

PERFORMANCE EVALUATION AND BIOLOGICAL TREATMENT OF DAIRY WASTE WATER TREATMENT PLANT BY UPFLOW ANAEROBIC SLUDGE BLANKET REACTOR

R.V.KAVITHA¹, SHIVA KUMAR¹, SURESH R² & V. KRISHNAMURTHY¹

¹Department of Biotechnology, PESIT, BSK III Stage, Bangalore, India

²Department of Chemical, RVCE, R.V. Vidyanikethan Post, Mysore Road, Bangalore, India

ABSTRACT

In recent years due to the increase in the population, a high demand for the more efficient use of water resources and its reuse has tremendously changed in both urban & rural areas. The main objective of this study was to evaluate the removal efficiency & performance of effluent treatment plant in a dairy industry in terms of COD, BOD, TSS, TDS, oil and grease, alkalinity, total hardness, chlorides and dissolved oxygen removal. An intensive analytical programme was followed for 6 months for monitoring dairy wastewater. Samples of wastewater were collected from the effluent treatment plant from the dairy for the characteristic analysis. This study revealed that average concentrations of COD, BOD, TSS, TDS, oil and grease, alkalinity and chlorides removal in the effluent from the effluent plant were 155 mg /l, 85 mg /l, 34.5 mg/l, 661 mg/l, 6.3 mg/l, 7.05 mg/l and 81 mg/l respectively, which met the effluent standards for all the above described parameters. The efficiency of treating dairy wastewater was studied and its performance was assessed by monitoring COD, BOD, TSS, TDS, oil and grease, alkalinity and chlorides removal. The reactor achieved COD, BOD, TSS, TDS, oil and grease and chlorides removal efficiency was observed as 77.0 %, 87.0 %, 47.1%, 57.0 %, 92.0 % and 49.8 % respectively. The data presented also revealed that the order of efficiency was TSS < chlorides < TDS < COD < BOD < oil & grease.

KEYWORDS: Effluent, Efficiency, Concentrations, Dairy Wastewater, Performance