Thesis Title The Efficiency of Wastewater Treatment by Aerated Submerge Fixed Film

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Abstract

This research was studied about the efficiency of Aerated Submerge Fixed Film (ASFF) wastewater treatment system, treated the synthetic wastewater at COD of about 500 and 1000 mg/l and flow rate of 40 l/day. There were 2 sets of experiment,each set has 2 ASFF models. In system 1, the reaction tank was seperated in 2 stages and the total medias' surface area was 1.01 m^2 and in system 2, the reaction tank was seperated in 3 stages and the total medias' surface area was 1.28 m^2. The organic loading in system 1 and system 2 were 19.8 and 15.38 g COD/m^2.d in set 1 and 39.6 and 30.76 g COD/m^2.d in set 2.

The results showed that the efficiency of the 2 stages ASFF system was relatively close to the efficiency of the 3 stages ASFF system. The average percentage of COD and SS removal were 93.69 and 95.4 in set 1 and 95.02 and 96.25 in set 2. While the average percentage of COD and SS removal of the 3 stages system were 95.42 and 95.96 in set 1 and 96.42 and 96.87 in set 2. The difference of the efficiency was not significant.

In conclusion, the results were all rejected the hypothesis. Since the increased organic loading did not effect the efficiency of the system and the efficiency of the 3 stages system was not significantly better than the 2 stages system.