

# **Faculty of Science Chemistry Department**

# AGRICULTURAL RESIDUES FOR PACKING AND PACKAGING PAPERS

By

## **SALAH ABDELMOHSEN ABDOU MOHAMED**

Assistant Researcher- National Research Center M. Sc. Degree in Chemistry 2006

Alazhar University

# For Degree of Doctor of Philosophy in Science Chemistry

To
Chemistry Department
Faculty of Science
Ain Shams University
2014



# AGRICULTURAL RESIDUES FOR PACKING AND PACKAGING PAPERS

A thesis submitted by

# SALAH ABDELMOHSEN ABDOU MOHAMED Packing and Packaging Materials Department M.Sc. Degree in Chemistry 2006

For

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My father and my mother whose favors are beyond description.

My grandfather and grandmother

My brothers and my sisters,

My wife and my daughters

My uncles and their Sons

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for supporting me, for their kindness and for their guidance.

#### AIM OF THE WORK

This study aims to the utilization of indigenous agricultural residues as bagasse as raw materials for making pulp suitable to prepare paper for packaging purposes. Effect of some additives and/or treatment may be studied to acquire the prepared papers the desired properties for packaging purposes.

- 1. Collection & processing of raw materials.
- 2. Pulping of raw materials by different chemical or chemimechanical methods as kraft, soda, cold soda and ammonium methods
- 3. Effect of some additives and/or treatments on paper to acquire the desired properties.
- 4. Testing for the appearance and performance of the prepared papers.
- 5. Application of the prepared papers for packaging purposes.

**ABSTRACT** ii

### **ABSTRACT**

Agricultural residues for packing and packaging papers
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National Research Center (NRC)

The aim of this work is to get rid of agricultural residues, which consider a big environmental problem and its utilization in the production of economic products. The most local abundance of agricultural residues is bagasse fibers. The use of paper-pulp packaging has become more attractive than traditional materials.

In this study we have studied the following:

- 1- Preparation liner paper of bagasse board by cold soda pulping methods and investigation the mechanical and physical properties of prepare sheets.
- 2- Studding the influence of starch and\or borax as fillers on paper properties.
- 3- Studding the effect of some natural polymer on paper sheets, of 80 gm\ m<sup>2</sup> grammage made from bagasse supplied from Edfu Co., on the mechanical and physical properties of coated paper sheets.