ABSTRACT

Effluents of the Kamalia Sugar Mill were collected and analyzed. The effect of the different concentrations of these effluents was observed on growth, physiological and biochemical attributes of wheat (*Triticum aestivum* L.) varieties. The wheat varieties were grown in the Botanic Garden GCU, Lahore. The effluents own high values of BOD and COD as compared to the N.E.Q.S. and behave as approximately neutral but, the concentrations of Total Dissolved Solids and Total Suspended Solids were high. The amount of magnesium, calcium and bicarbonates is moderate. The reproductive growth parameters i.e. number of ears per plant, number of grains per ear, weight of grains per plant, 1000 seed weight, rachis length and ear length tend to decrease with increase in effluent concentration. Similarly, the fresh and dry weights after mid and final harvests were also decreased with increased effluent concentration also the morphological growth parameters like plant height, number of leaves and number of tillers were decreased with increased effluent concentration but, the number of senescent leaves were increased with increased effluent concentration. Plants with lower concentration of effluents showed no significant difference from control and also have not shown much retarded growth in comparison to the plants treated with elevated concentration of effluents. Total chlorophyll and carotenoid pigments were also reduced. A significant decrease was seen in the photosynthetic rate, transpiration rate and stomatal conductance after mid and final harvest in the plants treated with high concentration of effluents. Although a number of important parameters were studied yet the results are not enough and further investigations are needed on other cultivated crops.