

## ABSTRACK

**Rufaida, Ulya. 2014. Local Isolate Pathogenicity of *Metarhizium anisopliae* (Metsch.) to *Helicoverpa armigera* Hubner.** Thesis. Departement of Biology, Faculty of Science and Technology, The State Islamic University of Maulana Malik Ibrahim Malang. Advisor I: Dwi Suheriyanto, M.P. Advisor II: Ach. Nashichuddin, M.A.

**Keyword:** Patogenicity, *Metarhizium anisopliae*, *Helicoverpa armigera*

Larvae of *Helicoverpa armigera* is a polyphagous pest. It attacks more than 60 specieses of cultivate and wild plants. The plants host of this larvae are tobacco, maize, sorghum, cotton, hemp, potato, *rinicus*, leguminous, vegetables and ornamental plants. Larvae's brunt causes decrease of crop. Most of farmers control it with chemical pesticide intensively. It resulted in negative impact such as, symptoms of pest resistance and resurgence, killing of natural enemies, increased pesticide residues on crops, polluting the environment and health problems for users. Therefore, usage of pesticide to pest control must be limited. It demands to do other pest control that safe and friendly environment, such as biological control that principally use of natural enemies' role. *Metarhizium anisopliae* is a biological agent that have been known as *Helicoverpa armigera*'s natural enemies. This study aim to determine the pathogenicity of *Metarhizium anisopliae*'s two local isolates to mortality of *Helicoverpa armigera*.

The study was conducted from March to June 2014, at Insect Pathology Laboratory of Indonesian Tobacco and Fibre Crops Research Institute, Karangploso-Malang. The design used in this study was Factorial Randomized Block Design (Factorial RBD) with 10 treatments that consists of two factors, two isolates of *M. anisopliae* (HJMA-5 and HJMA-8) and 5 concentrations (control,  $10^5$ ,  $10^6$ ,  $10^7$  dan  $10^8$  conidia/ml) with 4 repetitions, so it obtained 40 experimental units. Each experimental units consisted of 20 fish larvae. Mortality data of larvae was analyzed used F two way ANOVA and continued Duncan's comparison test at the 0.05 level (5%) using the SPSS program then it was analyzed used probit analyze to determine  $LC_{50}$  and  $LT_{50}$  value.

The result showed that mortality of larva of *H. armigera* was affected by concentration that is control,  $10^5$ ,  $10^6$ ,  $10^7$  dan  $10^8$  conidia/ml. Concentration that caused highest mortality is  $10^7$  conidia/ml which reached 28,75% in HJMA-5 and 29.5% in HJMA-8. Whereas concentration that caused the lowest mortality are  $10^5$  conidia/ml in HJMA-5 and  $10^6$  conidia/ml in HJMA-8 which both of them reached 5% and 14%.  $LC_{50}$  value in HJMA-5 and HJMA-8 is same that is  $10^5$  conidia/ml.  $LT_{50}$  values for each isolate's concentration were not obtained because mortality of larva less than 50%.