

**PENYALUTAN BENIH TOMAT DENGAN JAMUR AGENSIA HAYATI
Trichoderma harzianum dan *Gliocladium virens* UNTUK PENCEGAHAN
PENYAKIT LAYU FUSARIUM (*Fusarium oxysporum*)**

Oleh:
Wiwit Rahayu

Dibimbing oleh :
R.R. Rukmowati Brotodjojo dan Nurngaini

ABSTRAK

Produksi tanaman tomat mempunyai kendala yang sering terjadi yaitu serangan penyakit layu *Fusarium*. Tujuan penelitian adalah mengetahui efektivitas dari jamur agensia hayati *Trichoderma harzianum* dan *Gliocladium virens* pada penyalutan benih tomat untuk pencegahan penyakit layu *Fusarium*. Penelitian dilaksanakan pada bulan Februari-Mei 2020 di Laboratorium Pengamatan Hama dan Penyakit Tanaman (LPHPT), Pandak, Bantul, DIY. Penelitian dilakukan menggunakan uji *in vitro* dan *in vivo* yang disusun menggunakan Rancangan Acak Lengkap (RAL) dengan 7 perlakuan dan 4 ulangan yaitu kontrol tanpa perlakuan, *Fusarium*, *Trichoderma harzianum*, *Gliocladium virens*, *Fusarium* + *T.harzianum*, *Fusarium* + *G.virens* dan kombinasi *Fusarium* + *T.harzianum* + *G.virens*. Data dianalisis dengan menggunakan *Analysis of Variance* (ANOVA) pada taraf $\alpha=5\%$ dan untuk mengetahui beda nyata antar perlakuan maka dilanjutkan uji *Duncan's Multiple Range Test* (DMRT) taraf $\alpha=5\%$. Hasil penelitian menunjukkan perlakuan kombinasi *T.harzianum* + *G.virens* efektif dalam menekan penyakit layu *Fusarium*. Uji *in vitro* menunjukkan bahwa *Trichoderma harzianum*, *Gliocladium virens*, atau kombinasi *Fusarium* + *T.harzianum* + *G.virens* dapat menghambat pertumbuhan jamur *F.oxysporum*. Uji *in vivo* menunjukkan kombinasi *T.harzianum* + *G.virens* menghasilkan indeks vigor, tinggi tanaman, jumlah daun, bobot segar akar, bobot kering akar nyata paling tinggi dan persen tanaman yang terserang layu *Fusarium* nyata paling rendah.

Kata kunci : Tomat, *Fusarium*, *Trichoderma harzianum*, *Gliocladium virens*

COATING TOMATO SEEDS WITH BIOLOGICAL AGENT *Trichoderma harzianum* and *Gliocladium virens* for PREVENTION FUSARIUM WILT (*Fusarium oxysporum*)

By:
Wiwit Rahayu

Supervised by:
R.R. Rukmowati Brotodjojo dan Nurngaini

ABSTRACT

Tomato plant production has problems that often occur, namely wilt disease *Fusarium*. The aim of this study was to determine the effectiveness of the biological agent fungi *Trichoderma harzianum* and *Gliocladium virens* for coating of tomato seeds to prevent *Fusarium* wilt. The research was conducted starting from February until May 2020 at Plant Pest and Diseases Monitoring Laboratory, Pandak, Bantul, DIY. The research was conducted using *in vitro* and *in vivo* test arranged in a Completely Randomized Design (CRD) with 7 treatment and 4 replication i.e, untreated control, *Fusarium*, *Trichoderma harzianum*, *Gliocladium virens*, *Fusarium*+*T.harzianum*, *Fusarium*+*G.virens* and combination *Fusarium*+*T.harzianum*+*G.virens*. Data were analyzed using *Analysis of Variance* (ANOVA of $\alpha=5\%$) and followed by *Duncan's Multiple Range Test* (DMRT $\alpha=5\%$). The results showed that the combination treatment of *Fusarium* + *T.harzianum* + *G.virens* was effective in suppressing wilt disease by *in vitro* tests showed that *Trichoderma harzianum*, *Gliocladium virens* or combination of two fungi suppressed the growth of *F.oxysporum*. *In vivo* test showed that combination of *T.harzianum* and *G.virens* resulted in significantly higher indeks vigor, plant height, number of leaves, root fresh weight, root dry weight, lowed percent of infected plants.

Keywords : Tomatoes, *Fusarium*, *Trichoderma harzianum*, *Gliocladium virens*