

**FIBRE MORPHOLOGY OF MENKIRAI (*Trema orientalis*)
ACCORDING TO HEIGHT LEVEL.**

SITI NOR RAFIDAH SAID

**DIPLOMA IN WOOD INDUSTRIES
UNIVERSITI TEKNOLOGI MARA**

2000

ACKNOWLEDGEMENTS

The author would like to express her sincere gratitude to Dr. Jamaludin Kasim who lectured for the final project for his continuous help and advice throughout the study. Special thanks are due to Dr. Suhaimi Muhammed who is lecture in Wood Industries Department and also as an advisor on her final project. His advice, knowledges, suggestion and experiences have brought the author to more concentrate and understanding her project.

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

TABLE OF CONTENTS

| | Page |
|---|-------------|
| DEDICATION | iii |
| ACKNOWLEDGEMENTS | iv |
| LISTS OF TABLES | v |
| LISTS OF FIGURES | vi |
| LISTS OF PLATES | vii |
| LISTS OF ABBREVIATIONS | viii |
| ABSTRACT | ix |
| ABSTRAK | ix |
| | |
| CHAPTER | |
| | |
| 1 INTRODUCTION | 1 |
| | |
| 2 LITERATURE REVIEW | 5 |
| 2.1 General Characteristic of Mengkirai (<i>Trema orientalis</i>) | 5 |
| 2.2 Research on Anatomical Properties of Mengkirai | |
| 2.2.1 Fibres | 6 |
| | |
| 3 MATERIALS AND METHODS | 12 |
| 3.1 Source of Raw Materials | 12 |
| 3.2 Cutting of Wood Sample | 14 |
| 3.3 Maceration Process | 16 |
| | |
| 4 RESULTS AND DISCUSSIONS | 25 |
| | |
| 5 CONCLUSIONS | 29 |
| | |
| REFERENCES | 30 |
| | |
| APPENDICES | 32 |
| | |
| VITA | 35 |

LIST OF TABLES

| Table | | Page |
|-------|---|------|
| 1 | Fibre Morphology of Mengkirai According to Height level | 26 |

ABSTRACT

FIBRE MORPHOLOGY OF MENKIRAI (*Trema orientalis*) ACCORDING TO HEIGHT LEVEL

By

SITI NOR RAFIDAH SAID

April 2000

Fibre morphology of Mengkirai (*Trema orientalis*) according to height level were ascertained. One species of trees were selected from Reserve Forest MARA University of Technology Pahang. Samples representing according to height level specifically top, middle and base of Mengkirai. Knowledge on anatomical properties is necessary in assessing the potential uses of wood. The objectives of the study are to determine variation of the fibre morphology at three portion of height. The results indicate that the top of mengkirai exhibition highest in fibre length, fibre diameter, lumen diameter, and cell wall thickness. At three portion of height the result have shown (FL) fibre length (1.66, 1.31, 1.40 mm), (FD) fibre diameter (55.60, 33.00, 31.58 μm), (LW) lumen width (20.83, 16.75, 13.83 μm), (CWT) cell wall thickness (18.67, 8.33, 8.58 μm), (RR) runkel ratio (1.80, 0.99, 1.24 μm), and (FR) flexibility ratio (0.37, 0.51, 0.44 μm). In terms of fibre morphology there were significant differences at three portion of height. Further research is need to clarify and understand the fundamental factors which influence the anatomical differences at three portion of height. These differences may be due to spacing distance, management practies and soil type or combination of three factors.