



Assessment of Tolerance to NaCl Salinity of Fourteen Wheat and Broad Bean Cultivars

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Abstract:

The development and identification of salt-tolerant crop cultivars would complement salt management programs. The present investigation provides differential responses to salt stress in seven wheat and seven broad bean cultivars to select the most salt tolerant cultivars versus the most sensitive ones. Two cultivars have been shown to have a certain affinity to tolerate NaCl-stress (wheat Sakha93 and broad bean Sakha1), while wheat Gemmeza10 and bean Giza716 exhibited notable sensitivity. Wheat Sakha93 and broad bean Sakha1 was recorded lower growth depression compared with wheat Gemmeza10 and bean Giza716 which recorded the highest growth depression. The lowest Na⁺ content in roots and shoots was consistently found in Sakha93 and Giza716, while the highest Na⁺ content was manifested in Gemmeza10 and Sakha1 at the highest salt level. The high Na⁺ content in the different organs of Sakha1 was associated with a marked increase in water content as compared to Giza716. Potassium content of roots and shoots of wheat cultivars was profoundly reduced with the increase of NaCl supply. While K⁺ content of roots and shoots of bean cultivars fluctuated between significant and non-significant reduction. On the other hand, NaCl treatments had generally a depressive effect on K⁺/Na⁺ selectivity in shoot and root of wheat and broad bean cultivars.

Keywords:

Broad Bean;Potassium; Salinity;Sodium; Water content; wheat

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