

The Effect of Green Algae (*Cladophora crispata* L.) Extract on Salinity Stress Tolerance of (*Zea mays* L.) Plant

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Abstract

This study conducted in 2017 at the Plant Protection Department (PPD), Agriculture college - University of Misan, Iraq and laboratory of breeding plant department, Agriculture college - University of Tehran, Iran in order to evaluate the effect of green algae (*Cladophora crispata* L.) extract on salinity stress tolerance of maize plant (*Zea mays* L.). Seeds were planted in plastic pots filled with sand-peat moss (1:1) and irrigated with different sea water concentrations (0, 5, 10, 20, 30%) with algal extract (0, 0.5, 1, 1.5) ml and without algal extract separately. After one month of cultivation, the plants sprayed with algal extract one time every ten days. The results of the study showed that increasing the concentration of seawater in the irrigation water leads to a significant reduction in the percentage of seed germination, length of the vegetative and root parts, the number of roots and fresh weight of the vegetative and root mass. However, spraying maize plants with green algae extract lead to a significant increase in all above traits and positive effects was directly proportional to the increasing concentration of algal extract. The study also showed that raising the concentration of seawater in irrigation water leads to high concentration of iron, copper and zinc and decreased the concentration of manganese in the maize leaf tissues. The application of algal extract in irrigation water and as foliar spray showed a significant increase in some micro minerals which consider as an indicator of improving plant resistance to salinity stress.

Keywords: *Zea mays* L., *Cladophora crispata* L., Salinity Stress, Algal Extract.