

Presentation Abstract

- Presentation Number: 081-02
- Presentation Title: Effect of physicochemical characteristics of galactomannans on edible films properties
- Division: Carbohydrate
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- Location: Hall A
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- Presentation Description/Abstract: Edible films can provide additional protection for food, while being a fully biodegradable, environmental friendly packaging system. There is a growing interest in identifying new natural sources for edible film production. In the last years galactomannan polysaccharides from *Leguminosae* seeds have been used as raw material for edible film production presenting interesting properties when compared with other polysaccharide sources. The physicochemical properties of galactomannans vary from species to species, being the ratio mannose/galactose the most used property. In this work three sources of galactomannans: *Adenanthera pavonina*, *Cyamopsis tetragonolobus* and *Caesalpinia pulcherrima* presenting mannose/galactose ratios of 1.3, 1.7 and 2.9, respectively, were used to produce edible films (1.5 % galactomannan and 0.5 % glycerol). These films were characterized in terms of: water vapour, oxygen and carbon dioxide permeability (WVP , O_2P and CO_2P); water solubility, elongation-at-break (E), tensile strength (TS) and glass transition temperature (Tg). Results have shown that the increase of the ratio mannose/galactose (corresponding to an increase of the mannose content) has influence on the films properties leading to the increase of WVP (which ranged between 6.78 and 10.69 g m⁻¹ Pa⁻¹ s⁻¹), CO_2P (between 28.81 and 42.90 g m⁻¹ Pa⁻¹ s⁻¹), solubility (between 64.39 and 92.75 %) and E (between 36.58 and 69.72 %); and to the decrease of O_2P (between 1.64 and 2.79 g m⁻¹ Pa⁻¹ s⁻¹) and TS (between 2.56 and 6.56 MPa) and Tg (ranged between - 66.27 and -71.13 °C) This work shows that galactomannan edible films properties are influenced by their mannose/galactose ratio, and that it is possible to tailor the desired properties by changing this ratio.

