RINGKASAN

Stroberi (*Fragaria* sp.) merupakan salah satu komoditas bebuahan penting di dunia. Salah satu kendala adalah penyakit kapang kelabu (*Botrytis cinerea*). Penggunaan pestisida berlebihan menyebabkan timbulnya agensia yang tahan, sumber pencemaran pada bahan pangan, air, dan lingkungan hidup. Penggunaan metabolit sekunder agensia hayati merupakan cara pengendalian penyakit yang aman, efektif, dan ramah lingkungan. Penelitian ini bertujuan untuk menguji keefektifan metabolit sekunder gabungan *Pseudomonas fluorescens* P60 dan P32 dengan *Trichoderma harzianum* isolat jahe dan bawang merah dalam mengendalikan penyakit kapang kelabu pada buah stroberi lepas panen dan pengaruhnya terhadap mutu buah stroberi lepas panen.

Penelitian dilaksanakan di Laboratorium PerlindunganTanaman Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto, mulai Desember 2015sampai dengan Maret 2016. Rancangan yang digunakan berupa Rancangan Acak Lengkap pada uji *in vitro* dan Rancangan Acak Kelompok pada uji *in vivo* masing-masing 5 perlakuan dan lima ulangan. Perlakuan terdiri atas kontrol, metabolit sekunder *T. harzianum* isolat jahe dan *P. fluorescens* P32, metabolit sekunder *T. harzianum* isolat jahe dan *P. fluorescens* P60, metabolit sekunder *T. harzianum* isolat bawang merah dan *P. fluorescens* P32, serta metabolit sekunder *T. harzianum* isolat bawang merah dan *P. fluorescens* P60. Variabel pada uji *in vitro* yaitu tingkat penghambatan antagonis, sedangkan pada uji *in vivo* yaitu masa inkubasi, intensitas penyakit, dan luas serangan kekerasan buah dan kadar gula. Variabel pada uji organoleptik meliputi warna, aroma, tekstur dan rasa.

Hasil penelitian menunjukkan bahwa perlakuan menggunakan metabolit sekunder gabungan *T. harzianum* isolat jahe + *P. fluorescens* P32 + *T. harzianum* isolat bawang merah dan *P. fluorescens* P32 mampu menekan pertumbuhan jamur patogen sebesar 48,40% dan 47.52% *in vitro*. Hasil uji *in vivo* aplikasi metabolit sekunder gabungan *T. harzianum* isolat bawang merah dan *P. fluorescens* P32 memiliki kemampuan terbaik dalam menunda masa inkubasi mencapai 13,04%, mampu menekan luas serangan patogen sebesar 51,90% dan mampu menurunkan intensitas penyakit sebesar 47,42% dibandingkan dengan kontrol, serta mempertahankan kekerasan buah mencapai 23,07%. Perlakuan metabolit sekunder berpengaruh terhadap warna dan aroma buah stroberi dibandingkan dengan kontrol.

.::: DIGITAL COLLECTION OF UPT PERPUSTAKAAN UNSOED :::.

SUMMARY

*Strawberry (*Fragaria sp.*) is one of preferred horticultural commodities in the world. One of the problems is grey mold caused by* Botrytis cinerea. *Excessive use of pesticides caused resistant patoghen and the source of contamination in food, water, and environment. The use of secondary metabolites from biological agent is safely, effectively and environmental friendly disease control. The effectiveness of* P.fluorescens *P60 and P32 secondary metabolite combination and* T. harzianum *ginger and shallots isolates combination in controlling the disease, and its effect on postharvest strawberry quality.*

The research was conducted at the Laboratory of Plant Protection, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto, from December 2015 until March 2016. Completely Randomized Design and Randomized Block Design were used in in vitro *and* in vivo *tests. Respectively with five replicates and five treatment each. The treatments were control, secondary metabolite combination of* T. harzianum *ginger and* P. fluorescens *P32 isolates*, T. harzianum *ginger and* P. fluorescens *P60 isolates,* T. harzianum *shallot and* P. fluorescens *P32 isolates, and* T. harzianum *shallot and* P. fluorescens *P60 isolates. Variable observed were inhibition zone, incubation period, attack area, disease intensity, hardness level, sugar content and organoleptic test (colour, aroma, texture and flavor).*

Result of the research indicated that the secondary metabolite combination of T. harzianum *ginger* + P. fluorescens *P32 isolates and* T. harzianum *shallot* P. fluorescens *P32 were able to inhibit the pathogenic growth* in vitro *by 48.40 and 47.52%, while in* in vivo test, the *secondary metabolite combination of* T. harzianum *shallot* + P. fluorescens *P32 isolates could delay incubation period as 13,04%, suppress the attack area as 51,90%, disease intensity as 47,42%, and decrease hardness level as 23.07% compared to control. All secondary metabolite combination were able to maintain colour and aroma, but not texture and flavor.*

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