

Influence of some seed plants derived from seeds treated with salicylic acid on phytoremediation salt polluted soil.

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ABSTRACT

Salt is the savor of food but the scourge of agricultural: In excess it kills growing plants. Salinization of soils is a major impediment to their optimal utilization in many arid and semi-arid regions throughout the world. Vegetative bioremediation of saline soils is a biological approach for soil desalination by plants. It is based on three main processes: (i) sodium release from cation exchange sites ii) its leaching, and/or (iii) phytodesalination (Na⁺) uptake by plant roots and its accumulation in shoots). Leaching needs sufficient rainfall and/or adequate irrigation. Thus, under non-leaching conditions, phytodesalination is the only .existing process in terms of sodium removal.

A field experiment was carried out at San EL- Hager {GPS: Loc: (31°05'N/31°55'E)} in the summer season. This work aimed to study the role of kenaf (*Hibiscus canabienus*), sunflower (*Helianthus annuus*) and Canola (*Brassica napus*) derived from seeds treated with (1.00, 1.50, 2.00, 2.50 and 3.00 mM) aerated solution of Salicylic Acid (SA) in phytoremediation (bioreclamation) saline soil. The results showed that the mean values of dry weight of Kenaf, Sunflower and canola derived from seeds treated with salicylic acid were significantly increased under saline soil as compared with the control treatment (untreated seeds) due to application caryopses-pres soaking of SA appears to induce preadaptive response to salt stress leading to promoting protective reactions to the photosynthetic pigments, maintain the membranes integrity and osmotic adjustment in Kenaf, Sunflower and Canola plants, which reflected in improving the plant growth that leading to an increase in total amount of salt extracted by biomass . On the other hand pH, electrical conductivity (EC) and exchangeable sodium percentage (ESP) of soil with all the treatments decreased. The results recommend the cultivation of *H. Canabinus* derived from seeds treated with 3.00 mM in soils contaminated with salt for its phytoremediation.

Keywords: Phytoremediation, *Hibiscus canabienus*, *Helianthus annuus* and *Brassica napus*, salicylic acid, seed treatments.