

ABSTRACT

Noviasari, Dian. 2013. The Effect of Temperature and pH on the Protease Enzyme Activity Against *Bacillus mycoides* Grown in Mixed Waste Liquid Media of Tofu and Bran. Advisor: Dr. Hj. Ulfah Utami, M.Si, Religions Advisor: Dr. H Munirul Abidin. M.Ag.

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Protease is an enzyme which functions to hydrolyze peptide bonds of proteins into oligopeptides and amino acids. Protease enzyme is very broad applications in industry. In Indonesia the needs for enzyme protease is high enough, however its needs still depend on imported production. One way to anticipate dependence on imported of production is necessary to attempt producing protease enzymes independently. *Bacillus mycoides* can produce protease enzyme with an index of 1.79. Mixed waste liquid media of tofu and bran used to produce the enzyme protease from *Bacillus mycoides*. The aims of this study was to determine the effects of temperature changes and pH as well as its interaction with the enzyme activity of protease from *Bacillus mycoides*.

This research is an experimental study using Completely Randomized Design (RAL) factorial research design. The first factor is temperature which has 4 levels: 30, 40, 50, 60 ° C, and the second factor is the pH of which has 3 levels: 6, 7, 8. This research was conducted in Laboratory of Microbiology and Genetics Maulana Malik Ibrahim State Islamic University of Malang. The analysis using ANOVA and when the effects are significant, it is followed by Duncan's Multiple Range Test (DMRT) at 5% significance level.

The findings showed that temperature and pH influenced the activity of protease enzyme from *Bacillus mycoides*. Highest activity at a temperature of 60 ° C for 15×10^{-2} U/ml. pH 6 and 8 give the same effect on the enzyme activity of *Bacillus mycoides* prosthesis with the value of each activity - each 12.34×10^{-2} U/ml and 14.37×10^{-2} U/ml. The interaction between temperature and pH was highest at a temperature of 600 C with a pH of 8 with the value of the activity of 27.59×10^{-2} U/ml.