

Vichitra Kaewluang 2012: Study of Dominant Bacteria in Activated Sludge from Frozen Seafood Industry using Culture-Based Technique. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Miss Peerakarn Banjerdkij, D.Tech.Sc. 114 pages.

The role of bacteria in biological wastewater treatment system is to depredate the organic matter. Therefore, the understanding the type of bacteria is important for the use of control the operation of system to increase efficiency and stable. This study determined the dominant bacteria in activated sludge wastewater treatment from three frozen seafood industries by culturing in selective medium and biochemical analysis, in order to isolate and identify bacteria. In addition, the data of chemical analysis will be used to compare with amount to bacteria as follows pH, BOD, COD, TKN, TP, TSS and Oil and Grease.

The dominant bacterium in this study is *Zoogloea* spp., *Pseudomonas* spp., *Bacillus* spp., *Acinetobacter* spp. and *Nitrosomonas* spp. for found amount of bacteria. In the first and second factories of aerobic tank, the most bacteria is *Zoogloea* spp. of  $1.4 \times 10^9$  CFU/ml and  $4.2 \times 10^7$  CFU/ml respectively. In the third factory of anoxic tank, the most of bacteria is *Pseudomonas* spp. of  $1.0 \times 10^7$  CFU/ml and for aerobic tank, the most is *Nitrosomonas* spp. of  $1.3 \times 10^9$  CFU/ml. In addition, the chemical parameter of effluent was reduced when compare with amount of bacteria.

Study efficiency of dominant bacteria for wastewater treatment (COD) in batch reactor of lab-scale, *Zoogloea* spp. is the most bacteria found in aeration tank and has the highest efficiency to reduce COD at 77.78% at 2 hours within hydraulic retention time. In addition, *Bacillus* sp., *Nitrosomonas* sp., *Acinetobacter* sp. and *Pseudomonas* sp. remove COD at 74.35%, 52.14% 25.57% and 16.75% respectively.

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Thesis Advisor's signature