

RINGKASAN

Padi merupakan bahan pangan pokok bagi sebagian besar penduduk Indonesia. Salah satu penyakit utama tanaman padi adalah penyakit blas yang disebabkan oleh patogen *Pyricularia oryzae*. Pemanfaatan metabolit sekunder dari *Trichoderma* sp. merupakan salah satu cara pengendalian yang ramah lingkungan. Penelitian ini bertujuan untuk menguji kemampuan metabolit sekunder dua isolat *Trichoderma* sp. yaitu isolat jahe dan bawang merah tunggal maupun gabungannya untuk mengendalikan penyakit blas serta pengaruhnya terhadap pertumbuhan, hasil, dan senyawa fenol pada tanaman padi varietas IR-64.

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto, dan lahan sawah Desa Tambaksogra, Kecamatan Sumbang, Kabupaten Banyumas, mulai September 2015 sampai Januari 2016. Penelitian menggunakan Rancangan Acak Kelompok dengan 5 ulangan dan 5 perlakuan, terdiri kontrol, metabolit sekunder *Trichoderma* sp. isolat jahe, metabolit sekunder *Trichoderma* sp. isolat bawang merah, gabungan metabolit sekunder *Trichoderma* sp. isolat jahe dan bawang merah, serta propikonazol dan trisiklazol. Variabel pengamatan meliputi masa inkubasi, intensitas penyakit, laju infeksi, tinggi tanaman, jumlah daun, jumlah anakan, bobot tanaman segar dan kering, warna daun, waktu berbunga pertama, jumlah butir per malai, bobot 1.000 butir, gabah basah dan kering, dan senyawa fenol.

Hasil penelitian menunjukkan metabolit sekunder *Trichoderma* sp. isolat jahe, bawang merah, dan gabungannya mampu menunda masa inkubasi sebesar 10,78; 9,30, dan 6,83%, menekan intensitas penyakit sebesar 49,14; 43,97; dan 35,34%, meningkatkan jumlah daun sebesar 3,54; 4,87; dan 5,6%. Metabolit sekunder *Trichoderma* sp. isolat jahe dan gabungan meningkatkan tinggi tanaman sebesar 7,43 dan 6,73%, serta isolat bawang merah dan gabungan meningkatkan bobot 1.000 butir sebesar 16,5 dan 11,44%. Metabolit sekunder *Trichoderma* sp. isolat jahe menekan laju infeksi, meningkatkan jumlah butir per malai sebesar 21,37 dan 6,05%, serta isolat bawang merah mempercepat waktu berbunga, meningkatkan bobot gabah basah dan kering sebesar 1,93; 10,23; dan 10,71%. Semua perlakuan metabolit sekunder mampu meningkatkan kandungan senyawa fenol tanaman padi. Namun demikian, metabolit sekunder *Trichoderma* sp. isolat jahe dan bawang merah secara tunggal lebih baik dibandingkan dengan gabungan.

SUMMARY

Rice is a staple food of almost all Indonesian. One mayor disease of rice plants is blast disease caused by Pyricularia oryzae. Secondary metabolites of Trichoderma sp, is one way to control friendly environmental. This research aimed to test the ability of secondary metabolites from two Trichoderma sp. isolates, i.e., ginger and shallot isolates, either alone or in combination toward blast disease, and their effect on growth, yield, and on phenolic compound of rice IR-64 variety.

The research was carried out at the Laboratory of Plant Protection, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto and rice field at Tambaksogra Village, Sumbang Subdistrict, Banyumas Regency, from September 2015 up to January 2016. Randomized block design was used with five replicates and five treatments, i.e., control, secondary metabolites from Trichoderma sp. ginger, shallot, the combination of between ginger and shallot, and prophyconazole and trichyclazole. Variables observed were incubation period, disease intensity, infection rate, crop height, number of leaves, number of tillers, fresh and dry weight of crops, leaves color, first flowering time, number of grains per panicle, weight of 1000 grains, fresh and dry weight of grains per treatments, and phenolic compound.

Result of the research indicated that the secondary metabolites of Trichoderma sp. ginger, shallot, and the combination could delay the incubation period as 10.78, 9.30, and 6.83%, respectively, suppress the disease intensity as 49.14, 43.97, and 35.34%, respectively, and increase the number of leaves as 3.54, 4.87, and 5.6%, respectively. The secondary metabolites from Trichoderma sp. ginger and the combination increased crop height as 7.43 and 6.73%, respectively, then shallot and combination could increase weight of 1000 grains as 16.49 dan 11.44%, respectively. The secondary metabolites from Trichoderma sp. ginger could suppress infection rate and increase number of grain per panicle as 21.37 and 3.23%, respectively, and shallot isolate fasten the flowering time and increase fresh and dry weight of grains as 1.93, 10.23, and 10.71%, respectively. All secondary metabolite treatments could increase phenolic compound contain in rice. However, the secondary metabolites of Trichoderma sp. ginger and shallot isolate alone was better than the combination.