

**MECHANICAL PROPERTIES OF ORIENTED STRAND BOARD FROM  
KELEMPAYAN SPECIES (*Anthocephalus chinensis*) WITH DIFFERENT  
DENSITY AT 5% RESIN CONTENT**

By

**NORHAYATI BTE SEDARI**

**Final Project Submitted in Partial Fulfillment for the Diploma in Wood Industry,  
Applied Science Faculty  
Universiti Teknologi MARA, Pahang.**

**October 2003**

## TABLE OF CONTENTS

	Page
<b>APPROVAL SHEET.....</b>	<b>i</b>
<b>DEDICATION.....</b>	<b>ii</b>
<b>GRADUATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iv</b>
<b>LIST OF TABLES.....</b>	<b>v</b>
<b>LIST OF FIGURES.....</b>	<b>vi</b>
<b>LIST OF PLATES.....</b>	<b>vii</b>
<b>ABSTRACT.....</b>	<b>viii</b>
<b>ABSTRAK.....</b>	<b>ix</b>
 <b>CHAPTER</b>	
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 Justification.....	2
1.2 Objective.....	2
<b>2.0 LITERATURE REVIEW</b>	
2.1 History of OSB.....	5
2.2 Types OSB.....	6
2.3 Grades and Classifications of OSB.....	7
2.3.1 Structural Grades.....	7
2.3.2 Exposure Durability Classification.....	8
2.4 Commercial Manufacturing of OSB	
2.4.1 The Timber Resource.....	8
2.4.2 Log Hauling and Sorting.....	9
2.4.3 Jack Ladder.....	9
2.4.4 Debarking.....	9
2.4.5 Stranding.....	10
2.4.6 Wet Bins.....	10
2.4.7 Drying.....	11
2.4.8 Blending.....	11
2.4.9 Forming Line.....	12
2.4.10 Pressing.....	12
2.4.11 Finishing Line.....	13
2.4.12 Shipping.....	13

2.5 The Properties of OSB.....	14
2.5.1 Workability.....	14
2.5.2 Nailability.....	15
2.5.3 Fire Performance.....	15
2.5.4 Moisture Performance.....	15
2.5.5 Gluability.....	15
2.5.6 Paintability.....	16
<b>3.0 MATERIAL AND METHOD</b>	
3.1 Preparation of OSB .....	18
3.1.1 Logging.....	18
3.1.2 Debarking.....	18
3.1.3 Flaking.....	19
3.1.4 Pre-Dry.....	20
3.1.5 Screening.....	20
3.1.6 Drying.....	21
3.1.7 Mixer or Blending.....	22
3.1.8 Mat Forming.....	24
3.1.9 Pre-pressing.....	25
3.1.10 Hot Pressing.....	25
3.1.11 Conditioning.....	27
3.2 Testing	
3.2.1 Bending test.....	29
3.2.2 Internal bond.....	30
<b>4.0 RESULT AND DISCUSSION</b>	
4.1 Modulus of Elasticity (MOE).....	33
4.2 Modulus of Rupture (MOR).....	34
4.3 Internal Bond (IB).....	36
<b>5.0 CONCLUSION AND RECOMMENDATION</b>	
5.1 Conclusion.....	38
5.2 Recommendation.....	39
<b>REFERENCES.....</b>	40
<b>APPENDIXES 1.....</b>	41
<b>APPENDIXES 2.....</b>	43
<b>VITA.....</b>	45

## **ACKNOWLEDGEMENT**

Bismillahirrahmanirrahim.....

Thanks to Allah S.W.T. The Al-Mighty and with His Will we are able to complete the Final Project (WTE 375) and submitting my report successfully.

I wish to convey our thanks and gratitude to my first advisor Mr. Wan Mohd Nazri Bin Wan Abdul Rahman because of his guide and lesson and helping me at every phase of the study. He is generous in lending me helping hands and showing me correct ways of forming my task. I would like to express my most sincere thanks to him .Special thanks also to my second advisor Assoc Prof. Dr. Suhaimi Bin Muhammed because give me an advice.

I also wish to convey my word of thanks to my beloved parents because with their pray, I succeed this project and they is my source inspiration.  
To all my classmates, thanks for your cooperation and friendship forever.

Finally, I would like to offer our sincere thanks to all staff in Wood Industry Department and Forestry Research Institute Malaysia (FRIM) who has been involved in finalizing in this study.

Thanks for your support.

## **ABSTRACT**

# **MECHANICAL PROPERTIES OF ORIENTED STRAND BOARD FROM KELEMPAYAN SPECIES (*Anthocephalus chinensis*) WITH DIFFERENT DENSITY AT 5% RESIN CONTENT**

By

**NORHAYATI BTE SEDARI**

OCTOBER 2003

Oriented strand board (OSB) is the one of the many types of product based on wood. It is a new product that introduce in Malaysia. The research that has been done with used Kelampayan species (*Anthocephalus chinensis*) as raw material shows the validity result. The tests of bending and internal bond were achieved the result over the standard (British standard). The result that are got said with using the different density influences the properties of OSB in OSB manufacturing. Higher density with resin can produce the good quality of OSB.