

عنوان مقاله:

Effect of osmotic potentials caused by polyethylene glycol and sodium chloride on growth and biochemical characteristics of *Salicornia sinus-persica* Akhani spec. nov. Akhani seeds

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خلاصه مقاله:

Germination and seedling establishment are sensitive and important stages in the life cycle of plants that are affected by abiotic stresses, especially drought and salinity stresses. This study was conducted to investigate the effects of osmotic potential (due to sodium chloride and polyethylene glycol) on germination and biochemical indices of *Salicornia sinus-persica* Akhani spec. nov. Akhani seeds in ۲۰۲۰ in the Agriculture Laboratory of Yasouj University of Agriculture in a completely randomized design with three replications of ۵۰ seeds. A separate experiment was performed in which the first experiment consisted of ۱۳ levels of osmotic potential (zero, -۰.۳, -۰.۶, -۰.۹, -۱.۲, -۱.۵, -۱.۸, -۱.۲, -۲.۴, -۲.۷, -۳, -۳.۳ and -۳.۶ MPa) which were made of polyethylene glycol and the second experiment included ۱۳ salinity stress levels with osmosis similar to the first experiment (zero, ۶۲, ۱۲۲, ۱۸۷, ۲۴۹, ۳۱۱, ۳۶۸, ۴۳۵, ۴۹۸, ۵۶۰, ۶۲۲, ۶۸۴ and ۷۴۶ mM) were used to make sodium chloride. The results showed that the trend of salicornia seed germination indices in salinity and drought stresses had a constant trend up to the level of about -۱.۲ (۲۴۹ mM) and -۰.۶ MPa, respectively, and then with a decrease in the osmotic potential of germination percentage, root and stem length, root and shoot dry weight and seedling vigor length and weight index showed a decreasing trend so that the slope of this decreasing trend was higher in drought stress compared with salinity stress. From osmotic potential of ۱.۲ MPa onwards, in salinity thirst, seed biochemical parameters such as proline content, malondialdehyde content and sodium element increased whereas potassium element decreased and in drought stress, proline and malondialdehyde content showed an increasing trend. In general, *Salicornia* seeds were more sensitive to drought stress than salinity stress.

کلمات کلیدی:

Proline, Drought stress, Salinity stress, Germination, *Salicornia*
خشکی، تنش شوری، جوانه زنی، سالیکورنیا

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