

Title Effect of acidic solutions and acidic prochloraz on the control of postharvest decay caused by *Alternaria alternata* in mango and persimmon fruit

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Abstract

The effectiveness of treatments with hydrochloric acid (HCl), alone or in combination with prochloraz, in controlling quiescent infections of *Alternaria alternata* that cause alternaria rot in mango and persimmon fruit during storage, were compared. Spore germination and germ-tube elongation of *A. alternata* in vitro were inhibited by 95 and 65%, respectively, by exposure to 1.25 mM HCl, and fungal germination was completely inhibited by 2.50 mM HCl. Application of a combination of hot water spraying and brushing (HWB) for 15–20 s, followed by spraying with 50 mM HCl effectively controlled alternaria rot in stored mango fruit. Similar HWB treatments followed by spraying with increasing concentrations of prochloraz at 45 to 900 $\mu\text{g ml}^{-1}$ in 50 mM HCl, were as effective as treatment with the acid alone, in preventing alternaria rot development. Also in persimmon fruit, dip treatment with 50 mM HCl reduced alternaria rot. However, acidified solutions containing 45 $\mu\text{g ml}^{-1}$ prochloraz inhibited alternaria rot development better than treatment with HCl alone. The enhanced prochloraz activity in acidified solutions was attributed to its enhanced solubility, which resulted in an increase in the fungicide active ingredient in the solution. Present data suggest that the combination of acid solutions, alone or in the presence of reduced prochloraz concentrations, provide a simple treatment for the control of postharvest diseases that alkalinize the host environment.