

## ABSTRACT

Khoiroh, Zaimatul.2014. **Bioremediation of Heavy Lead Metal (Pb) in Lapindo Mud Using Mixed Bacterial (*Pseudomonas pseudomallei* and *Pseudomonas aeruginosa*)**. Minorthesis. Biology Department, Faculty of Science and Technology. Maulana Malik Ibrahim Malang State University. Supervisors: Dr. Hj. Ulfah Utami, M. Si. And Andik Wijayanto, M. Si.

**Keywords:** Bioremediation, heavy lead metal (Pb), *Pseudomonas pseudomallei* and *Pseudomonas aeruginosa*.

The Lapindo mudflow disaster has made great bad effects . The heaviest impact has occurred in the region surrounding the mud volcano. Ecological disaster arising from the disposal of sludge to Porong river is heavy metal pollution of lead (Pb). Pb is toxic to humans and can cause acute and chronic poisoning. Preliminary test results showed Pb levels exceeding the threshold where the 3.50 ppm Pb in the environment. To overcome this effort must be taken, one with bioremediation. The purpose of this study was to determine the effect of a mixture of bacteria (*Pseudomonas pseudomallei* and *Pseudomonas aeruginosa*) to the total number of bacterial cells in the bioremediation process Lapindo mud Pb and Pb levels in the Lapindo mud.

This study was conducted in the laboratory of microbiology, plant physiology, genetics, and instrumental laboratory of UIN Maulana Malik Ibrahim Malang. This study aimed to determine the success of bioremediation is the number of cells, and metal content. The experimental design was used by quantitative descriptive analysis. The mixture of bacteria used were *Pseudomonas pseudomallei* and *Pseudomonas aeruginosa* with various concentrations (0%, 9%, 12%, and 15%). Bioremediation process is done with a long incubation (0, 20, 30, and 40 days). The results of the study shown by quantitative figures as a research amplifier.

The results showed that the total number of cells was highest in the treatment with the addition of a mixture of bacteria by 15%, the number of cells 6,57x10<sup>10</sup>. Percent decrease in the levels of heavy metal lead (Pb) is highest in the treatment with the addition of exogenous microbes by 12%, with a decrease of 65% percent of the initial metal concentration of 3.5 ppm to 1.21 ppm.