

Mechanical Testing on Bioplastics Obtained from Banana and Potato Peels in the City of Bogotá, Colombia

Authors : Juan Eduardo Rolon Rios, Fredy Alejandro Orjuela, Alexander Garcia Mariaca

Abstract : For banana and potato wastes, their peels are processed in order to make animal food with the condition that those wastes must not have started the decomposition process. One alternative to taking advantage of those wastes is to obtain a bioplastic based on starch from banana and potato shells. These products are 100% biodegradables, and researchers have been studying them for different applications, helping in the reduction of organic wastes and ordinary plastic wastes. Without petroleum affecting the prices of bioplastics, bioplastics market has a growing tendency and it is seen that it can keep this tendency in the medium term up to 350%. In this work, it will be shown the results for elasticity module and percent elongation for bioplastics obtained from a mixture of starch of bananas and potatoes peels, with glycerol as plasticizer. The experimental variables were the plasticizer percentage and the mixture between banana starch and potato starch. The results show that the bioplastics obtained can be used in different applications such as plastic bags or sorbets, verifying their admissible degradation percentages for each one of these applications. The results also show that they agree with the data found in the literature due to the fact that mixtures with a major amount of potato starch had the best mechanical properties because of the potato starch characteristics.

Keywords : bioplastics, fruit waste, mechanical testing, mechanical properties

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