

**UJI ANTAGONIS BEBERAPA ISOLAT *Trichoderma asperellum*
TERHADAP *Fusarium oxysporum* f.sp. *lycopersici* Sacc.
PENYEBAB PENYAKIT LAYU FUSARIUM PADA
TANAMAN TOMAT (*Lycopersicum esculentum* Mill.)**

SKRIPSI



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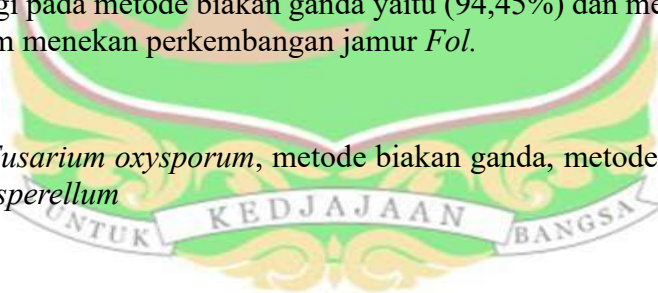
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ABSTRAK

Trichoderma asperellum merupakan salah satu jenis agen hayati yang mampu mengendalikan berbagai jenis patogen tanaman termasuk *Fusarium oxysporum* f.sp. *lycopersici* Sacc. (*Fol*). Penelitian ini bertujuan untuk mendapatkan isolat *T. asperellum* yang efektif menghambat pertumbuhan *Fol* penyebab penyakit layu fusarium pada tanaman tomat. Penelitian ini menggunakan rancangan acak lengkap (RAL) dengan 4 perlakuan dan 6 ulangan. Perlakuan terdiri dari 1 kontrol dan 3 isolat *T. asperellum* (A116, SD324, dan S2D11). Pengujian *T. asperellum* terhadap *Fol* dilakukan dengan 2 metode yaitu biakan ganda dan uap biakan. Variabel yang diamati pada metode biakan ganda adalah luas koloni, tingkat invasi, dan mekanisme antagonis, pada metode uap biakan meliputi luas koloni dan perubahan morfologi. Hasil penelitian didapatkan semua isolat *T. asperellum* yang digunakan mampu menghambat pertumbuhan *Fol*. Pada metode biakan ganda dengan daya hambat 86,95%-94,45%, tingkat invasi mencapai skala 4 dengan kategori sangat tinggi dan mekanisme antagonis berupa kompetisi dan mikoparasitisme. Pada metode uap biakan daya hambat *T. asperellum* sebesar 17,91%-35,27% dan terjadinya perubahan morfologi pada *Fol*. *T. asperellum* S2D11 menunjukkan daya hambat tertinggi pada metode biakan ganda yaitu (94,45%) dan metode uap biakan (35,27%) dalam menekan perkembangan jamur *Fol*.

Kata kunci: *Fusarium oxysporum*, metode biakan ganda, metode uap biakan, *T. asperellum*



ANTAGONIST TEST OF SOME ISOLATES OF *Trichoderma asperellum* AGAINST *Fusarium oxysporum* f.sp. *lycopersici* Sacc. WHICH CAUSES FUSARIUM WILT DISEASE IN TOMATO PLANT (*Lycopersicum esculentum* Mill.)

ABSTRACT

Trichoderma asperellum is one type of biological agent that can control various types of plant pathogens including *Fusarium oxysporum* f.sp. *lycopersici* Sacc. (*Fol*). This study aims to obtain *T. asperellum* isolates that effectively inhibit the growth of *Fol* causing fusarium wilt disease in tomato plants. This study used a completely randomized design (CRD) with 4 treatments and 6 replicates. Treatments consisted of 1 control and 3 isolates of *T. asperellum* (A116, SD324, and S2D11). Testing of *T. asperellum* against *Fol* was carried out by 2 methods, namely double culture and vapor culture. Variables observed in the double culture method were colony area, invasion rate, and antagonistic mechanism, while the steam culture method included colony area and morphological changes. The results showed that all *T. asperellum* isolates used were able to inhibit the growth of *Fol*. In the double culture method with 86.95%-94.45% inhibition, the level of invasion reached scale 4 with a very high category and antagonistic mechanisms in the form of competition and mycoparasitism. In the vapor culture method, the inhibitory power of *T. asperellum* was 17.91%-35.27% and the morphological changes in *Fol*. *T. asperellum* S2D11 showed the highest inhibition in the double culture method (94.45%) and the culture vapor method (35.27%) in suppressing the development of the fungus *Fol*.

Keywords: double culture method, *Fusarium oxysporum*, *T. asperellum*, volatile method

