

## Najadaceae

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Najadaceae Juss., Gen. Pl.: 18 (1789), nom. cons.

Monoecious or rarely dioecious, annual or rarely perennial, erect, caulescent, glabrous *herbs* of fresh or brackish waters, growing entirely submersed. Roots fibrous, few, nonseptate, at base of stem and lower nodes. Stems slender, much branched, sometimes armed with spinulose teeth on the internodes; turions and tubers never developed. *Leaves* spiral, subopposite or pseudover-ticillate, sessile, with sheathing base; blade linear, flattened, 1-veined, sometimes abaxially toothed on midrib, the margins serrulate to dentate, the apex acute to acuminate, with 1-3 teeth per side; the teeth multicellular, formed by layers of cells decreasing in cell number distally and terminated by a large, sharp-tipped cell, or unicellular; sheaths variously shaped, each enclosing a pair of tiny intravaginal squamules, the margins usually spiny-toothed, with 1-15 teeth per side. *Flowers* axillary, solitary, or clustered, imperfect, perianth absent. Staminate flowers mostly subtended by 1 or 2 clear to pale purple, membranous, spathe-like envelopes, each flower consisting of a single stamen; pedicels at first short, elongating at anthesis, pushing the anther through the outer envelope; anther sessile, 1- or 4-sporangiate, dehiscent by an apical slit. Carpellate flowers sessile; a clear to pale purple membranous envelope rarely present; gynoecium ending in a short style with 3 or 4 branches; ovary 1-loculed; wall delicate, 2 cell layers thick; placentation basal; ovule solitary, bitegmic, anatropous. *Fruit* achenelike; gynoecial wall closely enveloping the seed, opening by decay. Seed fusiform to elliptic; testa areolate; embryo elongate, macropodous, straight or rarely curved; endosperm developing nuclear, absent in the mature seed.

A monogeneric, nearly cosmopolitan family with ca. 40 species.

**VEGETATIVE MORPHOLOGY.** The Najadaceae are all aquatic herbs which grow entirely submersed in fresh or brackish waters (Fig. 79). The roots arise from the base of the stem or along the lower









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