ANTAGONIST TEST OF *Trichoderma* spp. AGAINST *Fusarium oxysporum* CAUSES OF WILT DISEASE IN TOMATO (*Solanum lycopersicum* L.*)* IN VITRO AND IN VIVO

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ABSTRACT

One of the obstacles in tomato production in Indonesia is the attack of Fusarium wilt disease. The study aimed to determine the most effective isolate of *Trichoderma* spp. as an antagonistic agent against pathogen *Fusarium oxysporum* in vitro and in vivo test. The method used was a Completely Randomized Design (CRD) with 1 factor and 5 replicates. The in vitro test consisted of 6 treatments, namely *Trichoderma* spp. taken from 5 different rhizospheres namely bamboo, pineapple, banana, corn, soil from South Sumatra, and control using *Fusarium oxysporum* without antagonistic agents. The in vivo test consisted of 3 treatments, namely *Trichoderma* spp. vs *Fusarium oxysporum*, negative control (pathogen inoculation), and positive control (fungicide application). Data were analyzed using ANOVA at 5% level, followed by DMRT at 5% level. *Trichoderma* spp. from bamboo rhizosphere had the highest pathogen inhibition of 66.30%. The application of *Trichoderma* spp. has the best effectiveness in the parameters of incubation period, disease incidence at plant ages 14 and 21 DAP, disease intensity at 14, 21, and 28 DAP, plant height at 14, 28, and 42 DAP, flowering age, number of fruits per plant at 72, 75, 78, and 81 DAP, and fruit weight per plant at 72, 75, 78, 81, 84, and 87 DAP.

Keywords: Tomatoes, *Trichoderma* spp., *Fusarium oxysporum.*