Sirilak Buathong 2008: Study on Potential of Polyhydroxyalkanoate Production from Activated Sludge Culture of Industrial Wastewaters Treatment System.
Master of Engneering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Wilai Chiemchaisri, D.Tech.Sc. 152 pages.

The objective of this research is to study the potential of PHA production by activated sludge system from industrial wastewater, i.e. Cho heng rice vermicelli factory, Serm Suk company, Green spot company, Pathumthani Brewery company and Sam Sen Brewery company to compare the ability of PHA production of the non – acclimatized activated sludge and acclimatized activated sludge with synthetic wastewater. The study was conducted in batch system under anaerobic and aerobic conditions. Various types of substrate i.e. acetate, glucose and butyrate were compared at differrent concentration of 400, 800 and 1,200 mgC/l during 12 hours batch experiment. The potential of PHA production of non – acclimatized activated sludge when using acetate, glucose and butyrate as substrate was 0.978 g/l (48.9% of dry sludge weight) 0.477 g/l (23.9%) and 0.696 g/l (34.82%) respectively. Under acclimatized condition, the sludge could produce highest PHA of 0.796 g/l (39.80%), 0.720 g/l (36.01%) and 0.913 g/l (45.67%) when sludge using acetate, glucose and butyrate as substrate. The production of PHA was found higher under aerobic condition using acclimatized sludge.

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