

AWUT YIMTAE : APPLICATION OF MULTI-REACTOR ACTIVATED  
SLUDGE SYSTEM IN TREATING WASTEWATER FROM DRUG AND  
CANDY FACTORIES. THESIS ADVISOR : ASSO.PROF.MUNSIN  
TUNTOOLAVEST, Ph.D. 131 PP.

Activated sludge system used in this research was consisted of three different sizes of aeration tanks in series. Wastewater used in this research was collected from the drug and candy factory with pH approximately 4.8 and mainly composed of sugar. Wastewater was adjusted to pH approximately 7 by using lime before feeding to the system. Wastewater feeding and return sludge rate was fed into the first aeration tank in the same rate of 1.8 litre/day in all experiments. The sludge age was also controlled at 20 days.

This research was divided into three experiments by changing the volume of the first aeration tank with 3.6, 2.8 and 0.8 litre for the first, second and third experiment, respectively. The volume of the second and third aeration tanks were 5.6 and 4.2 litres in all experiments. Wastewater which fed to the first, second and third experiment have the COD of 3,990, 2,690 and 2,540 mg/L in orderly which caused the concentration of food to microorganism ratio (F/M) in the first aeration tank into 5,2.5 and 10 kg.COD/kg. MLSS-day in the first, second and third experiment, respectively.

From the result, it was found that the system had a good capability in COD removal with the efficiencies of 98.1%, 99% and 99.5%, respectively. Moreover, the bulking was disappeared all along the experiments. The result also indicated that sludge was well settled for the SVI value were below 200 ml/g in the first experiment and 100 ml/g in the second and third experiment, respectively. It was also found that treated effluent from sedimentation tank was clear and having suspended solids value of 23,12 and 11 mg/L, respectively and also having low COD. Treated effluent from the system had COD of 92,25 and 24 mg/L in the first, second and third experiment, respectively.