

Impact of edible coating derived from a combination of *Aloe vera* gel, chitosan and calcium chloride on maintain the quality of mango fruit at ambient temperature

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Abstract

Mango (*Mangifera indica* L.) is a tropical fruit which is climacteric and highly perishable. Consequently, it is indispensable to address postharvest management techniques by applying eco-friendly technologies to reduce crop losses. Thus, the current study was conducted to evaluate *Aloe vera* gel's influence alone and chitosan and calcium chloride (CaCl₂) on mango shelf life during the storage time at the ambient temperature (25 ± 2 °C) for 21 days. The results exhibited that *A. vera*-chitosan coatings were able to remarkably decrease weight loss and ascorbic acid reduction throughout the storage period. Total phenol and antioxidant activity progressively diminished during the storage, and control fruits exhibited the lowest content of the phenol content and antioxidant activity during the storage. The highest correlation (R = 0.95) between antioxidant and ascorbic acid was observed in the *A. vera*-chitosan treated fruits. Control fruits showed the lowest catalase (CAT) and peroxidase (POD) enzyme activity during the storage time. *A. vera*-chitosan coating significantly inhibited the activity of polyphenol oxidase (PPO) during the storage period. Oppositely, the coating had no significant effect on total soluble solids (TSS) and titratable acidity (TA) at the end of the experiment. The discoloration trend of the fruits coated with *A. vera* enriched with chitosan was significantly delayed compared to the control fruits. Finally, *A. vera*-chitosan coating could be suggested as a suitable coating to preserve the quality of mango fruit throughout storage at the ambient temperature.