

RINGKASAN

Kakao merupakan salah satu tanaman perkebunan yang memiliki nilai ekonomi yang tinggi. Penyakit penting tanaman kakao adalah pembuluh kayu yang disebabkan oleh jamur *Oncobasidium theobromae*. Patogen ini dapat menyebabkan kematian tanaman belum menghasilkan sampai 70%. Penyakit ini sukar dikendalikan karena berada dalam jaringan pembuluh. Pengendalian penyakit yang sering dilakukan petani kakao masih bertumpu pada aplikasi pestisida sintesis yang berdampak negatif, karena itu perlu dilakukan alternatif pengendalian menggunakan metabolit sekunder agensia hayati. Penelitian ini bertujuan untuk mengkaji keefektifan aplikasi metabolit sekunder *Trichoderma* sp., isolat jahe dan bawang merah, maupun gabungannya, terhadap penyakit pembuluh kayu dan pengaruhnya terhadap pertumbuhan serta kandungan senyawa fenol pada bibit kakao.

Penelitian telah dilaksanakan di Laboratorium Perlindungan Tanaman, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto dan Desa Banteran, Kecamatan Sumbang, Kabupaten Banyumas, mulai September sampai dengan November 2015. Penelitian ini menggunakan Rancangan Acak Kelompok dengan 6 ulangan dan 5 perlakuan yang terdiri atas kontrol, metabolit sekunder *Trichoderma* sp. isolat jahe, metabolit sekunder *Trichoderma* sp. isolat bawang merah, metabolit sekunder *Trichoderma* sp. isolat gabungan bawang merah dan jahe, dan fungisida asam fosfat. Variabel yang diamati adalah masa inkubasi, intensitas penyakit, tinggi tanaman, jumlah daun, bobot tanaman segar dan kering, bobot akar segar dan kering, panjang akar, dan analisis senyawa fenol.

Hasil penelitian menunjukkan bahwa perlakuan dengan menggunakan metabolit sekunder *Trichoderma* sp. isolat jahe mampu menekan intensitas penyakit 62,17%, dan mampu menunda masa inkubasi 24,97% dan perlakuan dengan menggunakan metabolit sekunder *Trichoderma* sp. isolat gabungan bawang merah dan jahe mampu meningkatkan pertumbuhan tinggi tanaman, jumlah daun, bobot tanaman segar, dan kering, bobot akar segar dan kering serta panjang akar masing-masing sebesar 36,21; 19,07; 20,6; 17,5; 27; 34,36; dan 21,30%. Perlakuan metabolit sekunder *Trichoderma* sp. mampu meningkatkan kandungan senyawa fenol (saponin, tanin, dan glikosida) pada bibit kakao.

SUMMARY

*Cacao is one of plantation crops which has high economic value. The important disease of cacao is vascular streak dieback caused by *Oncobasidium theobromae*. The pathogen could result in the death of immature plant as 70%. The disease is difficult to control due to inside infection the vascular tissue. Control of the disease is often based on synthetic pesticides application that has negative impact so that an alternative control is needed by using secondary metabolites of biological control agent. This research aimed to study the secondary metabolite application of *Trichoderma* sp. from ginger and shallots isolates, or their combination on the disease and its effect on growth and on phenolic compound content of cocoa seedlings.*

*This research was carried out at the Laboratory of Plant Protection, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto and at Banteran Village, Sumbang Sub-District, Banyumas Regency, from September to November 2015. Randomized block design was used with nine replicates and five treatments consisted of control, secondary metabolite of *Trichoderma* sp. ginger and shallots isolates, their combination, and fungicide with active ingredient of phosphoric acid. Variables observed were incubation period, disease intensity, plant height, number of leaves, weight of fresh and dry plants, weight of fresh and dry roots, roots length, and phenolic compound content qualitatively.*

*Result of the research showed that the secondary metabolite of *Trichoderma* sp. ginger isolate could suppress the disease intensity and delay the incubation period as 62.17 and 24.97%, respectively. The secondary metabolite treatment of *Trichoderma* sp. shallots and ginger combination could increase plant height, number of leaves, fresh weight of plant, dry weight of plant, fresh weight roots, dry weight of root, and roots length as 36.21, 19.07, 20.6, 17.5, 27, 34.36, and 21.30%, respectively. All secondary metabolites of *Trichoderma* sp. were able to increase phenolic compound content (saponins, tannins, and glycosides) qualitatively of cocoa seedlings.*