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INFLUENCE OF SOIL SALINITY, ASCORBIC ACID AND SALICYLIC ACID TREATMENTS ON JOJOBA PLANTS

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ABSTRACT

The present research was carried out at the Experimental Farm, Fac. of Agric., Al-Azhar Univ., Assiut during the two successive seasons of 2016 and 2017 to determine the effect of soil salinity levels at 0, 0.3, 0.6 and 0.9 % of Na Cl + Ca Cl_2 (1 : 1 by weight) and antioxidants, namely, ascorbic acid and salicylic acid each at 0, 75 and 150 ppm, as well as, their interactions on plant height, stem diameter, leaf area, leaf and stem dry weights / plant and Na and Ca % in the leaves of jojoba plants. The obtained results indicated that increasing soil salinity level led to a significant gradual reduction in growth traits in terms of plant height, stem diameter, leaf area and leaves and stems dry weights / plant, while the elements of Na and Ca % in leaves were significantly gradually augmented with increasing soil salinity level. Therefore, the least values were observed by using the high level of soil salinity (0.9 %). It is noticed that the application of the low level of salinity (0.3 %) significantly increased vegetative growth traits, mostly. Spraying the plants with ascorbic or salicylic acids at all concentrations caused a significant increase in growth parameters, while Na and Ca % were decreased. The use of the high concentration of salicylic acid recorded the highest values of growth traits, while it recorded the least values of Na + Ca %. The most effective treatments were noticed by utilizing the low level of soil salinity (0.3 %) in combination with foliar spray with 150 ppm salicylic acid. Therefore, it could be concluded that foliar spray with ascorbic acid or salicylic acid led to alleviating the harmful influences of soil salinity on plant growth.

Key words: Jojoba plants, salinity, ascorbic acid, salicylic acid.