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“Bridging the gap between increasing knowledge and decreasing resources”

## Evaluate the Potential Yields of *Sesuvium portulacastrum* (L.) Cultivated in Coastal Salt Marshes of Egypt

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### Abstract

Of all natural resources freshwater is worldwide the major concern for prospective development. Fresh water resources both for domestic and agriculture use are constantly depleting and crop yield suffer from a steady increase in water salinity, particularly in arid and semi-arid regions. A burgeoning population in most developing countries is a further threat not only to sustained food supply but also affect other resources like fodder and fuel wood. Efforts are hence needed to find an alternate source of water and utilisation of saline lands for economic benefits. Thousands of kilometers of coastal deserts in developing countries may serve as a new agriculture land, with the use of sea water for irrigation of salt tolerant plants. These plants can grow using land and water unsuitable for other conventional crops and provide food, fodder, fuel, medicines, landscaping. Saving the precious freshwater resources especially in the coastal areas where tourist development is planned, it is possible to select suitable halophytes for ornamentation purpose in landscaping. *Sesuvium portulacastrum* (L.) is one of the fast growing, perennial, herbaceous, psammophytic halophyte, with great potentials. The plant is utilised as a vegetable, forage, landscaping and potentially use for environment protection like soil covering, sand dune fixation, bioreclamation of saline soil, phytoremediation and carbon sequestration. Furthermore, this species has medicinal value and produces secondary metabolites useful as substitutes for synthetic raw materials in food, perfumery, cosmetic and pharmaceutical industries. *S. portulacastrum* is characterised for its adaptability to hard environmental conditions of the coastal sand dune habitats that limit the survival of most vegetation. A field experiment was carried out to evaluate the potential yields of *S. portulacastrum* cultivated on coastal salt marshes region in northern Sinai. Salt-remediation, vegetable yield, protein, amino acids and nutrient contents were estimated. The results showed that *Sesuvium* can tolerate and grow under extremely high salinity concentrations of up to 68.0 ds m<sup>-1</sup>. The highest forage yield recorded was 12.0 t ha<sup>-1</sup> with 8% protein content. However, the Na content in *Sesuvium* shoots is 10 times higher than found for K and P.

**Keywords:** Coastal salt marshes, halophytes, potential yields, *Sesuvium portulacastrum*