**ISOLATION AND CHARACTERISATION OF AMYLOSE-LIPID NANOMATERIALS FROM MAIZE STARCHES MODIFIED WITH STEARIC ACID**

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Amylose lipid complexes (ALC) are formed when fatty acid methylene tail enters the hydrophobic core of amylose helical structure from starch. This research determines the isolation of ALC using a ‘green’ chemistry principles.

Normal and Maize starch was pasted with stearic acid at 91 °C for 120 minutes. The paste was then hydrolysed with thermostable alpha amylase and washed with distilled water to remove the soluble dextrins. Wide angle X-ray scattering showed the residues to be amylose lipid complexes (ALC) and Differrential scanning calorimetry showed they were of type II. Atomic force microscopy and electron microscopy showed ALC to be about 2.5-7 nm. The yield of nanomaterials obtained were about 28% from normal maize starch and 50% from high amylose maize starch. The isolation was possible as alpha amylase did not hydrolyse the alpha 1-4 glycosidic bond as the latter is burried inside the complex. Thus the glycosidic bond is not available for hydrolysis.

The simple pasting followed by enzyme hydrolysis shows potential to isolate ALC as nanomaterials and can be considered as ‘clean label’ to be used in food system. Nanomaterials in foods have limited use as most are from non-edible source. ALC produced here are edible.