



### ACETYLATION OF BANANA (*MUSA PARADISIACA* L.) AND MAIZE (*ZEA MAYS* L.) STARCHES USING A MICROWAVE HEATING PROCEDURE AND IODINE AS CATALYST: PARTIAL CHARACTERIZATION.

#### ABSTRACT

Banana and maize starches were acetylated with acetic anhydride in the presence of different levels of catalytic agent (iodine) using microwave heating. Degree substitution, the Fourier transforms infrared (FT-IR) spectra, the morphological properties, the gelatinization and retrogradation characteristics, the pasting property and X-ray diffraction pattern were evaluated. The FT-IR study showed that acetylation was produced in both starches, a strong absorption band at  $1740\text{ cm}^{-1}$ , and this signal rose when the concentration of iodine increased; this pattern was corroborated with degree substitution of both starches. SEM revealed more exo-corrosion and fusion in acetylated maize starch granules. Acetylated banana starch had higher crystallinity level than maize starch, and the crystallinity level decreased when the catalyst concentration increased. Similar pattern was shown for the average temperature and enthalpy of gelatinization. In general, the acetylation retards the starch retrogradation, but at longer storage time this effect was minimized. Difference in the retrogradation level was found between both starches. Using microwave heating and different iodine concentrations as catalyst is possible to produce acetylation of starch with specific physicochemical characteristics.

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