



Impact of ascorbic acid on seed germination, seedling growth and metabolism of salt-stressed *Vigna radiata*

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Received : November 2016

Accepted : March 2017

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Abstract : *In the present study, effect of salinity (50 mM and 100 mM NaCl), and ascorbic acid (0.05 mg/ml and 0.1mg/ml concentrations) and a combination of two was monitored on seed germination, seedling growth and metabolism of Vigna radiata (mungbean). The treatment caused a decrease in germination percentage and germination rate, shoot length, root length, leaf area, fresh weight, dry weight, photosynthetic pigments and an increase in protein, carbohydrate, proline content and acid phosphatase activity. Ascorbic acid treatment to the salt stress reduced the inhibitory effect of salt*

stress on germination, seedling growth and photosynthetic pigments and also reduced the protein, carbohydrate, proline content and acid phosphatase activity. Significant effect was not observed in ascorbic acid treated seedlings, it showed attributes same as that of the control.

Key words: Salt stress, Germination, Growth and Metabolism

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Introduction :

The beginning of 21st century is marked by global scarcity of water resources, environmental pollution and increased salinization of soil and water. Various environmental stresses viz. high winds, extreme temperatures, soil salinity, drought and flood have affected the production and cultivation of agricultural crops, among these, soil salinity is one of the most important environmental stresses, which causes major reductions in cultivated land area, crop productivity and quality (Shahbaz and Ashraf, 2013). A saline soil is generally defined as the one in which the electrical conductivity of the saturation extract in the root zone exceeds approximately 40 mM NaCl at 25 °C.