

Evaluation of morphological changes in some wheat genotypes under salt stress

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Abstract

In order to assess the effects of salt stress on some morphological traits of tolerant and sensitive cultivars of wheat (*Triticum aestivum* L.), a factorial experiment, based on completely randomized design in 3 replications, was conducted under greenhouse condition. The first factor was two genotypes of Sistani and Neishabour (tolerant cultivars) and two genotypes of Tajan and Bahar (sensitive cultivars) and the second factor was salinity treatments including 1.3, 5, 10 and 15 dS m⁻¹. The salinity treatments were prepared from NaCl and CaCl₂ in 10:1 ratio. Dry weight of shoots and roots, number of tillers and leaves, root volume and surface area, leaf area, specific weight of leaves and biomass were measured 10 days after anthesis. The results indicated that by increasing of salinity level, all traits, except specific weight of leaves, decreased significantly. Salinity level of 15 dS m⁻¹ had the most negative effect. At all salinity levels, the Sistani and Neishabour cultivars, as compared with the other two cultivars, recorded significantly higher values of all measured traits. Invariability of dry root weight in Bahar cultivar at all salinity levels indicates that this cultivar has allocated less carbon to roots and this may be a reason for the sensitivity of this cultivar to salinity. This can justify the disadvantages of this cultivar in comparison to Tajan in some traits like biomass, leaf number and leaf area, shoot dry weight, root volume and root area in 10 and 15 dS m⁻¹ salinity levels. Higher values of specific dry weight of Bahar and Tajan cultivars can be considered as a mechanism for avoiding salt stress.

Keywords: Salt stress, Wheat cultivars, Morphological traits.

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