Abstract

Water pollution is a worldwide problem. The different industrial dye effluent were the focus of different studies due to their adverse effect on the environment. In the recent study, the three different dye effluent samples were collected from Blund Dyestuffs industry located on Mandi Bahauddin road, Lahore. The raw physicochemical characterization such as pH, conductivity, turbidity, Chemical Oxygen Demand (COD), color, total dissolved solids (TDS), salinity and Biological Oxygen Demand (BOD) were studied to evaluate the nature of effluent. Biological treatment was used to examine the efficiency of different indigenous microbial isolates (bacterial and fungal species) for the reduction of conductivity, turbidity, COD, BOD, TDS and color. Results indicated up to 40% and 70% conductivity reduction was achieved when isolated bacterial and fungal monoculture was applied on the effluent samples. Conductivity reduction up to 60% and 40% was achieved through bacterial and fungal isolates in combination/consortia form. Turbidity reduction up to 60% and 70% was achieved when isolated bacterial and fungal monoculture was applied on the effluent samples. Turbidity reduction up to 60% and 40% was achieved through bacterial and fungal isolates in combination/consortia form. Chemical oxygen demand (COD) reduction up to 40% and 70% was achieved when isolated bacterial and fungal monoculture was applied on the effluent samples. COD reduction up to 70% and 50% was achieved through bacterial and fungal isolates in combination/consortia form. Biological oxygen demand (BOD) up to 70% and 57% was achieved when isolated bacterial and fungal monoculture was applied on the effluent samples. BOD reduction up to 56% and 45% was achieved through bacterial and fungal isolates in combination/consortia form. Decolorization efficiency up to 50% and 60% was achieved when isolated bacterial and fungal monoculture was applied on the effluent sample. The better color removal efficiencies up to 60% and 70% was achieved through bacterial and fungal isolates in combination/consortia form. For getting the maximum results the best bacterial and fungal co-culture was applied on the effluent samples. All experimental data was analyzed by applying analysis of variance (ANOVA). Statistical analysis showed that the bacterial fungal co- culture treatment showed the 95.5% color removal efficiency.