

Isolation, Characterization, and Selection of Bacillus sp. from Shallot Rhizosphere that Inhibits Fusarium oxysporum Growth

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Abstract	<p>Bacillus sp. is a Plant Growth Promoting Rhizobacteria (PGPR) species that lives in the rhizosphere. This bacterium can produce antifungal compounds that suppress pathogenic fungi, such as Fusarium oxysporum. The aim of this research was isolate, characterize, and obtain Bacillus sp. that can inhibit F. oxysporum which causes twisted disease in shallots. Isolation was done by sampling 10 g of soil from shallot roots, placing it in 9 mL of sterile water, and carrying out a series of dilutions. The first dilution was incubated at 80 °C for 20 minutes to obtain Bacillus sp. on the selective medium HiChrome. Colony morphology, shape, cell color, Gram staining, catalase and endospore staining were observed from obtained isolates. An antagonist test was done to determine the inhibitory effects of isolates against the pathogenic fungus F. oxysporum. Four isolates of Bacillus sp. were obtained with irregular colony shape, dull white color without mucus, edges varying in shape between lobate and undulate, and raised elevation. The results of the antagonist test showed that the four isolates had the ability to inhibit the growth of the pathogenic fungus F. oxysporum with the greatest inhibition shown by isolate BM1 at 30.12%, with an antibiosis mechanism and hyphae swelling.</p>
Publisher Name	Universitas Gadjah Mada
Publish Date	2024-07-11
Publish Year	2024
Doi	DOI: 10.22146/jpti.89634
Citation	
Source	Jurnal Perlindungan Tanaman Indonesia
Source Issue	Vol 28, No 1 (2024)
Source Page	27-32
Url	https://journal.ugm.ac.id/jpti/article/view/89634/39154
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