Salinity Tolerance of Taif Roses by Gibberellic Acid (GA3)

Ali, E.F.1,2 *, Bazaid. S.A.1,3 Hassan, F.A.S.1,4

Abstract:

In order to study the effects of salinity on rose and the alleviation of its effects by GA3, different salinity concentrations i.e. 0, 1, 2 and 4 dSm-1 NaCl and GA3 at 0, 50 and 100 mgL-1 on growth and some physiological as well as biochemical and mineral content were investigated. Salinity treatments significantly decreased plant height, branch number and both leaf and stem dry weights compared with the control. Salinity treatments also reduced leaf area and relative water content (RWC), however the stomatal density was increased. Leaf chlorophyll content, N, P, K, Ca and Mg were reduced with increasing salinity concentrations. Meanwhile, Na, Cl and total soluble sugars were gradually increased with increasing salinity concentration. Membrane permeability, proline accumulation and the antioxidant enzymes activities (SOD, CA and POD) of rose leaves were increased by salinity. GA3 treatments alleviated the negative effects of salinity on the growth and physiological and biochemical parameters previously mentioned. The obtained results suggest that GA3 play an important role in the defense system against salinity in rose plant through increasing the antioxidant enzyme activities and proline content as well as preventing ion homeostasis.

Keywords:

Keywords: salinity; GA3; roses; antioxidant enzymes; membrane permeability; proline; nutrients

Published In:

International Journal of Science and Research (IJSR) , Volume 3 Issue 11. , 184-192