ABSTRACT

Present investigation on the effects of sodium chloride salinity on the growth and yield of two sunflower cultivars (S-278& 63A9) was carried out for full growth season 2005 at Botanic Garden of GC University, Lahore.There were 5 NaCl salinity treatments S_0 (control), S_1, S_2, S_3, and S_4. Vegetative growth of potted sunflower plants were monitored during the course of experiment by measuring various growth parameters viz., plant height, number of leaves, and number of senescent leaves etc. All these parameters were only slightly affected at lower salinity but higher salinity levels (EC=20.4 dS/m) caused marked reduction in their growth. It was also found that plant fresh and dry weight of both sunflower cultivars was significantly and proportionality reduced in all the salinity treatments except only slightly in T_1 (EC=7.2 Ds/m),when compared to control. Rate of senescence was much faster in highly salinized plants than control and lower salinity levels.Both cultivars of sunflower are severely affected by salinity but 63A90 is much more affected as compare to S-278

Final harvest of the remaining sunflower plants was taken when plants were completely mature with their golden-yellow colour of their leaf and stem. It is worth mentioning that reduction in seed weight per plant were 15% and 19% for both sunflower cultivars i.e. S-278 and 63A90 along with minor 100-seed weight reduction (15-19%) was found to be significantly higher in higher salinity treatments in both the cultivars, particularly in EC level 20.4dS/m.

Overall the results are alarming and need further detailed research using other sunflower cultivars and with lot more replicate plants in order to confirm the results on a large scale.Generally, EC levels of more than 13 dS/m reduce the crop growth and yield of all the crops including pulses,oil-seed crops and cereals.