



Physiological and biochemical responses of salt-tolerant and salt-sensitive wheat and bean cultivars to salinity

Abeer Ahmad Radi1 , Fatma Ali Farghaly1 , Afaf Mohamed Hamada

Abstract:

Salinity stress caused a marked reduction in dry matter gain in roots and shoots, and transpiration rate of all the test wheat and bean cultivars. Although the accumulation of malondialdehyde was stimulated in roots of sensitive cultivars at second phase of NaCl stress (160 mM), there were no appreciable differences in the production of it in roots of tolerant cultivars of wheat and bean plants. The electrical conductivity of the selected wheat and bean cultivars was stimulated by salt stress. All fractions of photosynthetic pigments in the test plants decreased gradually with the rise of salt level (80-160 mM NaCl). A notable sensitivity in the biosynthesis of carbohydrates and proteins in different organs of the selected wheat and bean cultivars was displayed in the presence of salinity. The presence of NaCl did not affect the phenylalanine ammonia-lyase activity in leaves of the selected wheat and bean cultivars, except in salt-tolerant bean cultivar (cv. Sakha1) salinity stress exhibited an inhibitory effect. NaCl stress failed to induce appreciable variations in the production of free phenolic compounds in leaves of the wheat and bean cultivars, except in case of cv. Sakha1 . Salinity stress caused an inhibitory effect on the production of bound phenolic compounds in wheat and bean cultivars.

Keywords:

Bean; Sensitive cultivar; Tolerant cultivar; Wheat

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