

## RINGKASAN

Cabai (*Capsicum annum* L.) merupakan salah satu komoditas tanaman hortikultura yang buahnya memiliki nilai gizi cukup tinggi, terutama kandungan vitamin A dan C. Salah satu penghambat yang dapat menurunkan produksi tanaman cabai adalah gangguan penyakit layu yang disebabkan oleh jamur *F. oxysporum* f. sp. *capsici*. Penggunaan fungisida kimia memberikan dampak negatif terhadap lingkungan. Pengendalian hayati dengan memanfaatkan mikroorganisme antagonis *Trichoderma* sp. merupakan pengendalian yang ramah lingkungan. Penelitian ini bertujuan untuk mengetahui keefektifan tiga isolat *Trichoderma* sp. terhadap penyakit layu fusarium pada tanaman cabai dan mengetahui pengaruh aplikasi tiga isolat *Trichoderma* sp. terhadap pertumbuhan dan hasil cabai merah *in planta*.

Penelitian ini dilaksanakan di lahan percobaan Fakultas Pertanian, Universitas Jenderal Soedirman mulai bulan April 2016 sampai bulan Agustus 2016. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK), yang terdiri atas 5 perlakuan dan 6 ulangan. Perlakuan tersebut terdiri atas, kontrol tidak diberikan perlakuan, *Trichoderma* sp. Tb, *Trichoderma* sp. Tw, *Trichoderma* sp. isolat jahe dan fungisida berbahan aktif Benomil 50%. Variabel yang diamati adalah masa inkubasi, intensitas penyakit, tinggi tanaman, masa berbunga pertama, bobot segar akar, bobot segar tanaman, jumlah buah, dan bobot segar buah.

Hasil penelitian menunjukkan bahwa perlakuan *Trichoderma* sp. Tw dan *Trichoderma* sp. isolat jahe menekan intensitas penyakit sebesar 71,58% dan 68,32%, meningkatkan bobot segar buah sebesar 47,82% dan 30,96%, meningkatkan bobot segar tanaman sebesar 40,03% dan 37,31%, meningkatkan jumlah buah sebesar 32,32% dan 23,42%, serta mampu menunda masa inkubasi sebesar 59,44% dan 54,82%. Perlakuan tiga isolat *Trichoderma* sp. belum mampu meningkatkan tinggi tanaman, masa berbunga, dan bobot segar akar tanaman cabai.

Kata Kunci : Cabai merah, *F.oxysporum*, *Trichoderma* sp.

## SUMMARY

*Red pepper (Capsicum annum L.) is one of commodities plants horticulture whose fruits nutritional value, especially the womb vitamins A and C one barrier that can be lowered the production of a crop red pepper are impaired wilt disease caused by F. oxysporum f. sp. capsici. The use of chemical fungicides has a negative impact on the environment. Biological control by using antagonistic microorganisms Trichoderma sp. is an environmentally friendly control. The research aimed to know the effectiveness of three Trichoderma sp. isolates against fusarium wilt and their effect on growth and yield of red pepper in planta.*

*The research was conducted at the experiment station Faculty of Agriculture, Jendral Soedirman University, from April 2016 to July 2016. Rendomized block design was used with five treatments and six replicates. The treatments were, control, Trichoderma sp. Tb, Tw , and ginger isolates, and fungicide with active ingredients of Benomyl 50%. Variables observed were incubation period, intensity diseases, plant height, the first flowering time, roots fresh weight, crop fresh weight, the number of fruits, and fruits fresh weight.*

*Result of the research showed that Trichoderma sp. Tw and ginger isolates could effectively supress the diseases increase crop yield red pepper, capable by effectively the disease, of 71.58 and 68.32%, respectively increase fruits fresh weight of 47.82 and 30.96%, respectively; increase crop fresh weight of 40.03 and 37.3%, respectively; increase the number of fruits of 32.32 and 23.42%, respectively and delay the incubation period of 59.44 and 54.82%, respectively. All isolates of Trichoderma sp. could not able to increase crop height, the first flowering time and roots fresh weight of the red pepper.*

*Keywords: Red pepper, F.oxysporum, Trichoderma sp*