

Preservation of *Spondias tuberosa* fruit with edible coatings based on *Chlorella* sp. enriched with pomegranate seed oil during storage

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Abstract

Edible coatings based on *Chlorella* sp. have been an excellent alternative to prolong fruit shelf life. The aim of this study was to evaluate the application of edible coatings based on *Chlorella* sp. associated with Pomegranate seed oil (PSO) on quality and postharvest shelf life of umbus. Coated and uncoated *Spondias tuberosa* fruits were stored for 12 days, which they were kept at 14 ± 2 °C with $85 \pm 5\%$ RH for nine days and then maintained at 24 ± 2 °C with $85 \pm 5\%$ RH for the following three days, occurring the evaluations in the periods of 0, 10, 11, 12 days. The coating with 2.0% *Chlorella* sp. maintained the shelf life of umbus for 12 days under the conditions of storage as mentioned earlier and there was the reduction of ripening speed and, consequently, loss of fresh mass, firmness, peel color, soluble solids (SS), titratable acidity (TA), SS/TA ratio, total sugars. Regarding bioactive compounds, this treatment preserved the content of vitamin C and phenolic compounds. Through these advantages, coatings based on *Chlorella* sp. + PSO may be effectively used as a protective film to prolong the quality and shelf life of *S. tuberosa*, since it's able to reduce losses significantly caused by deterioration in the marketing chain.