

CHEMICAL PROPERTIES OF KARAS
(*Aquilaria malacensis*)

MOHD. AZRAN BIN RAMLI

DIPLOMA IN WOOD INDUSTRIES
UNIVERSITI TEKNOLOGI MARA
2002

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation and sincere gratitude to my supervisor, Shaikh Abdul Karim Yamani Bin Zakaria for his unfailing help, support and guidance throughout the study.

Sincere thanks are also due to the staff in Diploma in Wood Industry laboratory and workshop, Mr. Rudaini Bin Nawawi and Mr. Sardey Bin Idris for their priceless help in preparing the materials needed in this research work.

I also wish to thank all my friends who in one way or another contributed invaluable support and encouragement towards the completion of this study.

Finally, my deepest and special appreciation goes to my beloved parents for their moral and financial support throughout the years of my study. May Allah S.W.T bless us all.

TABLE OF CONTENTS

	Page
APPROVAL SHEET	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS.....	ix
ABSTRACT	x
ABSTRAK	xi
CHAPTER	
1.0 INTRODUCTION	1
2.0 LITERATURE REVIEW	3
2.1 Field Characters of Karas (<i>Aquilaria malacensis</i>)...	3
2.1.1 Botanical Explanation.....	3
2.2 Physical Properties.....	4
2.3 Uses.....	5
3.0 MATERIAL AND METHODS	7
3.1 Material Preparation.....	7
3.2 Determination of Moisture Content.....	8
3.2.1 Background.....	8
3.2.2 Procedure.....	8

3.3	Determination of Cold-Water Solubility.....	9
3.3.1	Background.....	9
3.3.2	Procedure.....	9
3.4	Determination of Hot-Water Solubility.....	10
3.4.1	Background.....	10
3.4.2	Procedure.....	10
3.5	Determination of Alcohol-benzene Solubility.....	11
3.5.1	Background.....	11
3.5.2	Reagent.....	11
3.5.3	Procedure.....	11
3.6	Determination of 1% NaOH Solubility.....	12
3.6.1	Background.....	12
3.6.2	Reagent.....	12
3.6.3	Procedure.....	13
3.7	Determination of Lignin.....	14
3.7.1	Background.....	14
3.7.2	Reagent.....	14
3.7.3	Procedure.....	15
3.8	Determination of Holocellulose.....	16
3.8.1	Background.....	16
3.8.2	Reagent.....	16
3.8.3	Procedure.....	16

ABSTRACT

CHEMICAL PROPERTIES OF KARAS (*Aquilaria malacensis*)

By

MOHD AZRAN RAMLI

MARCH 2001

The research was carried out to study the chemical properties of Karas (*Aquilaria malacensis*). Sample for the research was taken at Diameter Breast Height (DBH) of Karas tree species found at UiTM Pahang forest reserve. From the Family Thymelaeaceae, Karas was categorized as light hardwood with density ranging from 335-400 kg/m³ (21-25lb/ft³). Among the experiments that have been completed were moisture content (MC), Lignin, Holocellulose, Ash and determination of cold water, hot water, Alcohol-benzene and 1% NaOH solubility. With this, the different properties percentage of amount within the Karas specimens such as tannin, gums, sugars, and etc. can be determined. If this criteria met the end use production for Karas wood, then the use of Karas as an alternative raw material is worth given due consideration.