

Antifungal effects of hinokitiol on development of *Botrytis cinerea* *in vitro* and *in vivo*

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Abstract

Gray mold caused by *Botrytis cinerea*, is an economically important postharvest disease affecting intrinsic quality of fruit and leading to tremendous losses. Hence, postharvest processing of fresh produces requires efficient bio-source agents to control *B. cinerea*. In the present study, it was found that hinokitiol could suppress mycelial growth and disease severity of *B. cinerea* on grape and apple fruit, and the inhibition was closely related to the concentration of hinokitiol. Hinokitiol disrupted the plasma membrane integrity, which further contributed to aggravation in membrane lipid peroxidation, leakage of cellular constituents and eventually cell death of *B. cinerea*. In addition, the expression levels of several previously identified genes related to pathogenicity were down-regulated following hinokitiol treatment. These results collectively showed that hinokitiol was highly effective in reducing gray mold caused by *B. cinerea*.