



ABSTRACT

Introduction *Rhizopus stolonifer* is the causal agent of *Rhizopus* rot disease in various fruit and vegetables. Materials and methods. The effect of chitosan was evaluated *in vitro* on mycelial growth, sporulation, morphological characteristics and germination of spores of three isolates of *R. stolonifer* (from peach, papaya and tomato). The effect of chitosan on controlling *Rhizopus* decay in peach, papaya and tomato fruit *in situ* in comparison with the synthetic fungicide dichloran was also studied. Results and discussion. Our results showed that the mycelial growth and sporulation of the three isolates were markedly inhibited at all tested chitosan concentrations. The highest antifungal indexes and sporulation reduction were observed with chitosan at 2 mg·mL⁻¹. In our study, the morphological characteristics of the spores of *R. stolonifer* showed different behavior depending on the evaluated isolates. In general, the highest effect on germination was observed at the chitosan concentration of 2 mg·mL⁻¹. Our results demonstrated that chitosan was effective in reducing the percentage of infection and the severity index on peach, papaya and tomato fruit compared with those of non-treated control. The chitosan was not more effective than dichloran in reducing the percentage of infection. The results of the study suggest that chitosan (2 mg·mL⁻¹) is a good alternative for the control of *Rhizopus* decay on peach, papaya and tomato fruit; it could be considered as a potential agent in natural alternatives to control postharvest diseases.

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