TYPHACEAE

香蒲科  xiang pu ke

Sun Kun (孙坤)1; David A. Simpson2

Herbs, perennial, aquatic or in marshes, with creeping rhizomes. Stems simple or branched, robust or slender. Leaves alternate, distichous, erect, emergent or floating, sheathed at base. Plants monoecious. Bracts leaflike. Inflorescence either of globose heads on upper part of stems and branches with several male and female heads in a panicle, raceme, or spike, male heads above female, or of a single cylindrical spike with lower part female and upper part male. Flowers minute, numerous. Perianth segments of 3–6 chaflly elongate scales or absent. Male flowers with 1 or more stamens; anthers basifixed, longitudinally dehiscent. Female flowers bracteolate or with fine hairs at base; ovary 1-loculed, rarely 2-loculed, narrow at base or on a long capillary stalk; styles simple or forked; stigma unilateral, broadened or spatulate; ovule 1. Fruit minute, nutlike, indehiscent, falling off together with stalk if present. Seeds with thin testa.

Two genera and ca. 35 species: tropical and temperate regions; two genera and 23 species (six endemic) in China.


1a. Male and female flowers in separate globose heads ................................................................. 1. Sparganium
1b. Flowers in a dense cylindric spike, lower part female and upper part male, sometimes separated by a gap ................... 2. Typha

1. SPIRAGNANIUM Linnaeus, Sp. Pl. 2: 971. 1753.

黑三棱属  hei san leng shu

Herbs, perennial, aquatic or in marshes, with creeping rhizomes. Stems simple or branched, robust or slender. Leaves alternate, distichous, emergent or floating, sheathed at base. Flowers minute, densely crowded in globose heads on upper part of stems and branches; several male and female heads in panicle, raceme, or spike, male heads above female. Perianth segments of 3–6 chaflly elongate scales. Male flowers with 3 or more stamens; anthers basifixed, longitudinally dehiscent; filaments free or partly united. Female flowers bracteolate; ovary 1-loculed or rarely 2-loculed, narrow at base; styles simple or forked, with a unilateral stigma; ovule 1, pendulous. Fruit nutlike, indehiscent.

About 19 species: mainly in temperate and cool regions of the world, best represented in the N Hemisphere; 11 species (three endemic) in China.

1a. Stems floating or slightly prostrate in water; leaves usually floating, flattened.
   2a. Stems stout, 1.3–1.5 m tall; leaves ca. 10 mm wide; male heads 8–10 ................................................. 8. S. yunnanense
   2b. Stems slender, less than 70 cm tall; leaves 2–4 mm wide; male heads 1–4.
      3a. Styles absent or inconspicuous; fruit broadly obovoid ......................................................................... 11. S. hyperboreum
      3b. Styles conspicuous; fruit fusiform, elliptic, or lanceolate.
         4a. Stems floating, more than 20 cm; male heads 2–4 ................................................................. 9. S. angustifolium
         4b. Stems slightly prostate or rarely erect, less than 20 cm; male heads 1 or 2 ........................................ 10. S. natans

1b. Stems erect; leaves aerial, not flattened.
   5a. Inflorescences paniculate, with conspicuous lateral branches with male and female heads; ovary sessile.
      6a. Panicles with 3–7 lateral branches; stigmas 3–4 mm ........................................................................ 1. S. stoloniferum
      6b. Panicles with 1(or 2) lateral branches; stigmas less than 2 mm.
         7a. Leaves 2–3 mm wide; main axis and lateral branch of panicles not zigzag; styles ca. 0.5 mm .......... 2. S. subglobosum
         7b. Leaves 4–5 mm wide; main axis and lateral branch of panicles usually zigzag; styles 1–1.5 mm .......... 3. S. limosum

5b. Inflorescences spicate or scapitate, degenerated into 1 female head or completely degenerated; ovary with short stalk.
   8a. Inflorescences spicate; perianth segments lobate to parted ......................................................... 7. S. confertum
   8b. Inflorescences spicate; perianth segments serratate-lobate to lobate.
      9a. Axis of racemes curved; ovary attenuate toward base and forming an inconspicuous stalk ............... 4. S. fallax
      9b. Axis of racemes not curved; ovary with a conspicuous stalk.
          10a. Male heads 4–8, distinctly separate from female ones; stigmas 1.5–1.8 mm .................................. 5. S. ermersum
          10b. Male heads 1–3, not separate from female ones; stigmas ca. 0.5 mm ........................................... 6. S. glomeratum


黑三棱  hei san leng

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Stems erect, 20–36 cm tall, slender. Leaves 25–35 cm × 2–3 mm, upper flattened, lower keeled or trigonous on abaxial side. Panicles 7–15 cm, main axis consisting of 5–7 male heads and 2 or 3 female heads, usually with 1 lateral branch at base; lateral branch 5–8 cm, with 2 or 3 male and 1 or 2 female heads. Male flowers: perianth segments spathulate, ca. 2 mm, lobate at apex; filaments ca. 2 mm; anthers oblong, ca. 1 × 0.3 mm. Female flowers: perianth segments spathulate, ca. 2 mm, lobate at apex; ovary sessile; styles ca. 0.5 mm; stigmas unilaterial, ca. 1.5 mm. Fruit obovoid, ca. 4 mm. Fl. and fr. Jun–Sep.

Shallow water of lakes, swamps, and streams. Hebei, Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].


沼生黑三棱 zhao sheng hei san leng

Stems emersed, erect, 33–57 cm tall. Leaves erect, 50–70 cm × 4–5 mm, upper flattened, lower keeled or trigonous on abaxial side. Panicles 7–16 cm, with 1 lateral branch at base, main axis and lateral branch usually zigzag; main axis with 5–8 male heads and 2 or 3 female heads; lateral branch with 3(–5) male and 1 female heads. Male flowers: perianth segments ca. 1.5 × 0.2 mm; filaments 3–4 mm; anthers oblong, ca. 1 × 0.2 mm. Female flowers: perianth segments 1.7–2.5 × ca. 1 mm, serratelobate at apex; ovary sessile; styles 1–1.5 mm; stigmas linear, 1–1.2 mm. Fl. and fr. Jun–Sep.

● Swamps; ca. 1800 m. NW Yunnan (Gaoligong Shan).


曲轴黑三棱 qu zhou hei san leng

Stems emersed, erect, 40–55(–80) cm tall. Leaves 45–65 cm × 4–10 mm, upper flattened, lower keeled or trigonous on abaxial side. Racemes 15–17 cm, basally curved; male heads 4–7, distinctly separated from female ones; female heads 3 or 4(–7), relatively widely separated, sessile or lowest pedunculate. Male flowers: perianth segments linear, 2.5–2.5 mm, serratelobate at apex; filaments 3.4–5 mm; anthers oblong, ca. 1.5 × 0.4 mm. Female flowers: perianth segments broadly spathulate, ca. 3 × 1–1.5 mm, serratelobate at apex; ovary attenuate toward base; styles short; stigmas 1.5–2 mm. Fruit broadly fusiform, 5–6 mm. Fl. and fr. Jun–Oct.

Shallow water of lakes, ponds, swamps, and streams. Fujian, Guizhou, Taiwan, Yunnan, Zhejiang [India, Indonesia (Sumatra), Japan, Myanmar, New Guinea].


小黑三棱 xiao hei san leng

Stems emerged, erect, 30–70 cm tall, slender. Leaves 40–80 cm, aerial or floating, lower keeled on abaxial side. Racemes 10–20 cm; male heads 4–8, distinctly separate from female ones; female heads 3 or 4, relatively widely separated, sessile or lowest 1 or 2 pedunculate. Male flowers: perianth segments linear or spathulate, 2–2.5 mm, lobate at apex; filaments ca. 4 mm; anthers oblong, ca. 1.6 \( \times \) 0.4 mm. Female flowers: perianth segments spatulate, ca. 3.5 mm, lobate at apex; ovary with short stalk; styles ca. 1 mm; stigmas 1.5–1.8 mm. Fruit fusiform. Fl. and fr. Jun–Oct. 2n = 30.

Margins of lakes, swamps, and streams. Gansu, ?Hebei, Heilongjiang, ?Henan, Jilin, Liaoning, Nei Mongol, ?Shaanxi, Xinjiang [Japan, Kazakhstan, Kyrgyzstan, Mongolia, Myanmar, Russia; Europe, North America].

6. Sparganium glomeratum


短序黑三棱 duan xu hei san leng

Sparganium manshuricum D. Yu.

Stems emerged, erect, 20–50 cm tall. Leaves 30–56 cm, lower keeled or trigonous on abaxial side. Racemes 6–15 cm; male heads 1–3, not separate from female ones; female heads 3 or 4 (–8), relatively near each other, lowest one pedunculate. Male flowers: perianth segments ca. 1.5 mm, serrate-lobate at apex; filaments 3–3.5 mm; anthers oblong, ca. 1 mm. Female flowers: perianth segments 2–2.5 mm, lobate at apex; ovary fusiform, with short stalk; styles short; stigmas ca. 0.5 mm. Fruit broadly fusiform, ca. 3 mm. Fl. and fr. Jun–Sep. 2n = 30.

Margins of lakes, swamps, and slow-moving rivers. Heilongjiang, Jilin, Liaoning, Nei Mongol, Xizang, Yunnan [Japan, Mongolia, Russia; Europe, North America].

A specimen with seven or eight female heads and larger flowers from Heilongjiang, which was described as Sparganium manshuricum (Bull. Bot. Res., Harbin 12: 257. 1992) is similar to this species. Be-cause the two species were mainly described according to some quantitative characters and based on only one specimen, respectively, their taxonomic positions need to be further studied.

7. Sparganium confertum


密状黑三棱 sui zhuang hei san leng

Stems emerged, erect, 15–45 cm tall. Leaves 25–55 cm \( \times \) 3–5 mm, lower keeled on abaxial side. Spikes with many densely arranged heads, 6–11 cm; male heads (6–)8–12, deciduous; female heads 1–3, sessile or rarely lowest one sterile, pedunculate. Female flowers: perianth segments 3–5 \( \times \) ca. 1.5 mm, lobate to parted at apex; ovary elliptic, with stalk 1.5–2 mm; styles ca. 1 mm; stigmas unilateral, 1–1.5 mm. Fruit 4–5 mm. Fl. and fr. Sep–Oct.

- Shallow water of rivers, swamps, and ponds; ca. 3100 m. NW Yunnan (Gaoligongshan).


8. Sparganium yunnanense


云南黑三棱 yun nan hei san leng

Sparganium minimum Wallroth.

Stems floating, 1.3–1.5 m, stout. Leaves floating, ca. 1.5 m \( \times \) 1 cm, flattened, spongy, lower slightly convex on abaxial side. Racemes 20–35 cm, lower part curved; male heads 8–10; female heads 3 or 4 (–7), sessile or lowest 1 or 2 pedunculate. Male flowers: perianth segments spatulate, 3–3.5 mm; filaments 3–4 mm; anthers linear, ca. 2 mm. Female flowers: perianth segments white, spatulate, 4–5 mm, lobate at apex; ovary fusiform, attenuate toward base; styles ca. 1.5 mm; stigmas oblong to ovate, 1.5–2 mm, lacerate or forked. Fl. and fr. May–Sep.

- About 1500 m. SW Yunnan (Menghai).


9. Sparganium angustifolium

Michaux, Fl. Bor.-Amer. 2: 189. 1803.

狭叶黑三棱 xian ye hei san leng

Stems floating, 30–50 cm, slender. Leaves floating, 25–40 cm \( \times \) ca. 4 mm, flattened. Racemes 6–16 cm; male heads 2–4; female heads 2–4, relatively widely separated, sessile or lowest 1 or 2 pedunculate. Male flowers: perianth segments spatulate to oblong; filaments ca. 5 mm; anthers elliptic, 1–1.2 \( \times \) ca. 0.5 mm. Female flowers: perianth segments linear to spatulate, serrate-lobate to parted; ovary fusiform, attenuate toward base and forming a short stalk; styles ca. 2 mm; stigmas narrowly elliptic. Fruit fusiform to elliptic, ca. 4 mm. Fl. and fr. Jul–Sep. 2n = 30.

Lakes, streams, swamps; above 1500 m. Heilongjiang, Jilin, Xinjiang [India, Japan; Europe, North America].

10. Sparganium natans


矮黑三棱 ai hei san leng

Sparganium minimum Wallroth.

Stems slightly prostate or rarely erect, to 20 cm, slender. Leaves aerial or floating, 20–25 cm \( \times \) ca. 4 mm, flattened. Spikes or racemes 2–3.5 cm; male heads 1 (or 2); female heads 2 (or 3), lowest one sometimes pedunculate. Male flowers: perianth segments ca. 1.5 mm, lobate at apex; filaments ca. 2 mm; anthers oblong, ca. 1 mm. Female flowers: perianth segments linear to spatulate, serrate-lobate to parted; ovary fusiform, attenuate toward base, with or without short stalk; styles short; stigmas ca. 1 mm. Fruit broadly lanceolate. Fl. and fr. Jul–Sep. 2n = 30.

Below 3500 m. Heilongjiang, Nei Mongol, Sichuan [Kazakhstan, Mongolia, Russia; Europe, North America].

Specimens described as Sparganium amplexicaulium D. Yu (Bull. Bot. Res., Harbin 12: 257. 1992) and S. tenuicaule D. Yu & L. H. Liu (Bull. Bot. Res., Harbin 11(2): 19. 1991) are similar to this species. Be-cause the two species were mainly described according to some quantitative characters and based on only one specimen, respectively, their taxonomic positions need to be further studied.

**Typha latifolia** Linnaeus, Sp. Pl. 2: 971. 1753.

**Typha orientalis** (C. Presl) Rohrbach; **T. orientalis** var. brunnea Skvortsov; **T. shuttleworthii** Lehmann (1846), not W. D. J. Koch & Sonder (1844); **T. shuttleworthii** subsp. **orientalis** (C. Presl) Graebner; **T. shuttleworthii** var. **orientalis** (C. Presl) Rohrbach.

Stems 1.3–2 m tall, stout. Leaves 40–70 cm × 4–9 mm, abaxially convex, transverse section semicircular. Male part of spikes 2.7–9 cm, with 1–3 deciduous bracts at base or occasionally in middle portion; female part of spikes not separated from male part, 4.5–15 cm, with 1 deciduous bract at base. Male flowers: perianth segments 2–2.5 mm, attenuate toward base; filaments short; anthers oblong, ca. 1 × 0.5 mm. Female flowers: perianth segments linear to obtriangular, ca. 1.5 × 1–1.3 mm, serrate-lobate at apex; ovary elliptic; styles absent or inconspicuous; stigmas elliptic, ca. 1 mm. Fruit broadly obovoid, ca. 4 mm. Fl. and fr. Jul–Aug. 2n = 30.

Lakes, ponds, swamps; ca. 1500 m. Heilongjiang, Jilin [Japan, Korea, Russia; Europe, North America].

1. **Typha orientalis** var. **orientalis** (C. Presl) Rohrbach; **T. orientalis** var. **brunnea** Skvortsov; **T. shuttleworthii** Lehmann (1846), not W. D. J. Koch & Sonder (1844); **T. shuttleworthii** subsp. **orientalis** (C. Presl) Graebner; **T. shuttleworthii** var. **orientalis** (C. Presl) Rohrbach.

Stems floating, 30–50 cm or more, slender. Leaves floating, 30–40 cm × 1–3 mm, transverse section semilunate. Racemes 5–7 cm, axis straight; male heads 1 or 2, smaller; female heads 2 or 3, lowest one pedunculate. Male flowers: perianth segments linear to obtriangular, ca. 1.5 × 1–1.3 mm, serrate-lobate at apex; ovary elliptic; styles absent or inconspicuous; stigmas elliptic, ca. 1 mm. Fruit broadly obovoid, ca. 4 mm. Fl. and fr. Jul–Aug. 2n = 30.

Lakes, ponds, swamps; ca. 1500 m. Heilongjiang, Jilin [Japan, Korea, Russia; Europe, North America].


**香蒲属** xiang pu shu

Herbs, perennial, in marshes or aquatic, with creeping rhizomes. Leaves alternate, erect, distichous, linear, usually spongy, margin entire, sheathed at base. Flowers unisexual, minute, numerous, densely crowded in a cylindrical spike with lower part female and upper part male; bracts leaflike. Perianth absent. Male flowers consisting of 1–3 stamens usually connate at base of filaments, surrounded by hairs; anthers 2-thecous, basifixed, longitudinally dehiscent; filaments short; pollen grains in monads or tetrads. Female flowers: ovary 1-loculed, on a long capillary stalk with many fine hairs or bracteoles at base; styles capillary; stigmas broadened or spatulate; ovule 1; sterile ovary without style. Fruit minute, falling off together with stalk.

About 16 species: tropical and temperate regions; 12 species (three endemic) in China.

1a. Female flowers without bracteoles; female part of spikes connected with or separated from male part.

2a. Female part of spikes not separated from male part.

3a. Stigmas spatulate; hairs on stalk of female flowers ca. as long as style ............................................................. 1. **T. orientalis**

3b. Stigmas lanceolate; hairs on stalk of female flowers shorter than style ............................................................. 2. **T. latifolia**

2b. Female part of spikes separated from male part.

4a. Stigmas linear, slender; axis of male part in spikes with brown hairs, hairs furcate or not ....................................... 3. **T. przewalskii**

4b. Stigmas spatulate; axis of male part in spikes with whitish or yellowish brown hairs, hairs not furcate.

5a. Stems 1.5–2 m tall; hairs on stalk of female flowers shorter than style ............................................................. 4. **T. changbaiensis**

5b. Stems 0.8–1.3 m tall; hairs on stalk of female flowers ca. as long as style ............................................................. 5. **T. laxmannii**

1b. Female flowers with bracteoles; female part of spikes separated from male part.

6a. Stems less than 0.8 m, with sheathlike leaves at base.

7a. Axis of male part in spikes with hairs; leaves 2–4 mm wide .................................................................... 12. **T. rugulodes**

7b. Axis of male part in spikes without hairs; leaves 1–2 mm wide.

8a. Hairs on stalk of female flowers swelling at tip, shorter than style ............................................................. 10. **T. minima**

8b. Hairs on stalk of female flowers not swelling at tip, ca. as long as style ............................................................. 11. **T. pallida**

6b. Stems more than 1 m, without sheathlike leaves.

9a. Bracteoles spatulate or subtriangular; stigmas lanceolate (to linear) ............................................................. 9. **T. davidiana**

9b. Bracteoles not spatulate; stigmas linear to lanceolate.

10a. Leaves abaxially carinate, transverse section triangular; bracteoles linear ............................................... 6. **T. elephantina**

10b. Leaves abaxially convex, transverse section semicircular; bracteoles filiform to triangular.

11a. Anthers ca. 2 mm; stigmas ca. as broad as styles ..................................................................... 7. **T. angustifolia**

11b. Anthers ca. 1.4 mm; stigmas broader than styles ..................................................................... 8. **T. domingensis**


**无柱黑三棱** wu zu hei san leng

**东方香蒲** dong fang xiang pu

**T. latifolia** Linnaeus, Sp. Pl. 2: 971. 1753.

**T. orientalis** (C. Presl) Rohrbach, **T. orientalis** var. **brunnea** Skvortsov; **T. shuttleworthii** Lehmann (1846), not W. D. J. Koch & Sonder (1844); **T. shuttleworthii** subsp. **orientalis** (C. Presl) Graebner; **T. shuttleworthii** var. **orientalis** (C. Presl) Rohrbach.

Stems 1.3–2 m tall, stout. Leaves 40–70 cm × 4–9 mm, abaxially convex, transverse section semicircular. Male part of spikes 2.7–9 cm, with 1–3 deciduous bracts at base or occasionally in middle portion; female part of spikes not separated from male part, 4.5–15 cm, with 1 deciduous bract at base. Male flowers: stamens 3, rarely 2 or 4; anthers ca. 3 mm. Female flowers without bracteoles; ovary fusiform to lanceolate; stalk ca. 2.5 mm, slender; styles 1.2–2 mm; stigmas spatulate, 0.5–0.8 mm; hairs on stalk ca. as long as style. Fruit elliptic. Fl. and fr. May–Aug. 2n = 60.

Lakes, ponds, channels, swamps, slow-moving rivers. Anhui, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Taiwan, Yunnan, Zhejiang [Japan, Korea, Mongolia, Myanmar, Philippines, Russia; Australia].


**宽叶香蒲** kuan ye xiang pu

?**Typha latifolia** f. **remota** Skvortsov.
Stems 1–2.5 m tall, stout. Leaves 45–95 cm × 5–15 mm, abaxially convex, transverse section semicircular. Male part of spikes 3.5–12 cm, with 1–3 deciduous bracts at base or occasionally in middle portion; female part of spikes not separated from male part, 5–23 cm. Male flowers: stamens usually 2; anthers ca. 3 mm. Female flowers without bracteoles; ovary lanceolate; stalk ca. 4 mm, slender; styles 2.5–3 mm; stigmas lanceolate, 1–1.2 mm; hairs on stalk shorter than style. Fruit lanceolate. Fl. and fr. May–Aug. 2n = 30.

Lakes, ponds, channels, swamps, slow-moving rivers. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shaanxi, Xinjiang, Xinjiang, Yunnan, Zhejiang [Afghanistan, Japan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; Japan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia, Europe].


无苞香蒲 wu bao xiang pu

Stems 0.8–1.3 m tall, slender. Leaves 50–90 cm × 2–4 mm, abaxially convex, transverse section semicircular. Male part of spikes 6–14 cm, axis with whitish or yellowish brown hairs, with 1 or 2 deciduous bracts at base and in middle portion; female part of spikes distinctly separated from male part, 4–6 cm, with 1 deciduous bract. Male flowers: stamens 2 or 3; anthers ca. 1.5 mm. Female flowers without bracteoles; ovary lanceolate; stalk 2.5–3 mm, slender; styles 0.5–1 mm; stigmas spatulate, 0.6–0.9 mm; hairs on stalk ca. as long as style. Fruit elliptic. Fl. and fr. Jun–Sep. 2n = 30.

Lakes, ponds, channels, swamps, shallow rivers. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang [Afghanistan, Japan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia, Europe].


象蒲 xiang pu

Stems 2–2.5 m tall, stout. Leaves 1.3–1.5 m × 8–10 mm, abaxially carinate, transverse section triangular. Male part of spikes with 1 bract at base, axis densely brown hairy; female part of spikes distinctly separated from male part, 14–16 cm, 2.5–3 cm in diam. Female flowers with bracteoles; bracteoles whitish, linear; ovary lanceolate; stalk ca. 3.5 mm; styles 1–2 mm; stigmas lanceolate, ca. 1 mm; hairs on stalk shorter than style. Fl. and fr. Jun–Sep.

Swamps, riversides. Yunnan [India, Myanmar, Nepal, Pakistan, Tajikistan, Turkmenistan, Uzbekistan, Africa].


水烛 shui zhu

Stems 1.5–3 m tall, stout. Leaves 52–120 cm × 4–9 mm, abaxially convex, transverse section semicircular. Male part of spikes ca. 8 cm, with 1–3 deciduous bracts; female part of spikes (5–)15–30 cm, separated from male part by an axis 2.5–7 cm. Male flowers: stamens 3, rarely 2 or 4; anthers ca. 2 mm. Female flowers with bracteoles; bracteoles filiform; ovary fusiform; stalk ca. 5 mm, slender; styles 1–1.5 mm; stigmas linear to lanceolate, 1.3–1.8 mm; hairs on stalk shorter than style. Fruit narrowly elliptic. Fl. and fr. Jun–Sep. 2n = 30.


长苞香蒲 chang bao xiang pu

Typha angustifolia var. angustifolia (Bory & Chaubard) Briquet; T. angustifolia var. angustata (Bory & Chaubard) Jordan.

Stems 0.7–2.5 m tall, stout. Leaves 40–150 cm × 3–8 mm, abaxially convex, transverse section semicircular. Male part of spikes 7–30 cm, with 1 or 2 bracts; bracts to ca. 32 cm, deciduous; female part of spikes 5–23 cm, distinctly separated from male part, with 1 bract at base, with sparse and curved hairs on axis. Male flowers: stamens 3, rarely 2; anthers ca. 1.4 mm. Female flowers with bracteoles; ovary lanceolate; stalk 3–6 mm, slender; styles 0.5–1.5 mm; stigmas linear to lanceolate, 0.8–1.5 mm, broader than styles; hairs on stalk shorter than style. Fruit fusiform. Fl. and fr. Jun–Aug.

Shallow water of lakes, ponds, rivers, and swamps, channels.

Typha martini Jordan var. davidiana Kronfeld


Typha martini Jordan var. davidiana Kronfeld

Stems ca. 1 m tall. Leaves 60–70 cm × 3–5 mm, abaxially convex, transverse section semicircular. Male part of spikes 12–18 cm, with 1 deciduous bract, axis smooth; female part of spikes distinctly separated from male part, 4.5–11 cm, 1.5–2 cm in diam., with deciduous bract. Female flowers with bracteoles; bracteoles spatulate or subtriangular; ovary lanceolate; stalk 3–4 mm; styles short; stigmas lanceolate to linear, 1–1.2 mm; hairs on stalk ca. as long as style. Fruit lanceolate. Fl. and fr. May–Aug.


Rohrbachia minima (Funck ex Hoppe) Mavrodiev

Stems 16–65 cm tall, slender. Leaves usually basal, sheathlike, often without blade or sometimes with blade, 15–40 cm × 1–2 mm, shorter than scape. Male part of spikes 3–8 cm, without hair on axis, with 1 deciduous bract at base; female part of spikes distinctly separated from male part, 1.6–4.5 cm, with bract at base. Male flowers: stamens 1, rarely 2 or 3; anthers ca. 1.5 mm. Female flowers with bracteoles; ovary fusiform; stalk ca. 4 mm, slender; styles ca. 0.5 mm; stigmas linear, ca. 0.5 mm; hairs on stalk swelling at tip, shorter than styles. Fruit elliptic. Fl. and fr. May–Aug.

Shallow water of ponds and rivers. Gansu, Hebei, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi, Shandong, Shanxi, Sichuan, Xinjiang [N and SW Asia, Europe].


球序香蒲 qiu xia xiang pu

Stems 45–70 cm tall, slender. Leaves dimorphic; sheathlike leaves 4–12 cm; linear leaves 40–45 cm × 1–2 mm, abaxially convex, transverse section semicircular. Male part of spikes 4–5 cm, without hairs on axis, with 1 deciduous bract at base; female part of spikes separated from male part, 2.5–4.5 cm, with a deciduous bract at base. Male flowers: stamen 1; anthers ca. 1.5 mm. Female flowers with bracteoles; ovary elliptic; styles ca. 0.6 mm; stigmas linear, ca. 0.8 mm; hairs on stalk ca. as long as styles. Fruit elliptic. Fl. and fr. May–Sep.

Ponds, streams, swamps. Hebei, Nei Mongol, Xinjiang [C Asia].

Closely related to Typha minima, this species is treated as T. minima by Govaerts (2010. World Checklist of Typhaceae. The Board of Trustees of the Royal Botanic Gardens, Kew. Published on the Internet; http://www.kew.org/wcsp/ accessed 16 Feb 2010). Further work is needed to determine the relationships between these two taxa.


短序香蒲 duan xiu xiang pu


Stems 45–70 cm tall, slender. Leaves dimorphic; sheathlike leaves basal, 4–9 cm; linear leaves 2–4, slightly longer than scape, 50–75 cm × 2–4 mm, abaxially convex, transverse section semicircular. Male part of spikes 3–6 cm, axis hairy, with 1 bract; female part of spikes separated from male part, 1.5–3 cm, 1–1.5 cm in diam. Male flowers: stamens 1; anthers ca. 1.2 mm. Female flowers with small, brown bracteoles; ovary fusiform to elliptic; stalk 2.5–4 mm; styles ca. 0.5 mm, slender; stigmas lanceolate, ca. 0.7 mm; hairs on stalk swelling at tip, shorter than style. Fruit elliptic. Fl. and fr. May–Aug.

Sides of channels, swamps, wetlands. Hebei, Nei Mongol, Shandong, Xinjiang [N and SW Asia, Europe].