

Effects of benzyladenine and nitrogen on growth characteristics of pistachio seedlings, cv. Badami Zarand, under salinity stress

M. Khalilpour¹ and V. Mozafari ^{1*}

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Abstract

In order to evaluate the effect of different levels of benzyladenine, nitrogen and salinity on growth characteristics of pistachio seedlings, cv. Badami Zarand, a factorial experiment with three factors: benzyladenine (0, 250 and 500 mg/L), nitrogen (0 and 100 mg N/kg soil as NH_4NO_3) and salinity (0 and 2000 mg NaCl/kg soil) was carried out as completely randomized design with three replications for 24 weeks under greenhouse conditions. Results showed that although salinity significantly decreased dry weight of shoots and roots of the seedlings, but application of 500 mg/L benzyladenine increased dry weight of shoots and roots by 125 and 86 percent, respectively. However, simultaneous application of nitrogen and benzyladenine increased dry weight of shoots and roots more than 3 and 2 folds, respectively. Results also showed that salt stress significantly decreased leaf area and length of root system. But simultaneous application of nitrogen and the highest concentration of benzyladenine increased leaf area and length of root system more than 3 and 2.5 folds, respectively. The results of triple effects also showed that although height, leaf number and stem diameter significantly decreased under saline conditions, but simultaneous application of nitrogen and benzyladenine resulted in more prominent increase of these growth characteristics than individual application of these treatments. Finally, it is concluded that simultaneous application of nitrogen and benzyladenine resulted in more effective reduction of harmful effects of salinity on growth characteristics of pistachio seedlings than application of these treatments alone.

Keywords: Length of root system, Sodium chloride, Ammonium nitrate, Dry weight of shoots and roots.

1. Dept. of Soil Sci., College of Agric., Vali-e-Asr Univ. of Rafsanjan, Rafsanjan, Iran.

* Corresponding Author, Email: vmozafari@yahoo.com