

RINGKASAN

Pisang merupakan salah satu komoditas hortikultura yang memiliki nilai ekonomi. Salah satu penyakit yang dapat menurunkan kualitas buah adalah penyakit antraknosa. *Trichoderma* sp. dapat dimanfaatkan sebagai mikroba antagonis yang baik untuk dijadikan biopestisida karena adanya metabolit sekunder. Penelitian ini bertujuan untuk mencari metabolit sekunder *Trichoderma* sp. efektif dalam mengendalikan penyakit antraknosa serta pengaruhnya terhadap mutu buah dan uji organoleptik pada buah pisang

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman, mulai November 2015 sampai dengan Maret 2016. Pengujian *in vitro* menggunakan Rancangan Acak Lengkap dengan 4 perlakuan dan 6 ulangan, sedangkan pengujian *in vivo* menggunakan Rancangan Acak Kelompok dengan 4 perlakuan dan 6 ulangan. Perlakuan terdiri atas kontrol, metabolit sekunder *Trichoderma* sp. isolat bawang merah, metabolit sekunder *Trichoderma* sp. isolat jahe, serta gabungan metabolit sekunder *Trichoderma* sp. isolat bawang merah dan jahe. Variabel yang diamati yaitu daya hambat antagonis, masa inkubasi, luas serangan, dan intensitas penyakit. Variabel pada mutu buah meliputi kadar gula dan tingkat kekerasan buah. Variabel pada uji organoleptik meliputi tekstur, warna, dan rasa.

Hasil penelitian menunjukkan metabolit sekunder *Trichoderma* sp. isolat bawang merah, jahe dan gabungannya mampu menekan pertumbuhan jamur patogen sebesar 13,70; 12,96 dan 11,48% secara *in vitro*, sedangkan pada uji *in vivo* metabolit sekunder *Trichoderma* sp. isolat bawang merah, jahe dan gabungannya mampu menunda masa inkubasi sebesar 15,55; 14,02 dan 10,49%. Metabolit sekunder *Trichoderma* sp. isolat bawang merah mampu menekan luas serangan sebesar 15,43%, serta mampu menekan intensitas penyakit sebesar 18,75%. Semua perlakuan tidak berpengaruh terhadap mutu buah pisang lepas panen dan uji organoleptik.

SUMMARY

Banana is one of the horticultural commodities which has economic value. One of banana diseases that can decrease the quality of the fruit is anthracnose. Trichoderma sp. can be applied as good antagonistic microbe that is used as a biopesticide for their secondary metabolites. This research aimed to know the inhibition of Trichoderma sp. secondary metabolites toward Colletotrichum musae in vitro, the ability of the secondary metabolite in controlling the anthracnose and the effect on fruit quality and organoleptic tests of banana.

This research was conducted in the Laboratory of Plant Protection, from November 2015 to March 2016. Completely Randomized Design with six replicates and four treatments was used in in vitro, while in in vivo one Randomized Block Design with six replicates and four treatments was used. The treatments consisted of control, secondary metabolites of Trichoderma sp. shallot, ginger and the combination of shallot and ginger isolates. Variables observed were inhibition zone, incubation period, attack area, and disease intensity, sugar content, fruit hardness and the organoleptic tests.

Results of the research showed that the secondary metabolites of Trichoderma sp. shallot, ginger and the combination isolates were able to suppress growth of the pathogenic fungi in vitro as 13.70; 12.96 and 11.48% respectively, while in in vivo test, the secondary metabolites of Trichoderma sp. shallot, ginger and the combination isolates were able to delay the incubation period as 15.55; 14.02 and 10.49% respectively. The secondary metabolites of Trichoderma sp. shallot isolate was able to suppress the attack area as 15.43%, and the disease intensity of 18.75%. All treatments did not affect the quality of postharvest bananas and organoleptic factor.