

EXPLORATION OF *Mefenoxam* FUNGICIDE-TOLERANT AND *Phytophthora infestans* PATHOGEN-ANTAGONISTIC BIOCONTROL AGENTS *Trichoderma* sp. FROM HORTICULTURA RHIZOSPHERE AT BATU

Elika Joeniarti ¹⁾, Ni'matuzahroh ²⁾, dan Kusriningrum ³⁾

¹⁾ Department of Agrotechnology, Agriculture Faculty-Wijaya Kusuma Surabaya University

²⁾ Department of Biology, Science and Technology Faculty- Airlangga University

³⁾ Department of Animal Husbandry-Veterinary Medicine Faculty Airlangga University

ABSTRACT

Tolerance of *Trichoderma*, local isolates from horticulture rhizosphere at Batu-East Java, to *mefenoxam* fungicide and its antagonistic activity against *Phytophthora infestans* pathogens are yet to be known until now. The objectives of this study were to obtain *Trichoderma* isolates with those two abilities by evaluating its tolerance to *mefenoxam* fungicide, identifying *in-vitro* the antagonistic activity of *T. asperellum* isolates against the plant pathogen *Phytophthora infestans*, and finding out its protein profile. The study was conducted through a number of stages: Isolation and Identification of *Trichoderma* isolates, Tolerance Analysis of *T. asperellum* isolates to *Mefenoxam* Fungicide, Antagonistic Activity Evaluation of *T. asperellum* isolates against *P. infestans* at the recommended Maximum Concentration of *Mefenoxam*, as well as Identification on the Protein Profile of *T. asperellum* isolates at the recommended Maximum Concentration of *Mefenoxam*. The results showed that all *Trichoderma* isolates were identified as *T. asperellum* and have a close phylogenetic relationship. The tolerance of all isolates to 5000 ppm *mefenoxam* approximately 54,11% - 67,06%. Their tolerance is an adaptive resistance. At that level of concentration, the antagonistic activity of all isolates against *P. infestans* up to 19,73%. The antagonistic mechanism used to suppress the growth of pathogen is a competition. All the *T. asperellum* isolates, that were tolerant to 5000 ppm *mefenoxam*, did not show a specific protein profile. Thus, *T. asperellum* isolates was categorized as biocontrol agents that were tolerant to *mefenoxam*, a chemical fungicide, but it was low at its antagonistic activity.

Key words: *Trichoderma*, tolerant, *mefenoxam*, antagonistic, Batu