ABSTRACT

Pakistan is currently facing water shortage problems in its different cities because of contamination of fresh water resources with large amount of sewage produced. Reuse of treated wastewater for landscaping is gaining importance in the present time to combat the growing issue of water scarcity. Cost benefit analysis of reuse of treated sewage for landscaping in Lahore was carried out. Wastewater from three main streams of Lahore e.g. Nishat colony, Mian mir and Samanabad drain was collected for the experiment in February and May. Two algal samples *Sirogonium sticticum, Chaetomorpha sutoria* and *Zygnema sp* were used to treat wastewater of in square ponds (1x1x0.5). Treatment ponds were installed at the roof of SDSC, GC University Lahore in February for 6 days and in May for 4 days. Samples were tested after 48, 96 and 144 hrs of treatment in winter and after 24, 48, 72 and 96 hours in summer to check the removal efficiency of both algal samples.

Dissolved oxygen (DO) of all the treated samples was increased up to 13.05mg/L in February and 11.7mg/L in May. Turbidity, TDS and TSS were significantly removed from all the drain samples. 70% to 100% BOD removal and 60% to 70% of COD removal was noted in both seasons. 100% removal of sulfates and nitrates was achieved at the end of 6 days treatment in Feb and 70-80% removal was achieved after 4 days of treatment in May. 100% removal of coliforms was observed after the treatment of wastewater. Cost of energy consumption and fresh water usage in major three parks of Lahore was calculated. A generalized cost of fertilizers was also calculated and these costs were compared with the algal ponds and concluded that algal ponds are a better way of treating wastewater and this wastewater can be reused for the landscaping in parks of Lahore.