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IMPACT OF ANAEROBIC LAGOONS ON THE PERFORMANCE OF BOD AND TSS REMOVALS AT NICOSIA WASTEWATER PLANT

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ABSTRACT

Impact of Anaerobic Lagoons on the Performance of BOD and TSS Removals at Nicosia Wastewater Treatment Plant

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One of the most common tests for the determination of the strength and organic content of wastewaters is the biochemical oxygen demand (BOD). The capital of Cyprus, Nicosia has upgraded its wastewater treatment plant during the 2000s that has provided a significant improvement in BOD and total suspended solids (TSS) treatment efficiencies. This performance is tested through the data collected between 1993 and 2005 at which experiments were performed with three replications per treatment. Data were analyzed by analysis of variance using ANOVA to detect significant differences between means and the differences in the means were tested by the least significant difference (LSD). A one way ANOVA test showed significant difference ($P<0.05$) in the means of all samples investigated in the various locations and time intervals of the treatment plant. Experimental results showed that installation of these innovative anaerobic lagoons was able to reduce the concentrations of BOD and TSS to desirable values that fall within the limits of both national and international effluent standards before disposal into the stream. However, the limits for the reuse of effluent for irrigation purposes require more improvement on the treatment technology. The significant improvement on BOD removal increased the treatment performance of BOD up to 93%, whereas the TSS treatment performance increased up to 84%.

KEY WORDS: Waste Stabilization Pond, Anaerobic Lagoon, ANOVA, Nicosia Wastewater Treatment Plant, Biological Oxygen Demand, Total Suspended Solids.

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