Carpici EB, Celik N, Bayram G, Asik BB (2010) The Effects of Salt Stress on the Growth, Biochemical Parameter and Mineral Element Content of Some Maize (Zea mays L.) Cultivar. African Journal of Biotechnology 9(41): 6937-6942.

Abstract

Six cultivars of maize (*Zea mays* L.) (Ada-523, Bora, C-955, PR 3394, Progen-1550 and Trebbia) were subjected to 0 and 100 mM NaCl and their response to salt stress were determined by growths related to relative shoot growth weight (RSGR), shoot and root dry weight and stress tolerance index, by biochemical parameters associated with total chlorophyll and proline contents and by mineral element contents such as, Na^+ and K^+ contents and K^+/ Na^+ ratio. Cultivars were grown in greenhouse in perlit supplied with a complete nutrient solution and salt treatment started 14 d after planting. The results indicate that salinity decreased RSGR, shoot and dry weight, stress tolerance index, total chlorophyll and K^+ contents and K^+/ Na^+ ratio, but increased proline and Na^+ accumulations. Especially, proline accumulation appears to be a reaction to salt stress damage rather than a plant response associated with salt tolerance. Another striking point is that the rates of increase in Na^+ content were higher in shoots than in roots. According to the results, salt tolerance index, Na^+ and K^+ contents are reliable criteria for preliminary selection in early growth stage of maize.