

Effect of edible coatings developed from chitosan incorporated with tea seed oil on Japanese pear

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Abstract

Edible coatings were prepared with 1% (w/v) chitosan (CH) incorporated with 0.05%, 0.25%, or 0.5% (w/v) tea seed oil (TSO). The physicochemical properties and antifungal ability on *Botrytis cinerea* (*B. cinerea*) of the films were investigated. CH incorporated with TSO coatings were applied to preserve pears (*Pyrus pyrifolia* Nakai) then fungal decay, respiration rate, and other characters of the pears were determined throughout storage at 25 °C and 85 ± 5% relative humidity (RH). Coating with pure CH led to significant reductions in the apparent viscosity of the dispersions, thickness while significant increases in water vapor permeability (WVP), moisture content (MC) of the film. Coatings did not result in a significant effect in terms of weight loss or firmness of pears during storage. In contrast, CH incorporated with TSO enhanced the downward trend in the respiration rate and increased the total soluble solid of the fruit. Adding TSO enhanced the CH coating in antifungal ability both in vitro and in vivo during the storage of pears inoculated with a spore suspension of *B. cinerea*.