

## **ABSTRACT**

### **THE SURVIVAL OF *Aspergillus oryzae* and *Talaromyces sayulitensis* FUNGI to Methyl thiophanate FUNGICIDES WITH VARIOUS ACTIVE INGREDIENTS AND LEVELS OF pH VALUE**

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The survival of *Aspergillus oryzae* and *Talaromyces sayulitensis* fungi to methyl thiophanate is a fungus that can grow on PDA media with the active ingredient methyl thiophanate and has been irradiated by UV light. This research aims to studied the survival of *A. oryzae* and *T. sayulitensis* fungi to methyl thiophanate to fungicides with various active ingredients and studied the survival of *A. oryzae* and *T. sayulitensis* fungi to methyl thiophanate at various pH values. The survival and pathogenicity tests were carried out at the Laboratory of Biotechnology, Faculty of Agriculture (LBFP), University of Lampung. The several pH levels fungi test at the Agronomy Laboratory, Faculty of Agriculture, University of Lampung. PGPF testing on cucumber plants was carried out in Rajabasa Raya Village, Rajabasa District, Bandar Lampung City. The data observed included colony diameter, spore density, spore viability, mortality of the rice weevil (*Sitophilus oryzae* L.), and the ability of the fungus as a Plant Growth Promoting Fungi (PGPF) and roots, leaf greenness, and root length. Achieving survival of fungi *A. oryzae* and *T. sayulitensis* to methyl thiophanate on fungicides with various active ingredients was significantly different from the control. Colony

survival *A. oryzae* fungi to methyl thiophanate on the active ingredient mankozeb 1 and 2 times the recommended dose was not significantly different from the control. Colony survival *T. sayulitensis* active ingredients propineb (1 times the recommended dose) and carbendazim (2 times the recommended dose) were not significantly different from the control. The survival of *A. oryzae* and *T. sayulitensis* fungi to methyl thiophanate is significantly different at several levels of pH values. The highest survival sporulation of *A. oryzae* to methyl thiophanate was at pH 9, which was  $21.39 \times 10^6$  spores/mL. The viability survival of *A. oryzae* and *T. sayulitensis* fungi to methyl thiophanate was not significantly different at pH 2, 3, 7 and pH 9. Meanwhile, the viability survival of *A. oryzae* and *T. sayulitensis* fungi to methyl thiophanate was significantly different at pH 4-6 and pH 8.

**Key words:** *Aspergillus oryzae*, fungicides, pH values, *Plant Growth Promoting Fungi*, *Talaromyces sayulitensis*

## **ABSTRAK**

### **KETAKATAN JAMUR *Aspergillus oryzae* DAN *Talaromyces sayulitensis* TAHAN METIL TIOFANAT PADA FUNGISIDA DENGAN BERBAGAI BAHAN AKTIF DAN TINGKATAN NILAI pH**

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*Aspergillus oryzae* dan *Talaromyces sayulitensis* tahan metil tiofanat merupakan jamur patogen serangga yang dapat tumbuh pada media PDA berfungisida bahan aktif metil tiofanat dan telah diiradiasi sinar UV. Penelitian ini bertujuan mempelajari ketakatan jamur *A. oryzae* dan *T. sayulitensis* tahan metil tiofanat pada fungisida dengan berbagai bahan aktif dan mempelajari ketakatan jamur *A. oryzae* dan *T. sayulitensis* tahan metil tiofanat pada beberapa tingkatan nilai pH. Pengujian ketakatan jamur dan patogenesitas dilakukan di Laboratorium Bioteknologi Fakultas Pertanian (LBFP) Universitas Lampung. Pengujian jamur pada beberapa tingkatan pH di Laboratorium Agronomi Fakultas Pertanian Universitas Lampung. Pengujian PGPF pada tanaman mentimun dilaksanakan di Desa Rajabasa Raya, Kecamatan Rajabasa, Kota Bandar Lampung. Variabel yang diamati meliputi diameter koloni, kerapatan spora, viabilitas spora, mortalitas kumbang beras (*Sitophilus oryzae* L.). Pada pengujian kemampuan jamur sebagai *Plant Growth Promoting Fungi* (PGPF) parameter yang diamati di antarnya tinggi tanaman, bobot basah tajuk dan akar, bobot kering tajuk dan akar, kehijauan daun, dan panjang akar. Ketakatan jamur *A. oryzae* dan *T. sayulitensis* tahan metil tiofanat pada fungisida dengan berbagai bahan aktif berbeda nyata dengan

kontrol. Diameter koloni jamur *A. oryzae* tahan metil tiofanat pada bahan aktif mankozeb 1 dan 2 kali dosis anjuran tidak berbeda nyata dengan kontrol. Diameter koloni jamur *T. sayulitensis* pada bahan aktif propineb (1 kali dosis anjuran) dan carbendazim (2 kali dosis anjuran) tidak berbeda nyata dengan kontrol. Ketakatan jamur *A. oryzae* dan *T. sayulitensis* tahan metil tiofanat berbeda nyata pada beberapa tingkatan nilai pH. Sporulasi jamur *A. oryzae* tahan metil tiofanat tertinggi pada pH 9 yaitu  $21,39 \times 10^6$  spora/mL. Viabilitas jamur *A. oryzae* dan *T. sayulitensis* tahan metil tiofanat tidak berbeda nyata pada pH 2, 3, 7 dan pH 9. Sedangkan viabilitas jamur *A. oryzae* dan *T. sayulitensis* tahan metil tiofanat berbeda nyata pada pH 4-6 dan pH 8.

Kata kunci: Jamur *Aspergillus oryzae*, fungisida, pH, *Plant Growth Promoting Fungi*, jamur *Talaromyces sayuliensis*