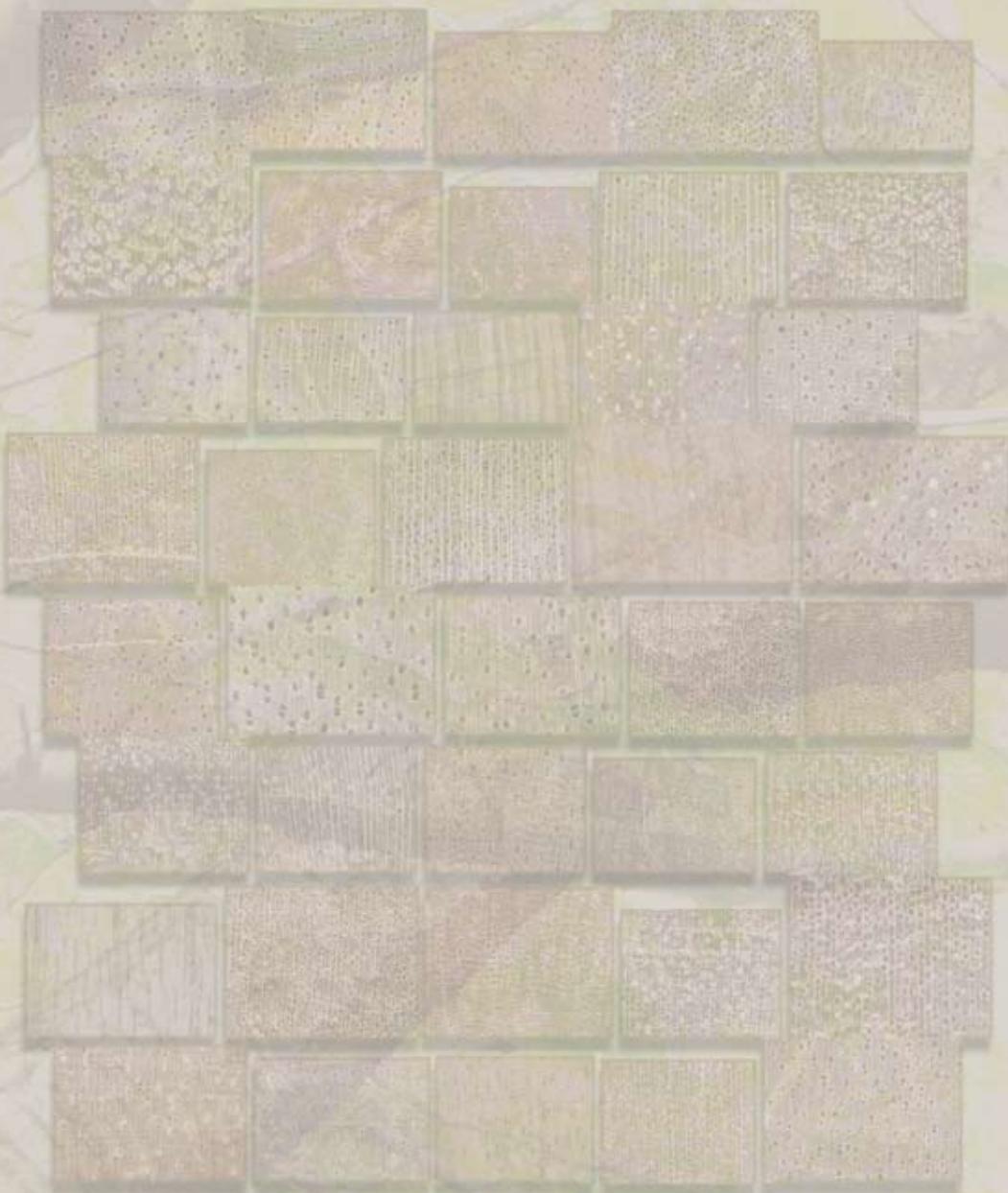


WOOD SPECIES OF SABAH

AN ILLUSTRATED GUIDE





Gaharu

WOOD SPECIES OF SABAH

AN ILLUSTRATED GUIDE

**LIEW KANG CHIANG
SHIRLEY M. BAKANSING
AZLI SULID**

PENERBIT UNIVERSITI MALAYSIA SABAH

Kota Kinabalu • Sabah • Malaysia

<http://www.ums.edu.my>

2015

A Member of the Malaysian Scholarly Publishing Council (MAPIM)

© Universiti Malaysia Sabah, 2015

All rights reserved. No part of this publication may be reproduced, distributed, stored in a database or retrieval system, or transmitted, in any form or by any means, electronics, mechanical, graphic, recording or otherwise, without the prior written permission of Penerbit Universiti Malaysia Sabah, except as permitted by Act 332, Malaysian Copyright Act of 1987. Permission of rights is subjected to royalty or honorarium payment.

Penerbit Universiti Malaysia Sabah makes no representation – express or implied, with regard to the accuracy of information contained in this book. Users of the information in this book need to verify it on their own before utilizing such information. Views expressed in this publication are those of the author(s) and do not necessarily reflect the opinion or policy of Universiti Malaysia Sabah. Penerbit Universiti Malaysia Sabah shall not be responsible or liable for any special, consequential, or exemplary problems or damages resulting in whole or part, from the reader's use of, or reliance upon, the contents of this book.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Liew, Kang Chiang, 1973-

WOOD SPECIES OF SABAH : AN ILLUSTRATED GUIDE/
LIEW KANG CHIANG, SHIRLEY M. BAKANSING, AZLI SULID.

Includes index

Bibliography: page

ISBN 978-967-0521-48-0

1. Wood--Anatomy. 2. Timber--Sabah. 3. Forests and forestry--Sabah.
4. Shirley M. Bakansing, 1971-. I. Azli Sulid, 1977-. II. Title.

575.46

Typeface for text: Amerigo BT

Text type and leading size: 11/14 points

Published by: Penerbit Universiti Malaysia Sabah

Ground Floor, Perpustakaan

Universiti Malaysia Sabah

Jalan UMS

88400 Kota Kinabalu, Sabah

Printed by: Percetakan Keningau Sdn Bhd (63932H)

Lot 26, Phase 1, HSK Industrial Centre, km 8,

Jalan Penampang, 88300 Kota Kinabalu, Sabah.

Wood Sample images by Azli Sulid

Image magnification at 20× and captured using high-performance microscope

CONTENTS

Preface	viii
1 Microscopic Characteristics (Anatomical Descriptions)	1
Growth Rings	5
Vessel Element Cells, Types and Arrangements	6
Tyloses and Deposit	9
Axial Parenchyma Cells	11
Ray Parenchyma Cells	14
Ripple Mark	16
Intercellular Canals	17
2 Macroscopic Characteristics (Wood Descriptions)	19
Colour	20
Texture	24
Grain	26
3 Preparing and Viewing Cross-sections, Radial Sections and Tangential Sections	29
4 Wood Samples	33
Akasia Hibrid	35
Akasia Mangium	37
Bangkal	39
Bawing/Tetiup	41
Bayor	43
Belian/Bilian/Ulin	45
Berangan	47
Bintangor	49
Binuang	51
Buak-buak/Entapuloh	53

Bundu/Beluno/Binjai	55
Bunga Gadong/Kenanga	57
Damar Minyak/Sabah Agathis/Manggilan	59
Dungun	61
Durian	63
Gagil/Merawan	65
Gaharu/Karas	67
Gambir Hutan	69
Gapis	71
Geronggang/Serungan	73
Gerutu/Urat Mata	75
Getah/Rubberwood/Para Rubber	77
Jati/Teak	79
Jelutong	81
Kapur	83
Karpus/Setumpul/Senumpul	85
Katong-katong/Kekatong	87
Kayu Malam/Kayu Arang/Sabah Ebony	89
Kedondong	91
Kelat	93
Kembang Semangkok/Kembang	95
Kempas/Impas	97
Keranji	99
Keruing	101
Kondolon/Gadong Hutan/Mentulang	103
Kungkurad/Parius-parius/Sengkurat	105
Laran/Kelempayan	107
Layang-layang/Sepul	109
Lenggadai/Bakau	111
Limpaga/Sentang	113
Magas/Magasawih	115
Manggis	117
Medang	119
Mempening	121
Merbau	123
Merbau Lalat	125
Minyak Berok/Nyalin	127
Morogis	129

Nyatoh	131
Pauh Kijang	133
Perupok	135
Petai	137
Petai Belalang	139
Podo/Kayu Cina	141
Pulai Bukit	143
Ranggu	145
Rengas	147
Resak	149
Ru	151
Sedaman/Mahang	153
Selangan Batu/Balau	155
Selangan Batu Laut	157
Sendok-sendok/Sesendok	159
Sengkuang	161
Sentol Kapas	163
Seraya Kuning/Meranti Kuning	165
Seraya Kuning Runcing	167
Seraya Merah Muda/Meranti Merah Muda	169
Seraya Merah Tua/Meranti Merah Tua	171
Seraya Putih/Melapi/Meranti Putih	173
Seraya Tembaga/Meranti Tembaga	175
Surian	177
Tabarus/Pupoi	179
Takalis Daun Halus/Melunak	181
Takaliu/Telor Buaya/Kayu Batu	183
Talisai/Jelawai/Ketapang	185
Tambong	187
Tampoi	189
Tanggal/Tangkal/Petaling	191
Terentang	193
Timbarayong	195
Tualang/Menggaris	197
Yemane	199
Bibliography	201
Index	203

PREFACE

Knowing the type of wood to be used in our daily applications is very important. For people in the wood business, it is crucial to know what type of wood that is entering their yard in order for them to determine the price, attract buyers looking for specific types of wood and thus assuring them that they are buying a reliable material.

The authors wished that this simple illustrated guide book could be used by students in their learning, lecturers in their teaching or even researchers to conduct their experiments or research works. Or even business people to know their wood materials better.

This guide introduces the microscopic and macroscopic characteristics of a wood for wood identification. The microscopic characteristics (anatomical descriptions) cover the growth rings, vessels element and parenchyma cells, tyloses, deposit, ripple mark and intercellular cells, while the macroscopic wood descriptions cover the colour, texture and grain.

The colourful cross-sections, radial sections and tangential sections would make it easier for the user of the guide to identify wood better. A word of gratitude is conveyed to the Wood Science Laboratory, Forestry Complex, Faculty of Science and Natural Resources for the use of high-performance microscope.

A total of 83 types of wood from Sabah, Malaysia were included in this guide.

Liew Kang Chiang, Shirley M. Bakansing, Azli Sulid
Faculty of Science and Natural Resources
Universiti Malaysia Sabah
Kota Kinabalu, Sabah, Malaysia
April 2015