BUSITEMA UNIVERSITY

Pursuing Excellence

FACULTY OF ENGINEERING

DEPARTMENT OF TEXTILE AND GINNING ENGINEERING

EXTRACTION OF FIBERS FROM COCONUT HUSKS AND YARN PRODUCTION.

BY

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BU/UG/2012/148

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF TEXTILE AND GINNING ENGINEERING IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF A DEGREE OF BACHELOR OF SCIENCE IN TEXTILE ENGINEERING OF BUSITEMA UNIVERSITY

MAY 2016

DECLARATION

I Kyomugisha Sharon Katambi, BU/UG/2012/148 hereby declare that the project entitled; 'EXTRACTION OF FIBERS FROM COCONUT HUSKS AND YARN PRODUCTION' is my original work. I have not copied any work from any other students or from any other sources except where due reference or acknowledgement is made explicitly in the text, nor has any part been written for me by another person.

Signature.....

APPROVAL

This is to approve that this project has been fully and consistently worked on and submitted to the department of textile and ginning under the supervision of the undersigned supervisors;

Signature: ..... Date: .....

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ACKNOWLEDGEMENT

First and foremost I acknowledge the Almighty God for His guidance during the project. I would also like to express my sincere thanks to my project supervisor Dr. Nibikora Ildephonse for his continual guidance, support and tireless efforts towards this project. I wish to extend warm thanks to all those who have helped and supported me. Final thanks to my family for their continual encouragement and support during my academic journey. May God bless them.

ABSTRACT

The study analysed the coconut fibers, also known as coir fibers, and yarns from Coconut husks for their spinnability and weavability properties. The properties analysed are count strength product (CSP), micronnaire, single yarn strength, RKM. I used water retting and manual extraction to get the fibers where in water retting the coconut husks were steeped in water for three weeks to extract the fibers and in manual extraction, fibres were scrapped off the coconut husk by use of hands.

Sodium hydroxide solution/ caustic soda was used at two different concentrations of 10% and 20% to soften these fibres. This caustic soda solution removes and solubilizes impurities from the fibres.

The control experiment processes were done without the use of chemicals for treating the coir fibers.

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LIST OF ACRONYMS

BD	Buster Decorticator
CD	Crusher Decorticator
COD	Chemical Oxygen Demand
CSP	Count Strength Product
EC	Electrical Conductivity
Ne	English system
Nm	Metric system
SRNL	Southern Range Nyanza Textile Limited
RKM	Reisskilometer
UASB	Up flow Anaerobic Sludge Blanket

CHAPTER ONE

INTRODUCTION

1.1 Background

The availability of natural fibers in abundance and their relative cheaper price when compared to other advanced man-made fibers has led to interest in their uses. These natural fibers are used as a suitable reinforcing material and they are now emerging as a potential alternative for glass fibers in engineering composites[3].

The primary advantages of natural fibers are low density, low cost, biodegradability, less wear during processing and low energy consumption during extracting as well as wide varieties of natural fibers are locally available. Mature brown coir fibers contain more lignin and less cellulose than fibers such as flax and cotton and are thus stronger but less flexible. The coir fiber is relatively waterproof and is the only natural fiber resistant to damage by salt water. The fibrous layer of the fruit is separated from the hard shell manually by driving the fruit down onto a spike to split it, a process known as de-husking. Because of its hard wearing quality, durability, and many more advantages it thus used in making a variety of floor furnishing materials, yarn, ropes etc.

Coir fibers are lingo-cellulosic natural fibers ;they are seed hair fibers obtained from the outer shell of a coconut husk ,they are resistant to abrasion and can also be dyed thus making them very useful fibers especially in Third world countries.

The lingo-cellulosic fibers are hydrophilic and absorb moisture. There is a large amount of hydrogen bonds (hydroxyl groups -OH) presents between the macromolecules in the plant fiber cell wall.

1.2 Problem Statement

In addition to manufacture, use and removal of traditional textile materials are now considered more critically because of increasing environmental consciousness and the demands of legislative authorities. The interest for renewable resources for fibers particularly of plant origin is increasing in that several traditional plants are being studied with the aim of isolating fibres from plant leaves or stem.

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