

RINGKASAN

Kopi merupakan komoditas perkebunan yang peranannya dalam perekonomian nasional sangat penting. Kontribusi kopi terhadap ekonomi nasional yaitu: sebagai sumber devisa negara, pendapatan petani, penciptaan lapangan kerja, pembangunan wilayah, pendorong agribisnis dan agroindustri, serta pendukung konservasi lingkungan. Budidaya kopi sangat rentan terhadap serangan hama dan penyakit. Salah satu hama kopi yang merusak biji kopi adalah Penggerek buah Kopi (PBKo) (*Hypothenemus hampei*). Serangan PBKo dapat menurunkan mutu kopi dan penurunan produksi 20–30%. Penelitian ini bertujuan untuk: 1). Menentukan Nilai LC_{50} dan konsentrasi subletal metabolit sekunder asal jamur *B.bassiana* terhadap mortalitas *H.hampei*, 2). Mengetahui pengaruh konsentrasi subletal metabolit sekunder asal jamur *B.bassiana* terhadap pertumbuhan dan perkembangan serangga *H.hampei*.

Penelitian dilaksanakan selama 5 bulan dimulai dari bulan Desember 2019 sampai dengan April 2020 di Laboratorium Perlindungan Tanaman, Fakultas Pertanian, Universitas Jenderal Soedirman. Penelitian menggunakan rancangan acak kelompok dengan 4 perlakuan pada uji letal dan 2 perlakuan pada uji subletal dengan control, konsentrasi, 5, 10, 15cc/liter air atau setara dengan 0,5; 1,0; 1,5% pada uji letal serta kontrol dan 1,0% pada uji subletal. Variabel yang diamati antara lain mortalitas serangga (uji letal), pertumbuhan dan perkembangan serangga (uji subletal). Variabel mortalitas diuji menggunakan Sidik ragam dengan taraf kesalahan 5 persen, apabila nyata dilanjutkan dengan uji BNT. Sedangkan uji lain menggunakan deskripsi.

Hasil penelitian menunjukkan bahwa: 1) Nilai LC_{50} , yakni konsentrasi yang menyebabkan populasi mortalitas 50% *H.hampei* adalah 1,5%. 2) Perlakuan metabolit sekunder *B.bassiana* dapat menunda kemunculan telur sampai dengan 23 hari dari kontrol, mengurangi sekitar 50% ukuran imago serta total waktu tempuh dari peletakan telur hingga kemunculan imago, akan tetapi tidak berpengaruh terhadap stadia hidup lain seperti lama stadia telur, lama stadia larva, dan kemunculan imago *H.hampei*.

ABSTRACT

Coffee is a plantation commodity whose role in the national economy is very important. The contribution of coffee to the national economy, namely: as a source of foreign exchange, farmers' income, job creation, regional development, a driving force for agribusiness and agro-industry, as well as supporting environmental conservation. Coffee cultivation is very vulnerable to pests and diseases. One of the coffee pests that damage coffee beans is the Coffee Fruit Borer (PBKo) (*Hypothenemus hampei*). PBKo attacks can reduce coffee quality and decrease production by 20-30%. The purpose of this research is to: 1) Determine the value LC_{50} , of and the sublethal concentration of secondary metabolites originating from the fungus *B.bassiana* on *H. hampei* mortality, 2) Knowing the effect of sublethal concentration of secondary metabolites from *B.bassiana* fungi on the growth and development of *H.hampei* insects.

This research was conducted for 5 months starting from December 2019 to April 2020 at the Plant Protection Laboratory, Faculty of Agriculture, Jenderal Soedirman University. The research method used was the Lethal Test with a completely randomized design with 2 treatments. The research was conducted with secondary metabolites with density 10^7 using concentrations of 5, 10, 15 and 20 cc / liter of water or equivalent to 0.5; 1.0; 1.5 and 2.0% and sublethal completely randomized design with 2 treatments. The research was conducted with a concentration of 1.5% and control. The variables observed in the lethal test were insect mortality, and in the sublethal test were the growth and development of insects. The data obtained were analyzed using the T test.

The results showed that: 1) The value of LC_{50} , namely the concentration that causes population mortality of 50% *H. hampei* is 1.5%. 2) The treatment of *B.bassiana* secondary metabolites significantly affected the laying of eggs, the length of time for egg appearance, the size of the imago and the total travel time from egg laying to the emergence of imago, but did not affect other life stages such