ABSTRACT

EFFECT OF FRUIT COATING *SUGAR ESTER BLEND* AND STORAGE TEMPERATURE AS 'CALIFORNIA' PAPAYA'S CONTROLLING TREATMENTS ON FUNGAL DISEASE *Colletrotrichum gloeosporioides* (Penz.) Sacc.

By

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Papaya 'California' is a climacteric fruit that has a slight skin and contains a lot of water which is easily damaged by mechanical factors and infection of postharvest pathogens. Fruit coating *sugar ester blend* and storage temperature treatments are methods to protect papaya from a fungal disease infection of *Colletotrichum gloeosporioides* (Penz.) Sacc.

This study was aimed at studying (1) the coating effect of *sugar ester blend* to control fungus *C. gloeosporioides in vitro* and *in vivo* condition, (2) the effect of low storage temperature to decrease the growth of fungi *C. gloeosporioides*, and (3) the interaction effects of fruit coating *sugar ester blend* and storage temperature treatments in decreasing the growth of fungus *C. gloeosporioides.*

This research was conducted at the Laboratory of Horticultural Postharvest, Department of Agrotechnology, Faculty of Agriculture, University of Lampung.

The experiment was conducted in July-September 2015. The research was conducted with two subs, *in vitro* and *in vivo*. Treatments were arranged in a completely randomized design, with six treatment combinations, a combination of fruit coatings *sugar ester blend* (7 and 14%) and storage temperatures (room temperature and low temperatures). The combination of each treatment was repeated 3 times so that the number of units of the experiments was 18 units.

The results showed that (1) s*ugar ester blend* treatment did not significantly decrease the growth of fungi *C. gloeosporioides in vitro* and *in vivo,* (2) low storage temperature treatment (16-18^{o}C) significantly decreased the fungal growth *in vitro* by 36,71% and reduce the percentage of the disease *in vivo* by 43,75%, and (3) the interaction of *sugar ester blend* and storage temperature did not significantly decrease the growth of fungi *C. gloeosporioides in vitro* and *in vivo*.

Keyword: *in vitro*, *in vivo*, fungal, papaya, *sugar ester blend*

ABSTRAK

PENGARUH PELAPIS BUAH *SUGAR ESTER BLEND* DAN SUHU SIMPAN SEBAGAI UPAYA PERLINDUNGAN BUAH PEPAYA 'CALIFORNIA' TERHADAP JAMUR *Colletrotrichum gloeosporioides* (Penz.) Sacc.

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Buah pepaya 'California' merupakan buah klimakterik yang memiliki kulit tipis dan mengandung banyak air sehingga mudah rusak karena pengaruh faktor mekanis dan gangguan patogen pascapanen. Perlakuan pelapis buah *sugar ester blend* dan suhu simpan merupakan salah satu cara untuk melindungi buah papaya dari infeksi jamur *Colletotrichum gloeosporioides* (Penz.) Sacc.

Penelitian ini bertujuan untuk mempelajari (1) pengaruh *sugar ester blend* dalam menghambat pertumbuhan jamur *C. gloeosporioides* pada kondisi *in vitro* dan *in vivo,* (2) pengaruh suhu dingin dalam menghambat pertumbuhan jamur *C. gloeosporioides* dan (3) pengaruh interaksi pelapis buah *sugar ester blend* dan suhu simpan dalam menghambat pertumbuhan jamur *C. gloeosporioides*.

Penelitian ini dilaksanakan di Laboratorium Pascapanen Hortikultura, Jurusan Agroteknologi, Fakultas Pertanian, Universitas Lampung. Penelitian

dilaksanakan pada Juli hingga September 2015. Penelitian dilaksanakan dengan dua sub, yaitu secara *in vitro* dan *in vivo*. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL), dengan enam kombinasi perlakuan, yaitu kombinasi dari pelapis buah *sugar ester blend* (7 dan 14%) dengan suhu simpan (suhu ruang dan suhu dingin). Kombinasi masing-masing perlakuan diulang sebanyak 3 kali sehingga jumlah satuan percobaannya adalah 18 satuan percobaan.

Hasil penelitian menunjukkan bahwa (1) pelapis buah *sugar ester blend* tidak berpengaruh dalam menghambat pertumbuhan jamur *Colletrotrichum gloeosporioides* baik *in vitro* maupun *in vivo*, (2) perlakuan suhu dingin (16-18 ^{o}C) nyata menghambat pertumbuhan jamur *C. gloeosporioides in vitro* sebesar 36,71% dan menurunkan keparahan penyakit *in* vivo sebesar 43,75%, dan (3) tidak terdapat interaksi nyata antara *sugar ester blend* dan suhu simpan dalam menghambat pertumbuhan jamur *C. gloeosporioides* baik secara *in vitro* maupun *in vivo*.

Kata kunci: *in vitro*, *in vivo*, jamur, pepaya, *sugar ester blend*