Title: THE FUTURE OF FIBERS: *AN INDIGENOUS GREEN APPROACH TO AN URBAN GREEN TEXTILE ECONOMY*

Presenting author name : STEPHANIE KOBEHLO MUSOMBI

Affiliation details of Presenting author (Designation such as University/department, Institution or Hospital State, Country)

LECTURER

TEXTILES AND FASHION DESIGN

LILONGWE UNIVERSITY OF AGRICULTURE AND NATURAL SCIENCES (LUANAR)- NATURAL RESOURCES COLLEGE

MALAWI

Co-authors' details

1. JACQUELINE KISATO

   LECTURER

   FASHION DESIGN AND MARKETING

   KENYATTA UNIVERSITY

   KENYA

2. MERCY WANDUARA

   LECTURER

   FASHION DESIGN AND MARKETING

   KENYATTA UNIVERSITY

   KENYA

Abstract:

The contribution of the textile industry among others to global pollution has partly been attributed to its utility of plastic bags for packaging. Given that plastic bags are non-biodegradable, they end up in landfills or oceans. Solutions to the plastic bag menace have

mainly pointed out to encourage the manufacture and use of biodegradable paper bags from wood pulp thus fueling the rate of deforestation. Ironically, non-wood options such as banana stem fiber have not been lacking, however they have not been exhaustively explored.

In light of this, our study innovated, replicated, adapted and modified current biodegradable packaging construction systems to come up with a greener process of production of packaging. Using banana fibers as a pulp source, we developed a protocol for constructing biodegradable packaging from banana waste. The properties of the constructed packaging were tested. This included; an SEM analysis, water absorbency, bursting strength, tearing resistance and tensile strength. The SEM analysis revealed similar inter-fiber bonding patterns between the organically pulped packaging sample and the positive control constructed using the commercial delignification reagent with the former having slightly larger voids than the latter a quality that attracts more water absorption. Additionally, results revealed that banana stem fiber packaging constructed using an organically derived delignification reagent generally yields similar properties to those made using commercial delignification reagents. An enhancement of the various aspects of the process was recommended to improve some of the mechanical properties such as water absorbency and tensile strength.

Biodegradability as one function of cell activities run by microorganisms stands to be one that our green future depends on. It has been neglected by many industries such as the textile industry which has been listed as one of the top five most pollutant industries globally. This research aspires to enlighten and promote a green economy by illustrating how there are ways to navigate negative impacts of packaging production as one of the contributors to global pollution.

Biography:

Short biography of Presenting author and attach latest HD photo.

Stephanie Kobehlo Musombi is a Lecturer in textiles and fashion design, a research scientist, creative designer and environmental preservation enthusiast. She is Interested in creating sustainable solutions and strategies in research, design and academia. She is motivated to improve the quality of systems in exploring and promoting a green economy.