

Title Evaluation of post-harvest application of sodium bicarbonate-incorporated wax formulation and *Candida oleophila* for the control of anthracnose of papaya

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Abstract

The potential efficacy of a combination of the biocontrol agent *Candida oleophila* with a sodium bicarbonate–incorporated wax coating to control anthracnose caused by *Colletotrichum gloeosporioides*, on papaya (*Carica papaya* L.) during storage was investigated. The survival of *C. oleophila* was 100% in 2% sodium bicarbonate-incorporated wax coating for 60 min and the survival was over 90% in 2% sodium bicarbonate-incorporated wax coating for 7 and 14 days during storage at 13.5°C and 95% RH. The combined application of 2% sodium bicarbonate in wax formulation and *C. oleophila* (2×10^8 cells) resulted in a significant reduction of anthracnose incidence and severity in naturally infected fruits stored at 13.5°C and 95% RH for 14 days and for additional 2 days under simulated marketing conditions. The recovery of *C. gloeosporioides* and *C. oleophila* was, respectively, low and high from fruits coated with 2% sodium bicarbonate-incorporated wax coating and *C. oleophila*. Thus, the use of 2% sodium bicarbonate-incorporated wax coating with *C. oleophila* represents a commercially acceptable alternative to chemicals for post-harvest control of anthracnose of papaya during storage.