

ABSTRACT

This study was planned to study the effect of applied Salinity, Alkalinity and Salinity/Alkalinity mixed stresses on Growth, Yield, Ions contents and physiological parameters on *Zea mays* L. cv.1415. The effect of salinity, alkalinity and salinity/alkalinity mixed stresses was observed at different concentrations (control, 4dSm^{-1} , 8dSm^{-1} and 12dSm^{-1}). It was found that with rising alkalinity level, there was a delay in seed germination and decrease in seedling length and weight. Reduction in parameters including plant height (14.17%), leaf number (28.9%), fresh and dry weights of shoots (77.2%) and (63.2%) respectively, fresh and dry weights of roots (62.2%) and (70.6%) respectively and percentage increase of senescent leaves (42.82%) were observed at salinity level of 12dSm^{-1} . Chlorophyll a (50%), b (38.6%) and total chlorophyll (67.7%) contents were also reduced at alkalinity level of 12dSm^{-1} . A small decrease in the photosynthetic rate and transpiration rate was also observed in saline plants. It was noted that all studied parameters were seriously affected by alkalinity than in salt/alkali mixed and salinity, respectively. The seed germination, height, number of leaves, root length, number of grains per plant, weight of cobs per plant, weight of 1000 grains and total chlorophyll in alkaline plants were reduced and as compared to saline/alkaline mixed stresses. Plants showed much improved growth and productivity when treated with Salt in comparison to alkaline plants. The decrease in parameter like height (22.9%), number of leaves (7.73%), number of grains per plant (61.6%), % increased of senescent leaves (32.15%) and photosynthesis rate as well as chlorophyll contents was observed in saline/alkaline mixed at 12dSm^{-1} as compared to control. It can be suggested that the saline and saline/alkaline stresses gave better results at all the concentrations as compares to alkaline stress.