



### EXTRUSION AND CHARACTERIZATION OF THERMOPLASTIC STARCH SHEETS FROM "MACHO" BANANA.

#### ABSTRACT

Starch isolated from macho banana was oxidized by using 2.5% and 3.5% (w/w) of sodium hypochlorite. Native and oxidized starches with glycerol were processed using a conical twin screw extruder to obtain thermoplastic laminates or sheets, which were partially characterized. Oxidized banana starches presented higher moisture and total starch but lower ash, protein, lipids, and apparent amylose content than the native starch. Micrographs of sheets from oxidized starches showed wrinkles and cavities presumably caused by the plasticizer, but with less free glycerol and unplasticized starch granules than those from native starch. Sheets from oxidized starch showed a notorious increase in all thermal parameters ( $T_o$ ,  $T_p$ , and  $\Delta H$ ), mechanical properties (tensile strength, elongation at break, and elasticity), and solubility. Banana starch X-ray diffraction patterns corresponded to a mixture of the A- and B-type polymorphs, with apparently slightly higher crystallinity in oxidized specimens than in native starch. A similar trend was observed in the corresponding sheets.

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