

2<sup>nd</sup> World Congress on

# Biopolymers

August 04-05, 2016 Manchester, UK

## Alcayota films: Effect of crosslinking

**Martin A Masuelli**

Stanford University School of Medicine, USA

Varieties of renewable biopolymers such as polysaccharides were obtained from plant have been investigated for the development of edible/biodegradable non petrochemical-based packaging materials and edible coatings. Alcayota (*Curcubita ficifolia*) is an interesting alternative to synthetic gas-barrier polymers in packaging applications. The films have low gas permeability under dry conditions due to their high contents of hydrogen bonds. The films were prepared from water solution of hydrolyzed alcayota gum (Alc-OH). The film of Galc-OH properties are mainly due to the strong hydrophilicity. In order to improve water resistance, the films were modified using glutaraldehyde (Glu). The films of Galc-OH were immersed in solutions Glu for a period of 12 and 24 hours (Alc-OH-12G and Alc-OH-24G). The crosslinked films providing a water vapor permeability (WVP) values in the range from 2.32 to  $1.59 \times 10^{-10}$  g m/m<sup>2</sup> s Pa and mechanical properties expressed in elastic modulus from 336.86 to 465.41MPa. The X-ray diffraction showed amorphous and shift to lower d-spacing, i.e. at lower distances between the polysaccharide chains. These crosslinked membranes exhibit excellent water resistance, low O<sub>2</sub> permeation, which make them very useful in selecting biodegradable films.

## Biography

Martin A Masuelli obtained his Doctorate in Chemistry in 2007 and Master in Surface Sciences and Porous Media from National San Luis University (UNSL). He is the Director of the Laboratory of Physical Chemistry Services, UNSL. He has published more than 19 papers in journals and has been serving as an reviewer and Editorial Board Member of repute. He has 5 book chapters and 52 congress presentation. He is Guest Editor of the Books: "Fiber Reinforced Polymers-The Applied Technology for Concrete Repair," INTECH, Croatia, 2013; "Advances in Physicochemical Properties of Biopolymers", Bentham Publishing, USA, April 2016; "Biopackaging", CRC Press, April 2017. He is Editor-in-Chief and Founder of the *Journal of Polymer and Biopolymers Physics Chemistry*, July 2013.

[masuelli@unsl.edu.ar](mailto:masuelli@unsl.edu.ar)

Notes: