**MENYANTHACEAE**  
睡菜科 shui cai ke

Ho Ting-nung¹; Robert Ornduff²

Herbs perennial [or annual], aquatic or nearly so. Leaves alternate, rarely opposite, simple or 3-foliolate; stipules absent. Flowers (4- or) 5-merous. Calyx lobes free or united. Corolla lobes united, valvate in bud. Stamens 5, free, alternate with petals. Ovary 1-celled. Pollen grains bilaterally compressed, ± triquetrous, with 3 apertures. Ovary superior, 1-celled. Fruit a dehiscent or indehiscent capsule. Seeds few to many, sometimes winged; endosperm abundant.

Five genera and about 60 species: worldwide in temperate and tropics; two genera and seven species in China.


1a. Leaves 3-foliolate, emergent from water; flowers in racemes; capsules dehiscent  .........................................   1. Menyanthes

1b. Leaves entire, floating on water surface; flowers in sessile clusters; capsules indehiscent  .....................................   2. Nymphoides


睡菜属 shui cai shu

Perennials, aquatic or nearly so. Rhizomes long, prostrate, nodes with rootlets and scalelike leaves. Leaves basal except for those at rhizome nodes, emergent from water; petiole base sheathing stem; leaf blade 3-foliolate. Inflorescences scapose, many-flowered racemes produced from stem nodes. Flowers 5-merous, distylos. Calyx lobed almost to base. Corolla lobed to just below middle. Stamens inserted at middle of corolla tube. Style linear. Capsules 2-valved. Seeds smooth.

One species: N temperate regions including China.


睡菜 shi cai

Rhizomes usually in mud but sometimes floating. Petiole erect, 12–20(–30) cm; leaf blade base vaginate; leaflets elliptic, 2.5–4(–8) cm, base cuneate, margin entire or crenulate, apex obtuse, midvein distinct. Inflorescences many flowered; racemes including scape 30–35 cm; bracts 5–7 mm, margin entire, apex obtuse. Pedicel spreading, 1–1.8 cm. Calyx 4–5 mm; lobes ovate, apex obtuse. Corolla white, tubular, 1.4–1.7 cm, outside glabrous, inside long fimbriate pilose; lobes elliptic-lanceolate, 7.5–10 mm, apex obtuse. Filaments linear, 5.5–6.5 mm; anthers sagittate, 1.8–2 mm. Styles linear, short styles 6–7 mm, long styles 1–1.2 cm; stigma lobes oblong. Capsules globose, 6–7 mm in diam. Seeds orbicular, 2–2.5 mm in diam., smooth. Fl. and fr. May-Jul.

Swamps, growing in mud and in open water; 400–3600 m. Guizhou, Hebei, Heilongjiang, Jilin, Liaoning, Sichuan, Xizang, Yunnan, NE Zhejiang [Japan, Kashmir, Mongolia, Nepal, Russia; N Africa, N America, C and SW Asia, Europe].

2. **NYMPHOIDES** Ségui er, 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 petioloike 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, distylos or occasionally homostylos. 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.

¹ Herbarium, Northwest Plateau Institute of Biology, Academia Sinica, 78 Xiguan Avenue, Xining, Qinghai 810001, People’s Republic of China.
² Department of Integrative Biology, University of California, Berkeley, California 94720-3140, U.S.A.
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 white or white with a yellow center; seed coat smooth, scabrous, or spinescent.

2b. Flowers many per node; corolla white or with a yellow center; seed coat smooth, scabrous, or with a denticulate margin .......... 2. *N. aurantiaca*

3a. Leaves densely glandular and abaxially scabrous; corolla white with a yellow center.

3b. Leaves glabrous on both surfaces; corolla pure white.

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*


*水金莲花 = 54.*


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 amplexical sheath; leaf blade ovate-orbicular to orbicular, 1.5–8 cm in diam., subcoriaceous, abaxially purple-brown and densely glandular, axadially glabrous, base cordate, margin entire, veins indistinct. Flowers usually densely clustered at nodes, 5-merous, distylyous. 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 coriaceous and irregularly lacinate, 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. Glads 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].

*Linnantherum cordatum* Dunn, described from a specimen collected in NE Guangdong, is probably synonymous with *Nymphoides peltata*.


*金莲莲花 = 54.*


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


*水皮莲 = 54.*

OptionPanea hydrophylla Roxburgh, Pl. Coromandel 2: 3. 1798.

Rhizomes horizontal. Stems cylindric, unbranched, with a terminal leaf. Petiole cylindric, 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 cylindric, 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].

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 laciniate, 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

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

26. 1937.

小荇菜  xiao xing cai

Regni Veg. 8: 284. 1910.

Stems long, cylindric, rooting from nodes, unbranched.
Petiole cylindric, 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
cylindric, 1–3 cm. Calyx lobes broadly lanceolate, apex acute.
Corolla white, rotate, ca. 8 mm; lobes membranous, margin
laciniate. 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].
