

# **CHARACTERIZATION OF PINEAPPLE LEAF FIBER FOR A REINFORCED BIO-COMPOSITE**

*BY:*

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## DECLARATION

With absolute sincerity, I OSINDE JOB an under graduate student of Bachelor of Science in Textile Engineering do consent that this is my original copy of final year project report carried out from Busitema University under Faculty of Engineering and it has neither been submitted at any other higher institution except at Busitema University nor is anybody authorized to duplicate it without author's official permission.

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## **DEDICATION**

To my beloved parents late Mr. OSINDE OKETCHO JAMES and Ms. ADIKINI SARAH and all indispensable guardians who rendered their assistance to me.

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## ABSTRACT

Green materials and composites is a movement that has been gained the global attention over the past few years. Recently, green materials are planned to be environmentally responsible, economically viable, and healthy places to live and work. One of the main materials that are currently used in green materials is biocomposite. Biocomposites are emerging as the replacement to synthetic fiber reinforced composites. They are environmentally friendly and help to eliminate the increasing cost of using petroleum-based materials. Biocomposites are the combination of natural fibers or biofibers (usually derived from plants or cellulose) with polymer matrices. Biofibers offer many advantages such as renewability, recyclability, biodegradability, low specific gravity, and high specific strength. In addition, using biofibers can address the ecological and economical concerns of the industrial materials. Generally, biocomposites have received increasing attention from both of the academic world and industries as building, automotive, packaging, decoration and so on. This paper discusses about the Extraction of PALF, some of its physical and mechanical properties and biocomposite formation and its properties.

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## TERMS AND ACRONYMS USED

- 1) PALF-pineapple leaf fiber
- 2) MUK-Makerere university

## CHAPTER ONE: INTRODUCTION

### 1.1. Background

Uganda is a landlocked country on the equator in East Africa with a total area of 241,038 km<sup>2</sup>, (*Bureau of African Affairs*, August 10, 2011). Compared to most countries in the Sub-Saharan Africa, Agriculture is a prominent practice in Uganda's economy because of its overall contribution to economic growth, supplies of foods and fruits, fiber and other raw materials.

Traditionally, agricultural materials have been shipped away for processing, or disposed of postharvest. Diversification of the industry is crucial in encouraging economic stability and growth. Value-added processing would help in agricultural diversification.

Pineapple Leaf Fiber (PALF), the subject of the present study, is a waste product of pineapple cultivation. Hence, pineapple leaf fiber can be obtained for industrial purposes without any additional cost.

In Uganda, there are no large-scale pineapple growers at present and pineapple is produced exclusively as a smallholder crop by farmers in Kayunga, Luwero district (*Ssonko et al.*, 2005) and other places grown as a sole crop or an intercrop with bananas and avocados, with cover crops with *Macropsis eminii* and Mango trees mostly in Kasese district and eastern Uganda districts.

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