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POTENSI Beauveria bassiana YANG DIINKORPORASIKAN DALAM UMPAN PROTEIN SEBAGAI BIOINSEKTISIDA UNTUK PENGENDALIAN Bactrocera carambolae (Diptera: Tephritidae)
Eva Monica Wibisono, Dr. Suputa, S.P., M.P. ; Ahmad Suparmin, S.P., M.AgrSc, Ph.D.
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INTISARI

Lalat buah *Bactrocera carambolae* merupakan salah satu hama penting pada tanaman hortikultura yang dapat menyebabkan penurunan kualitas dan kuantitas hasil panen. Pengendalian yang masih bergantung pada pestisida kimia mendorong perlunya alternatif pengendalian yang lebih ramah lingkungan. Penelitian ini bertujuan untuk mengevaluasi efektivitas campuran *B. bassiana* dan umpan protein terhadap mortalitas *B. carambolae*, serta menganalisis perbedaan kerentanan lalat buah jantan dan betina terhadap perlakuan tersebut. Penelitian dilaksanakan di Laboratorium Invertebrata dan Laboratorium Pengendalian Hayati, Fakultas Pertanian, Universitas Gadjah Mada pada November 2025 hingga Maret 2026 menggunakan Rancangan Acak Lengkap dengan empat perlakuan dan tujuh ulangan, yaitu kontrol, umpan protein, suspensi *B. bassiana*, serta campuran *B. bassiana* dan umpan protein. Penelitian ini menguji mortalitas 10 ekor imago jantan dan betina *B. carambolae* matang seksual di dalam wadah 200 ml menggunakan metode kontak dan pakan pada daun jambu biji yang disemprot suspensi campuran umpan protein dan *B. bassiana*. Pengamatan dilakukan selama 14 hari dengan pembanding kontrol negatif berupa akuades dan umpan protein saja serta kontrol positif berupa *B. bassiana* 1×10^6 konidia/ml. Berdasarkan analisis data pengamatan, perlakuan *B. bassiana* tunggal dan campuran *B. bassiana* dengan umpan protein menghasilkan mortalitas *B. carambolae* yang lebih tinggi dibandingkan perlakuan kontrol dan umpan protein tunggal. Namun, hasil uji DMRT menunjukkan bahwa perlakuan campuran *B. bassiana* dan umpan protein tidak berbeda nyata dibandingkan aplikasi *B. bassiana* tunggal. Meskipun demikian, perlakuan campuran menunjukkan pola mortalitas yang lebih progresif sehingga berpotensi meningkatkan konsistensi paparan konidia terhadap lalat buah. Dengan demikian, formulasi campuran *B. bassiana* dan umpan protein berpotensi dikembangkan sebagai strategi pengendalian hayati lalat buah yang ramah lingkungan.

Kata kunci: *Bactrocera carambolae*, *Beauveria bassiana*, bioinsektisida, umpan protein, mortalitas.

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ABSTRACT

The fruit fly *Bactrocera carambolae* is an important pest in horticultural crops that can cause a decrease in the quality and quantity of harvests. Control that still relies on chemical pesticides encourages the need for more environmentally friendly control alternatives. This study aims to evaluate the effectiveness of a mixture of *B. bassiana* and protein bait on the mortality of *B. carambolae*, and to analyze the differences in susceptibility of male and female fruit flies to these treatments. The study was conducted at the Invertebrate Laboratory and Biological Control Laboratory, Faculty of Agriculture, Gadjah Mada University from November 2025 to March 2026 using a Completely Randomized Design with four treatments and seven replications, namely control, protein bait, *B. bassiana* suspension, and a mixture of *B. bassiana* and protein bait. This study tested the mortality of 10 sexually mature male and female *B. carambolae* imago in a 200 ml container using the contact and feeding methods on guava leaves sprayed with a suspension of a mixture of protein bait and *B. bassiana*. Observations were conducted for 14 days with a negative control comparison in the form of distilled water and protein bait alone and a positive control in the form of *B. bassiana* 1×10^6 conidia/ml. Based on the analysis of observation data, the treatment of single *B. bassiana* and a mixture of *B. bassiana* with protein bait resulted in higher mortality of *B. carambolae* compared to the control treatment and single protein bait. However, the results of the DMRT test showed that the mixture treatment of *B. bassiana* and protein bait was not significantly different from the single application of *B. bassiana*. Nevertheless, the mixture treatment showed a more progressive mortality pattern, thus potentially increasing the consistency of conidia exposure to fruit flies. Thus, the mixture formulation of *B. bassiana* and protein bait has the potential to be developed as an environmentally friendly biological control strategy for fruit flies.

Keywords: *Bactrocera carambolae*, *Beauveria bassiana*, bioinsecticide, protein bait, mortality.