Pengaruh fase pencampuran dan konsentrasi inokulum kultur aspergillus oryzae dan aspergillus tamarii terhadap produksi asam kojat = The effect of mixing phase and inoculum concentration of aspergillus oryzae and aspergillus tamarii on kojic acid production

Reza Nur Fahmi, author

Abstrak

Asam kojat merupakan metabolit sekunder yang dihasilkan oleh kapang genus Aspergillus dan Penicillium. Penelitian ini bertujuan untuk mengetahui pengaruh fase pencampuran dan konsentrasi inokulum kultur Aspergillus oryzae dan Aspergillus tamarii terhadap produksi asam kojat. Perhitungan konsentrasi asam kojat dilakukan menggunakan metode Spektrofotometri UV-Vis pada panjang gelombang 268 nm. Variasi fase pencampuran dan konsentrasi inokulum kultur kapang dilakukan secara bertahap. Fase pencampuran yang diteliti yaitu pada awal prakultur, awal fase log, dan akhir fase log. Sedangkan variasi konsentrasi inokulum kultur kapang yang diteliti yaitu 1:1, 2:3, dan 3:2 (A. oryzae : A. tamarii).
Hasil penelitian menunjukkan bahwa hasil konsentrasi asam kojat tertinggi dalam stirred-bioreactor diperoleh pada kultur fermentasi dengan fase pencampuran awal prakultur dan konsentrasi inokulum kultur kapang 1:1 dengan nilai 0,3436 g/L. Efisiensi dari proses fermentasi ditentukan dengan menghitung nilai yield asam kojat dibandingkan jumlah sukrosa didalam medium fermentasi, dimana didapatkan nilai yield tertinggi 0,0127 g/g.
<hr>Kojic acid is a secondary metabolite produced by the mold of genus Aspergillus and Penicillium. This research aimed to analyze the effect of mixing phase and inoculum concentration of Aspergillus oryzae and Aspergillus tamarii cultures on kojic acid production. The levels of kojic acid were determined by UV-Vis Spectrophotometry method at 268 nm wavelength. The variation of mixing phase and inoculum concentration of mold cultures was carried out gradually. The mixing phase studied was at the beginning of preculture, the beginning of the log phase and the end of the log phase. Meanwhile, the variation of inoculum concentration were 1:1, 2:3 and 3:2 (A. oryzae : A. tamarii).
The results showed that the highest concentration of kojic acid in stirred-bioreactor was obtained in fermentation cultures with the beginning of preculture of mixing phase using 1:1 ratio inoculum, which produced 0.3436 g/L of kojic acid. The efficiency of fermentation process is determined by calculating the yield of kojic acid compared to the amount of sucrose in fermentation medium, and the highest result of yield value is 0.0127 g/g.