

MECHANICAL PULP FROM KARAS

NORLINE BINTI ZARNUDIN

**Final Project Submitted in Partial Fulfillment for the Diploma in Wood Industry
Faculty of Applied Science,
University Technology Mara, Pasing
October 2004**

ACKNOWLEDGEMENT

Our greatest gratitude to Allah Almighty for His Blessing, we are able to still run our life as usual. Alhamdulillah, with a lot of time that has been given I kindly complete my thesis as complete as I can.

With co-operation from my partner is Shahrul Rizal Bin Baharuddin, he always help me as long the processes to completed the thesis. I very thank for him, without him how could I do it alone.

I would like to take this opportunity to say my especially thanks to all person that already involved with my directly or not in progress to complete my thesis. They are En. Amran bin Shafie and Cik Junaiza binti Zaki.

To all our friends and families, thank you for all your support, guidance and advices in helping me to complete this thesis.

Lastly, I would like to say thank you again to all person that had helped me. I appreciate all your kindness and support.

TABLE OF CONTENTS

TITLE	PAGE
PROJECT TITLE.....	i
APPROVAL SHEET.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	vi
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
LIST OF PLATES.....	x
ABSTRACT.....	xi
ABSTRAK.....	xii

CHAPTER

I	1.0 INTRODUCTION.....	1
	1.1 Problem statement.....	3
	1.2 Objective.....	3
II	2.0 LITERATURE REVIEW.....	4
	2.1 Field characteristic of Karas (<i>Aquilaria malaccensis</i>)... 4	
	2.1.1 Karas (<i>aquilaria malaccensis</i>) distribution.....	4
	2.1.2 Population Status and Trends.....	5
	2.1.3 Physical Properties.....	6
	2.1.4 Uses.....	7
	2.2 Pulping processes.....	8
	2.3 Mechanical pulping processes.....	9
	2.3.1 Stone Groundwood Pulping.....	10

	2.3.2 Refiner Mechanical Pulping.....	11
	2.3.3 Thermomechanical Pulping.....	12
	2.4 Beating.....	13
	2.4.1. Effects of beating on fiber structure.....	14
	2.4.2. Effects of beating on paper properties.....	15
III	3.0 MATERIAL AND METHOD.....	16
	3.1 Raw Material.....	16
	3.2 Preheated Steaming Process.....	17
	3.3 Refining process.....	18
	3.4 Disintegration of pulp.....	19
	3.5 Beating process.....	21
	3.6 Trial Paper.....	23
	3.7 Pulp Dilute.....	25
	3.8 Freeness Testing.....	25
	3.9 Hand Sheet Preparation.....	28
	4.0 Paper Testing.....	30
	4.1 Conditioning.....	30
	4.2 Cutting the Lap paper for testing.....	30
	4.2 Grammage and thickness.....	32
	4.3 Freeness.....	32
	4.4 Tensile strength.....	33

ABSTRACT

MECHANICAL PULPING OF KARAS

BY

NORLINE BINTI ZARNUDIN

October 2004

Studied of Karas (*Aquilaria malaccensis*) from Thymelaeaceae family is purpose to determine the strength properties and the suitability of paper using mechanical pulping. Beating was set up 0, 5000, 10000, 15000 and 20000 r.p.m. The strength properties of paper measured using TAPPI Standard. Followed the results, all the mechanical properties is increase except freeness decreased. Tensile strength increase 24.18%, Burst index decrease 7.91%, Tearing index increase 0.56%, freeness decrease 23.77% and bulk increase 6.8%. The result is affected by the revolution of beating used.