

Pornchanok Wongpadungkiat 2010: Commercial Seed in Wastewater Treatment Process of Fish Meal Factory. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Patcharaporn Suwanvittaya, M.App.Sc. 75 pages.

Wastewater from the production line of a fish meal factory had high organic content with BOD of 4,000 - 16,000 mg/l. The existing biological wastewater treatment system, using normal flora, was not very efficient. The effluent did not conform to the standard for wastewater discharge set by ministry of industry (MOI). Utilization of natural seeds from similar wastewater treatment system could solve this problem. Another alternative would be the use of commercial seed. In this study, the wastewater from fish meal factory was treated in lab scale reactor under aerobic condition with the utilization of different seeds. Emtec FM from EMTEC MANAGEMENT Co.,Ltd., representing commercial seed (CS) was added at every wastewater filling time, as suggested by the supplier. Sludge from a food processing industry (chili paste) representing natural seed (NS), was added only at the first wastewater filling. The use of CS, NS and NS + CS seeds were compared. It was found that CS had acclimatization period of 21 days longer than NS, NS + CS (15 days). At steady state, COD removal efficiency of all the 3 seeds were in the same range of 97 - 98 %. The study on various aeration time revealed that for all 3 seeds to achieve compliance to MOI standard (20 mg.BOD/l.), 16 hours aeration periods was needed for wastewater with 3,100 – 4,900 mg. BOD/l. and 20 hours for 7,000 mg.BOD/l. The CS could therefore be effectively used as seed in high BOD wastewater treatment system.

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