Effectiveness of the Beauveria bassiana* as *a Biological Control Agent of Leaf Spot Disease in Edamame Plants In Vitro

Supervised by Trisnani Alif, S.Si., M.Sc.

Rayhan Wahyu Firmansyah
Food Crop Production Technology Study Program
Department of Agricultural Production

ABSTRACT

Leaf spot disease caused by Cercospora sp. is one of the main constraints on edamame plants because it can reduce yield and quality of plants. Common control methods still rely on chemical fungicides that have the potential to cause negative impacts on the environment and human health. Therefore, more environmentally friendly control alternatives are needed, one of which is through the use of biological agents such as Beauveria bassiana. Besides being known as an entomopathogenic fungus, Beauveria bassiana has the potential to increase plant resistance to pathogens. This study aims to determine the effectiveness of Beauveria bassiana as a biological agent in controlling leaf spot disease in edamame plants in vitro and to determine the effective spore density to inhibit the growth of Cercospora sp. The research method used an inhibition test with various Beauveria bassiana spore densities (10^8, 10^9, and 10^{10} Cfu/Spore) against pathogen growth on PDA media incubated for 72 hours. The results showed that Beauveria bassiana was able to suppress the growth of Cercospora sp. In all treatments, with a spore density of 10^{10} Cfu/Spore, the highest suppression rate was 28.70%. Thus, Beauveria bassiana has the potential to be an environmentally friendly and sustainable biological control agent for leaf spot disease in edamame plants.

***Keywords**: Beauveria bassiana, Cercospora sp., Biological control.*