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## ADVANTAGE OF HALOPHILIC-HALOTOLERANT BACTERIA UNDER SALT STRESS

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## Abstract

Salinity is one of the most serious problems causing desertification of agricultural lands and decreasing agricultural yield. Recently, one of the most promising approaches is the application of plant growth promoting (PGP) bacteria to ameliorate agricultural lands and increase agricultural yield. In the current study, it was aimed to evaluate the PGP activities of fifteen halophilic/halotolerant bacteria. The production of siderophore, HCN, IAA and ACC deaminase, nitrogen fixation and phosphate solubilisation of bacteria were determined either qualitatively or quantitatively. Besides, four bacterial isolates with the best PGP traits [*Halomonas* sp. (H2), *Bacillus licheniformis* (H3), *Halobacillus* sp. (H5), and *Oceanobacillus* sp. (H10)] among these fifteen bacterial isolates were inoculated to the wheat under saline condition (NaCl) (200 mM) stress in a hydroponic system. Under salt stress, all of the bacterial strains tested enhanced plant growth compared to the un-inoculated group. While the dry mass (%) of the plant under salt stress was 42.31, the plant dry mass inoculated by bacterial isolates ranged between 87.98 and 107.50. In the current study, ACC deaminase activity of *Chromohalobacter* sp. and plant (wheat) growth enhancement potential of *Oceanobacillus* sp. were reported for the first time. Consequently, the bacteria isolated from Sanliurfa, Turkey have significant potential to ameliorate salt stress and increase plant yield.

Key words: amelioration, bacterial strains, halophilic, PGP, salt stress

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