

Effect of *Pichia guilliermondii* on *Penicillium digitatum* and green mold rot in mandarin 'Shogun' from Thailand

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Abstract

Pichia guilliermondii BCC 5389 at 10⁶, 10⁷, 10⁸ cells/ml, and their culture filtrates were tested on mycelial growth at 72 h, and inhibition of spore germination of the green mold pathogen (*Penicillium digitatum*) after 24 h in vitro incubation, and on citrus fruit treated for 96 h. Peroxidase activity using guaiacal as an artificial substrate was evaluated by Native-PAGE. *P. guilliermondii* at 10⁷ and 10⁸ cells/ml completely inhibited spore germination whereas at 10⁶ cells/ml inhibition was only 42.01%. At 1:1 and 1:2 dilutions, culture filtrates completely inhibited spore germination. However, there was no significant inhibition at 1:4 and 1:8 dilutions. Undiluted culture filtrate gave 46.67% inhibition of mycelial growth of the pathogen. Abnormal mycelia with swelling of hyphal tips were observed on potato dextrose agar (PDA) that contained undiluted culture filtrate. Peroxidase activity detected in flavedo tissues treated with *P. guilliermondii* was greater than in untreated controls indicating that *P. guilliermondii* induced a defence mechanism in the tissue.