

**Ari Indriana Hapsari, 2011, Biosurfactant Production of *Acinetobacter* sp. P2(1) Using Glucose and Molasses Substrates, THESIS, It was under guidance of Dr. Ni'matuzahroh and Dr. Ir. Tini Surtiningsih, DEA., Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya.**

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### ABSTRACT

The aim of this research to study the growth and production kinetics pattern *Acinetobacter* sp. P2(1) using glucose 2% (G2) and molasses 2% (M2) substrates at variation incubation time (0, 1, 2, 3, 4, 5, dan 6 days (H)) and to study the specific growth rate ( $\mu$ ), saturation konstan ( $K_s$ ), the specific maximum rate ( $\mu_{max}$ ), the bacteria growth to result of product ( $Y_{x/p}$ ) and the bacteria growth to substrates consumption ( $Y_{x/s}$ ) value. *Acinetobacter* sp. P2(1) was cultured on mineral salt medium (MSM) with glucose (2%) and molasses (2%) substrates, agitation 65 rpm, at 27<sup>0</sup>C and incubation variation time (0, 1, 2, 3, 4, 5, 6 days). The observation parametre of this research are dry cell weight (DCW), surface tension, emulsification activity, the crude of biosurfactant product, reducing sugar, pH and the kinetics parametre value are  $\mu$ ,  $K_s$ ,  $\mu_{max}$ ,  $Y_{x/p}$  dan  $Y_{x/s}$ . The datas were analyzed descriptively. The result show that *Acinetobacter* sp. P2(1) in glucose substrates has kinetics pattern that biosurfactant product resulted at growth of microorganism in end of stationary phase and will increased although growth of microorganism start reduced this statement support by the value of surface tension 35,501 (mN/m) (G2H5), emulsification activity 45,075 (%) (G2H6), the crude of biosurfactant product 3,5 (g/l), this product result at 5 and 6 day incubation time that the growth pattern at *maximum stationary phase* and the value of  $K_s$  0,105 (g/l);  $\mu_{max}$  1,55 (h<sup>-1</sup>);  $\mu$  1,622 (h<sup>-1</sup>) (G2H2);  $Y_{x/s}$  186,1 (g/g) (G2H4) and  $Y_{x/p}$  30,392 (g/g) (G2H6). Molase substrates has kinetics pattern that biosurfactant product resulted at growth of microorganism in end of stationary phase and will increased although the growht of microorganism start reduced this statement support by the value of surface tension 51,235 (mN/m) (M2H4), emulsification activity 32,386 (%) (M2H4), the crude of biosurfactant product 96,05 (g/l) (M2H6) that product result at 4 and 6 days incubation time that the growth pattern of microorganism at *maximum stationary phase* and the value of  $K_s$  0,68 (g/l);  $\mu_{max}$  2,801 (h<sup>-1</sup>);  $\mu$  1,617 (h<sup>-1</sup>) (M2H2),  $Y_{x/s}$  1378,078 (g/g) (M2H5) and  $Y_{x/p}$  9,639 (g/g) (M2H5).

**Keywords :** *Acinetobacter* sp. P2(1), Biosurfactants, Glucose, Molasses