

ABSTRACT

Bariroh, Anik. 2014. The Influence of Temperature on the Activity of Protease Enzyme by *Trichoderma* sp., *Penicillium* sp., and mixture of *Trichoderma* sp. and *Penicillium* sp. In a Media of Soybean Curd Liquid Waste and Bran. Thesis. Biology Programme Faculty of Science and Technology The state of Islamic University Maulana Malik Ibrahim Malang.

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Enzyme of protease is an enzyme widely used in the world especially in textile industry, food, milk, pharmacy and sewage treatment. In Indonesia, the necessity of protease enzyme increases, but most of the necessity must be supplied from the import production. Enzyme of protease can be resulted by the plants, animals, or microorganism.

Penicillium sp. and *Trichoderma* sp. can result the protease enzyme. Media that used in this research are soybean curd liquid waste and bran. The purpose of this research is to know the influence of the temperature on the activity of protease enzyme by *Trichoderma* sp., *Penicillium* sp., and mixture of *Trichoderma* sp. and *Penicillium* sp.

This research is a kind of experimental study by using complete random design (RAL) with factorial pattern. The first treatment is the variation of temperature consist of three levels, 30°C, 40°C dan 50°C. The second treatment is the variation of bacteria species, *Penicillium* sp and *Trichoderma* sp and the mixture of both. The research carried out in laboratory of microbiology and laboratory of genetic. The data will be analized with ANOVA and if the treatment different signnificantly, data will be continued analized with Duncan Multiple Range Test (DMRT).

Result of the research revealed that temperature impact to the production of protease enzyme by *Penicillium* sp and *Trichoderma* sp and the mixture of both. The highest production of protease enzyme by *Penicillium* sp. was 3,391 U/ml at 40°C, event by *Trichoderma* sp. was 3,449 U/ml at 40°C, and by the mixture of both bacteria was 4,439 U/ml at 50°C.

Key words: Temperature, enzyme of protease, soybean curd liquid waste, bran, *Penicillium* sp., *Trichoderma* sp.