

Thesis Title	Low COD Wastewater Treatment by Sand - media Aerobic Biological Filter	
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### Abstract

Experiments on aerobic biological filter (ABF) was conducted to investigate its efficiency on organic carbon removal. Laboratory scale ABF unit, made of transparent plastic with inside diameter of 140-mm and packed with 1.49-mm effective size sand media depth of 1 m , were used to treat synthetic wastewater whose COD concentrations were 100-120 mg/L. The ABF was operated in downflow. The steady-state performance was evaluated under hydraulic loading rates (HLR) from 4.8 to 57.6 cu.m/(sq.m-d) and organic loading rates (OLR) from 0.56 to 5.73 kg COD/(cu.m-d).

The ABF unit was found to perform satisfactorily when operating from low OLR of 0.56 kg COD/(cu.m-d) up to 3.46 kg COD/(cu.m-d), in which the organic removal efficiency of 94% was reached on the total COD basic and of 96% on the filtered COD basic. Its removal efficiency was found to increase with decreasing HLR and increasing media depth. The observed yield was in the range of 0.05 to 0.50 mg.VSS/mg.COD.

The results obtained from this study have shown that ABF process appears to be an effective process for treating low COD wastewater under operation conditions of OLR ranging from 0.56 - 3.46 kg COD/(cu.m-d).