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

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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