ABSTRACT

Arabica coffee (*Coffea arabica* L.) Gayo Arabica is a local Gayo coffee which has a high level of adaptation to highland environmental conditions with the best taste). The main problem with the low productivity of Gayo Arabica coffee is the attack of the Coffee Berry Borer (CBB), and most detrimental to Gayo arabica coffee plants in the Gayo Highlands area. Chemical control is often carried out even though it will result in residue and resistance to pests. An alternative method that can be used is the use of the *Beauveria bassiana* fungus as an environmentally friendly biological agent. *Beauveria bassiana* fungus can infect pests and cause death.The research aims to explore local isolates of the *Beauveria bassiana* fungus associated with CBB pests in the Gayo Highlands area and test the level of virulence and efficacy of local isolates on CBB imago.The research was carried out in the form of a laboratory experiment with one type of treatment arranged in a Completely Randomized Design (CRD). The research treatments were 6 local isolates of *Beauveria bassiana* from exploration result carried out in the Gayo Arabica coffee plantation in Central Aceh Regency. Each local isolate treatment was repeated 4 times so that there were 36 experimental units testing. The *Beauveria bassiana* fungus has and effect on spore density. The isolate ABb1368 has the highest sporulation ability, being able to produce conidia of 31 x 10^6 spores/ml, lowest spore density was found in the local isolate ABb953 with a conidia density of 16 x 10^6 . Virulence and efficacy testing have a significant effect on pest mortality. The highest virulence test in killing CBB pasts reached 58.39-66.26%, while for single efficacy testing in killing pests it was around 56.79-74.32%, and for mixed efficacy test the ability to kill coffe berry borer was around 57.59-78.93%. Virulence and efficacy tests are very significantly different from incubation period, pest mortality, lethal period and virulence level.

Keywords: *Beauveria bassiana*, Coffee Berry Borer, Efficacy, Exploration, Pest Mortality, Spore Density, Virulence,