**POTENTIAL OF *Verticilliumlecanii* (Zimm) PALOLO ISOLATES AS BIOLOGICAL CONTROL AGENT AGAINTS MOSQUITO BUGS, *Helopeltis* spp. (HEMIPTERA: MIRIDAE) ON COCOA PODS**

Alam Anshary1, Moh. Yunus2, Nova Alvianita Panggalo3

Email: [ansharyalam@gmail.com](mailto:ansharyalam@gmail.com)

1,2Lecturer at the Study Program Agrotechnology, Faculty of Agriculture, Tadulako University,

Central Sulawesi- Indonesia

3Post Graduate Student -Tadulako University, Central Sulawesi- Indonesia

**Abstract**

Biological control is one of the alternatives to chemical pesticides and it can be described as the limitation of the abundance of living organisms and their products by other living organisms. Fungi and other beneficial organisms can be used for the biocontrol of insect pests. The fungus *Verticillium lecanii* is one of the members of *Deuteromycetes* and it can be used for crop protection. This study aimed to determine influence of *Verticillium lecanii* of Palolo isolates at different suspension based dilutions on *Helopeltis* spp. percentage mortality, its population density and its intensity of attacks. A preliminary test for designing field experiment was conducted at the Laboratory of Plant Pest and Disease of Tadulako University using four treatments of suspension dilutions of *V. lecanii* i.e. 10-3,10-5, 10-7, and 10-9 with three replicates. The field experiment was then implemented in cocoa plantation located at Makmur village of Palolo in Central Sulawesi Province of Indonesia. Six plots 15 x 20 m each contained 50 cacao plants where samples were randomly observed based on the presence of *Helopeltis*s spp attack. The suspension dilutions of *V. lecanii* were applied four times by two week intervals. The results of this study show that the 10-5 suspension dilutions of *V. lecanii* are effective in causing high *Helopeltis* spp. mortality ranging from 53.33% to 83.33%. Statistical analysis using t-test showed that the *V. lecanii* 10-5 suspension treatment in field conditions is very significant in reducing the population of *Helopeltis* spp. ranging from only 2.11 adults plot-1 to 5.56 adults plot-1. It also decreases the intensity of the *Helopeltis spp.* attacks by less than 25% while the attack in the treatment with no application of *V. lecanii* varies from 25% -50%.

Keywords: Biological control, Cocoa plantation, *Helopeltis* spp., and *Verticillium lecanii*.