

ABSTRACT

Salma Nur Malicha. 24020121130099. **Potential of Endophytic Fungi Consortium with *Trichoderma viride* as a Biocontrol Agent against *Alternaria alternata* Causing Leaf Spot on Potato (*Solanum tuberosum*)**. Supervised by Susiana Purwantisari and Budi Raharjo.

Potato production in Indonesia experienced a 17% decline in 2023. This reduction can be attributed to various factors, one of which is fungal pathogen infections. *Alternaria alternata* is recognized as one of the key pathogens responsible for leaf spot disease in potato plants. Endophytic fungi, living symbiotically within plant tissues, are known for their ability to suppress pathogens. Likewise, *Trichoderma viride* has been widely recognized for its biocontrol potential against various plant pathogens. This study aimed to evaluate the potential of a consortium of endophytic fungi with *T. viride* in inhibiting the growth of *A. alternata*. Endophytic and pathogenic fungi were isolated from potato plantations in Getasan, Semarang Regency, and identified macroscopically and microscopically. Four endophytic fungi were obtained, presumed to be *Aspergillus flavus*, *Aspergillus niger*, *Penicillium chrysogenum*, and *Mucor hiemalis*. A compatibility test was carried out to evaluate the potential of the fungi for consortium development, followed by an antagonism assay using the dual culture method to determine their ability to inhibit the pathogen. Compatibility tests showed that *P. chrysogenum* was compatible with *T. viride* due to its low inhibitory effect (5%). Dual culture assays demonstrated that the consortium inhibited *A. alternata* by 65.33%, significantly higher than the control but not significantly different from *T. viride* alone (54.67%). These findings indicate that the consortium has potential as a biocontrol agent, though its effectiveness was comparable to single *Trichoderma viride* application.

Keywords: *Alternaria alternata*, endophytic fungus, consortium, *Trichoderma viride*