World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Amelioration of Salinity Stress in Spinach (Spinace oleracae) by Exogenous Application of Triacontanol

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Abstract : An experiment was conducted in the Department of Botany, University of Sargodha to observe the amelioration of salinity stress in spinach (Spinacia oleracea) by exogenous application of Triacontanol. Two spinach cultivars (Spinacea oleracea and Rumax dentatus) were obtained from the Agriculture Research institute, Faisalabad. This experiment was conducted in pots. Each pot was filled with 9kg mixture of (sand + soil). Different salinity levels (0mM, 60mM, and 120mM) were created with NaCl according to the saturation percentage of soil after two weeks of seed germination. After the two weeks of salinity treatment, different levels of Triacontanol (0µM, 10µM, 20µM) were applied as foliar spray. Triacontanol was applied along with Tween 80 as surfactant. After the two weeks of Triacontanol application different growth, physiological and biochemical parameters were collected from the experimental study. Both treatments of Triacontanol (10µM, 20µM) were effective to ameliorate the effect of salinity, but 20µM Triacontanol was more effective to increase the shoot length, shoot, root fresh and dry weight. Chlorophyll contents were (chl a, chl b, total chl). Different biochemical parameters were also collected from experimental study. Saline growth medium increased the accumulation of protein and decreased the total free amino acids, and total soluble sugar under salt stress. Application of Triacontanol increased the protein contents. Overall, Application of triacontanol mitigated the effect of salinity.

Keywords : salinity, triacontanol, spinach, biochemical, physiological
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020