

2. PHYLLOSPADIX Hooker, Fl. Bor.-Amer. 2: 171. 1838.

虾海藻属 xia hai zao shu

Rhizome monopodial, with 2 vascular bundles in cortex. Erect stems absent or strongly abbreviated, with dense, persistent fibrous leaf bases. Leaves linear, usually leathery, with 3–7 parallel veins, margin irregularly minutely denticulate; sheaths with an auricle, ligulate. Spadix axillary, sessile, axis flattened, with a row of conspicuous flaplike projections (retinacula) on each side of axis. Plants dioecious; flowers unisexual, small. Anthers 2-celled. Female flowers consisting of 1 carpel, often with staminode; style short; stigmas 2, capillary. Fruit curved, with a short beak.

About five species: widely distributed along shores of the N Pacific Ocean; two species in China.

- 1a. Leaves 1.5–2.5 mm wide, apex usually retuse, 3-veined; persistent fibrous leaf bases blackish brown 1. *P. japonicus*
1b. Leaves 2–4.5 mm wide, apex obtuse, 5-veined (rarely 3-veined); persistent fibrous leaf bases reddish brown 2. *P. iwatensis*

1. *Phyllospadix japonicus* Makino, Bot. Mag. (Tokyo) 11: 137. 1897.

黑纤维虾海藻 hei xian wei xia hai zao

Rhizomes creeping, 3–4 mm in diam. Stems abbreviated, internodes 3–5 mm; persistent fibrous leaf bases blackish brown. Leaves alternate, linear, 25–100 cm × 1–2.5 mm, 3-veined, margin entire or irregularly denticulate toward apex, apex obtuse and retuse; sheaths 4–20 cm, amplexicaul. Spathe 1, with flattened stalk 1–3(–7.5) cm and shrimplike sheath; projections ovate-lanceolate, alternate with flowers. Anthers with 2 filiform thecae. Carpels sagittate to cordate at base. Fruit semilunate, 2–2.5 × 4–5 mm; beak apical. Fl. and fr. Mar–Aug. $2n = 16, 20$.

Fine gravel or sand near low tide mark; sea level to ca. 8 m. Coasts of Hebei, Liaoning, Shandong [coasts of Japan, Korea, and Russia (Far East)].

2. *Phyllospadix iwatensis* Makino, J. Jap. Bot. 7: 15. 1931.

红纤维虾海藻 hong xian wei xia hai zao

Rhizomes creeping, ca. 5 mm in diam. Stems abbreviated, internodes 4–5 mm; persistent fibrous leaf bases reddish brown. Leaves alternate, linear, 1–1.5 m × 2–4.5 mm, 5-veined, rarely 3-veined, margin entire basally, but irregularly denticulate toward apex, apex obtuse; sheaths ca. 25 cm, amplexicaul. Spathe 1, with flattened stalk 1.2–5(–8) cm and shrimplike sheath; projections obliquely ovate to lanceolate, alternate with flowers. Anthers with 2 filiform thecae. Carpels sagittate at base. Fruit compressed, semilunate, 2.2–3 × 4–5 mm; beak apical. Fl. and fr. Apr–Oct. $2n = 16, 20$.

Fine gravel or sand near low tide mark; sea level to ca. 8 m. Coasts of Hebei, Liaoning, Shandong [coasts of Japan, Korea, and Russia (Far East)].

Fl. China 23: 107. 2010.