RINGKASAN

Lada merupakan rempah-rempah yang dibutuhkan oleh masyarakat sebagai penyedap dan bahan pembuat obat.Konsumsi lada setiap tahun mengalami peningkatan. Peningkatan tersebut perlu diimbangi dengan peningkatan produktivitas lada terutama perbaikan variasi pertumbuhan tanaman dan menekan tingginya persentase tanaman mati. Zat pengatur tumbuh sintetis sebagai faktor pendukung peningkatan produksi lada masih relatif mahal. Metabolit sekunder *Trichoderma* sp. dapat digunakan sebagai zat pengatur tumbuh alami dengan adanya kandungan hormon pertumbuhan. Penelitian ini bertujuan untuk mengkaji pengaruh metabolit sekunder dua isolat *Trichoderma* sp., yaitu isolat jahe dan bawang merah maupun gabungannya terhadap pertumbuhan vegetatif, serta pengaruhnya terhadap kandungan senyawa fenol pada bibit lada perdu.

Penelitian telah dilaksanakan di Laboratorium Perlindungan Tanaman dan di lahan Desa Banteran Kecamatan Sumbang, Kabupaten Banyumas, mulai Oktober 2015 sampai Januari 2016. Penelitian menggunakan Rancangan Acak Kelompok dengan 6 ulangan. Perlakuan terdiri atas kontrol, metabolit sekunder *Trichoderma* sp. isolat jahe, isolat bawang merah, gabungan isolat jahe dan bawang merah, serta fungisida berbahan aktif benomil 50,4%. Variabel yang diamati adalah tinggi tanaman, diameter batang, jumlah daun, panjang daun, luas daun, jumlah cabang, bobot tanaman segar dan kering, bobot akar segar dan kering, panjang akar dan analisis senyawa fenol secara kualitatif.

Hasil penelitian menunjukkan bahwa penerapan metabolit sekunder *Trichoderma* sp. isolat jahe, isolat bawang merah dan gabungan keduanya berpengaruh terhadap hampir semua variabel pengamatan kecuali panjang dan luas daun, jumlah cabang serta bobot tanaman kering dibanding kontrol dan fungisida. Penerapan metabolit sekunder *Trichoderma* sp. isolat jahe, isolat bawang merah dan gabungan keduanyamemberikan nilai penambahan tinggi tanaman 36,18-48,21%, diameter batang 8,33-13,72%, jumlah daun 43,67-47,02%, bobot tanaman segar 20,02- 21,57%, bobot akar segar 31,99-33,95%, bobot akar kering 30,76-33,33%, panjang akar 17,07-18,26% dibanding kontrol dan mampu meningkatkan senyawa fenol.Penerapan gabungan metabolit sekunder *Trichoderma* sp. isolat jahe dan isolat bawang merah memberikan potensi terbaik dalam meningkatkan penambahan tinggi tanaman (48,21%), lebar diameter batang (13,72%), bobot tanaman segar (21,57%) dan bobot akar segar (33,95%).

SUMMARY

Pepper is a spice that is needed by the community as a flavoring and medicinal materials. Pepper consumption has increased every year. Such improvements need to be offset by increasing productivity mainly pepper plant growth improvement and suppressing variations of the high percentage by dead plants. Synthetic plant growth regulators as a contributing factor increasing pepper production is still relatively expensive. Secondary metabolites of Trichoderma sp . *can be used as plant growth regulators naturally with growth hormone content.This study aimed to assess the effect of secondary metabolites from two* Trichoderma sp. *isolates, ginger and shallot isolates or their combination, on the vegetative growth of non climbing pepper seedling, as well asits influence on the content of phenolic compounds in the seedlings.*

This research was carried out at the Laboratory of Plant Protection and at Banteran Village, Sumbang Sub-District, Banyumas Regency, from October 2015 to January 2016. Randomized block design was used with five treatments and six replicates. The treatments were control, secondary metabolit of Trichoderma sp. *ginger and shallots isolates, their combination and fungicide with active ingredient of benomyl 50,4%. Variables observed were plant height, stem diameter, number of leaves, leaf length, leaf area, number of branches, fresh and dry weight of plant and roots, rootlenght, and analysis of phenolic compounds qualitatively.*

*The researchresult indicated the treatment of secondary metabolites of*Trichoderma sp. *ginger andshallots isolates and their combination were effective on almost all variables except the length and leaf area, number of branches and dry weight of plant compare to control and fungicides. Application of secondary metabolites from*Trichoderma sp. *ginger and shallots isolates, and their combination provided value addition of plant heightas 36.18-48.21%, stem diameter as8.33-13.72%, number of leaves as 43.67-47.02%, fresh weight of plant as 20,02-21.57%, fresh weight of root as 31.99-33.95%, dried weight of rootas 30.76-33.33%, and root length as 17.07-18.26% compared to control and able to increase phenolic compounds. The combined application of secondary metabolites from* Trichoderma sp. *ginger and shallot isolates was the best potential to increase plant height (48.21%), stem diameter (13.72%), fresh weight of plants (21.57%), and fresh weight of root (33.95%).*