



## Comparison of Fructose and Glycerol as Plasticizers in Cassava Bioplastic Production

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### Abstract:

This research paper is an investigation into the effects of fructose and glycerol as plasticizers in cassava bioplastic production. The experiments were carried out at the University of Eastern Africa, Baraton Department of Chemistry. The objectives of the research were to produce cassava-based bioplastics in the University of Eastern Africa, Baraton Chemistry Department Laboratory, to investigate the use of fructose and glycerol as plasticizers in the production of the cassava-based bioplastics and to conduct physical and chemical quality tests on the bioplastics to determine which plasticizer is best for industrial use. A Randomized Complete Block Design (RCBD) was used in the experiments. The parameters measured were film thickness, density, moisture content, solubility in water, water absorption, swelling index, and biodegradability test. Overall, fructose as a plasticizer is recommended over glycerol and over fructose and glycerol.

### Biography:

Stephen Mukuze is a student and holds a BSc in Agriculture with a minor in Biology (Biotechnology option). He



is currently pursuing a Master of Science degree in Bioengineering at the University of Tartu in Estonia. Stephen has had 2 years' worth of experience working with bioplastics as an intern with the Center of Science and Technology Innovations in Kenya. He has produced a working bioplastic bag prototype from cassava and has published a research paper on the subject with the Advanced Journal of Graduate Research. Stephen has additional experience as a Cell-free chassis engineer with OURSAfrica which won the idea stage of the 4th Nairobi Innovation Week competition held in Kenya.

### Recent Publications:

1. Stephen Mukuze et al; Comparison of Fructose and Glycerol as Plasticizers in Cassava Bioplastic Production, 2019

**Future Scope for Biopolymers and Bioplastics; May 04-05, 2020; Vienna, Austria.**

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