

ABSTRACT

ISOLATION AND IDENTIFICATION ENZYME OF *Trichoderma koningii* AS INHIBITING PATHOGENIC FUNGAL OF RICE STEM ROT

By

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Rice production in Indonesia continue to decline, due to rice stem rot diseases caused by fungal pathogens. The isolated pathogenic fungal found in rice stem rot obtained as *Pyricularia grisea*. According to some reports a biological control agent, *Trichoderma koningii* potentially suppress pathogenic fungal. Antagonistic test of *Trichoderma koningii* against the pathogen was able to inhibit growth of the pathogenic fungal at 95,5%. The activity test of enzymes that plays role in the inhibition of the fungal was carried out toward cellulase, lipase, protease and amylase. Only cellulase and lipase enzymes that showed significant activity. The unit activity and specific activity of the cellulase were 2,7 U/mL and 2,53 U/mg and 1,83 U/mL and 1,64 U/mg for the lipase. Cellulase and lipase enzyme produced optimum at seventh day with the value of the unit activity and specific activity of 2,86 U/mL and 2,57 U/mg for cellulase enzyme and 1,68 U/mL and 1,64 U/mg for lipase enzyme. Purification was only conducted on cellulase enzyme. Purification by fractionation, the 40-60% ammonium sulfate fraction, showed units activity and specific activity of 1,29 U/mL and 1,48 U/mg. Antagonists test using the enzymes showed that the crude extract of the cellulase is better for inhibiting growth of fungal pathogenic as compared with purification fraction.

Keywords : *Trichoderma koningii*, rice stem rot, antagonist test.