

EFFECT OF SALINITY AND HYPOXIA ON GROWTH AND IONIC COMPOSITION OF DIFFERENT GENOTYPES OF WHEAT

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ABSTRACT

This study was designed to examine the response of different wheat lines to hypoxia with and without addition of salts in the root medium. Five wheat lines viz. SARC-I, SARC-III, LU-26S, N-30 and 234-I were grown in vermiculite-gravel mixture. Salinity was developed by adding NaCl in Hoagland nutrient solution and hypoxia was imposed by stagnating the respective treatment solutions. After about eight week growth in the treatment media, plants were harvested. The data regarding different physical parameters were recorded and the young and older leaves were analysed for Na⁺, K⁺ and Cl⁻. In addition, the yield performance of the wheat line 234-I under the same set of treatments in soil culture is also reported. A variable genotypic response to hypoxia under non-saline and saline conditions was observed. The combined stress of salinity and hypoxia caused a more severe reduction in growth than any of the individual stresses alone. The concentration of Na⁺ and Cl⁻ increased significantly in leaves under saline hypoxic conditions while the concentration of K⁺ decreased. The grain yield and other yield components of line 234-I were also significantly affected by salinity and hypoxia in soil culture.