

**EXTRACTION AND CHARACTERIZATION OF CRUDE WAX  
FROM SUGARCANE BAGASSE**

**An Undergraduate Thesis  
Submitted to the Faculty of the  
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**In Partial fulfillment  
of the requirements for the degree of  
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Extraction and characterization of crude  
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## ABSTRACT

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This study was conducted at the laboratory room of the Department of Physical Sciences, Cavite State University, Indang, Cavite and at the Sucrolab, Philippine Sugar Institute, Diliman, Quezon City. Generally, this study aimed to extract and characterize the crude wax from sugarcane bagasse. Specifically, it aimed to: 1) extract the crude wax from sugarcane bagasse, 2) determine the physical and chemical properties of crude wax extracted from sugarcane bagasse and, 3) identify the functional groups of wax using instrumental methods of analysis.

One kilogram of sugarcane bagasse was collected from Central Azucarera Don Pedro, Nasugbu, Batangas. Crude wax was extracted by using 95% ethyl alcohol with Soxhlet extractor. Several physical and chemical tests such as melting point, solubility tests, test for organic elements, saponification number, acid number, ester number and infrared spectroscopy were conducted on the extracted crude wax.

Findings showed that crude wax from bagasse has a relatively good waxing property. Obtained values from different tests were 0.6 percent percentage yield, 72 °C melting point, 76.99 saponification number, 27.37 acid number, 49.62 ester number. Carbon, hydrogen and oxygen are present in crude wax. Crude wax was found insoluble in water but partially soluble in organic solvent such as benzene, ethyl alcohol, and ether.

Results showed that the IR spectrum of the sample showed absorption peaks that were absorbed in crude wax spectrum: 3318  $\text{cm}^{-1}$  (O-H stretch), 2850  $\text{cm}^{-1}$  (Aliphatic C-



H stretch), 2918  $\text{cm}^{-1}$  (Aliphatic C-H stretch), 1713  $\text{cm}^{-1}$  (C=O stretch), and 1735  $\text{cm}^{-1}$  (C=O stretch).

	Page
BIOGRAPHICAL DATA	10
ACKNOWLEDGMENT	14
ABSTRACT	vi
LIST OF TABLES	18
LIST OF FIGURES	20
LIST OF APPENDICES	210
INTRODUCTION	1
Importance of the Study	2
Objectives of the Study	2
Scope and Limitation of the Study	3
REVIEW OF RELATED LITERATURE	4
The Synthesis Part	4
The Products of Soap and Their Uses	4
Biomass as Feedstock	5
Importance of Feedstock	8
Collection of Feedstock	9
Preparation	10
Test for Organic Matter	12
Infrared Spectroscopy	13
MATERIALS AND METHODS	14



## TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA .....	iii
ACKNOWLEDGMENT .....	iv
ABSTRACT .....	vii
LIST OF TABLES .....	xi
LIST OF FIGURES .....	xii
LIST OF APPENDICES .....	xiii
INTRODUCTION .....	1
Importance of the Study .....	2
Objectives of the Study .....	2
Scope and Limitation of the Study .....	3
REVIEW OF RELATED LITERATURE .....	4
The Sugarcane Plant .....	4
By-Products of Sugar and Their Uses .....	4
Bagasse as By-Product .....	5
Cane Wax .....	5
Sugarcane Wax, Fats and Sterols .....	8
Competing Waxes .....	9
Extraction .....	10
Test for Organic Elements .....	12
Infrared Spectroscopy .....	13
MATERIALS AND METHODS .....	15



RESULTS AND DISCUSSION .....	23
Physical Properties of Crude Wax .....	23
Chemical Properties of Crude Wax .....	25
SUMMARY, CONCLUSION AND RECOMMENDATION .....	29
Summary .....	29
Conclusion .....	30
Recommendation .....	31
LITERATURE CITED .....	32
APPENDICES .....	34