Thesis Title	Effect of Palm Oil Concentration on the Efficiency of Packed Cage RBC System
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Abstract

The study was concerned on the effects of palm oil concentration and hydraulic retention time (HRT) on the efficiency of the packed cage RBC system. The experiment was carried out in the laboratory scale packed cage RBC system with synthetic wastewater containing 200, 400 and 600 mg/l palm oil at an HRT of 12, 9 and 6 hours. The results showed that the system with wastewater containing 200 mg/l palm oil showed the highest BOD_5 removal efficiency of 94.52±2.06% at the HRT of 12 hours (organic loading of 7.56 g BOD/m^3-day). However, the BOD_5 removal efficiencies with wastewater containing 400 and 600 mg/l palm oil (organic loading of 9.66 and 13.59 g BOD/m^3-day) decreased to 84.30±2.62 and 66.24±4.88, respectively. For the oil & grease removal efficiency, the system also showed the highest oil & grease removal efficiency of 85.14±3.05% at an HRT of 12 hours (organic loading of 7.56 g BOD/m^3-day). In addition, the removal efficiencies decreased to 72.85±3.91 and 65.50±2.38 when the HRTs were decreased to 9 and 6 hours (organic loading of 9.66 and 13.59 g BOD/m^3-day), respectively.

For the conclusion, the removal efficiency increased with the increase of HRT or the decrease of organic loading. Moreover, the increase of oil & grease concentration or loading resulted in decreasing the removal efficiency of the system. Also, the increase of oil & grease concentration caused the peeling of bio-film from the bio-drum.

Keywords: Hydraulic Retention Time/Oil & Grease /Packed Cage RBC/Palm Oil.