

Title Antifungal activity of chitosan coating and its components on *Lasiodiplodia theobromae* in longan

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Abstract

The effect of chitosan coating and additives: potassium sorbate (PS) and citric acid (CA) on fungal growth of *Lasiodiplodia theobromae*, a major postharvest pathogen of fresh longan fruit was studied. Mycelium growth inhibition in vitro was investigated on potato dextrose agar supplemented with these components. The result indicated that 0.6-1.5% (W/V) chitosan provided high inhibiting efficacy at 89.88-92.71%. PS and CA at a concentration of 0.3-0.6% and 3.0-6.0%, respectively, inhibited mycelial growth. Abnormalities of hypha subjected to each component were found under microscopic observation. Mixing of PS with the acidulant agent, citric acid, increased inhibiting efficiency. Mixing PS at concentration of 0.03 up to 0.6% in 3.0%CA with or without 1.2% (W/V) chitosan showed fungicidal activity. In vivo studies of inoculated longan fruit dipped in PS at a concentration of 0.3% in 3.0% CA + 1.2% (W/V) chitosan showed lower disease development compared to those treated without chitosan coating.