

The Effect of Drought and Salinity Stress on Growth, Total Soluble Protein and Proline Content in Mungbean [*Vigna radiata* (L.) Wilczek] CULTIVAR

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Abstract—Drought and salinity stress are two important abiotic stresses limiting crop productivity. Both these stresses lead to osmotic stress. Exposure of germinating seed to osmotic stress can be limiting for subsequent growth of embryonic axis and seedling emergence and growth. An experiment was performed to study the physiological parameters and the differential rate of solute accumulation in cotyledon and embryonic axis of germinating seed of mungbean cultivar Pusa 9531 at different interval (12, 24, 48 and 72hrs) of germination under drought and salinity stress against control. The drought and salinity stress was imposed using a solutions of 12% polyethylene glycol 6000 (PEG 6000) and 100 mM of NaCl, respectively. The results indicated that salinity stress caused more drastic reduction in fresh and dry weight of embryonic axis than drought stress over stages. However, both the abiotic stress treatments registered significant increase in protein content in the cotyledon especially at 72 hours of germination. In contrast, the proline content under NaCl treatment showed decrease over control at 24 and 48 hours of germination but registered an increase over control at 72 hours. The embryonic axis showed higher rate of solute accumulation and protein synthesis than the cotyledon in the present experiment.