

Polysaccharide from *Anacardium occidentale* L. tree gum (policaju) as a coating for Tommy Atkins mangoes

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The increase of the demand for fresh, high-quality, preservative-free fruits and vegetables, the great losses that occur from harvesting (often in a different continent) to final consumption and the fruits' short shelf-life forced the food industry to develop new and better methods for maintaining the food quality and extend their shelf-life. This may be achieved by the use of new natural edible coatings, eventually featuring new and interesting properties. Policaju based coatings with different concentrations (1.5% and 3.0% w/w) were optimized based on their wettability on mangoes, of which four formulations were chosen. Five treatments (1.5% of Policaju, 3.0% of Policaju, 1.5% of Policaju with 0.05% of Tween 80, 3.0% of Policaju with 0.05% of Tween 80, and the control group without coating) were therefore applied on "Tommy Atkins" mangoes. Samples for chemical and microbiological analyses were collected during 45 days. The surface tension of mangoes was found to be $29.04 \text{ mN}\cdot\text{m}^{-1}$ with dispersive and polar components of $27.57 \text{ mN}\cdot\text{m}^{-1}$ and $1.47 \text{ mN}\cdot\text{m}^{-1}$ respectively, and with a critical surface tension of $22.7 \text{ mN}\cdot\text{m}^{-1}$. All mangoes treated with Policaju based coatings significantly ($p < 0.05$) decreased their weight loss. Over the storage time and in all tested groups, the total soluble solids and the pH did not have a significant variation. In all cases a reduction of the titrable acidity was found, being lower in the mangoes coated with 1.5% Policaju (with and without Tween 80) and with 3.0% Policaju. Microbiological analyses showed that mangoes coated with 3.0 % Policaju and with Tween 80 presented a decrease of 1.2 log (CFU/mL) in comparison with the control after storage time. These results demonstrated the suitability of Policaju based coatings to extend the shelf-life of mangoes when compared with uncoated mangoes.