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**EFFECT OF SALINITY AND DROUGHT STRESS ON GERMINATION CHARACTERISTICS OF PURSLANE (*PORTULACA OLERACEA* L.)**

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Purslane (*Portulaca oleracea* L.) is an annual salt-tolerant plant, which could be considered as vegetable, fodder or medicinal plant in saline conditions. In order to study the effect of salinity and drought stress on germination characteristics and seedling growth of Purslane, two experiments was conducted in germination stage as a factorial arrangement based on completely randomized design with four replications. Salinity levels were 0, 100, 200, 300, 400 and 500 mmol/L prepared with mixture of NaCl, MgSo<sub>4</sub>, CaCl<sub>2</sub>, and KCl salts with the ratio of 6:2:1:1 and osmotic potential levels were 0, -0.33, -0.84, -1.02, -1.29 and -1.79 Mpa prepared with PEG 6000. Traits of percentage and rate of germination, plumule and radicle length, plumule/radicle length ratio, seedling fresh and dry weight, and seedling vigor index was measured. Analysis of variation and duncan test ( $p < 0.05$ ) were used to demonstrate the salinity and drought in affecting the traits. Results showed that the effect of salinity levels on all traits was very significant, except germination percentage and seedling fresh weight, whereas, the effect of osmotic potential on all traits was not significant. The results showed that salinity level up to 500 mmol/L did not impose any significant differences in percentage of germination and seedling fresh weight compared with control, while drought up to -1.79 Mpa did not impose any significant differences in all traits compared with control. Purslane plumule/radicle length ratio increased significantly with increasing salinity. At the level of 500 mmol/L salinity, the germination of purslane did not stopped. The functional three- parameter logistic model with  $R^2 \geq 0.95$  provided a successful estimation of the relationship between salinity and drought with final percentage of germination. It is indicated that the salinity level required to 50 % inhibition in germination was 656.9 mmol/L. Salinity is one of the increasing problems in the world which include the wide area of Iran. Due to constraint in increment in salinity lands and shortage in desirable soils for cultivation, recognition of medicinal plants that are salt tolerance is very important. As a result, purslane germination can be extremely tolerable to salinity and drought conditions. So it seems that this plant can be established in arid and semi-arid regions. Overall, it was found that the effect of salinity stress on purslane, caused by the toxic effect of ion salts and osmotic effects of salinity stress on reduction of germination and seedling growth was not significant.

**References**

[1] Kafi, M.; Rahimi, Z. *Iranian Journal of Field Crops Research*. **2010**, 8(4), 615-621.