



Fourier Transform Infrared Spectroscopy (FTIR) Analysis of Biodegradable Films Based On Modified Colombian Starches of Cassava and Yam

Torrenegra M^{1,2,3}, Solano R^{1,2*}, Herrera A², León G^{1,2,3}, Pajaro A⁴

¹Research Group on Biotechnology and Innovation (GIBEI). Center for Trade and Services. Servicio Nacional de Aprendizaje (SENA). Cartagena-Colombia.

²Nanomaterial and Computer Assisted Process Engineering. Faculty of Engineering, University of Cartagena, Cartagena-Colombia.

³PhD student in Engineering. Faculty of Engineering, University of Cartagena, Cartagena-Colombia.

⁴Research Group on Processes of the Petrochemical Industry (GIPIPQ). Center for the Petrochemical Industry. Servicio Nacional de Aprendizaje (SENA), Cartagena-Colombia.

Abstract : Yams and other tubers such as potatoes, cassava and sweet potatoes represent crops of great economic importance worldwide, constituting the main source of income and employment in many rural areas of the world. In Colombia is important in the Caribbean coast the cultivation of these species type tubers, since there is concentrated 90% of the national production, mainly in 26 municipalities belonging to the departments of Sucre, Córdoba and Bolívar. There are some identified by the Secretary of agriculture the agricultural sector of Bolivar factors that impede its accelerated development and improvements in competitive terms, within which are the poor infrastructure, especially in irrigation and tertiary pathways, weak direct rural technical assistance and low capacity of producers to generate revenue because of the limited market that have their harvested products. For this reason, is required to expand the use of native tubers (cassava, sweet potato and Yam) in other industrial sectors, to increase demand and favor the growth of the Department's agricultural sector. In the present investigation proposes the use of native starches as raw material in the production of food packaging, which were modified chemically by reaction of hydrolysis and esterification (DDSA, OSA and AA). Starches and films based on native and modified starches were characterized by FTIR spectroscopy and the results revealed that employed reactions can add hydrophobic functional groups to improve the water resistance of the biodegradable films based on starches.

Keywords : Cassava, Sweet potato, films, chemical modification, starch.

Solano R A. *et al* //International Journal of PharmTech Research, 2018,11(4): 368-376.

DOI: <http://dx.doi.org/10.20902/IJPTR.2018.11408>
