Intisari

Asosiasi *Ditylenchus dipsaci* dengan *Fusarium* sp. dalam Menyebabkan Penyakit Busuk Umbi Bawang Putih

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Penyakit umbi bawang putih ditemukan pada pertanaman bawang putih (Allium sativum L.) di Provinsi Jawa Tengah, Indonesia. Gejala penyakit ini memiliki ciri tanaman kerdil, daun menguning dan nekrosis pada umbi. Penelitian ini dilakukan untuk mengetahui penyebab utama penyakit busuk umbi bawang putih di Jawa Tengah. Survei dilakukan di provinsi Jawa Tengah yang menjadi daerah penghasil atau sentra bawang putih. Nematoda diisolasi menggunakan metode perendaman air dan jamur patogen diisolasi pada Potato Dextrose Agar (PDA). Berdasarkan hasil identifikasi morfologi nematoda parasit yang ditemukan adalah D. dipsaci dan identifikasi jamur patogen secara morfologi dan molekuler sebagai F. oxysporum dan F. solani. Inokulasi bibit bawang putih dengan kedua patogen tersebut menunjukkan bahwa penyakit busuk umbi dapat disebabkan oleh D. dipsaci dan F. oxysporum. Asosiasi antara D. dipsaci dan F. oxysporum mampu meningkatkan intensitas penyakit busuk umbi pada tanaman bawang putih. Infeksi D. dipsaci dan F. oxysporum pada bawang putih mengakibatkan terjadinya penurunan laju fotosintesis, peningkatan konduktivitas stomata dan penurunan laju transpirasi.

Keywords: Bulb rot disease, association, *Ditylenchus dipsaci*, *Fusarium oxysporum, Fusarium solani*

Abstract

Association of *Ditylenchus dipsaci* and *Fusarium* sp. as Causal Agents of Garlic Bulb Rot Disease

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Garlic root rot disease was found in garlic (*Alium sativum* L.) cultivated in garlic yield of some farmers in Central Java Province, Indonesia. The initial symptoms of the disease were stunted, yellowing of leaves and necrotizing to rotten bulbs. This research was conducted to determine the major causal agent of garlic bulb rot disease in Central Java. A survey was carried out in five regency Central Java provinces where known to be the major garlic producing areas. The nematodes were isolated using water immersion methode and the pathogenic fungi were isolated on *Potato Dextrose Agar* (PDA). Nematode identification was carried out based on the *Ditylenchus dipsaci* with morphological character. A total 7 isolates of Fusarium species were obtained from diseased bulbs rot of garlic. Identification of four chosen isolates was performed by squencing the EF-1α gene. The TEF squence of isolate TB3, KK1 and KK4 showed 99% similarity with several *F. oxysporum* squences and squence of BT3 showed 98% identity with several *F.* solani and they were deposited in the NCBI GenBank. Three locations were positively infected by the association between *D. dipsaci* and *Fusarium* sp. Based on the results of the morphological identification parasitic nematode was identified as *D. dipsaci* and based on the morphological and molecular identification isolates Fusarium were identified as *F. oxysporum* and *F. solani,* respectively, as first report causal agents of garlic bulbs rot in Central Java.

Keywords: Bulb rot disease, association, *Ditylenchus dipsaci*, *Fusarium oxysporum, Fusarium solani*