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CHARIN SRIPETCH : EFFECTS OF BIOLOGICALLY PRODUCED SURFACTANTS ON BIODEGRADATION OF PETROLEUM HYDROCARBONS. THESIS ADVISOR : AURAPIN EAMSIRI, Ph.D., CHARUS HUNTRAKUL, Ph.D., CHULAPORN KAMNERDPETCH, M.Sc. 56 p. ISBN 974-589-122-3

The objective of this research work is to investigate the effects of biologically produced surfactants (biosurfactants) on biodegradation of petroleum hydrocarbons. In this study, biosurfactants were extracted from wastewater of Bangchak and Thaioil petroleum refinery by using a procedure modified from Falatko and Novak. Biodegradation of petroleum hydrocarbon (diesel oil) with bacteria in both the presence and absence of extracted biosurfactants and were conducted at various time intervals. Control experiments without time exposure were also performed.

The results showed that the biosurfactants were capable of reducing the surface tension of water approximately 15-30%. This demonstrated that biosurfactants can be produced by bacteria from wastewater treatment plant under suitable conditions. The results also showed the ability of biosurfactants to promote the activity of bacteria in petroleum hydrocarbon degradation, and the increased biodegradation rate of diesel oil is about 4-15%.