

Mar'atus Sholihah. 2006. Pengaruh Konsentrasi Induser dan Waktu Fermentasi Terhadap Produksi Enzim Amilase oleh *Rhizopus oryzae*. Skripsi di bawah bimbingan Drs. Agus Supriyanto, M.Kes dan Dr. Ir. Tini Surtiningsih, DEA., Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Airlangga, Surabaya

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh konsentrasi induser dan waktu fermentasi serta kombinasi keduanya terhadap produksi enzim amilase oleh *Rhizopus oryzae*. Produksi enzim amilase pada penelitian ini dapat dilihat dari aktivitas enzim amilase dan biomassa *Rhizopus oryzae*.

Penelitian ini bersifat eksperimental laboratoris menggunakan rancangan faktorial 4x3 dengan 3 kali ulangan. Perlakuan dari penelitian ini terdiri dari konsentrasi induser (0, 0,5, 1 dan 1,5%) dan waktu fermentasi (3, 5 dan 7 hari). Data yang diperoleh diperoleh diuji dengan uji ANAVA dua arah, dan dilanjutkan dengan uji Tukey.

Hasil penelitian menunjukkan bahwa konsentrasi induser berpengaruh terhadap aktivitas enzim amilase dan biomassa *Rhizopus oryzae*. Aktivitas enzim amilase tertinggi dicapai pada konsentrasi induser 1% sebesar 2,144 unit/L, sedangkan biomassa tertinggi dihasilkan pada konsentrasi induser 0,5% sebesar 6,217 g/L. Waktu fermentasi tidak berpengaruh terhadap aktivitas enzim amilase namun berpengaruh terhadap biomassa *Rhizopus oryzae*. Aktivitas enzim amilase tertinggi dicapai pada waktu fermentasi 3 hari sebesar 1,792 unit/L, sedangkan biomassa tertinggi dihasilkan waktu fermentasi 5 hari sebesar 7,151 g/L. Kombinasi antara konsentrasi induser dan waktu fermentasi tidak berpengaruh terhadap aktivitas enzim amilase, namun berpengaruh terhadap biomassa *Rhizopus oryzae*. Aktivitas enzim amilase tertinggi dicapai pada kombinasi konsentrasi induser 1% dan waktu fermentasi 7 hari sebesar 2,600 unit/L, sedangkan biomassa tertinggi dicapai pada kombinasi konsentrasi induser 0,5% dan waktu fermentasi 5 hari sebesar 8,472 g/L.

Kata Kunci : konsentrasi induser, waktu fermentasi, enzim amilase, *Rhizopus oryzae*

Mar'atus Sholihah. 2006. The Effect of Inducers Concentrations and Time length of Fermentation to Enzyme Amylase Production by *Rhizopus oryzae*. Script under supervision of Drs. Agus Supriyanto, M.Kes, and Dr. Ir. Tini Surtiningsih, DEA., Department of Biology, Mathematic and Science Faculty, Airlangga University, Surabaya

ABSTRACT

This research was aimed to know the effect of inducers concentrations, time length of fermentation and combinations of both to enzyme amylase production by *Rhizopus oryzae*. Enzyme amylase production in this research can be expressed from amylase activity and biomass of *Rhizopus oryzae*.

This research is a laboratories experimental research using factorial test 4x3 with 3 replications. The treatment of this research are inducers concentrations (0, 0,5, 1 and 1,5%) and time length of fermentation (3, 5 and 7 days). The data were analyzed by two way ANOVA, and followed by Tukey test.

The result of this research that inducers concentrations had effect for amylase activity and biomass of *Rhizopus oryzae*. The highest amount of amylase activity was achieved in 1% of inducer concentration with 2,144 unit/L, while the highest of biomass was achieved in 0,5% of inducer concentration with 6,217 g/L. Time length of fermentation hadn't effect for amylase activity but had effect for biomass of *Rhizopus oryzae*. The highest amount of amylase activity was achieved in 3 days of time length of fermentation with 1,792 unit/L, while the highest of biomass was achieved in 5 days of time length of fermentation with 7,151 g/L. The combinations of both hadn't effect for amylase activity but had effect for biomass of *Rhizopus oryzae*. The highest amount of amylase activity was achieved in combinations between 1% of inducer concentration and 7 days of time length of fermentation with 2,600 unit/L, while the highest of biomass was achieved in combination between 0,5% of inducer concentration and 5 days of time length of fermentation with 8,472 g/L.

Key Words: inducers concentrations, time length of fermentation, enzyme amylase, *Rhizopus oryzae*