

Magnolol inhibits gray mold on postharvest fruit by inducing autophagic activity of *Botrytis cinerea*

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Abstract

Botrytis cinerea, a phytopathogen causing gray mold on over 1400 species worldwide, has led to huge losses in agricultural products. Efforts have been made to control this notorious pathogen. However, efficient plant metabolites for suppressing *B. cinerea* are still seldom reported and data on their potential targets of action are scarce. In this study, magnolol, a functional ingredient in *Magnolia officinalis*, substantially inhibited *B. cinerea* mycelial growth and its virulence on harvested fruit. The inhibitory effect was mainly caused by the activation of autophagic activity in *B. cinerea*, damages in normal structures of mitochondria and accumulation of excessive reactive oxygen species (ROS). Furthermore, the ROS-induced oxidative stress impaired membrane integrity and attenuated cell vitality, resulting in reduced mycelial growth and virulence. Collectively, these results suggest that magnolol shows efficacy in suppressing *B. cinerea* and thus may be further explored as an alternative for controlling gray mold.