TIMBER TECHNOLOGY BULLETIN
No. 49, 2009
ISSN: 139-258
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT, MALAYSIA

IDENTIFICATION AND UTILIZATION OF LESSER-KNOWN COMMERCIAL TIMBERS IN PENINSULAR MALAYSIA 12: PAGAR ANAK, PEPAUH, PEPIJAT AND PEPULUT

SC Lim & KS Gan

INTRODUCTION

This article will provide some information on another four lesser-known timbers (LKT), particularly on their identification from Peninsular Malaysia. The timbers selected are pagar anak (*Ixonanthes* spp.), pepauh (*Melicope* spp.), pepijat (*Prunus* spp.) and pepulut (*Chrysophyllum lanceolatum*). The fact that they are LKT implies that most of them may not be large or in good form and their occurrence in the forest may not be abundant. Pagar anak is a small to medium-sized trees and occurs throughout the country in both primary and secondary forests. It is a heavy timber and the timber can be used for purposes where strength is required. Flat-sawn material is rather decorative due to the presence of banded parenchyma. Pepauh is a light hardwood and its uses may be similar to that of some other light-coloured timbers like sesendok, rubberwood, pulai and jelutong. Pepijat is a medium density timber and it can be used for purposes such as medium construction under cover. Pepulut is a light-coloured timber and it may be used as a substitute for ramin and other light or white-coloured timbers.

PAGAR ANAK
(*Ixonanthes* spp.) (Figure 1)
(Family: Ixonanthaceae)

Main species

Ixonanthes icosandra Jack (pagar anak); *I. recticulata* Jack (inggir burong).

Tree and distribution

Small to medium-sized trees, occasionally reaching 36 m tall. The trees occur throughout the country and common in primary and secondary forests, mainly in lowlands but occasionally found in higher elevation of up to 1200 m.

Characteristics and physical properties

The sapwood is not differentiated from the heartwood which is brown with a slight purple-grey tinge in *I. icosandra* and light yellow brown with pink tinge in *I. recticulata*. Texture is moderately fine and even. Grain is deeply interlocked or spiral. Stripe figure on radial surface. The wood is very hard and heavy with air-dry density of 955 to 1035 kg m^{-3} (average: 995 kg m^{-3}). Parenchyma bands may simulate growth rings figures on tangential surface.

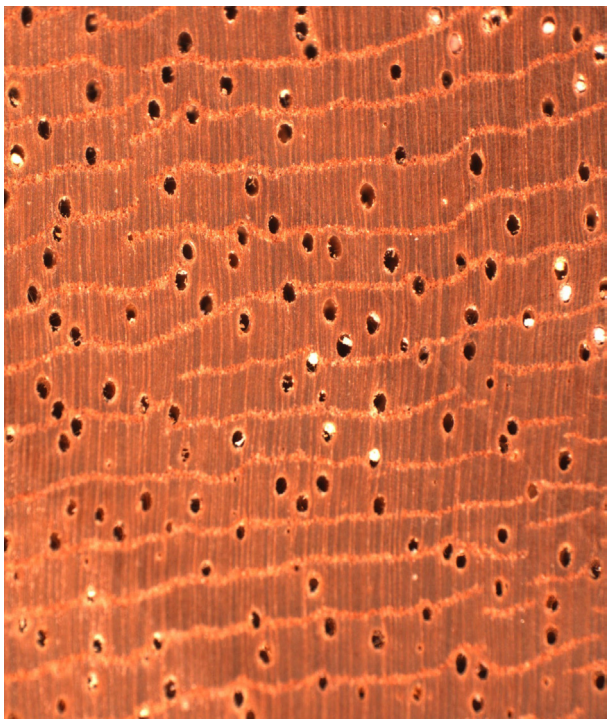

Figure 1 Pagar anak (*Ixonanthes icosandra*)

Macroscopic structures

Growth rings absent. **Vessels** moderately fine to medium-sized; moderately few; exclusively solitary; tyloses absent. Chalky-white deposits present. **Wood parenchyma** abundant; mainly as irregularly spaced apotracheal layers, distinct with a lens and broader than the rays. **Rays** extremely fine and just visible with a lens on end and tangential surfaces as there is very little contrast between rays and dark-brown background fibre tissues; inconspicuous on radial surface. **Ripple marks** absent. **Intercellular canals** not observed.

Uses

The timber is fairly hard and heavy and is suitable for medium to heavy construction under cover. Other uses include door and window frames, handles of tool, flooring boards, and furniture and staircase components.

PEPAUH
(*Melicope* spp.) (Figure 2)
(Family: Rutaceae)

Main species

Melicope glabra (Bl.) T.G. Hartley, *M. lanu-ankenda* (Gaertn.) T.G. Hartley.

Tree and distribution

Shrubs or small to medium-sized trees, rarely large trees up to 30 m tall, 0.6 to 1.8 m girth. Bole straight but sometimes twisted and branchless for up to 15 m high. Found in primary and secondary forest from lowland to mountain up to 1500 m or higher in altitude. Some species can also be found in swamp forest, along forest edge or in opening of the forest.

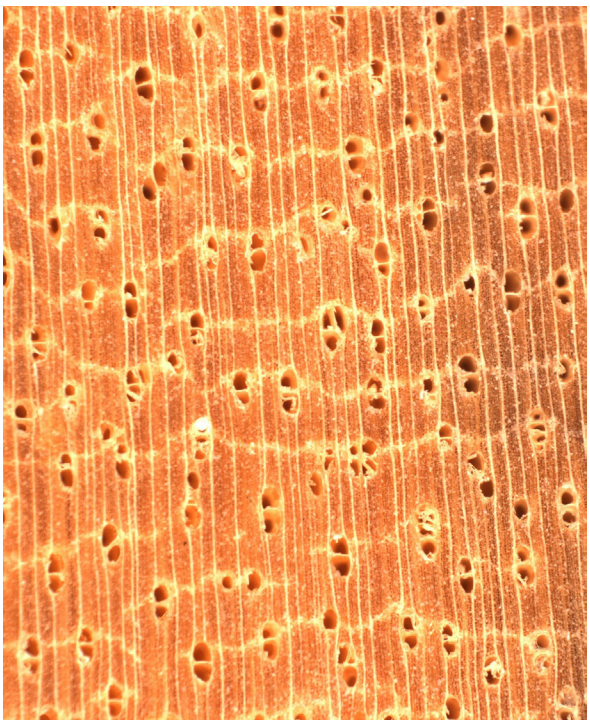

Figure 2 Pepauh (*Melicope glabra*)

Characteristics and physical properties

The sapwood is lighter in colour and not distinct from the heartwood which is yellow or light orange. Texture is moderately fine and even. Grain is straight or shallowly interlocked. The wood is soft to moderately hard and fairly light with an air-dry density of 480 to 590 kg m^{-3} (average: 520 kg m^{-3}).

Macroscopic structures

Growth rings indistinct, sometimes marked by marginal parenchyma. **Vessels** mostly small but some are medium, solitary and in radial multiples of 2 to 3 with tendency to arrange tangentially. Tyloses absent. Yellow or brownish yellow deposit present. **Wood parenchyma** moderately abundant; apotracheal parenchyma as marginal parenchyma bands; paratracheal vasicentric, aliform with tendency to confluent. Visible on cross section using a hand lens. **Rays** moderately fine and not visible to the naked eye. **Ripple marks** absent. **Intercellular canals** not observed.

Uses

Suitable for interior finishing, paneling, mouldings, veneer and plywood manufacture, general utility furniture, packing cases and boxes, carving and handicraft items.

PEPIJAT
(*Prunus* spp.) (Figure 3)
(Family: Rosaceae)

Main species

Prunus arborea (Bl.) Kalkman, *P. javanica* (T. et B.) Miq., *P. malayana* Kalkman, *P. polystachya* (Hk.f.) Kalkman.

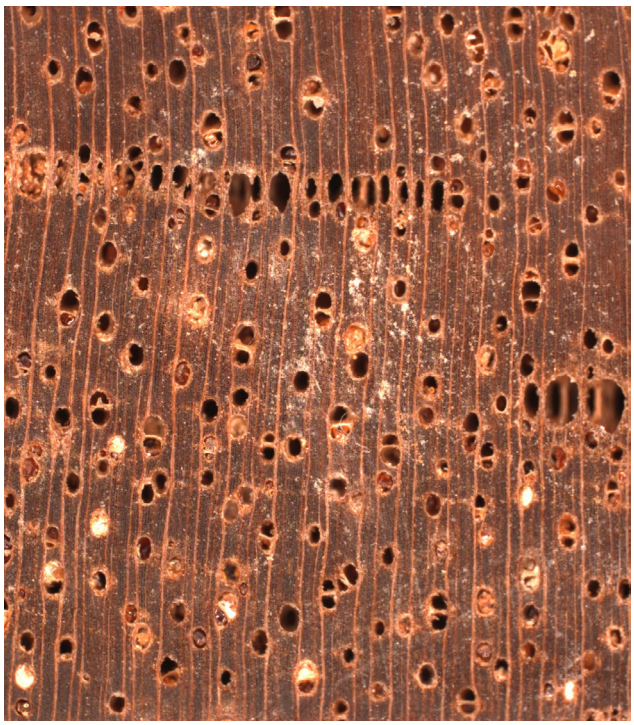

Figure 3 Pepijat (*Prunus javanica*)

Tree and distribution

Small to big trees occasionally more than 30 m tall and 210 cm girth. Bole straight and cylindrical, sometimes crooked and branchless up to 15 m. Found in primary and secondary forest, along river banks, near the sea and in lowland to mountain forest up to 3700 m altitude.

Characteristics and physical properties

The sapwood is paler than the heartwood which is pink to red brown. Texture is moderately fine to moderately coarse and even. Grain is straight or wavy or deeply interlocked. The wood is soft to hard, light to slightly heavy with an air- dry density of 405 to 830 kg m^{-3} (average: 685 kg m^{-3}).

Macroscopic structures

Growth rings absent or indistinct. **Vessels** moderately small to medium-sized, solitary and in radial multiples of 2 to 3, sometimes more. Tyloses absent. Chalky-white-coloured deposit present. **Wood parenchyma** sparse, apotracheal parenchyma diffuse whereas paratracheal parenchyma scanty to vasicentric. Hardly visible even with a lens due to poor contrast between the parenchyma cells and the background fibre tissues. **Rays** fine to medium-sized, the broader rays are visible to the naked eye. **Ripple marks** absent. **Intercellular canals** of the traumatic type always present. The canals are usually oval-shaped and empty when dry.

Uses

Suitable for light to medium construction under cover. Other uses include general planking, laminated boards, domestic flooring, general utility furniture, veneer and plywood.

PEPULUT
(*Chrysophyllum lanceolatum*) (Figure 4)
(Family: Sapotaceae)

Main species

Chrysophyllum lanceolatum (Blume) DC.

Tree and distribution

Small or medium-sized tree rarely reaching 30 m tall and 1.5 m girth with frequently fluted bole. Mainly found in lowlands and fairly common in some parts of Malacca and Negeri Sembilan but uncommon elsewhere.

Characteristics and physical properties

Sapwood is lighter in colour and not well defined from the heartwood which is yellow-white or yellow-brown. Texture is very fine and even. Grain is straight or shallowly interlocked. The timber is medium to heavy in weight with an air-dry density of 450 to 935 kg m^{-3} with an average of 835 kg m^{-3}.

Macroscopic structures

Growth rings present, mainly due to the presence of layers of darker zones lacking parenchyma. **Vessels** are very small to medium-sized, almost all are arranged in radial multiples of 2 to 11, occasionally in clusters and hardly visible to the naked eye. Tyloses and deposits absent. **Wood parenchyma** abundant, mainly as narrow layers joining ray to ray in the form of recticulate visible only with a hand lens. **Rays** very fine to moderately fine, just visible to the naked eye. **Ripple marks** absent. **Intercellular canals** absent.

Uses

The timber should be suitable for general planking and temporary structures. It can also be used for flooring, interior trim, panelling and partitioning, light tool handles, furniture and cabinet making, veneer and plywood.

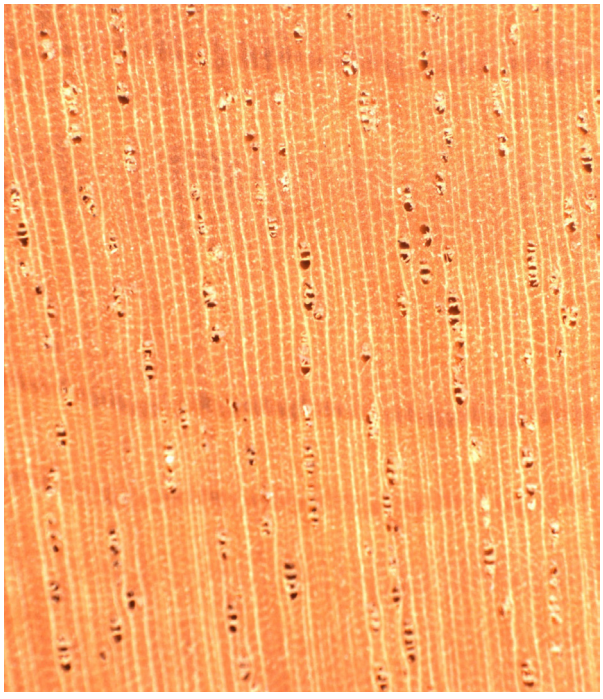

Figure 4 Pepulut (*Chrysophyllum lanceolatum*)

BIBLIOGRAPHY

Lemmens RHMJ, Soerianegara I & Wong WC (Eds.) 1995. *Plant Resources of South East Asia No. 5(2) Timber trees: Minor Commercial Timbers.* Backhuys Publishers, Leiden.

Lim SC, Samsuddin M & Gan KS 2001. Availability and utilization of lesser-known timbers. Pp. 23–37 in Ahmad Shakri, MS *et al.* (Eds.) *Proceedings of the National Seminar on Alternative to Rubberwood*. 26 September 2000. Forest Research Institute Malaysia, Kepong.

Ng FSP (Ed.) 1978. *Tree Flora of Malaya*. Vol. 3. Malayan Forest Records No. 26. Longman, Kuala Lumpur.

Ng FSP (Ed.) 1989. *Tree Flora of Malaya*. Vol. 4. Malayan Forest Records No. 26. Longman, Kuala Lumpur.

Sosef MSM, Hong LT & Prawirohatmodjo S (Eds.) 1998. *Plant Resources of South East Asia No. 5(3). Timber Trees: Lesser-Known Timbers.* Backhuys Publishers, Leiden.

Wong TM 2002. *A Dictionary of Malaysian Timbers*. Second edition. Revised by Lim, SC & Chung, RCK Malayan Forest Records No. 30. Forest Research Institute Malaysia, Kepong.

Whitmore TC (Ed.) 1972. *Tree Flora of Malaya*. Vol. 1. Malayan Forest Records No. 26, Longman, Kuala Lumpur.

Whitmore TC (Ed.) 1973. *Tree Flora of Malaya*. Vol. 2. Malayan Forest Records No. 26, Longman, Kuala Lumpur.

Back Issues

Available on-line (http://info.frim.gov.my/cfdocs/infocenter/booksonline/index cfm?menu=ttb)

TTB 8	Timber Notes—Heavy Hardwoods I	RM 5.00
TTB 9	Timber Notes—Light Hardwoods I	RM 5.00
TTB 10	Timber Notes—Light Hardwoods II	RM 5.00
TTB 11	Timber Notes—Medium Hardwoods I (Kapur, Kasai, Kelat, Keledang, Kempas)	RM 5.00
TTB 12	Timber Notes—Heavy Hardwoods II (Kekatong, Keranji, Merbau, Penaga, Resak)	RM 5.00
TTB 13	Timber Notes—Light Hardwoods III (Bintangor, Durian, Geronggang, Gerutu, Jelutong)	RM 5.00
TTB 14	Timber Notes—Light Hardwoods IV (Jongkong, Petai, Pulai, Ramin, Rubberwood)	RM 5.00
TTB 15	Timber Notes—Light Hardwoods V (Mersawa, Nyatoh, Pelajau, Panarahan, Perupok)	RM 5.00
TTB 16	Timber Notes—Light Hardwoods VI (Dedali, Kekondong, Kelempayan, Kelumpang, Kembang Semangkok)	RM 5.00
TTB 17	Timber Notes—Light Hardwoods VII (Sentang, Sepetir, Sesendok, Terap, Terentang)	RM 5.00
TTB 19	Timber Notes—Medium Hardwoods II (Bekak, Derum, Keruing, Keruntum, Kulim)	RM 5.00
TTB 20	Timber Notes—Medium Hardwoods III (Mata Ulat, Mempening, Mengkulang, Meransi, Merawan)	RM 5.00
TTB 21	Timber Notes—Medium Hardwoods IV (Merbatu, Merpauh Mertas, Nyalin, Pauh Kijang)	RM 5.00
TTB 22	Timber Notes—Medium Hardwoods V (Perah, Petaling, Punah, Ranggu, Rengas)	RM 5.00
TTB 23	Timber of Gelam (*Melaleuca cajuputi* Powell)	RM 5.00
TTB 24	Observations of Termite–Fungus Interactions of Potential Significance to Wood Biodeterioration and Protection	RM 5.00
TTB 25	Equivalent Timbers of Southeast Asia	RM 20.00
TTB 26	The Characteristics, Properties and Uses of Plantation Timber—Rubberwood and *Acacia mangium*	RM 5.00
TTB 27	Saw Doctoring Practices in Peninsular Malaysia	RM 5.00
TTB 28	Nomenclature and Equivalent Names of Malaysian Timbers	RM 20.00
TTB 29	Identification and Utilisation of Lesser-Known Commercial Timbers in Peninsular Malaysia 1: Ara, Bangkal, Bebusok and Bekoi	RM 5.00
TTB 30	Identification and Utilisation of Lesser-Known Commercial Timber in Peninsular Malaysia 2: Berembang Bukit, Biku-Biku, Chichah and Chinta Mula	RM 5.00
TTB 33	Shrinkage Allowance of Some Malaysian Timbers	RM 5.00
TTB 38	Timber of Sentang	RM 5.00
TTB 39	Identification and Utilization of Lesser-Known Commercial Timbers in Peninsular Malaysia 5: Balek Angin, Bayur Bukit, Berbatu and Beka	RM 5.00
TTB 40	Identification and Utilization of Lesser-Known Commercial Timbers in Peninsular Malaysia 6: Bungor, Chenderai, Dungun Paya and Gelam	RM 5.00
TTB 41	Identification and Utilization of Lesser-Known Commercial Timbers in Peninsular Malaysia 7: Hantu Duri, Jarum-Jarum, Jelutong Pipit and Kasah	RM 5.00
TTB 42	Advantages of Wood Lamination for Modern Applications	RM 5.00
TTB 43	Identification and Utilization of Lesser-Known Commercial Timbers in Peninsular Malaysia 8: Keruntum, Kundang, Leban and Malabera	RM 5.00
TTB44	Identification and Utilization of Lesser-known Commercial Timbers in Peninsular Malaysia 9: Mempoyan, Mengkirai, Mengkundor and Mentulang	RM 5.00
TTB45	Review on Six Types of Log cutting methods in Various Applications: Part 1	RM 5.00
TTB48	Review on Six Types of Log cutting methods in Various Applications: Part 2	RM 5.00

Series Editor : Y. E. Tan
Managing Editor : Y. F. Ho
Typesetter & Printer : Rohayu Yunus

MS ISO 9001:2000

Set in Baskerville 11

Printed by Publications Branch, Forest Research Institute Malaysia, Kepong