

ABSTRAK

Patogen penyebab penyakit rebah semai pada tanaman mentimun adalah *Pythium* sp. Salah satu alternatif untuk mengendalikan *Pythium* sp. adalah melalui pemanfaatan metabolit sekunder jamur entomopatogen. Tujuan penelitian ini adalah mengetahui pengaruh metabolit sekunder terbaik jamur entomopatogen dalam menekan pertumbuhan *Pythium* sp. *in vitro* dan terhadap penyakit rebah semai pada tanaman mentimun *in planta*. Penelitian ini dilaksanakan di Laboratorium Perlindungan Tanaman dan *screen house*, Fakultas Pertanian, Universitas Jenderal Soedirman pada bulan September 2018 sampai dengan Maret 2019. Penelitian ini terbagi menjadi dua tahap, yaitu tahap *in vitro* dan *in planta*. Tahap *in vitro* menggunakan Rancangan Acak Lengkap dengan 5 perlakuan dan 5 ulangan. Perlakuan yang dicoba yaitu kontrol, metabolit sekunder *Metarhizium anisopliae*, *Beauveria bassiana* isolat Jember dan Papua, dan *Lecanicillium lecanii*. Tahap *in planta* menggunakan Rancangan Acak Kelompok Lengkap dengan 5 perlakuan dan 5 ulangan. Perlakuan yang digunakan yaitu hasil terbaik dari uji *in vitro*, selanjutnya terbagi menjadi perlakuan kontrol air steril dan fungisida (mankozeb 80%), konsentrasi 5, 10, dan 15 mL. Variabel yang diamati adalah daya hambat, masa inkubasi, kejadian penyakit, AUDPC, selisih tinggi tanaman, bobot segar akar, panjang akar, daya kecambah dan vigor. Hasil dari penelitian menunjukkan bahwa metabolit sekunder *Beauveria bassiana* isolat Papua paling besar dalam menghambat *Pythium* sp. sebesar 23,17. Perlakuan 10 mL dapat menekan penyakit rebah semai sebesar 2,70% dan mampu meningkatkan panjang akar 19,5 % dibandingkan dengan perlakuan lainnya, Meskipun demikian, perlakuan 10 mL belum mampu meningkatkan variabel pertumbuhan bobot segar akar dan selisih tinggi tanaman. Pemberian metabolit sekunder tidak berpengaruh pada daya kecambah dan daya vigor.

Kata kunci: metabolit sekunder, entomopatogen, rebah semai, mentimun.

ABSTRACT

A pathogen causing damping-off in cucumber is *Pythium* sp. One of alternative controls to the pathogen is the use of secondary metabolites derived from entomopathogenic fungi. This research aimed to determine the effect of the best entomopathogenic fungi secondary metabolites on suppressing the pathogen growth in vitro and on the disease of cucumber in planta. This research was carried out at the Laboratory of Plant Protection and Faculty of Agriculture, Jenderal Soedirman University from September 2018 to March 2019. This research consisted of two tests, i.e., in vitro and in planta test. Completely randomized design was used in in vitro test with five replicates and five treatments consisted of control, and secondary metabolites of *Metarhizium anisopliae*, *Beauveria bassiana* Jember and Papua isolates, and *Lecanicillium lecanii*. Randomized block design was used in in planta test with five replicates and five treatments consisted of control, fungicides (mankozeb 80%), and the best result from in vitro test with concentration of 5, 10, 15, mL. Variables observed were inhibition ability, incubation period, disease incidence, AUDPC, crop height difference, root fresh weight, root length, germination ability, and vigor. Results of the research showed that the best secondary metabolites was from *Beauveria bassiana* Papua isolate indicated by inhibition ability of the pathogen as 23,17 %. Application of 10 mL of secondary metabolites could suppress the disease as 2.70 % and increase root length as to 19,5 % compare with other treatments. However, the treatment was could not able to increase root fresh weight and crop height difference. Application of the secondary metabolites did not influence germination ability and vigor.

Keywords: secondary metabolites, entomopathogenic, damping-off, cucumber.