

Potential of chitosan coating in delaying the postharvest anthracnose (*Colletotrichum gloeosporioides* Penz.) of Eksotika II papaya

ABSTRACT

The in vitro and in vivo fungicidal activity of chitosan was studied against *Colletotrichum gloeosporioides*, the causal agent of anthracnose in papaya fruits. Chitosan at 1.5% and 2.0% concentrations showed a fungistatic effect with 90–100% inhibition (significant at $P \leq 0.05$) of the fungal mycelial growth. Changes in the conidial morphology were also observed with the higher chitosan concentrations after 7-h incubation. In vivo studies showed that 1.5% and 2.0% chitosan coatings on papaya not only controlled the fruit decay but also delayed the onset of disease symptoms by 3–4 weeks during 5 weeks storage at $12 \pm 1^\circ\text{C}$ and slowed down the subsequent disease development. However, when leaving the fruits to ripen at ambient temperature ($28 \pm 2^\circ\text{C}$), 2.0% chitosan was less effective than 1.5% in controlling the disease development. Chitosan coatings also delayed the ripening process by maintaining the firmness levels, soluble solids concentration and titratable acidity values during and after storage.

Keyword: Anthracnose, chitosan, disease development, papaya