

Ketkawee Bunchuay 2012: Study of Organic Decomposition Dominant Bacteria in UASB from Frozen Seafood Factory. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Miss Peerakarn Banjerdkij, D.Tech.Sc. 105 pages.

Biological treatment has bacteria to decompose an organic, so it is important to understand the role of bacteria in order to increase efficiency wastewater treatment operation. The objective of this study was investigated an organic decomposition dominant bacteria in UASB from 3 Frozen Seafood Factories with Culture Based Technique and Biochemistry approaches. In addition, the data of microorganisms will be used to compare with chemical data: pH, BOD, COD, TKN, T-P, Oil& Grease and SS.

The result of amount of average culturing bacteria in Reinforced Clostridium Medium; RCM from UASB sample wastewater 1,2 and 3 factory is 2.49×10^7 CFU/ml, 4.36×10^7 CFU/ml and 3.62×10^7 CFU/ml respectively and after identification culturing bacteria by biochemical technique found *Bacillus* sp. and Enterobacteriaceae. As a result, chemical parameters of effluent were decreased while bacteria were increased.

Bacillus sp. and Enterobacteriaceae were added in each Batch reactor lab-scale with bioaugmentation method, the efficiency of wastewater treatment were increased by 45.2% and 52.6% with 2 and 24 hours of HRT; Hydraulic Retention Time respectively. In contrast, when examine with wastewater that was autoclave at 120°C 15 psi, the efficiency of *Bacillus* spp. and Enterobacteriaceae is 25% and 50% with 24 and 8 of HRT respectively.

Student's signature

Thesis Advisor's signature