Pengaruh variasi konsentrasi amonium sulfat terhadap kemampuan Aspergillus flavus UICC 360 dalam menghasilkan lovastatin = Effect of variation in ammonium sulphate concentration toward the ability Aspergillus flavus UICC 360 to produce lovastatin / Yunita Windi Anggraini

Yunita Windi Anggraini, author

Abstrak

ABSTRAK
Aspergillus flavus UICC 360 koleksi Universitas Indonesia Culture Collection (UICC) telah diteliti dan diuji mampu menghasilkan lovastatin. Penelitian bertujuan untuk mengetahui pengaruh variasi konsentrasi amonium sulfat (0 mM, 15,15 mM, 18,94 mM, 22,73 mM, 26,52 mM, dan 30,30 mM) sebagai sumber nitrogen terhadap kemampuan Aspergillus flavus UICC 360 menghasilkan lovastatin. Fermentasi menggunakan 1,96% (v/v) inokulum sel kapang selama 7 hari pada medium Czapek?s Dox Broth modifikasi dalam suhu ruang (27--30oC) dengan pengocokan 90 rpm. Ekstrak dalam etil asetat diuji terhadap Candida albicans UICC Y-29 dengan metode difusi agar cara cakram. Ekstrak hasil fermentasi dari perlakuan 22,73 mM amonium sulfat memiliki kemampuan tertinggi menghambat Candida albicans UICC Y-29 dengan indeks penghambatan rata-rata 0,94 ± 0,06. Hasil Kromatografi Lapis Tipis (KLT) menunjukkan bahwa ekstrak hasil fermentasi perlakuan amonium sulfat 15,15 mM memiliki nilai Rf sama dengan lovastatin standar sebesar 0,48. Ekstrak hasil fermentasi perlakuan amonium sulfat 18,94 mM, 22,73 mM, 26,52 mM, dan 30,30 mM memiliki nilai Rf hampir sama dengan nilai Rf lovastatin standar. Hasil KLT tersebut dapat mengindikasikan ekstrak mengandung lovastatin. Uji Least Significant Difference (LSD) (P<0,05) menunjukkan ada perbedaan nyata variasi konsentrasi amonium sulfat terhadap kemampuan Aspergillus flavus UICC 360 menghasilkan lovastatin. Hal tersebut menunjukkan bahwa terdapat pengaruh variasi konsentrasi amonium sulfat terhadap kemampuan Aspergillus flavus UICC 360 dalam menghasilkan lovastatin.
<hr>
ABSTRACT
The ability of Aspergillus flavus UICC 360 to produce lovastatin had been shown in previous study. The aim of this study is to determine the effect of variation in ammonium sulphate concentration at 0 mM, 15.15 mM, 18.94 mM, 22.73 mM, 26.52 mM, and 30.30 mM toward the ability of Aspergillus flavus UICC 360 in producing lovastatin. Fermentation was carried out by using 1.96% (v/v) of inoculum in modified Czapek?s Dox Broth for seven days at room temperature (27--30oC) with 90 rpm agitation. The extract in ethyl acetate was tested by disk diffusion method against Candida albicans UICC Y-29. The extract from fermentation of 22.73 mM ammonium sulphate showed the highest inhibition index of 0.94 ± 0.06. The result of Thin Layer Chromatography (TLC) showed that extract from fermentation of 15.15 mM ammonium sulphate had similar Rf value with lovastatin standard. Meanwhile, extract from fermentation of 18.94 mM, 22.73 mM, 26.52 mM, and 30.30 mM ammonium sulphate had nearly similar Rf value with lovastatin standard. The TLC result indicated that the extract contained lovastatin. Least Significant Difference test (LSD) (P<0.05) showed there was significant difference of variation in ammonium sulphate

concentration toward the ability of Aspergillus flavus UICC 360 to produce lovastatin. The result of this study showed that the variation in ammonium sulphate concentration affect the ability of Aspergillus flavus UICC 360 in producing lovastatin.