SURFACE CONTACT PROPERTIES STUDY ON FRESH BLUEBERRY EPICARP USING DIFFERENT SOLUTIONS.

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Surface properties of fruits as wettability (θ), spreading (S), force adhesion (Wa) and cohesion are relevant for the study of effectiveness of coatings films. The aim of this work was to study these properties and the affinity of ionic and polymeric solutions over blueberry surface using contact angle technique by image analysis. Water, ionic solutions (sodium and calcium chloride at pH 3 and 10), and polymeric suspensions with and without tween20 as surfactant (Sodium Alginate 1%w/w, hydroxypropylmethylcellulose 1%w/w, K-carrageenan I 0.2%w/w, carboxymethylcellulose 1%w/w and Chitosan 1%w/w) were applied over fresh blueberry epicarp. The addition of the surfactant diminished the cohesion forces; and therefore, spreading improved for all studied liquids. The highest spreading (S=38±2mJ/m²), the lowest contact angle (107±2°) and the most favorable adhesion (34.84±2mJ/m²) to blueberry epicarp was obtained by chitosan solution with surfactant. These characteristics were obtained as result of its cationic behavior, which enhances interactions with the Lewis base behavior of blueberry epicarp. The other studied solutions presented high contact angle values (124-136°), which means a poor wettability with the surface. No significant differences (p>0.05) were found between contact angles values (126.7±3.1°) of both ionic solutions at different pH, indicating there was not effect of these ions in the interaction with the blueberry epicarp. In conclusion, due to the Lewis base and hydrophobic behavior of blueberry epicarp, a possible and effectiveness coating of blueberries could be a film forming suspension with Lewis acid behavior as chitosan with surfactant.

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