



Abstract

The leather tanning process generates large quantity of wastewater having high contents of organic and inorganic dissolved in it which exceeds the existing Punjab Environment Quality Standards of wastewater. It exerts high pressure on ground water and surface water resources. The nano-technology has gained much advancement in this field. The nano-technology reveals tremendous and extraordinary results in the form of nanocatalyst and nanocomposite. The main purpose of the study is to check the current pollution level in combined effluent of 272 tanneries wastewater drain and individual tannery. The current study aims to synthesize, characterize and treatment of concentrated effluent. The grinding and ball mill method was used to reduce the particle size. The synthesized nanomaterial was characterized by XRD Analysis. XRD pattern for titanium dioxide and nanocomposite were 18.63nm and 22.13nm respectively. The purification method of nano-photocatalysis was adopted which reduced the high concentration pollution to minimal level. The whole process was carried out in the presence of sunlight for three hours. The samples was analyzed after each hour for three times to check the percentage removal efficiency of pollutants. The best removal efficiency was found after 3 hours of treatment of sample no. 03, 05, 07 and 08. The overall removal of COD (%) of sample no. 03, 07 and 08 were found maximum 85.94%, 94.44% and 83.01%. The second highest removal efficiency of TDS of sample no.07 was found 88.24% after 3 hours of treatment. This method is not found efficient for removal of sulfates and chloride.