



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Effects of NaCl on the Germination, Seedling Growth and Water Uptake of Triticale

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Abstract: The lack of information about the effects of salinity on vegetative growth of triticale prompted us to study the salt tolerance levels of 3 newly registered cultivars, Karma-2000, Presto, and Tatlıcak-97. Moreover, the relative importance of the osmotic or toxic effects of NaCl on seed germination are not clear in triticale. In this study, germination percentage, seedling fresh and dry weight and water uptake of the seeds of 3 triticale cultivars were determined under various salt (NaCl) stresses with electrical conductivities of 2.4, 4.2, 5.9, 7.7, 10.6 and 13.2 dS m⁻¹. Roots and shoots were analyzed for uptake of Na⁺ and K⁺, and seeds for Na⁺, K⁺ and Cl⁻. The results showed that increased NaCl significantly affected mean germination time without affecting final germination percentage. In each salt concentration, water uptake was not significantly changed. Salinity increased the accumulation of Na⁺ and decreased the K⁺ content in the roots and shoots. Moreover, the Na⁺ and Cl⁻ content of germinating seeds gradually increased, while K⁺ diminished. Karma-2000 appeared to be more tolerant to salt stress than the others. It was concluded that the delay in germination was mainly due to higher Na⁺ accumulation in the seeds rather than osmotic stress in triticale cultivars, while final germination percentage was not changed by NaCl. However, it appeared that NaCl adversely influenced triticale seedling characters.

Key Words: Triticale (x Triticosecale Wittmack), salinity, water uptake, germination

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