

IDENTIFICATION AND UTILIZATION OF LESSER-KNOWN COMMERCIAL TIMBERS IN PENINSULAR MALAYSIA 10: MERAGA, MERBAU KERA, MERBAU LALAT AND MINYAK BEROK

S. C. Lim & K. S. Gan

INTRODUCTION

This article provides further information and structures of four more lesser-known timbers of Peninsular Malaysia. Among the four, minyak berok is better known and more widely used probably due to its large bole, large number of species and distributed widely in the country. The timber is suitable for medium construction under cover. It is also suitable for flooring, planking, veneer and plywood, furniture, sport goods and tool handles. Meraga, which grows to medium-sized tree with poor-formed bole, occurs in lowland to hill forest. The poor form of the trees sometimes prevents extensive use of the timber. The timber can be used as tool handles, laminated boards for various applications such as table tops, flooring and staircase components. Merbau kera is a small to big tree which can be found near river banks and swampy places, in primary or secondary forest. The timber is hard and heavy and suitable for the manufacture of striking tool handles, flooring boards, heavy construction under cover, door and window frames. Merbau lalat is a small to medium tree with thick buttresses and found scattered but may be locally common in primary forest. The timber is medium in density with attractive growth rings figure on flat-sawn surface. It is suitable for light to medium construction under cover, rotary peeled veneers and plywood, furniture and cabinet works, flooring, panelling and other decorative works. Though both Merbau kera and Merbau lalat come from the same family as merbau i.e. Leguminosae, they should not be treated as similar to merbau in the trade and usage.

MERAGA

**(*Metadina/Pertusadina* spp.) (Figure 1)
(Family: Rubiaceae)**

Main species

Metadina trichotoma (Zoll. & Mor.) Bakh.f. (berombong), *Pertusadina eurhyncha* (Miq.) Ridsd., *P. malaccensis* Ridsd.

Tree and distribution

The trees of meraga usually have poor-formed boles. However, the species of *Metadina trichotoma* has been reported to grow to medium-sized to 40 m tall and with straight bole, sometimes lightly fluted. It occurs in primary forest, at hillsides and mountain to 1300 m altitude. *Pertusadina* grows to medium-sized to large trees but often with fluted or latticed bole. It occurs in lowland to hill forest to 400 m altitude.

Characteristics and physical properties

Metadina—the sapwood is moderately distinct from the heartwood which is yellow, yellow-brown or orange-red and moderately distinct from the paler sapwood. *Pertusadina*—the sapwood is lighter in colour and not well defined from the heartwood which is yellow-brown with olive tinge. Texture is moderately fine and even. Grain is straight but sometimes wavy. The wood is moderately hard to hard and moderately heavy to heavy. *Metadina* has an air-dry density of 860 to 940 kg m⁻³ (average: 880 kg m⁻³) whereas the air-dry density of *Pertusadina* ranges from 790 to 860 kg m⁻³ (average: 820 kg m⁻³).

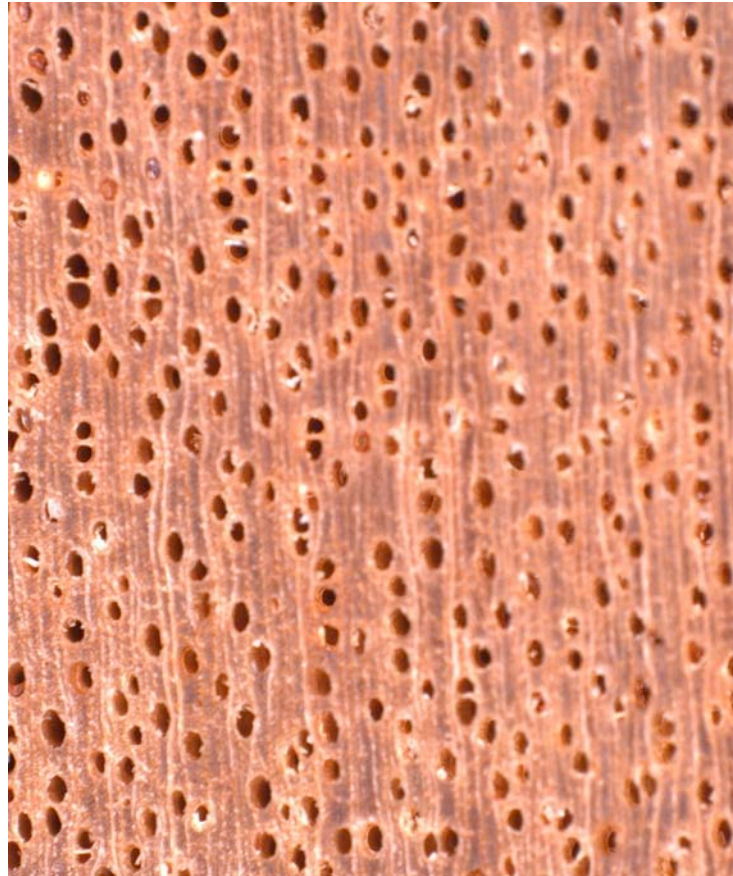


Figure 1 Meraga (*Metadina trichotoma* ×15)

Macroscopic structures

Growth rings indistinct but sometimes may be formed by a narrow layer without vessels and parenchyma. **Vessels** moderately small to medium-sized, almost exclusively solitary but with some in radial multiples of 2 to 3, tyloses absent, white coloured deposit present (*Metadina trichomata*). **Wood parenchyma** moderately abundant, mainly as apotracheal parenchyma diffuse, diffuse in aggregates but hardly visible even with a handlens. **Rays** fine to moderately fine, just visible with a handlens. **Ripple marks** absent. **Intercellular canals** not observed.

Uses

The poor form of the trees sometimes prevent extensive use of the timber. Uses of the timber include tool handles, laminated boards for various applications such as table tops, flooring and staircase components.

MERBAU KERA
(*Crudia* spp.) (Figure 2)
(Family: Leguminosae)

Main species

Crudia curtisii Prain, *C. scortechini* Prain, *C. velutina* Ridley

Tree and distribution

Small to big tree up to 36 m tall and a girth of 1.8 m. Buttresses up to 2 m high. Occur near river banks and swampy places, in primary or secondary forest up to 550 m altitude. Also found on limestone hills.

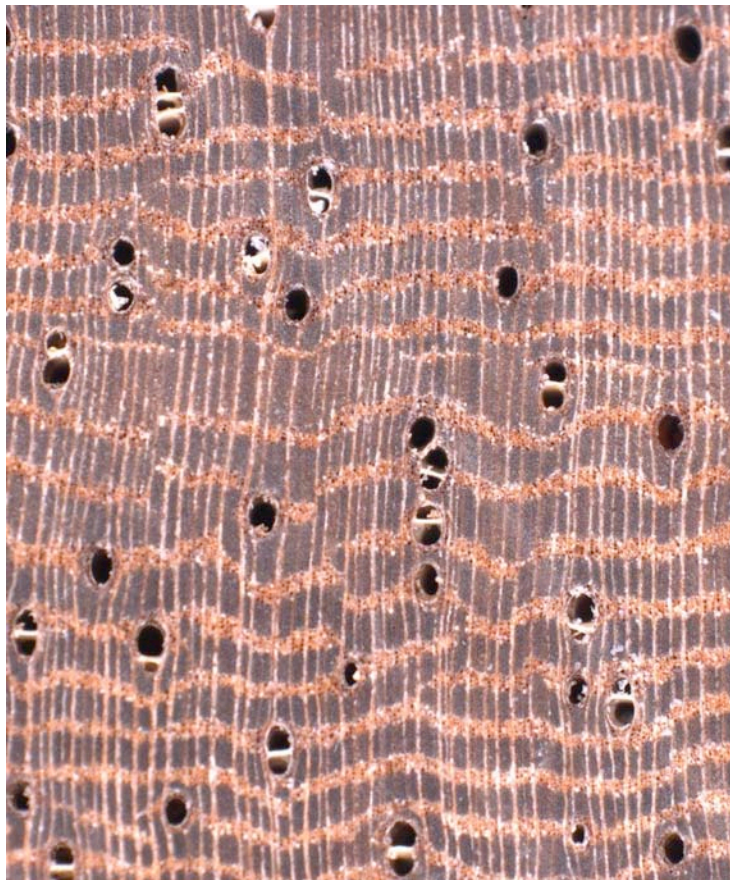


Figure 2 Merbau kera (*Crudia scortechinii* ×15)

Characteristics and physical properties

Sapwood is straw to pale brown in colour and a width of up to 13 cm and is distinct from the heartwood which is dark chocolate-brown. Texture is moderately fine and uneven due to the abundance of wood parenchyma. Grain is interlocked or sometimes wavy. Darker-coloured zig-zag marking on tangential surface due to parenchyma layers. The timber is hard to very hard, heavy to very heavy with an air-dry density of 970 to 1125 kg m⁻³ (average: 1010 kg m⁻³).

Macroscopic structures

Growth rings distinct, marked by thick layers of parenchyma. **Vessels** medium-sized, solitary and in radial multiples of 2 to 4, tyloses sparse. Yellowish-white deposits occasionally present. **Wood**

parenchyma abundant, mainly as apotracheal parenchyma in broad and continuous layers and fairly closely spaced, visible to the naked eye. Paratracheal parenchyma as thin layer to the vessels. **Rays** fine but distinct to the naked eye due to the contrast in colour between the rays and the fibres. **Ripple marks** vague ripple marks may be present. **Intercellular canals** not observed.

Uses

The timber is hard and heavy and suitable for the manufacture of striking tool handles, flooring boards, heavy construction under cover, door and window frames.

MERBAU LALAT (*Sympetalandra borneensis*) (Figure 3) (Family: Leguminosae)

Main species

Sympetalandra borneensis Stapf.

Tree and distribution

Small to medium tree reaching 21 m tall and 1.8 m girth with large and thick buttresses up to 2.5 m high. Bole cylindrical to irregular and branchless up to 18 m. The trees are found scattered but may be locally common in primary forest up to 600 m altitude, also in kerangas.

Characteristics and physical properties

Sapwood is light brown in colour and up to 7 cm wide and distinct from the heartwood which is reddish-brown to brown. Texture is moderately coarse to coarse and uneven due to the abundance of parenchyma. Grain is interlocked. Layers of parenchyma bands forming zig-zag marking on flat-sawn surface. The timber is moderately hard to hard, moderately heavy to heavy with an air-dry density of 640 to 910 kg m⁻³ (average: 785 kg m⁻³).

Macroscopic structures

Growth rings distinct, marked by layers of parenchyma bands and zones which are lacking in vessels. **Vessels** medium-sized to large, solitary and in radial multiples of 2 to 4, sometimes with a large vessel followed by numerous small vessels, tyloses sparse, gum-like, reddish or chalky white colour deposit occur in the vessels. **Wood parenchyma** abundant. Apotracheal parenchyma in wavy and confluent bands whereas the paratracheal parenchyma in vasicentric, aliform to confluent. **Rays** fine to medium-sized, visible to the naked eye. **Ripple marks** absent. **Intercellular canals** not observed.

Uses

The timber is suitable for light to medium construction under cover, rotary peeled veneers and plywood, furniture and cabinet works, paneling, flooring and other decorative works.



Figure 3 Merbau lalat (*Sympetalandra borneensis* ×15)

MINYAK BEROK
 (*Xanthophyllum* spp.) (Figure 4)
 (Family: Polygalaceae)

Main species

Xanthophyllum affine Korth., *X. amoenum* Chodat., *X. ellipticum* Korth. *X. griffithii* Hk.f. var. *angustifolium* Ng., *X. griffithii* Hk.f. var. *curtisii* (King) Ng., *X. griffithii* Hk.f. var. *griffithii* Hk.f., *X. kunstleri* King, *X. maingayi* Benn., *X. obscurum* Benn., *X. rufum* Benn., *X. scorthechinii* King, *X. sulphureum* King, *X. wrayi* King, *X. sp. C.*, *X. sp. E.*

Tree and distribution

Small to big trees up to 46 m tall, 3.7 m girth. Occurs in inland primary forest from lowland to mountain of 1500 m altitude, fairly common as understorey and main storey trees but seldom gregarious.

Characteristics and physical properties

Sapwood is paler in colour and merges gradually to the heartwood which is white to light yellow, weathering to dark yellow. Texture is coarse and uneven, either due to the parenchyma or uneven distribution of vessels. Grain is straight or interlocked. Vague growth ring figures present. The wood is hard to very hard with an air-dry density of 595 to 1085 kg m⁻³ (average: 795 kg m⁻³).

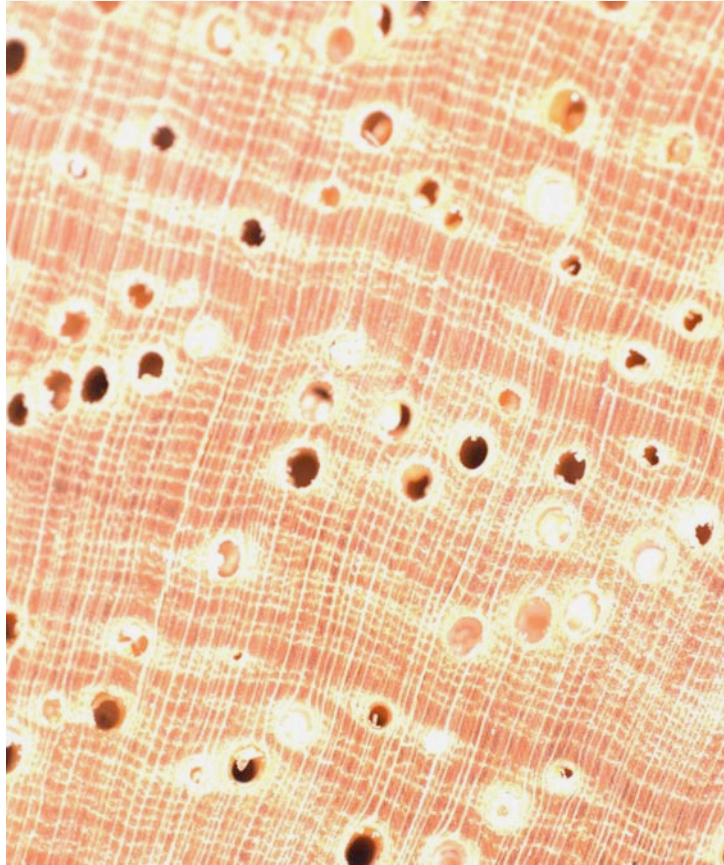


Figure 4 Minyak berok (*Xanthophyllum griffithii* ×15)

Macroscopic structures

Growth rings indistinct to distinct, formed by marginal parenchyma bands. Vessels medium-sized to very large, exclusively solitary, tyloses absent. Gum-like or white-coloured deposit present. **Wood parenchyma** abundant. Apotracheal parenchyma in narrow, close and regularly spaced bands and very often, interrupted. Paratracheal parenchyma vasicentric to aliform. Visible to the naked eye. **Rays** very fine and not visible with the naked eye but can be observed with a handlens. **Ripple marks** absent. **Intercellular canals** not observed.

Uses

The timber is suitable for medium construction under cover. It is also suitable for flooring, planking, veneer and plywood, furniture, sport goods and tool handles.

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