

Pengaruh variasi konsentrasi molase terhadap kemampuan aspergillus flavus UICC 360 dalam menghasilkan lovastatin = The effect of concentration variation of molasses on the ability of aspergillus flavus UICC 360 to produce lovastatin

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Abstrak

ABSTRAK

Telah dilakukan penelitian untuk mengetahui pengaruh variasi konsentrasi molase terhadap kemampuan *Aspergillus flavus* UICC 360 dalam menghasilkan lovastatin. Proses fermentasi dilakukan dalam medium Czapek's Dox Broth (CDB) modifikasi dengan perlakuan variasi konsentrasi molase (0 g/L, 55 g/L, 60 g/L, 65 g/L, 70 g/L, 75 g/L, 80 g/L, dan 85 g/L) selama 7 hari pada suhu ruang (27--30°C) dengan kecepatan agitasi 90 rpm. Ekstraksi senyawa lovastatin dilakukan dengan pelarut etil asetat. Pengujian ekstrak lovastatin dilakukan dengan metode difusi agar cara cakram terhadap *Candida albicans* UICC Y-29. Hasil penelitian menunjukkan bahwa nilai rata-rata indeks penghambatan tertinggi sebesar $0,49 \pm 0,07$ diperoleh dari ekstrak lovastatin dengan perlakuan molase 70 g/L. Analisis uji Least Significant Difference (LSD) ($P < 0,05$) menunjukkan bahwa terdapat pengaruh nyata perlakuan konsentrasi molase terhadap kemampuan *A. flavus* UICC 360 dalam menghasilkan lovastatin. Analisis kualitatif dan kuantitatif lovastatin dengan Kromatografi Cair Kinerja Tinggi (KCKT) menunjukkan keberadaan senyawa lovastatin pada perlakuan molase 70 g/L dengan waktu retensi sama dengan lovastatin standar, yaitu 4,5 menit dengan kadar 1,1 mg/L.

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ABSTRACT

This research was carried out to determine the effect of concentration variation of molasses on the ability of *Aspergillus flavus* UICC 360 to produce lovastatin. The fermentation process was carried out using Czapek's Dox Broth (CDB) containing variation of molasses concentrations (0 g/L, 55 g/L, 60 g/L, 65 g/L, 70 g/L, 75 g/L, 80 g/L, and 85 g/L) for 7 days at room temperature (27--30°C) with agitation speed of 90 rpm. Extraction of lovastatin was done with ethyl acetate solvent. Lovastatin extracts were tested using agar disc diffusion method against *Candida albicans* UICC Y-29. The result revealed that the highest inhibition index of 0.49 ± 0.07 was obtained from lovastatin extracts-treated molasses 70 g/L. Analysis using Least Significant Difference (LSD) ($P < 0.05$) indicated that there was significant difference on the ability of *A. flavus* UICC 360 to produce lovastatin at different molasses concentration. Qualitative and quantitative analysis of lovastatin using High Performance Liquid Chromatography (HPLC) proved that

lovastatin was present at 70 g/L molasses with the same retention time to lovastatin standard, which was 4.5 minutes, at concentration of 1.1 mg/L.