

ABSTRAK

IDENTIFIKASI DAN UJI KEMAMPUAN ANTAGONIS *Beauveria* sp., *Metarhizium* sp., *Trichoderma* sp., DAN *Aspergillus* sp. TERHADAP PATOGEN DAN SERANGGA HAMA TANAMAN SETELAH MENGALAMI MASA PENYIMPANAN SATU TAHUN

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Penelitian ini bertujuan untuk mengetahui identitas isolat yang telah mengalami masa penyimpanan satu tahun (*Beauveria* sp., *Metarhizium* sp., *Trichoderma* sp., dan *Aspergillus* sp.) serta mengetahui kemampuan antagonis isolat tersebut terhadap patogen dan serangga uji. Penelitian ini dilaksanakan di Laboratorium Bioteknologi Pertanian, Laboratorium Ilmu Penyakit Tanaman, dan Laboratorium Ilmu Hama Tanaman, Fakultas Pertanian, Universitas Lampung. Pelaksanaan penelitian dimulai dari bulan April 2021 sampai September 2021. Penelitian ini diawali dengan identifikasi dengan cara melakukan pengamatan secara mikroskopis dan makroskopis terhadap isolat. Uji pertumbuhan isolat yang meliputi diameter koloni, kerapatan spora dan viabilitas spora. Uji kemampuan antagonis *Trichoderma* sp. terhadap lima isolat patogen. Uji patogenisitas 3 isolat (*Beauveria* sp., *Metarhizium* sp., dan *Aspergillus* sp.) terhadap kumbang beras (*Sitophilus oryzae*). Perlakuan pengujian pertumbuhan dan uji antagonis pengujian disusun dalam Rancangan Acak Lengkap (RAL), sedangkan uji patogenisitas pengujian disusun dalam Rancangan Acak Kelompok (RAK). Hasil dari penelitian menunjukkan bahwa pengamatan morfologi keempat isolat tersebut berasal dari genus *Aspergillus*, *Beauveria*, *Metarhizium* dan *Trichoderma*. Keempat isolat memiliki hasil yang berbeda-beda, pertumbuhan koloni jamur tertinggi dihasilkan oleh isolat *Trichoderma* sp. (7,82 cm), sporulasi tertinggi dihasilkan oleh isolat *Beauveria* sp. (3,41 spora/ml), viabilitas tertinggi dihasilkan oleh isolat *Aspergillus* sp. (75,55%). Presentase penghambatan *Trichoderma* sp. terhadap isolat patogen tertinggi yaitu pada *Ganoderma boninense* (88,48%) dan *Phytophthora capsici* (84,01%). *Beauveria* sp., *Metarhizium* sp., dan *Aspergillus* sp. mampu menyebabkan mortalitas *S. Oryzae* masing-masing sebesar 43%, 17%, dan 17%.

Kata kunci : Jamur entomopatogen, patogenisitas, *Sitophilus oryzae*.

ABSTRACT

IDENTIFIKASI DAN UJI KEMAMPUAN ANTAGONIS *Beauveria* sp., *Metarhizium* sp., *Trichoderma* sp., DAN *Aspergillus* sp. TERHADAP PATOGEN DAN SERANGGA HAMA TANAMAN SETELAH MENGALAMI MASA PENYIMPANAN SATU TAHUN

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The objective of the research was aimed to determine the identity of isolates that have undergone a one year storage period (*Beauveria* sp., *Metarhizium* sp., *Trichoderma* sp., and *Aspergillus* sp.) and to determine the antagonistic ability of these isolates against pathogens and insects. This research was conducted at the Laboratory of Plant Biotechnology, Laboratory of Plant Diseases, and Laboratory of Plant Pest Science, Faculty of Agriculture, University of Lampung. The implementation of the research starts from April 2021 to September 2021. This research begins with identification by means of microscopic and macroscopic observations of the isolates. The isolate growth test included colony diameter, spore density and spore viability. *Trichoderma* sp. antagonist ability test. against five pathogenic isolates. Pathogenicity test of 3 isolates (*Beauveria* sp., *Metarhizium* sp., and *Aspergillus* sp.) against rice beetle (*Sitophilus oryzae*). The growth test treatments and the antagonist test were arranged in a Completely Randomized Design (CRD), while the pathogenicity test was arranged in a Randomized Block Design (RAK). The results of the study showed that the morphological observations of the four isolates came from the genera *Aspergillus*, *Beauveria*, *Metarhizium* and *Trichoderma*. The four isolates had different results, the highest fungal colony growth was produced by *Trichoderma* sp. (7,82 cm), the highest sporulation was produced by isolates of *Beauveria* sp. (3,41 spores/ml), the highest viability was produced by isolates of *Aspergillus* sp. (75,55%). The percentage of inhibition of *Trichoderma* sp. the highest pathogenic isolates were *Ganoderma boninense* (88.48%) and *Phytophthora capsici* (84,01%). *Beauveria* sp., *Metarhizium* sp., and *Aspergillus* sp. capable of causing *S. oryzae* mortality by 43%, 17%, and 17%, respectively.

Keywords: Entomopathogenic fungi, pathogenicity, *Sitophilus oryzae*.