

International Conference on

Sustainable Bioplastics

November 10-11, 2016 Alicante, Spain

Thermal properties of biofilms obtained from epoxidized fatty esters *Pseudoplatystoma corruscans*, *mesopotamicus Piaractus* and *Glycine*

Lúcia Helena Innocentini Mei¹, Tairine Pimentel², Camila de Souza Andrade³, Gustavo Graciano Fonseca⁴ and Farayde Matta Fakhouri^{1,4}¹University of the Campinas, Brazil²State University of the Mato Grosso do Sul, Brazil³Federal University of the Mato Grosso do Sul, Brazil⁴Federal University of the Grande Dourados, Brazil

For the formation of a biofilm it is ideal that it is composed of at least a macromolecule such as starch (polysaccharide) and gelatin (protein). Biofilms obtained from these two types of polymers, indicate good mechanical properties and good barrier to gas vapour, O₂ and CO₂ present, little resistance to water vapour permeability, they are significantly soluble. An outlet for repairing such low permeability to water vapour is the inclusion of lipids to these polymeric bases. This study aimed to evaluate the thermal properties (DSC) films produced from lipophilic corn starch, gelatin (4:1) and ester fatty epoxidized (15% by weight of the starch) of two species of fish, *Pseudoplatystoma corruscans* (EPPI) and *Piaractus mesopotamicus* (EPPA), and plant species *Glycine max* (EPSO). The determination of the glass transition temperature (T_g) analyses were performed by differential scanning calorimetry, using a TA Instruments calorimeter (USA), Model TA 2010. The sample film pattern composed of starch and gelatin showed only lower T_g two of the samples, 99.29°C except for sample EPPI which showed glass transition temperature 64.90°C, as another animal species, EPPA indicated two T_g ranges, 123.72°C and 136.19°C and EPSO indicated only approximately 122.96°C, or these temperatures, biofilms exhibit a change in physical properties of the starting material, which passes from a rigid state to a viscous state.

Biography

Lucia Helena Innocentini Mei did her Graduation, Master and PhD in Chemistry from the State University of Campinas. She is Titular Professor in Polymer Science - UNICAMP, with emphasis on polymers: Biodegradable, biomaterials, composites and blends. She participated in the group of experts Pásticos Environmentally Degradable organized by ICS (International Center for Science and High Technology Trieste/Italy) -UNIDO (United Nations Industrial Development Organization). Her most recent research focuses on nanofibers and nanocomposites, natural or biodegradable polymers. She is developing projects with companies and State research institutions, such as Petrobras and private. She is a Winner of Inventor 2010 Petrobras Award.

fumei@feq.unicamp.br

Notes: