

Mirfat Juni Susilo Wenti, 2012. **Biodegradation of Oil Sludge With Variations of Incubation Time and Type of Bacterial Consortium Isolated from Mud of Kenjeran Shore.** This thesis was supervised by Dr. Ni'matuzahroh and Dr. Sucipto Hariyanto, DEA Program S-1 Biology, Department of Biology Faculty of Science and Technology, University of Airlangga.

ABSTRACT

The aims of the study are to determine the effect of incubation time and type of consortium bacteria isolated from mud of Kenjeran seashore to oil sludge degradation. This was an experimental study using three types of hydrocarbonoclastic bacterial consortium. The types of consortium is consortium M1 (consisting of 7 isolates), consortium M2 (consisting of 5 isolates), and M3 consortium (consisting of 3 isolates) compared with control (without the addition of isolates). The consortium were incubated for 0, 7, and 14 days. Culture medium containing 30 mL AMS Media (Pruthi and Comeotra, 1997 composition) + 1g oil sludge and 4% bacterial consortium. Parameters for the oil sludge degradation is the total number of bacteria, the pH of the culture, and Total Petroleum Hydrocarbon (TPH). Data of hydrocarbon degradation results were statistically analyzed using two-way ANOVA ($\alpha = 0.05$), followed by Duncan's test, the data of the total number of bacteria analyzed using the Brown Forsythe test ($\alpha = 0.05$), followed by Games-Howell test. While, the pH of the culture were analyzed descriptively. The results showed that the variation in the length of incubation time and the type of bacterial consortium influence the oil sludge biodegradation. The best combination of the type of bacterial consortium and length of incubation time, obtained at M3 consortium with 14 days of incubation time that is able to degrade oil sludge up to 59, 37%.

Keywords: Biodegradation, Oil sludge, Bacterial consortium, Shore Kenjeran