



PROPERTIES OF THE CASSAVA STARCH AND MONTMORILLONITE COMPOSITE FILMS

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There has been growing interest of the use of biodegradable polymers for packaging materials in order to reduce to environmental pollution caused by plastic wastes. Starch is known to be completely biodegradable in soil and water and inexpensive.

In this study of starch films processed with mono extruder add of glycerol as plasticizer in the materials of organic-inorganic hybrid, it based on natural polysaccharide of cassava and nanoclay. The cassava starch/montmorillonite composite films were prepared by solution exfoliation process where it was added cassava starch with 30 % of glycerol and montmorillonite clay, in order to produce starch films with homogeneous dispersion of nanoclay particles.

Nanocomposites based on nanoclays are used in strategies for modifying the mechanical properties from the exfoliation and intercalation de nanoparticles in biodegradable polymers.

The materials were analyzed by Differential scanning calorimetric (DSC), Thermogravimetric Analysis (TGA), Fourier transform infrared (FTIR), Scanning electron microscopy (SEM) and Optical microscopy (MO).

The results indicated the formation of exfoliated hybrid materials, in witch the polymer matrix recovers separated inorganic layers when low clay concentration is used. On the other hand, when great amounts of clay are added, the intercalated hybrid materials are formed, with homogenous insertion of polymer chains into the layered inorganic structure.

Results concerning the thermal stability will be compared to films without the nanoclay.

References

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