



A381 - PHYSICAL AND TRANSPORT PROPERTIES OF EDIBLE FILMS COMPOSED OF GALACTOMANNAN AND CHITOSAN

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Abstract:

Edible films and coatings can provide additional protection for food, while being a fully biodegradable, environmentally friendly packaging system. The main objective of the study was to produce edible films and coatings based on chitosan and galactomannan of *A. pavonina* L., with the incorporation of sodium acetate and characterize them as to their physical properties. Films were cast and, the water vapor, O₂ and CO₂ permeabilities of the films were determined, together with their solubility in water, opacity, color and mechanical properties. The film of chitosan-galactomannan with the addition of sodium acetate had lower permeability to water vapor (1.40 ± 0.02 (g.(m.day.atm)⁻¹)) and elongation at break ($67.11 \pm 0.89\%$) being the most rigid film for presenting the highest Young's modulus (35.68 ± 0.64 MPa). The blends showed the highest values of maximum voltage and breakdown voltage. The films based on galactomannan had a decreased permeability to O₂ of 0.20 to 0.18×10^{-12} (g.(m.Pa.s.m²)⁻¹), incorporating sodium acetate, also showing high permeability to CO₂. The chitosan film without addition of sodium acetate had low lightness value L^* (81.23 ± 1.43) and a higher opacity compared with



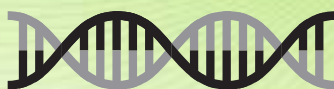
the film containing acetate, suggesting that incorporation of sodium acetate increased transparency of the film. The films containing chitosan exhibited low water solubility and high b^* component values, indicating the predominance of yellowing. The reported results is important once it will reduce the characterization work needed in subse- quent applications of these coatings/films on foods

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