

Carboxymethylcellulose coating associated with essential oil can increase papaya shelf life

Rafaela Rebessi Zillo, Paula Porrelli Moreirada Silva, Jacquelinede Oliveira, Eduardo Micottida Glória and Marta Helena Fillet Spoto

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Abstract

The use of essential oils (EO) associated with coatings in the post-harvest treatment of papaya is a little studied alternative to avoid post-harvest losses. Therefore, the antifungal activity of *Eucalyptus staigeriana*, *Lippia sidoides* and *Pimenta pseudocaryophyllus* essential oils (EOs) was tested *in vitro* against *Colletotrichum gloesporiodes*, the causal agent of anthracnose in papaya. The EO with the highest activity was evaluated regarding its chemical composition, *in vivo* activity and its effects on papayas post-harvest quality, when associated with a carboxymethylcellulose coating. *L. sidoides* EO presented the highest *in vitro* antifungal activity, with thymol as the predominant compound in its composition. *In vivo*, the fruit treated with CMC associated with *L. sidoides* EO presented a reduction in disease severity and maintained post-harvest parameters, besides slowing the appearance of rot and shriveling in the fruit on the ninth day of storage, whereas in the control and treatment with only CMC, this behavior occurred on the fifth and seventh days, respectively. Thus, the association of *L. sidoides* EO with CMC was effective in the rise of papayas shelf life, preserving their post-harvest characteristics for nine days, indicating that this treatment can be considered a viable alternative for the extension of the fruit commercialization period.