

ABSTRAK

UJI KETAHANAN *Trichoderma asperellum* TERHADAP BAHAN AKTIF HERBISIDA PADA BERBAGAI DOSIS DAN POTENSINYA SEBAGAI AGEN PENGENDALI HAYATI *Fusarium* sp. PADA TANAMAN TEBU

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Fusarium sp. merupakan salah satu jamur patogen penting pada tanaman tebu yang dapat menyebabkan penurunan pertumbuhan dan produktivitas tanaman. Pemanfaatan *T. asperellum* sebagai agen pengendali hayati menjadi alternatif pengendalian yang ramah lingkungan, namun efektivitasnya berpotensi dipengaruhi oleh penggunaan herbisida yang diaplikasikan. Penelitian ini bertujuan untuk mengevaluasi pertumbuhan, sporulasi, viabilitas, dan kemampuan antagonis beberapa isolat *T. asperellum* terhadap *Fusarium* sp. pada media agar yang mengandung berbagai bahan aktif herbisida. Penelitian dilaksanakan pada bulan Agustus - Desember 2025 di Pusat Kajian Cassava, Kelapa Sawit, Tebu, Kopi, Lada, dan Kakao serta Laboratorium Bioteknologi Pertanian Fakultas Pertanian Universitas Lampung. Penelitian dilaksanakan menggunakan Rancangan Acak Lengkap (RAL) faktorial. Hasil penelitian menunjukkan bahwa bahan aktif isopropilamina glifosat 480 g/L memberikan pengaruh penghambatan paling rendah terhadap pertumbuhan dan kemampuan antagonis *T. asperellum*, sedangkan 2,4-D dimetil amina 865 g/L memberikan penghambatan paling tinggi. Diantara semua isolat *T. asperellum* yang diuji, hanya isolat SPV yang tetap mampu tumbuh, bersporulasi, dan berkecambah pada media yang mengandung 2,4-D dimetil amina 865 g/L pada dosis rekomendasi. Persentase penghambatan tertinggi terhadap *Fusarium* sp. ditunjukkan oleh isolat 30 GY T111 yang diaplikasikan bahan aktif isopropilamina glifosat 480 g/L dengan nilai sebesar 83,05%. Isolat SPV dan 30 Gy T111 merupakan isolat *T. asperellum* yang direkomendasikan untuk diaplikasikan di lapangan sebagai konsorsium agens hayati pembenah tanah dan pengendali *Fusarium* sp.

Kata kunci: antagonis, *Fusarium* sp., herbisida, sporulasi, tebu, *Trichoderma asperellum*, viabilitas.

ABSTRACT

RESISTANCE TEST OF *Trichoderma asperellum* TO ACTIVE HERBICIDES AT VARIOUS DOSES AND ITS POTENTIAL AS A BIOLOGICAL CONTROL AGENT OF *Fusarium* sp. IN SUGAR CANE

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Fusarium sp. is an important fungal pathogen in sugarcane that can cause reduced plant growth and productivity. The use of *T. asperellum* as a biological control agent is an environmentally friendly alternative control method, but its effectiveness is potentially affected by the herbicide used. This study aimed to evaluate the growth, sporulation, viability, and antagonistic ability of several *T. asperellum* isolates against *Fusarium* sp. on agar media containing various herbicide active ingredients. The research was conducted from August to December 2025 at the Cassava, Oil Palm, Sugarcane, Coffee, Pepper, and Cocoa Research Center and the Agricultural Biotechnology Laboratory, Faculty of Agriculture, University of Lampung. The study used a factorial Completely Randomized Design (CRD). The results showed that the active ingredient glyphosate, isopropylamine, at 480 g/L, had the lowest inhibitory effect on the growth and antagonistic ability of *T. asperellum*, while 2,4-D dimethyl amine at 865 g/L provided the highest inhibition. Among all *T. asperellum* isolates tested, only the SPV isolate remained able to grow, sporulate, and germinate on media containing 2,4-D dimethyl amine at 865 g/L at the recommended dose. The highest inhibition percentage was against *Fusarium* sp. This was demonstrated by the 30 Gy T111 isolate, which was treated with the active ingredient glyphosate 480 g/L isopropylamine, with an efficacy of 83.05%. SPV and 30 Gy T111 isolates are recommended for field application as a consortium of biological agents for soil improvement and control of *Fusarium* sp.

Keywords: antagonist, *Fusarium* sp., herbicide, sporulation, sugarcane, *Trichoderma asperellum*, viability.