

BENDING TESTING OF PULAI
(*Alstonia Angustiloba*)

FAIRUZ BT MOHD SALLEH
MOHD HANIF B OTHMAN
MOHD HASRI B ABDUL HALIM
SUHAILA BT MOHAMED

**Final Project in Partial Fulfillment for the Diploma In Wood Industry,
Of Faculty Applied Sciences, Universiti Teknologi MARA Jengka, Pahang.**

NOVEMBER 2008

ACKNOWLEDGMENT

First of all we would like to thank the Almighty ALLAH for giving opportunity and blessing to complete our project within the given time. Without blessing and co-operation between group members and everyone that contributes to project, we cannot complete this project.

Special thanks to our advisor, Prof. Madya Dr. Suhaimi b Mohamad whose willingness to contribute his knowledge, time and effort till we completed our final project paper. He also give me guidance also references and offering comment as the project evolved.

Thanks also to other lecturer who's helped our either direct and indirectly especially Prof. Madya Dr. Jamaluddin b Kasim and not forgetting to the lab assistant Mr. Sardey for his help in our testing.

Special thanks is dedicated to our families for all the support and prayers to our friends, thank you for the moral support much needed. To all my members from class A and B, especially to group A members that 100% commitment from the beginning until we finish this project, without co-operation between us, this project could not be done. Thank you very much.

Finally thank you to all that helps along the way in completing this project.

TABLE OF CONTENT

CONTENT	PAGE
APPROVAL SHEET.....	iii
DEDICATION.....	iv
ACKNOWLEDGEMENT.....	v
LIST OF TABLE	vi
LIST OF FIGURE.....	vii
LIST OF PLATE.....	viii
LIST OF ABBEREVIATIONS.....	x
ABSTRAK.....	xi
ABSTRACT.....	xii
<u>CHAPTER 1</u>	
• Introduction	1
1.1 General.....	1
1.2 Problem Statement.....	3
1.3 Justification.....	4
1.4 Objective.....	6
<u>CHAPTER 2</u>	
• Literature Review.....	7
2.1 Anatomical Properties of Wood.....	7
2.1.1 Vessel and Pores.....	9
2.1.2 Wood Parenchyma.....	10
2.1.3. Rays.....	10
2.1.4. Fibers.....	11
2.1.5. Tyloses.....	12

2.1.6. Included phloem	12
2.1.7. Intercellular canals.....	12
2.2 Heartwood and Sapwoods.....	13
2.3 Strength Properties Of Timber.....	14
2.3.1 Static Bending.....	15
2.4 Factors Affecting The Strength Of Timber.....	17
2.4.1 Specific Gravity.....	17
2.4.2 Moisture Content.....	18
2.4.3 Shrinkage.....	19
2.4.4 Other Inherent Factors	20
2.4.4.1 Anatomical Features.....	20
2.4.4.2 Chemical Constituent.....	21
2.4.4.3 Position Of Timber.....	21
2.4.4.4 Abnormal Growth Of Wood.....	22
2.4.4.5 Defects.....	22

CHAPTER 3

• Material and Method	23
3.1 Preparation of Raw Material	24
3.1.1 Feeling tree process.....	25
3.1.2 Cut the log into the small bolt.....	25
3.1.3 Debarking.....	26
3.1.4 Cut into block shape (20 x 20 x 300mm).....	27
3.1.5 Separate the portion.....	27
3.2 Material Preparation and Procedure for bending testing.....	28
3.2.1 Determination Bending Strength From Uncoated Sample.....	28
3.2.2 Determination Bending Strength Coated With Resin.....	29
3.2.3 Determination Bending Strength Coated With Fiberglass.....	31
3.3 Bending Testing Properties Determination.....	34
3.3.1 Background.....	34

KAJIAN KEKUATAN PADA POKOK PULAI (*Alstonia Angustiloba*)

OLEH :

FAIRUZ BT MOHD SALLEH
MOHD HANIF B OTHMAN
MOHD HASRI B ABDUL HALIM
SUHAILA BT MOHAMED

ABSTRACT

It is important to study wood and its characterization in order to reach a good utilization of this material. In Malaysia, wood is one of the source of income and it is still use widely as the construction especially in the housing sector such as roof system. It is because wood easy to work, durability and attractive. Beside that, wood can absorb the load which occurred with the shock way and the wood not have rust. The Pulai species are selected to know either this species suitable or not to make various uses. This testing on the specimen is bending strength, Modulus of Elastic (MOE) and Modulus of Repture (MOR).