ovate-orbicular to orbicular, 1.5–8 cm in diam., subcoriaceous, abaxially purple-brown and densely glandular, adaxially glabrous, base cordate, margin entire, veins indistinct. Flowers usually densely clustered at nodes, 5-merous, distylous. Pedicel 3–7 cm. Calyx 7–9 mm, lobed to near base; lobes elliptic-lanceolate to elliptic, apex obtuse. Corolla golden yellow, 2.5–3 cm, rotate, lobed to near base; lobes obovate, margin broadly membranous and irregularly laciniate, apex rounded to emarginate. Filaments sparsely pilose. Short styled flowers: ovary 5–7 mm; style 1–2 mm; stigma small, filaments 3–4 mm; anthers curved, sagittate, 4–6 mm. Long styled flowers: ovary 0.7–1.7 cm; style to 1 cm; stigma large, 2-lobed, suborbicular; filaments 1–2 mm; anthers 2–3.5 mm. Glands golden yellow. Capsules elliptic, 1.7–2.5 × 0.8–1.1 cm. Seeds brown, compressed, elliptic, 4–5 mm, densely ciliate. Fl. and fr. Apr–Oct. *2n* = 54.

Standing water; below 100–1800 m. Essentially throughout China except Hainan, Qinghai, and Xizang [Japan, Korea, Mongolia, Russia; C and SW Asia, Europe].

Limnanthemum cordatum Dunn, described from a specimen collected in NE Guangdong, is probably synonymous with

2. *Nymphoides aurantiaca* (Dalzell) Kuntze, Revis. Gen. Pl. 2: 429. 1891.

水金莲花 shui jin lian hua

Limnanthemum aurantiacum Dalzell, Hooker's J. Bot. Kew Gard. Misc. 2: 136. 1850.

Rhizomes horizontal. Stems cylindric, elongated, without rootlets from nodes, branched. Leaves 2 per node; petiole 3–9 cm; leaf blade orbicular, ca. 4.5 cm in diam., abaxially purple and punctate, base cordate. Flowers 2 per node, 5-merous. Pedicel 1.5–4.5 cm. Calyx lobes 3–6 mm. Corolla yellow, 8–10 mm; lobes cuneate, margin laciniate, apex rounded to emarginate. Capsules globose, ca. 6 mm in diam., 10–15-seeded. Seeds globose, ca. 1.5 mm in diam.; seed coat reticulate.

Standing water. Taiwan [W India, Sri Lanka].

3. *Nymphoides indica* (Linnaeus) Kuntze, Revis. Gen. Pl. 2: 429. 1891.

金银莲花 jin yin lian hua

Menyanthes indica Linnaeus, Sp. Pl. 1: 145. 1753; *Limnanthemum esquirolii* H. Léveillé; *Nymphoides humboldtiana* Kuntze.

Rhizomes horizontal. Stems cylindric, unbranched. Petiole cylindric, 1–2 cm; leaf blade broadly ovate to subcordate, 3–18 cm, subcoriaceous, abaxially densely glandular, base cordate, margin entire; veins indistinct, palmate. Flowers many, clustered at nodes, 5-merous,

distylous. Pedicel cylindrical, 3–5 cm. Calyx 3–6 mm, lobed to near base; lobes lanceolate to narrowly elliptic, apex obtuse. Corolla white with a yellow center, 7–12 mm; lobes ovate-elliptic, outside densely fimbriate-pilose, apex obtuse. Filaments flattened, linear, 1.5–1.7 mm; anthers sagittate, 2–2.2 mm. Style cylindrical; stigma lobes triangular. Capsules elliptic, 3–5 mm, few seeded. Seeds brown, globose, 1.2–1.5 mm; seed coat smooth. Fl. and fr. Aug–Oct. $2n = 18$ [or 36].

Standing water; below 100–1600 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Taiwan, Yunnan, Zhejiang [Cambodia, India, Indonesia, Japan, Korea, Malaysia, Myanmar, Nepal, Sri Lanka, Vietnam; Australia, Pacific Islands].

4. *Nymphoides cristata* (Roxburgh) Kuntze, Revis. Gen. Pl. 2: 429. 1891.

水皮莲 shui pi lian

Menyanthes cristata Roxburgh, Pl. Coromandel 2: 3. 1798.

Rhizomes horizontal. Stems cylindrical, unbranched, with a terminal leaf. Petiole cylindrical, 1–3 cm; leaf blade ovate-orbicular to suborbicular, 3–10 cm, subcoriaceous, abaxially densely glandular, base cordate, margin entire, veins indistinct. Flowers many, grouped on nodes, 5-merous. Pedicel cylindrical, 3–4.5 cm. Calyx 3–5.5 mm, lobed to near base; lobes ovate-elliptic to ovate, apex obtuse. Corolla white with a yellow center, 4–8 mm; lobes ovate with a keeled fold from base to apex, apex obtuse. Filaments linear, 1–2 mm; anthers 0.8–1 mm. Style short; stigma lobes triangular. Capsules subglobose, 3–5 mm in diam., few seeded. Seeds light brown, globose, 1.3–1.5 mm in diam.; seed coat smooth or scabrous. Fl. and fr. Sep. $2n = 18$.

Standing water. Fujian, Guangdong, Hainan, Hubei, Hunan, Jiangsu, Sichuan, Taiwan [E India].

5. *Nymphoides hydrophylla* (Loureiro) Kuntze, Revis. Gen. Pl. 2: 429. 1891.

刺种荇菜 ci zhong xing cai

Menyanthes hydrophylla Loureiro, Fl. Cochinch. 1: 105. 1790.

Stems 10–30 cm, rooting from nodes. Leaves few per node; petiole 4–10 cm, slender; leaf blade cordate, 1–6 × 1–4(–5) cm, submembranous, veins indistinct. Flowers 2–10 per node, 5-merous, homostylous. Pedicel 2–6 cm, slender. Calyx 4–5 mm, lobed to near base; lobes narrowly oblong, apex acute. Corolla white, campanulate, 7–8 mm, lobed to middle, tube 4–5 mm; lobes 3–4 mm, margin lacinate, apex emarginate. Filaments absent; anthers triangular, ca. 1 mm. Style very short. Capsules globose, ca. 3 mm in diam., 6–10-seeded. Seeds brown, globose, ca. 1 mm in diam.; seed coat spinescent. Fl. and fr. Aug–Sep.

Standing water. Guangdong, Guangxi, Hainan [India, Laos, Thailand, Vietnam].

6. *Nymphoides coreana* (H. Léveillé) H. Hara, J. Jap. Bot. 13: 26. 1937.

小荇菜 xiao xing cai

Limnanthemum coreanum H. Léveillé, Repert. Spec. Nov. Regni Veg. 8: 284. 1910.

Stems long, cylindrical, rooting from nodes, unbranched. Petiole cylindrical, 1–10 cm, articulated, base decurrent; leaf blade ovate-cordate to orbicular, 2–6 cm in diam., base cordate, margin entire. Flowers few to many, 4- or 5-merous. Pedicel cylindrical, 1–3 cm. Calyx lobes broadly lanceolate, apex acute. Corolla white, rotate, ca. 8 mm; lobes membranous, margin lacinate. Capsules elliptic, 4–5 mm, persistent style less than 1 mm. Seeds elliptic, ca. 1 mm; seed coat smooth or with a sparsely denticulate margin. $2n = 56$.

Standing water. Liaoning, Taiwan [Japan, Korea, E Russia].