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Ascorbic Acid Application Mitigates the Salt Stress Effects on Helianthus annuus L. Plants Grown on a Reclaimed Saline Soil

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Abstract : A field trial was conducted during two successive seasons (2013 and 2014) in Southeast Fayoum, Egypt (29º 17'N; 30º 53'E) to investigate the improving effect of ascorbic acid (Vit C) foliar spray at the rates of 0, 1, 2 or 3 mM on the growth, seed and oil yields, and some chemical constituents of sunflower plants grown on a reclaimed saline soil (EC = 7.98–7.83). Vit C application at all rates (1, 2 and 3 mM) was significantly increased growth traits, seed and oil yields, and the concentrations of endogenous Vit C, leaf photosynthetic pigments, total soluble sugars, free proline and nutrient elements as well as K/Na ratio. In contrast, Na concentration was significantly reduced with the application of all Vit C levels. Vit C foliar spray at the rate of 2 mM was found to be the best treatment, alleviating the inhibitory effects of salinity on sunflower plants grown on a reclaimed saline soil.

Keywords : Helianthus annuus L., Vit C, salinity, growth, seed and oil yields, osmoprotectants
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