



## 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, O<sub>2</sub> and CO<sub>2</sub> 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 ( $1.40 \pm 0.02$  (g.(m.day.atm)<sup>-1</sup>) and elongation at break ( $67.11 \pm 0.89\%$ ) being the most rigid film for presenting the highest Young's modulus ( $35.68 \pm 0.64$  MPa). The blends showed the highest values of maximum voltage and breakdown voltage. The films based on galactomannan had a decreased permeability to O<sub>2</sub> of  $0.20$  to  $0.18 \times 10^{-12}$  (g.(m.Pa.s.m<sup>2</sup>)<sup>-1</sup>), incorporating sodium acetate, also showing high permeability to CO<sub>2</sub>. The chitosan film without addition of sodium acetate had low lightness value  $L^*$  ( $81.23 \pm 1.43$ ) and a higher opacity compared with



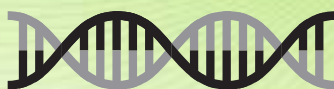
the film containing acetate, suggesting that incorporation of sodium acetate increased transparency of the film. The films containing chitosan exhibited low water solubility and high  $b^*$  component values, indicating the predominance of yellowing. The reported results is important once it will reduce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

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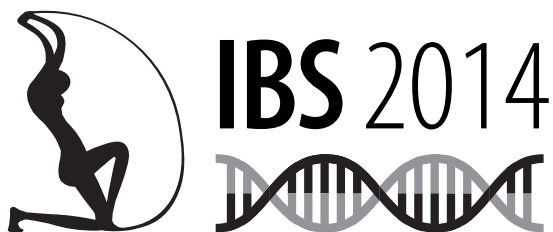
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