ABSTRACT

Mazidah, Riftin. 2014. **Utilization of Microalgae *Chlorella* sp. as Bioremediator Heavy Metal Lead (Pb) from Sidoarjo mudflow**. Final Project / Minorthesis Department of Biology, Faculty of Science and Technology, Maulana Malik Ibrahim State Islamic University of Malang. Supervisor: (I) Dr.Hj.Ulfa Utami, M.Sc. (II) Dr.H.Ahmad Barizi, M.A

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Effluent Lapindo Mud of Sidoarajo into a water (sea) causing damage to the aquatic ecosystem. The content of Pb on Sidoarjo mudflow has reached the threshold; the result is the death of several types of aquatic biota that exist in the sea. One type of microalgae that can be used as bioremediator Pb is *Chlorella* sp. The objectives of the study is to determine the growth of *Chlorella* sp. in the Lapindo Mud and to know the volume of mudflow and the addition of optimal contact time of *Chlorella* sp. to absorb Pb on mudflow.

This study is experimental, using quantitative descriptive method through CRD factorial consisting of two kinds of treatment volume variations adding Chlorella sp. (control, 400 ml., 600 ml., and 800 ml.) and contact time (0, 7 and 14 days) and four replications for each treatment. The analysis of Pb concentration is using spectrophotometric method. Analysis of the data by calculating the concentration of Pb absorbed using the Langmuir method of data analysis results then the final Pb levels compared with water quality standards watershed (Watershed) based on Government Regulation No.82 of 2001 in the amount of 0.03 ppm. Taking the sample is at the tank discharge third channel of the pipe. Culturing *Chlorella* sp. done by making Sprouts Extract Media bioremediation process followed by menginokulasian Chlorella sp. media on Lapindo mud density and number of cells counted using a microscope.

The results of the study showed growth of *Chlorella* sp. Lapindo mudflow in Sidoarjo medium population increased until day 6. Volume and the addition of optimal contact time of *Chlorella* sp. to absorb the heavy metals lead (Pb) from Lapindo Sidoarjo mud was 400 ml. for 14 days in the amount of 68.62%.