

RINGKASAN

Diaphorina citri Kuwayama (Hemiptera: Liviidae) merupakan salah satu hama yang menyerang tanaman jeruk. Serangannya mengakibatkan tunas-tunas muda keriting dan pertumbuhannya terhambat. Apabila serangan parah, bagian tanaman terserang biasanya kering secara perlahan kemudian mati. *D. citri* ini juga merupakan vektor dari penyakit *Citrus Vein Phloem Disease* (CVPD). Salah satu upaya untuk mengendalikan hama ini yaitu menggunakan enzim kitinase yang diproduksi dari jamur endofit tanaman jeruk. Enzim ini telah terbukti dapat mendegradasi senyawa kitin yang merupakan penyusun utama eksoskeleton serangga.

Penelitian ini bertujuan untuk: 1) Menganalisis mortalitas *Diaphorina citri* setelah aplikasi enzim kitinase dari jamur endofit, 2) Menganalisis gejala yang muncul pada *Diaphorina citri* setelah aplikasi enzim kitinase dari jamur endofit, dan 3) Mengetahui waktu kematian *Diaphorina citri* setelah pengaplikasian enzim kitinase dari jamur endofit. Penelitian ini dilaksanakan di desa Balai Penelitian Tanaman Jeruk dan Buah Subtropika (Balijestro). Penelitian ini dilaksanakan menggunakan Rancangan Acak Lengkap (RAL) dengan pola petak terbagi (*split plot design*) yang terdiri atas dua faktor perlakuan. Faktor perlakuan jamur endofit (E) terdiri dari E1 = Jamur Endofit 1, E2 = Jamur Endofit 2, E3 = Jamur Endofit 3, serta faktor perlakuan konsentrasi enzim kitinase (K) yang terdiri dari K1 = Konsentrasi pengenceran 5%, K2 = Konsentrasi pengenceran 10%, K3 = Konsentrasi pengenceran 20%, K4 = Konsentrasi pengenceran 40%. Serta terdapat perlakuan control sebagai pembanding. Setiap perlakuan dilakukan sebanyak 4 ulangan, dan setiap unit ulangan terdiri dari 10 ekor kutu *D. citri*.

Hasil penelitian menunjukkan Aktivitas enzim kitinase tertinggi dihasilkan oleh jamur dengan kode isolat SBD.1, SBT.6, dan SBT.10 dengan nilai masing-masing 2,383, 2,5, dan 2,5 U/ml. Jamur endofit dengan kode isolat SBD.1, SBT.6, dan SBT.10 masing-masing adalah jamur *Penicillium* sp., *Paecilomyces* sp., dan *Beauveria bassiana*. Aplikasi enzim kitinase terhadap mortalitas *Diaphorina citri* menunjukkan hasil yang berbeda dengan mortalitas *Diaphorina citri* tanpa perlakuan. Hasil tertinggi perlakuan E1 didapatkan pada konsentrasi 40%, perlakuan E2 pada konsentrasi 5% dan 40%, serta perlakuan E3 pada konsentrasi 5%.

Kata kunci: enzim kitinase, jamur endofit, *Diaphorina citri*

SUMMARY

Diaphorina citri Kuwayama (Hemiptera: Liviidae) is one of the pests that attack citrus plants. The attack resulted in curly young shoots and stunted growth. If the attack is severe, the affected plant parts usually dry out slowly and then die. *D. citri* is also a vector of *Citrus Vein Phloem Disease* (CVPD). One of the efforts to control this pest is to use chitinase produced from endophytic fungi of citrus plants. This enzyme is proven to be able to degrade chitin compounds which are the main constituents of exoskeleton insects.

This study aimed to: 1) Analyze the mortality of *Diaphorina citri* after application of chitinase enzyme from endophytic fungi, 2) Analyze symptoms that appear on *Diaphorina citri* after application of chitinase enzyme from endophytic fungi, and 3) Determine the time of death of *Diaphorina citri* after application of chitinase enzyme from fungi. endophyte. This research was conducted in the Balai Penelitian Tanaman Jeruk dan Buah Subtropika (Balitjestro). This study was conducted using a completely randomized design with split plot design consisting of two treatment factors. Endophytic treatment factor (E) consisted of E1 = Endophytic Fungi 1, E2 = Endophytic Fungi 2, E3 = Endophytic Fungi 3, the second treatment factor was chitinase enzyme concentration (K), consisting of K1 = 5% dilution concentration, K2 = 10% dilution concentration, K3 = 20% dilution concentration, K4 = 40% dilution concentration, and there is a control treatment as a comparison. Each treatment was carried out with 4 replications, and each treatment unit consisted of 10 *D. citri*.

The results showed the highest chitinase enzyme activity produced by fungi with isolate codes SBD.1, SBT.6, and SBT.10 with values of 2,383, 2.5, and 2.5 U/ml, respectively. Endophytic fungi with isolate codes SBD.1, SBT.6, and SBT.10 were *Penicillium* sp., *Paecilomyces* sp., and *Beauveria bassiana*, respectively. The application of the chitinase enzyme on the mortality of *D. citri* showed different results from the mortality of *D. citri* without treatment. The highest yield of E1 was obtained at a concentration of 40%, E2 treatment at concentration of 5% and 40%, and E2 treatment at a concentration of 5%. However, the difference was not significant due to the lack of appropriate methods for producing chitinase enzymes as well as abiotic ones that affect the performance of chitinase enzymes.

Keywords: chitinase enzyme, endophytic fungi, *Diaphorina citri*