

## RINGKASAN

Jamur entomopatogen merupakan salah satu agensia pengendali hayati potensial untuk mengendalikan hama tanaman yang termasuk dalam komponen Pengendalian Hama Terpadu. Jamur entomopatogen menghasilkan berbagai hormon, antibiotik, dan toksin. Penelitian ini bertujuan untuk mengetahui pengaruh jamur entomopatogen *Fusarium* sp. dengan berbagai kepadatan  $10^6$ ,  $10^7$ ,  $10^8$  konidium/ml terhadap mortalitas, pertumbuhan dan perkembangan, dan kepadatan konidium efektif yang dapat membunuh *S. frugiperda*.

Penelitian ini dilaksanakan di Laboratorium Perlindungan Tanaman Fakultas Pertanian Universitas Jenderal Soedirman, mulai bulan Agustus sampai November 2020. Penelitian ini menggunakan Rancangan Acak Kelompok Non Faktorial dengan 5 perlakuan dan 5 kali ulangan. Perlakuan yang digunakan adalah kontrol (P0), jamur entomopatogen *Fusarium* sp. dengan kepadatan  $10^6$  (P1),  $10^7$  (P2)  $10^8$  (P3) konidium/ml, dan insektisida berbahan aktif Emamektin benzoat 0,5ml/L (P4). Variabel yang diamati adalah mortalitas, lama pertumbuhan larva dan pupa, jumlah pupa terbentuk, imago, dan kepadatan konidium efektif.

Hasil penelitian menunjukkan bahwa: 1) jamur entomopatogen *Fusarium* sp. dengan kepadatan  $10^8$  konidium/ml dapat menyebabkan mortalitas larva *S. frugiperda* sebesar 48 persen dalam waktu 3,2 hari; 2) jamur entomopatogen *Fusarium* sp. dengan kepadatan  $10^8$  konidium/ml memperpanjang stadium umur hidup larva dan pupa sebesar 14,85 persen dan 8,22 persen, menghambat pembentukan pupa dan imago sebesar 81,39 persen dan 88,23 persen; 3) jamur entomopatogen *Fusarium* sp. belum efektif untuk mengendalikan hama *S. frugiperda* karena nilai efikasi kurang dari 80 persen.

## SUMMARY

Entomopathogenic fungi is one of the potential biological control agents to control plant pests that are included in the Integrated Pest Management component. Entomopathogenic fungi produces a variety of hormones, antibiotics, enzymes, and toxins. This study aims to determine the effect of the entomopathogenic fungus *Fusarium* sp. with various concentrations of density  $10^6$ ,  $10^7$ ,  $10^8$  conidium/ml against mortality, growth and development, and concentrations of conidia density that could effectively killed *S. frugiperda*.

This research was conducted at the Laboratory of Plant Protection, Faculty of Agriculture, Jenderal Soedirman University, from August 2020 until November 2020. Research method of this study used a non-factorial randomized block with 5 treatments and 5 replications. The treatments which used on this study are control (P0), the entomopathogenic fungus *Fusarium* sp. with a conidia density of  $10^6$  (P1),  $10^7$  (P2),  $10^8$  (P3), and an insecticide with an active ingredient Emamectin benzoate 0.5 ml/L (P4). The observed variables were mortality, larval and pupa growth time, number of pupae formed, number of imago formed, and effective conidia density.

The results showed that: 1) the entomopathogenic fungi *Fusarium* sp. with a conidia density of  $10^8$  caused mortality of *S. frugiperda* larvae by 48 percent with in 3.2 days, 2) the entomopathogenic fungi *Fusarium* sp. with conidia density of  $10^8$  could extend the life cycle of larvae and pupae by 14.85 percent and 8.22 percent, could inhibit the formation of pupa and imago by 81.39 percent and 88.23 percent; 3) the entomopathogenic fungi *Fusarium* sp. has not yet been shown to be effective in controlled *S. frugiperda* because the efficacy value is less than 80 percent