

## ABSTRACT

### **EFFECT OF COMBINATION OF *Trichoderma harzianum* AND PLANT GROWTH PROMOTING RHIZOBACTERIA (PGPR) DOSES ON THE GROWTH AND YIELD OF TOMATO (*Solanum lycopersicum* L.) AND ITS EFFECTIVENESS IN SUPPRESSING FUSARIUM WILT DISEASE**

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Tomato (*Solanum lycopersicum* L.) are one of the horticultural commodities that have great potential to be developed, because it has high economic value and large export potential however obstacles that can result in low levels of productivity are caused by infertile soil conditions, extreme weather conditions, land dysfunction due to chemicals, dan biological factors namely attacks that cause *Fusarium* wilt disease. Efforts to achieve optimal result and control of this disease needs to be done one of which is *Trichoderma harzianum* and PGPR. This research aims to determine the combination of *Trichoderma harzianum* and PGPR doses that have the best effect on the growth and yield of tomato and are effective in suppressing *Fusarium* wilt disease. This research was carried out at the Siliwangi University Microbiology Laboratory and the green house of the CFCPH PTPH Region V Service Sub Unit Tasikmalaya city from September to December 2023. This research used a Completely Randomized Design (CRD) with 7 treatments and was repeated 4 times so that there were 28 experimental plot units. *T. harzianum* and PGPR doses tried were a A (without *T. harzianum* + without PGPR), B (*T. harzianum* 10 g/plant), C (*T. harzianum* 20 g/plant), D (*T. harzianum* 10 g/plant + PGPR 15 ml/plant), E (*T. harzianum* 10 g/ plant + PGPR 30 ml/plant), F (*T. harzianum* 20 g/plant + PGPR 15 ml/plant), G (*T. harzianum* 20 g/plant + PGPR 30 ml/plant). The observation parameters in this research were plant height, stem diameter, number of leaves, intensity of attack, number of fruit per plant, fruit weight per fruit, and fruit weight per plant. The results of the research showed that the combination of *T. harzianum* and PGPR had and effect on plant height, stem diameter, number of leaves, number of fruit per plant, fruit weight per fruit, fruit weight per plant and effective on the intensity of desease attacks in tomato plants. The combination of *T. harzianum* 10 g/plant + PGPR 15 ml/plant has the best effect on the growth and yield of tomato plants and is effective in suppressing *Fusarium* wilt desease.

**Keywords:** *Fusarium* wilt, PGPR, Tomato plants, *Trichoderma harzianum*.