

ABSTRACT

Present investigation regarding the impact of Tannery Wastewater Effluents of Kasur area on vegetative and reproductive growth of *Helianthus annuus* cultivars viz., SF- 187, CRN- 1435 and DK- 3915 was carried out in the Botanic Garden of GC University Lahore. The wastewater of Kasur tanneries effluents pretreatment was examined for its chemical nature. The wastewater was alkaline with high BOD, COD, EC and SAR values. It contained higher amounts of settleable and dissolved solids. The amount of chromium, iron, manganese and zinc in the effluents was also quite high. The effluents were diluted to 20, 40, 60, 80 and 100 % concentrations and used for irrigation of the potted plants used in experiment, at different intervals. The effect of these treatments to plants was investigated on vegetative and reproductive growth as well as chlorophyll contents of leaf.

Vegetative growth parameters like plant height, number of leaves per plant, stem diameter were significantly reduced in higher concentrations of effluents as compared to control, while plants in lower treatments did not show severe retardation of growth as compared to their counterparts from control. Senescent rate was greater in plants treated with higher concentrations of polluted water in all the three cultivars (SF- 187, CRN- 1435, DK- 3915) of sunflower compared with plants of lower concentrations. The treatment with tanneries effluents significantly decreased capitulum size, fresh and dry weight of capitulum, number of seeds per plant and weight of seeds per plant in higher effluent concentrations.

Overall the seed yield was reduced by 23 to 80%, which is a matter of serious concern in this highly important oil seed crop of Pakistan.