Biological Kinetics Evaluation Of Anaerobic Stabilization Pond Treatment Of Palm Oil Mill Effluent

Abstract:

Biological kinetic (bio-kinetic) study of the anaerobic stabilization pond treatment of palm oil mill effluent (POME) was carried out in a laboratory anaerobic bench scale reactor (ABSR). The reactor was operated at different feed flow-rates of 0.63, 0.76, 0.95, 1.27, 1.9 and 3.8 l of raw POME for a day. Chemical oxygen demand (COD) as influent substrates was selected for bio-kinetic study. The investigation showed that the growth yield (Y_G), specific biomass decay (b), maximum specific biomass growth rate (μ_{max}), saturation constant (K_s) and critical retention time (Θ_c) were in the range of 0.990 g VSS/g $COD_{removed}$ day, 0.024 day^{-1}, 0.524 day^{-1}, 203.433 g COD l^{-1} and 1.908 day, respectively.

Keywords

Anaerobic stabilization pond; Biological kinetic; Chemical oxygen demand; Monod equation; Palm oil mill effluent