

Halophytes Encyclopedia Article

Halophytes

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Halophytes

Halophytes (salt plants) are organisms that require elevated amounts of sodium up to or exceeding seawater strength (approximately 33 parts of sodium per thousand) for optimal growth. In contrast, most crops cease to produce with sodium at 1 to 3 ppt. Halophytes are found worldwide, including in deserts where infrequent rainfall leaches **ions** to the surface. They encroach into irrigated lands as ion concentrations increase over time. They are best known as mangroves, a term for a number of unrelated tree species, which in tropical **ecosystems** stabilize coastlines in species-rich habitats threatened by development. Halophytism characterizes species in many plant families, indicating adaptive evolution from nontolerant ancestors. Typical adaptations are succulence, water-conserving mechanisms, and specialized surface morphology (e.g., trichomes and waxes). Resistance to salinity is costly, explaining the slow growth of halophytes. Energy expenditure for ion pumping is required for sodium export (from glands), partitioning (movement of sodium away from growing tissues) or storage (in **vacuoles**, specialized cells, or senescing leaves). Another source of energy expenditure is for absorption of essential ions and nutrients from the soil. This active transport process is made more difficult by high levels of sodium in the surrounding soil. Valued for their ecological importance, few halophytes are economically significant, while species such as *Salicornia* have potential utility as oil crops.

See Also

Coastal Ecosystems; Deserts; Trichomes.

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