

Effect of application of nitrogen fertilizer on some mechanisms which increase tolerance to salinity stress of two wheat cultivars at anthesis stage

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Abstract

In order to study the effect of different levels of salinity and nitrogen (N) on physiological and biochemical reactions of two wheat genotypes at anthesis stage, a factorial experiment was performed as completely randomized design with three replications, in Research Greenhouse of Agricultural, Medical and Industrial Research School of Karaj in 2011. Treatments were two wheat cultivars of Tajan (sensitive to salt stress) and Bam (resistant to salt stress), five levels of salt stress (1.3 (control), 6, 8, 10 and 12 dS/m) and two N-fertilizer levels (75 and 150 kg N/ha). Results indicated that in all salinity treatments, 150 kg N/ha increased the RWC, chlorophyll a, chlorophyll b, total chlorophyll, soluble proteins content of leaves and SOD activity and decreased the MDA content and yield of both studied genotypes. In conclusion, genotypic differences between the two cultivars, from viewpoint of tolerance to salinity stress and also fertilizer use between these two genotypes, led to more obvious effect of augmentation of fertilizer utilization on Bam cultivar than sensitive Tajan cultivar.

Keywords: SOD enzyme, Soluble proteins, MDA, RWC, Genetic diversity.

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