## FIBER MORPHOLOGY PROPERTIES OF KEKABU

(Ceiba pentandra)

BY

NURUL NADIA BINTI HARUN NUR AZLINA BINTI AMIRRUDDIN

Final Project Submitted in Partial Fulfillment For The Diploma In Wood Industry
Faculty Applied Science,
Universiti Teknolog MARA Pahang

### **ACKNOWLEDGEMENTS**

Alhamdulillah, a very grateful to Allah because with his blessing, we successfully finishing my project paper.

We would like to express our sincere gratitude to my advisor Prof. Dr. Suhaimi

Muhammed who lectured us for the final project for his continuous help, encouragement,

and guidance throughout the study in order to finish our project paper.

We want to take this opportunity to dedicate a thousand of thanks to our parent, for their constant supports us morally, patience and continuous encouragement during our final project.

Thanks also due to Mr Rudaini Mohd Nawawi and Mr Sardey the staff of Wood laboratory and Wood Department Workshop who has spent much time with wait upon the study and had given a really good co-operation in everything in workshop laboratory.

Last but not least, thanks to all of our friends. You all have been very nice friends in the world. You guys always bring joy in our days.

### TABLE OF CONTENTS

TITLE		<b>PAGE</b>
AKNOWLEDGEM	ENT	I
DEDICATION		II
TABLE OF CONTI	ENTS	III
LIST OF TABLES		V
LIST OF FIGURES	<b>.</b>	VI
LIST OF ABREVA	TIONS	VII
ABSTRACT		VIII
ABSTRAK		IX
CHAPTER I		
1.0 INTRODUCTIO	N	1
1.1 Justification	on	3
1.2 Objective	9	3
CHAPTER 2		
2.0 LITERATURE R	EVIEW	4
2.1 General C	haracteristic	4
2.2 Physical C	Characteristic	5
2.3 Mechanic	al Properties	6
2.4 Uses		7
2.5 Important	of fiber properties	7
2.5.1	Fiber length	7
2.5.2	Cell wall thickness	9
2.5.3	Runkle Ratio	9
2.5.4	Coefficient of suppleness	9
2.5.5	Felting Power	10
CHAPTER 3		
	D METHOD	
3.1 Raw mate	rial preparation	11
3.2 Fiber mac	eration	13
	aration	
3.4 Fiber mea	surement	14
CHAPTER 4		
	DISCUSSION	
	re result of fiber Morphology properties	
4.2 Effect on 1	height level on fiber properties	27

5.0 CONCLUSION	34
REFERENCESS	36
APPENDIXES	38
VITA	41

Abstract of Final Project Paper Submitted in Fulfillment the Requirement for the Diploma In Wood Industry, Fakulty of Applied Science, Universiti Teknologi Mara.

# FIBER MORPHOLOGICAL PROPERTIES OF KEKABU (Ceiba Pentandra)

By

### Nurul Nadia Binti Harun Nur Azlina Binti Amirruddin

#### ABSTRACT

Fiber morphology of Kekabu (Ceiba Petandra) according to height level was ascertained. The variation of the fiber properties of Kekabu with different portion were also determines. The samples representing with Diameter Breast Height (DBH) known as bottom 20%, middle 50% and 80% for top portion. The results are indicated that the bottom of Kekabu showed the highest value in fiber length. The fibers were observed using the microscope to measure the fiber length, fiber diameter, cell wall thickness and lumen width. From the data the runkel ratio, Felting power and coefficient of suppleness value were determined. The longest length of fiber is obtained from bottom 20% height level with 2.01mm and the shortest is obtained from top 1.5284mm. The largest diameter of Kekabu fiber is found at top 80% height level with 35.73μm and the smallest is middle 50% with 30.57μm. For lumen width the highest value is obtained from top 80% with 24.85μm while the lowest is at bottom 20% with 18.44μm. The largest wall thickness from this species is found at bottom 20% height level with 6.34μm and the smallest is from top 80% with 5.49μm.