

## 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  $\alpha$ -glucosidase. In this paper, we reported our observation on lovastatin and sulochrin production pattern in relation with inhibitor  $\alpha$ -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 to D-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 inhibitory activity is measured by inhibition model of koji extract against  $\alpha$ -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  $\alpha$ -glucosidase activity on Day 5 ( $IC_{50}= 23.34$  g/mL) and keep showed activity until Day 11 ( $IC_{50}=3.33$  g/mL). These results suggest that inhibitory activity of koji extract to  $\alpha$ -glucosidase activity have relation with sulochrin biosynthesis production.