

Title Effects of β -aminobutyric acid on control of postharvest blue mould of apple fruit and its possible mechanisms of action

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Abstract

The effects of β -aminobutyric acid (BABA) on blue mould caused by *Penicillium expansum* in apple fruit stored at 25 °C were investigated. BABA provided an effective control, and strongly inhibited spore germination, germ and tube elongation of *P. expansum in vitro*. Using propidium iodide (PI) staining combined with fluorescent microscopy, it was found that the plasma membrane of BABA-treated *P. expansum* spores was damaged, and the leakage of protein and sugar was significantly higher in BABA-treated mycelia than in the control. BABA treatment induced a significant increase in the activities of chitinase, β -1,3-glucanase, and peroxidase in apple fruit. These findings suggest that the effects of BABA on blue mould in apple fruit may be associated with the direct fungitoxic property against the pathogens, and the elicitation of defense-related enzymes in fruit.