

Isnaini Septi Irmayanti, 2012, Solubility of *Oil sludge* with Biosurfactant *Acinetobacter sp. P2 (1)* and Variation of Volumes *Crude Lipase Enzyme Bacillus sp. LII63B*, This research under the guidance Dr. Ni'matuzahroh and Dr. Ir. Tini Surtiningsih, DEA., Biology Departement, Faculty of Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRACT

The aim of this study was to know the effect of addition biosurfactant *Acinetobacter sp. P2(1)* and variation of volumes *crude lipase enzyme Bacillus sp. LII63B* on the solubility of *oil sludge*. This research is kind of laboratory experimental that used experimental design of RAL with nine treatments and three repetition. Biosurfactant from *Acinetobacter sp. P2 (1)* was produced in the AMS media (Synthetic Mineral Water) with a concentration of 4% molasses and 4% addition of starter bacteria *Acinetobacter sp. P2 (1)* ($A_{650nm} = 0.5$) then incubated in the shaker (120 rpm, 3 days). Characterization of biosurfactant products can be determined by calculating the value of surface tension and the emulsification activity of culture supernatant. *Acinetobacter sp. P2(1)* supernatant was obtained by culture centrifugation (4°C, 9000 rpm, 15 minutes), then extracted with ammonium sulfate in 60% saturated concentration and then continuing by lyophilization process to obtain *crude* biosurfactant products. CMC value of *crude* biosurfactant products on this study was 6.67 g/L. *Crude lipase enzyme of Bacillus sp. LII63B* culture supernatant obtained from 16 hours in production medium (NB +2% cooking oil). The solubility test of *oil sludge* was used agitation method and the dissolution achievement were detected by filtration method. *Oil sludge* solubility values were analyzed statistically by *Kolmogorov-sminorv*, *Levene Test*, *Brown-Forsythe* test and *Independent Sample T-Test*. This research showed that the treatments influenced solubility of *oil sludge*. Combination of biosurfactant 37,5% (v/v) and 37,5% (v/v) of *crude lipases enzyme (BE3)* showed the highest oil sludge solubility results with the percentage solubility of $46.62 \pm 10.24\%$.

Key words: biosurfactant *Acinetobacter sp. P2 (1)*, *crude lipases enzyme Bacillus sp. LII63B*, the solubility of *oil sludge*.