

Postharvest dipping treatment with BABA induced resistance against rot caused by *Gilbertella persicaria* in red pitaya fruit

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Scientia Horticulturae 257: 108713. (2019)

Abstract

β -Aminobutyric acid (BABA) is an elicitor that is capable of inducing disease resistance in many plants. The effect of postharvest BABA treatment on rot caused by *Gilbertella persicaria* and the underlying mechanisms of action of BABA in pitaya fruit (*Hylocereus undatus* cv. Zihonglong) were investigated. Fruits were dipped in 10 mM BABA for 15 min and then stored at ambient temperature (25 ± 2 °C, RH 70~75%). The results showed that 10 mM BABA had no obvious inhibitory effects on *G. persicaria* *in vitro*. However, BABA significantly reduced lesion diameter in pitaya inoculated with *G. persicaria* relative to the control. Furthermore, BABA increased the activities of phenylalanine ammonia lyase (PAL), 4-coumarate/coenzyme A ligase (4CL), peroxidase (POD) and polyphenol oxidase (PPO) and promoted the accumulation of lignin, flavonoids and phenolic compounds in the fruit. These results suggested that postharvest application of BABA *via* immersion induced resistance in pitaya fruit by activating defense-related enzymes, and BABA treatment may be an alternative method for the control of postharvest diseases in fruits.