APPLICATION OF ENTOMOPATHOGEN FUNGUS *Lecanicillium lecanii* AND *Beauveria bassiana* WITH PLANT OILS TO CONTROL *Plutella xylostella*

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ABSTRACT

Plutella xylostella is one of the main pests of cabbage plants which can reduce productivity and yield quality by up to 58 – 100%. The use of entomopathogenic fungi in field control is still limited by less supportive environmental conditions that inhibit conidial production and reduce its pathogenic levels. This study aimed to identify the effect of the application of entomopathogenic fungi *L. lecanii* and *B. bassiana* with the addition of castor and neem seed oil in controlling *P. xylostella*, determine the best combination of entomopathogenic fungi *L. lecanii* and *B. bassiana* with plant oil in controlling *P. xylostella*. The research was carried out at the Plant Protection Laboratory, Faculty of Agriculture, Universitas Pembangunan Nasional "Veteran" Yogyakarta from May to August 2023. The method used is a one-factor Completely Randomized Design (CRD), in 9 treatments and 3 replications. Parameters observed included conidia viability (%), mortality of *P. xylostella* larvae, percentage of pupae and imago formed (%), time required to pupate (days), time required to become an imago (days), and inhibition of feeding activity (%). The data obtained were analysed using ANOVA and to determine differences between treatments an Orthogonal Contrast test was performed with a significance level of 5%. Based on research, adding plant oil to the application of entomopathogenic fungi *L. lecanii* and *B. bassiana* has no effect on mortality and pupa formed of *P. xylostella*, but does affect to suppress the development of imago formed and influence the eating ability. The combination of *L. lecanii* and *B. bassiana* with each plant oil gave equally good results in increasing the mortality of *P. xylostella* larvae, inhibiting the development of pupae and imago, and reducing the ability to eat. The combination of *L. lecanii* with neem oil tends to suppress the development of *P. xylostella* imago, while the combination of *B. bassiana* with neem seed oil is able to influence the eating ability of *P. xylostella*.

Keywords: *Plutella xylostella, Lecanicillium lecanii, Beauveria bassiana, Neem Seed Oil, Castor Seed Oil*

APLIKASI JAMUR ENTOMOPATOGEN *Lecanicillium lecanii* DAN *Beauveria bassiana* DENGAN PENAMBAHAN MINYAK NABATI UNTUK MENGENDALIKAN HAMA *Plutella xylostella*

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ABSTRAK

Plutella xylostella merupakan salah satu hama utama tanaman kubis yang dapat menurunkan produktivitas dan kualitas hasil mencapai 58 – 100%. Penggunaan jamur entomopatogen di lapangan masih terbatas oleh kondisi lingkungan yang kurang mendukung sehingga menurunkan tingkat patogenesitasnya. Penelitian ini bertujuan untuk mengidentifikasi pengaruh aplikasi jamur entomopatogen *L. lecanii* dan *B. bassiana* dengan penambahan minyak nabati biji jarak dan biji mimba dalam mengendalikan hama *P. xylostella*, dan menentukan kombinasi terbaik *L. lecanii* dan *B. bassiana* dengan minyak nabati mengendalikan hama *P. xylostella*. Penelitian dilakukan di Laboratorium Proteksi Tanaman, Fakultas Pertanian, UPN "Veteran" Yogyakarta pada bulan Mei sampai Agustus 2023. Metode yang digunakan yaitu Rancangan Acak Lengkap (RAL) satu faktor dengan 9 perlakuan dan 3 kali ulangan. Parameter yang diamati meliputi viabilitas konidia (%), mortalitas larva *P. xylostella*, persentase pupa dan imago terbentuk (%), waktu yang dibutuhkan untuk menjadi pupa (hari), waktu yang dibutuhkan untuk menjadi imago (hari), dan penghambat aktivitas makan (%). Data yang diperoleh dianalisis keragamannya dengan ANOVA dan untuk mengetahui beda antar perlakuan dilakukan uji Kontras Orthogonal dengan taraf nyata 5%. Berdasarkan penelitian, penambahan minyak nabati pada aplikasi jamur entomopatogen tidak berpengaruh dalam terhadap mortalitas dan pembentukan pupa *P. xylostella*, tetapi mempengaruhi pembetukan imago dan daya makan larva *P. xylostella*. Kombinasi jamur *L. lecanii* dengan minyak biji mimba cenderung menekan perkembangan imago, dan kombinasi *B. bassiana* dengan minyak biji mimba mempengaruhi daya makan larva *P. xylostella*.

Kata kunci: *Plutella xylostella, Lecanicillium lecanii, Beauveria bassiana, Minyak Biji Mimba, Minyak Biji Jarak*