

Effect of salinity stress and salicylic acid on some morphophysiological characteristics of eggplant (*Solanum melongena* var. Taki) in soilless culture

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Abstract

Salinity is a serious problem for expansion of agriculture, especially in arid and semi-arid regions. On the other hand, various benefits of soilless culture have caused the expansion of this system in these areas. In order to investigate the effect of different levels of salicylic acid and salinity stress on vegetative and physiological characteristics of eggplant, a factorial experiment was conducted with two factors, including salicylic acid at three levels (0, 50 and 100 mg/L) and salinity stress at three levels (0, 75 and 150 mM NaCl) with 3 replications. The results showed that the main and interaction effects of different levels of salinity and salicylic acid were significant (except stem diameter, chlorophyll b and calcium concentration) on growth parameters, photosynthetic pigments, soluble sugars, proline and mineral elements. Plant height, number of leaves, leaf area, fresh and dry weight of shoots, fresh and dry weight of roots, photosynthetic pigments (chlorophyll a, chlorophyll b and carotenoids), soluble sugars and K content were decreased by increasing salinity level. Application of salicylic acid improved these parameters. But, Na⁺ and Cl⁻ contents were increased under the salinity stress. Application of salicylic acid partially improved this situation. Also, proline content was increased by increasing salinity and salicylic acid levels. Based on the obtained results, and the problem of high salinity level of irrigation water in greenhouses, application of salicylic acid can improve plant growth under saline conditions.

Keywords: Salinity resistance, Foliar spray, Physiological trait.

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