

Thesis Title Degradation of Normal Alkane in Freshwater by
 Pseudomonas fluorescens and Alcaligenes faecalis
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ABSTRACT

The efficiency of biodegradation of normal alkane in freshwater which were collected from reservoir of Petroleum Authority of Thailand (PTT) by Pseudomonas fluorescens and Alcaligenes faecalis was conducted in laboratory and detected in quality. The ratio of bacteria to water sample was 1:10 (volume/volume). The oil was the mixture of product of PTT was concentrated in water sample in 0.2 and 0.3 percent (volume/volume). Hexane was used to extract normal alkane from oil and analyzed by gas-chromatography. The study was divided into 3 parts, the first part was the determination of the generation time of Pseudomonas fluorescens and Alcaligenes faecalis by total plate count. The second part was the biodegradation of normal alkane in sample by Pseudomonas fluorescens, Alcaligenes faecalis and the mixed of those bacteria at room temperature. The third part was the biodegradation of normal alkane in sample by Pseudomonas fluorescens, Alcaligenes faecalis and the mixed of them of those bacteria combined with original microorganism in water sample.

The results indicated that the best growth of Pseudomonas fluorescens was at concentration 0.3 percent (volume/volume) and Alcaligenes faecalis 0.2 percent (volume/volume). Their generation time were 2.68 hours and 4.01 hours, respectively. The ability of Pseudomonas fluorescens and Alcaligenes faecalis and mixed of them to degrade normal alkane in sterilized water was about 37-54 percent and non-sterilized water was about 46-75 percent.