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 ± 1°C and slowed down the subsequent disease development. However, when leaving the fruits to ripen at ambient temperature (28 ± 2°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