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## COMBINED AND SUSTAINABLE MANAGEMENT OF TANNERY EFFLUENT THROUGH A NOVEL BIOPROCESS METHOD

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Water resources are the significant source for the survival of living organisms. The effluent from leather industries contains many chemical components and complex biowaste that are toxic to the environment when they mix with water sources it damage the ecosystem. Hence, the present investigation was carried out to treat and manage the tannery effluent with a novel bioprocess using microbes and enzymes combination. Initially, the effluent was treated with enzyme a proprietary formulation that contain highly active enzyme mixture that helps in breaking down the large and complex biomolecules in to simple peptides. Subsequently, the treated effluent undergoes biomass utilization Microorganisms is a combination of specialised microorganisms mixture effectively utilize the organic biomass that are already digested by enzymes. Then, in the third process, odoclear is a combination of enzymes mixture that would rapidly remove the odour form treated effluent. Practically, the entire effluent treatment process (ETP) was designed into three section, primarily, the enzyme was added at the concentration of 50 to 100 ppm mixed/stirred well for 30-60 minutes. Secondly, Microorganisms was added at the concentration of 20 to 50 ppm for 24 hours and odoclear was added at the concentration of 500 to 1000 ppm for 2-4 hours. After completion of the bioprocess treatment, the physicochemical parameters are analysed compare to before treatment. The results indicated that combined bioprocess treatment had effectively reduced the TDS, TSS, BOD, COD, odour and colour of treated effluent. This Bioprocess method was successfully applied on pilot plants to biologically treat the tannery effluent. This technology could be adopted for all large scale treatment plants without any modifications in infrastructure. We, at Caprienzymesbrings a new path in effluent treatment process to support tannery industries and to protect the environment.

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