

41. ZIZANIA Linnaeus, Sp. Pl. 2: 991. 1753.

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Monoecious aquatic annuals or perennials, rhizomes and stolons sometimes present. Culms tall, erect, robust. Leaf blades linear to broadly lanceolate; ligule membranous. Inflorescence a large panicle, spikelets unisexual and mostly borne on separate branches; lower branches spreading, bearing pendulous, caducous male spikelets; upper branches erect or ascending at maturity, bearing appressed, tardily deciduous female spikelets; or middle branches with mixed male and female spikelets (*Z. latifolia*). Spikelets with 1 floret, falling entire; glumes absent; lemma as long as spikelet, 5-veined; palea subequal to lemma, narrower, 3-veined. Male spikelet: lemma membranous, weakly flattened, acuminate or awn-pointed; stamens 6. Female spikelet: lemma papery or leathery, cylindrical, tapering into a long slender awn; palea closely clasped by lemma. Caryopsis cylindrical, embryo half as long, hilum almost as long as caryopsis. $x = 15$ or 17 .

Four species: E Asia and North America; one species in China.

All species are used as food crops. *Zizania aquatica* Linnaeus and *Z. palustris* Linnaeus are cultivated in botanical gardens in China. They are highly valued cereals in North America (Wild Rice).

- 1a. Plant perennial; panicle with middle branches bearing both male and female spikelets 1. *Z. latifolia*
1b. Plant annual; panicle with all male spikelets on lower branches and all female spikelets on upper branches.
2a. Plant 2–4 m; ligule to 30 mm, acute or acuminate; lemma of female spikelet papery, with scattered prickly-hairs *Z. aquatica* (see note above)
2b. Plant 0.6–2 m; ligule to 16 mm, subrounded; lemma of female spikelet leathery, glabrous or with prickly-hairs in lines on back and dense at apex *Z. palustris* (see note above)

1. *Zizania latifolia* (Grisebach) Turczaninow ex Stapf, Bull. Misc. Inform. Kew 1909: 385. 1909.

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Hydrophyrum latifolium Grisebach in Ledebour, Fl. Ross. 4: 466. 1853; *Zizania aquatica* Linnaeus var. *latifolia* (Grisebach) Komarov; *Z. caduciflora* Handel-Mazzetti, nom. illeg. superfl.; *Z. dahurica* Turczaninow ex Steudel.

Perennial, rhizomatous. Culms erect, 1–2.5 m, ca. 1 cm thick, rooting at lower nodes, nodes glabrous. Leaf sheaths longer than internodes, thickened, lower sheaths tessellate; leaf blades broadly linear, 50–90 × 1.5–3.5 cm, abaxial surface scabrous, adaxial surface glabrous, tapering to base, apex abruptly narrowed to a long point; ligule triangular, 1–1.5 cm. Panicle 30–50 × 10–15 cm, lower branches with male spikelets, upper branches with female spikelets, middle branches mixed; branches semiverticillate, many at each node, sparsely spinulose; pedicel apex disk-shaped with spinulose margin. Male spikelet 0.8–1.5 cm; lemma elliptic-oblong, margin ciliate; awn 2–8 mm, scabrous; anthers 5–8 mm. Female spikelet 1.5–2.5 cm; lemma linear, scabrous on veins; awn 1.5–3 cm, scabrous. Caryopsis ca. 1 cm. Fl. and fr. Jun–Sep. $2n = 30, 34$.

Shallow water of lake margins and swamps, forming large patches. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [NE India, Japan, Korea, Myanmar, Russia; cultivated in SE Asia].

This species is cultivated as a vegetable in China. The young

shoots and rhizomes are edible when infected, swollen, and softened by the fungus *Ustilago esculenta*. The presence of the fungus prevents flowering. The grains were used for food by the Emperor in ancient China, and are currently being used by fishermen.

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