

Title Plasma Membrane Damage Contributes to Antifungal Activity of Silicon Against *Penicillium digitatum*

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Abstract

The antifungal activity of silicon (Si) on *Penicillium digitatum*, and the possible action mode involved were investigated. Spore germination, germ tube elongation, and mycelial growth of *P. digitatum* were strongly inhibited by Si in the form of sodium silicate. Using propidium iodide (PI) stain combined with fluorescent microscopy, it was found that the plasma membrane of Si-treated *P. digitatum* spores was obviously damaged, and the leakage of protein and sugar was significantly higher in Si-treated mycelia than that of control. These findings suggest that the damage on plasma membrane of *P. digitatum* played a crucial role in the antifungal effect of Si. Moreover, Si was effective in controlling green mold caused by *P. digitatum* in citrus fruit. These results have a beneficial impact on the application of Si in the control of postharvest diseases.

<http://www.springerlink.com/content/c1643g8q63441160/fulltext.pdf>