ANTAGONISM OF *Trichoderma* spp. ISOLATES FROM VARIOUS ORIGIN AGAINST *Fusarium oxysporum* f.sp *cepae* IN SHALLOT PLANTS (*Allium ascalonicum* L.)

By : Desty Dwi Artanti

Supervised by : Dr. Ir. Mofit Eko P, M.P. and Ir. Chimayatus Solichah, M.P.

ABSTRACT

Shallot cultivation deals with plant diseases caused by *Fusarium oxysporum* f.sp *capae*, characterized by rotting at the base of the roots and causing death, thereby reducing production. The study aimed to determine which *Trichoderma* spp isolates were the most effective as biocontrol agents for *F. oxysporum* through in vitro and in vivo tests. The research was conducted at the UPN "Veteran" Yogyakarta Plant Protection Laboratory from January-June 2022. The research was arranged in Completely Randomized Design (CRD). In the antagonistic test between *F. oxysporum* and various isolates of *Trichoderma* spp. (T) in vitro test consisted of 6 treatments: *F. oxysporum* >< LPT2, *F. oxysporum* >< LPT13, *F. oxysporum* >< UPN16, *F. oxysporum* >< UPN17, *F. oxysporum* >< UPN18, and Control (*F. oxysporum*) with each treatment consisting of 3 replications each composed of 3 samples. In the in vivo test, there were 5 treatments : The most effective (obtained from in vitro test) *F. oxysporum* >< LPT 13, *F. oxysporum* >< UPN 16, *F. oxysporum* >< UPN 17, negative control (only planting media) and positive control (*F. oxysporum*) *with* each treatment consisting of 4 replications and 12 plant units. Parameters observed in the in vitro test were inhibition percentage (%) and in vivo test were disease incidence (%), attack intensity (%), disease progression rate (%), AUDPC value, Fresh weight (g), and economic wight (g). The data obtained were analyzed by F test (ANOVA) at a 5% level; if the results showed that the treatment had a significant effect, a further test was carried out using Duncan's Multiple Range Test at a 5% level. *Trichoderma* LPT 13, *Trichoderma* UPN 16, and *Trichoderma* UPN 17 had the highest scores in suppressing the pathogen *F. oxysporum* in in-vitro test. *Trichoderma* UPN 17. isolates from Yogyakarta effectively suppressing the pathogen *F. oxysporum* in-vivo test.

Keywords: Shallot, Antagonis Test, *Trichoderma* spp., *Fusarium oxysporum*