ABSTRACT

Effects of salinisation of soil on plant growth and mineral accumulation of *Salvadora persica* L. were studied. Randomized Complete Block Design (RCBD) was selected. Two saline-sodic sites of 60 m x 30 m were selected and each site was divided into three blocks of 20 x 30 m. Each block was further divided into three plots of 20 x 10 m, which were amended with three treatments as T_1 (Non-Saline Soil), T_2 (NSS + Gypsum) and T_3 (NSS + Gypsum + FYM). Total ninty plants were translocated to the site under three treatments and they showed 95.53 percentage survival at the end of study period. A significant increase among all the three treatments was obtained with respect to plant height, number of branches, chlorophyll and stem girth at both sites but Site II showed better results than Site I. Combined application of Gypsum and FYM showed significantly better response in facilitating the plants in saline-sodic soils. High percentage survival and seed production in just two years ensure that *S. persica* is well adapted to saline-sodic conditions and is a potential species for bio-reclamation of such soils. A comparative experiment was set up in Botanical Garden of G.C.U. Lahore, to check the response of *S. persica* to different levels of salinity. Salinity treatments provided were in dS m^{-1} of the soil saturation extract (control, 5.75, 10.70, 20.69 and 30.71) and along with this same salinity level but with the addition of FYM. A significant increase in plant height and number of branches was obtained with increasing salinity level for up to 10.70 dS m^{-1} in both set-ups but with significantly better results in pots provided with FYM. Increasing salt stress beyond 10.70 dS m^{-1} in both set-ups retarded elongation of stem and root. Na^+ and Cl^- contents in pots treated with FYM increased with increasing salinity. K^+, Ca^{++} and Mg^{++} contents in leaf, root and stem increased with an increase in salinity level up to 10.70 dS m^{-1} and then started decreasing with further increase in salinity, while concentration of these ions were higher in plants treated with FYM. Nitrogen and Phosphorous contents in all tissues decreased in response to increasing salinity while in pots treated with FYM they were in higher concentration. Root Shoot ratio and % relative weight of tissues also followed same trend.