Title Effects of chitosan on control of postharvest diseases and physiological responses of tomato fruit

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Abstract

The effects of chitosan on gray mould and blue mould caused by *Botrytis cinerea* and *Penicillium expansum* in tomato fruit stored at 25 and 2 °C, respectively, were investigated. Chitosan provided an effective control of both diseases of tomato fruit stored at 25 and 2 °C. Chitosan strongly inhibited spore germination, germ tube elongation, and mycelial growth of *B. cinerea* and *P. expansum* in vitro, and damaged the plasma membranes of spores of both pathogens. Chitosan treatment induced a significant increase in the activities of polyphenoloxidase (PPO), peroxidase (POD), and enhanced the content of phenolic compounds in tomato fruit. These findings suggest that the effects of chitosan on gray mould and blue mould in tomato fruit may be associated with the direct fungitoxic property against the pathogens, and the elicitation of biochemical defense responses in fruit.