



The Effects of Salt Stress on Growth Characteristics and Ion Accumulation in Saltwort Plants (*Seidlitzia rosmarinus* L.)

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Abstract

Salinity is one of the major environmental stresses in many parts of the world it has an inhibiting effect on the growth and metabolism of plants. In this study, the effect of salt stress on growth and ion accumulation in *Seidlitzia rosmarinus* was determined. Experiment was carried out in completely random design (CRD) with 5 replicates. Treatments were composed of: control, 0.25, 0.5, 0.75 and 1% (of dry soil bed's weight). Growth parameters were progressively declined by increasing soil salinity percentage. Saltwort, a perennial halophyte, exhibits significant reduction in height and biomass under saline stress conditions. Leaf sodium (Na⁺) content increased when plants were subjected to saline conditions. Such a trend was also observed for chloride (Cl⁻). On the contrary, cations such as Ca⁺, Mg⁺ and K⁺ decreased with soil salt content increase. Low levels of salinity (0.25 and 0.5% salt kg dry soil) did not cause substantial inhibition of growth (root and stem) but increasing concentrations of salt induced a progressive decline in fresh and dry weights of the plants. Salt stress induced a significant decrease in leaf (fresh and dry) weight. There was no significant effect of salinity on K⁺ and Mg⁺ in roots. Based on achieved results the saltwort tolerance to salt stress through accumulating ions in different organs and due to the average surface salinity has no significant effect on reducing growth, so *S. rosmarinus* can be grown in moderately saline soils and the appropriate choice for improving soils and sodium is recommended.

Keywords: *Seidlitzia rosmarinus* was, Salinity, Growth parameters, Ion toxicity, Ion accumulation.

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