Production of lovastatin and sulochrin by aspergillus terreus using solid state fermentation

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Abstrak

Lovastatin is an anti-cholesterol agent that was produced by Aspergillus terreus using solid state fermentation (SSF). During this fermentation process, sulochrin is also produced as an unwanted co-metabolite. However, our previous result showed that sulochrin had potential as antidiabetes because it is an inhibitor agent of -glucosidase. In this paper, we reported our observation on lovastatin and sulochrin production pattern in relation with inhibitor -glucosidase activity during eleven days fermentation of A. terreus koji (SSF) ethyl acetate extract. Koji obtained from solid state fermentation with rice as the substrate and incubated at room temperature, sample is taken daily for eleven day (D-1 toD-11). Lovastatin and sulochrin production was measured by Liquid Chromatography- Mass Spectrometer based on their molecular weight m/z 404.5 and 332.3 respectively. The in hibitory activity is measured by inhibition model of koji extract against -glucosidase (EC 3.2.1.20) from Saccharomyces cereviceae. The results show that lovastatin production was started on the day 2 (0.04 mg/g) and achieving the optimal production on day 7 (11.46 mg/g), while sulochrin production was started on day 4 (0.60 mg/g) and keep produced until the end of fermentation period at Day 11 (3.11 mg/g). Koji extract was started to show inhibitory to -glucosidase activity on Day 5 (IC50= 23.34 g/mL) and keep showed activity until Day 11 (IC50=3.33 g/mL). These results suggest that inhibitory activity of koji extract to -glucosidase activity have relation with sulochrin biosynthesis production.