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147. SPARTINA Schreber, Gen. Pl. 43. 1789.

米草属 mi cao shu

Sun Bixing (孙必兴 Sun Bi-sin); Sylvia M. Phillips

Perennials, usually with wide spreading scaly rhizomes. Culms erect, robust. Leaf blades long, tough; ligule a line of hairs. Inflorescence of racemes, these subdigitate or disposed along an axis, few to many; spikelets appressed or pectinate; rachis triquetrous, terminating in a naked point. Spikelets strongly laterally compressed, lanceolate or narrowly oblong, floret 1, without rachilla extension, disarticulating below glumes and falling entire; glumes unequal, keeled; lower glume shorter than floret; upper glume longer than floret, papery, 1–3-veined, sometimes additional veins present, apex narrowly acute to shortly awned; lemma keeled, firm with wide membranous margins, lateral veins obscure, apex subacute; palea equaling or exceeding lemma. Lodicules often absent. Caryopsis fusiform, embryo nearly as long as caryopsis. $x = 10$.

Seventeen species: both coasts of the Americas, Atlantic coasts of Europe and Africa, especially in temperate and subtropical regions; two species (both introduced) in China.

This genus is adapted to the saline environment of the coast. Species with spreading rhizomes form colonies in tidal saltmarshes and are particularly suitable for stabilizing coastal mud flats.

1a. Spikelets glabrous, rarely short hairs on keels; culms (0.5–)1–2(–3) m tall; leaf blades 10–90 × 1–2 cm ..... 1. *S. alterniflora*
1b. Spikelets pubescent; culms 0.1–0.5(–1.2) m tall; leaf blades 11–22 × 0.7–1 cm ..... 2. *S. anglica*

1. Spartina alterniflora Loiseleur, Fl. Gall. 719. 1807.

互花米草 hu hua mi cao

Spartina glabra Muhlenberg ex Elliott var. *alterniflora* (Loiseleur) Merrill; *S. maritima* (Curtis) Fernald var. *alterniflora* (Loiseleur) St.-Yves; *S. stricta* Roth var. *alterniflora* (Loiseleur) A. Gray; *Trachynotia alterniflora* (Loiseleur) Candolle.

Perennial with soft fleshy rhizomes. Culms stout, forming large clumps, erect, (0.5–)1–2(–3) m tall, ca. 1 cm in diam. Leaf sheaths mostly longer than internodes, smooth; leaf blades linear-lanceolate, flat, 10–90 × 1–2 cm, smooth or margins minutely scabrous, tapering to long hard involute apex; ligule ca. 1 mm. Racemes racemosely arranged, (5–)10–20, 5–20 cm, slender, erect or slightly spreading; spikelets scarcely overlapping; rachis smooth, terminating in a bristle up to 3 cm. Spikelets ca. 10 mm, glabrous or nearly so; lower glume linear, 1/2–2/3 as long as spikelet, acute; upper glume ovate-lanceolate, as long as spikelet, glabrous or with very short hairs on keel, subacute; lemma lanceolate-oblong to narrowly ovate, glabrous; palea slightly longer than lemma. Anthers 5–6 mm. $2n = 62$.

Tidal mudflats of coast, introduced. Fujian, Guangdong, Guangxi, Hebei, Jiangsu, Shandong, Zhejiang [native to Atlantic coast of North America].

Spartina alterniflora was first introduced to China from North America in 1979. From eight initial plantings in 1985 it has spread rapidly in suitable habitats along the whole Chinese coast. It is used to protect coastal dykes from tidal erosion and to promote sediment build-up for polder formation. Plantations are also used for pasture and cut for green manure and forage.

2. Spartina anglica C. E. Hubbard, Bot. J. Linn. Soc. 76: 364. 1978.

大米草 da mi cao

Spartina townsendii H. Groves & J. Groves var. *anglica* (C. E. Hubbard) Lambinon & Maquet.

Perennial with soft fleshy rhizomes, deeply rooted. Culms forming large clumps, erect, 10–50(–120) cm tall, 3–35 mm in diam. Leaf sheaths mostly longer than internodes, smooth; leaf blades linear, flat or inrolled upward, 10–45 × 0.7–1.5 cm, smooth, apex fine, hard, upper blades usually patent; ligule 2–3 mm. Racemes racemosely arranged, 2–6(–12), 7–23 cm, stiff, erect or slightly spreading; spikelets closely overlapping; rachis terminating in a hard bristle up to 5 cm. Spikelets 12–21 mm, pubescent; lower glume 2/3–4/5 as long as spikelet, acute; upper glume lanceolate-oblong, as long as spikelet, acute; lemma lanceolate-oblong, ca. 1 cm, keel scaberulous, pubescent, entirely or in upper half; palea slightly longer than lemma. Anthers 7–13 mm. $2n = 124$.

Tidal mudflats of coast, introduced. Jiangsu, Zhejiang [native to England].

Spartina anglica is an extremely vigorous species, which arose in England at the end of the 19th century by the natural hybridization of *S. alterniflora* and *S. maritima* (Curtis) Fernald, followed by a doubling of chromosomes in the resulting sterile hybrid to form a fertile amphidiploid. It was introduced from England to China in 1963 and was planted in coastal areas. At first it spread rapidly, occurring in all coastal provinces by 1985. In recent years it has died back, leaving only small residual colonies. The reasons for the dieback are not fully understood.

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