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Treatment of industrial estate wastewater by completely mixed aerated lagoons was performed by using lab-scale models which had detention time of 3,5, 7, 9 and 11 days. It was found that kinetics parameters K_s = 135.70 mg/l, μ_m = 0.059 hr^{-1}, Y_g = 0.7692 and b = 0.0023 hr^{-1}. These parameters, subsequently, were used to evaluate the performance of 3 completely mixed aerated lagoons in series which had detention time of 5.4, 1.8 and 1.8 days in comparation to the experimental results. It was found that the experimental total suspended solids were lower than calculated values and the difference were 5.76, 12.50 and 10.52%, respectively. The experimental effluent filtrated COD were higher than calculated values and the difference were 13.08, 34.94 and 13.56%, respectively. Comparation of 3 completely mixed aerated lagoons in series with a single CMAL which had the same detention time of 9 days found that the filtrated COD removal efficiency of the lagoons in series were slightly higher. The efficiency of lagoons in series and a single lagoon were 96.27% and 94.11% respectively.