

RINGKASAN

Kubis merupakan salah satu komoditas sayuran yang berperan penting di Indonesia. Salah satu penyakit yang berpengaruh dalam budidaya dan peningkatan produksi kubis adalah penyakit busuk lunak bakteri, yang disebabkan oleh *Erwinia carotovora*. Pemanfaatan metabolit sekunder dari *Trichoderma harzianum* merupakan salah satu cara pengendalian yang ramah lingkungan. Penelitian ini bertujuan untuk mengkaji keefektifan dan pengaruh metabolit sekunder dua isolat *T. harzianum* yaitu isolat jahe dan bawang merah secara tunggal maupun gabungannya, dalam menekan penyakit busuk kering pada buah kubis lepas panen.

Penelitian dilaksanakan di Laboratorium Penyakit Tanaman Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto, mulai Desember 2016 sampai Maret 2017. Penelitian menggunakan uji *in vitro* dengan Rancangan Acak Lengkap dan uji *in vivo* dengan Rancangan Acak Kelompok masing-masing enam ulangan dan empat perlakuan, terdiri atas kontrol, metabolit sekunder *T. harzianum* isolat jahe, bawang merah, serta gabungan isolat jahe dan bawang merah. Variabel pengamatan meliputi masa inkubasi, luas serangan, intensitas penyakit, warna, bau, dan kesegaran.

Hasil penelitian menunjukkan bahwa metabolit sekunder *T. harzianum* isolat jahe, bawang merah, dan gabungannya mampu menekan pertumbuhan patogen *in vitro* masing-masing sebesar 30,46; 30,13; dan 39%, menekan luas serangan *in vivo* masing-masing sebesar 17, 13, dan 24%, serta menekan intensitas penyakit masing-masing sebesar 20, 15, dan 18%. Perlakuan metabolit sekunder *T. harzianum* berpengaruh terhadap warna dan bau, tetapi tidak berpengaruh terhadap kesegaran. Namun demikian, metabolit sekunder *T. Harzianum* secara gabungan lebih baik dibandingkan isolat jahe dan bawang merah secara tunggal.

SUMMARY

*Cabbage is one of important vegetables commodities in Indonesia. One of Cabbage diseases affected the cultivation and production is soft rot, caused by *Erwinia carotovora*. The use of secondary metabolites from *Trichoderma harzianum*, is one of environmental friendly controls methods. This research aimed to study the effectiveness and the effect of secondary metabolites derived from two *T. harzianum* isolates, i.e., ginger and shallot isolates, alone or in combination to suppress the diseases on postharvest cabbage.*

*The research was conducted at the Plant Protection Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto, from December 2016 to March 2017. Completely Randomized Design was used in in vitro test and Randomized Block Design was used in in vivo one with each six replicates and four treatments consisted of control, secondary metabolite of *T. harzianum* ginger, onion, and their combination isolates. Variables observed included incubation period, attack area, disease intensity, color, smell, and freshness.*

*Result of the research showed that the secondary metabolite of *T. harzianum* ginger, onion, and their combination isolates could suppress growth of the pathogen in vitro by 30.46; 30.13; and 39%, respectively, attack area in vivo by 17, 13 and 24% respectively, and the disease intensity by 20, 15, and 18%, respectively. The secondary metabolite of *T. harzianum* affected the color and smell; but no effect freshness. Nevertheless, the secondary metabolite of *T. harzianum* combination isolate gave better threatment than alone isolate.*