

**Title** Efficacy of biodegradable novel edible coatings to control postharvest anthracnose and maintain quality of fresh horticultural produce

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### **Abstract**

Edible coatings based on natural products have been found to control postharvest diseases and enhance shelf-life of fresh fruits and vegetables. Therefore, in the present study, the potential of a novel composite edible coating based on gum arabic and chitosan as an antifungal agent and preservative material was evaluated on banana and papaya fruits during cold storage for 28 days. The in vitro as well as in vivo results showed the efficacy of composite edible coating of 10% gum arabic plus 1.0% chitosan concentration against anthracnose caused by the fungus *Colletotrichum musae* in bananas and *Colletotrichum gloeosporioides* in papaya fruits. Mycelial growth and disease index data showed promising results for both the fungus tested, however, more pronounced effects were observed in case of *C. musae*. The composite treatments showed synergistic effects in the reduction of postharvest anthracnose in artificially inoculated fruits. Similarly, 10% gum arabic plus 1.0% chitosan composite coating significantly delayed the ripening processes as in terms of percentage moisture loss, pH, colour, respiration and ethylene evolution. Thus, the results showed the possibility of using 10% gum arabic plus 1.0% chitosan as an alternative biofungicide for controlling anthracnose and maintain postharvest quality of fresh horticultural produce.