

## Identification and utilization of lesser-known commercial timbers in Peninsular Malaysia. 4. Kelempayan, Melembu, Membuloh and Mempari

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### Introduction

This is the fourth of the series to introduce lesser-known commercial timbers (LKCT) to the users of timbers in general and to the quality control personnel, timber graders, timber inspectors and those involve in the purchase of log/timber in particular. The shortage of the more popular commercial timbers coupled with their high price has resulted in a wider use of the LKCT. However, to ensure that the consumers of timber know what they are using, correct identification of the timber is essential. By knowing the exact identity of the timber, their properties can then be easily determined through literature search or referred to the relevant authority for advice.

This article touches on four LKCT with three of them classified as light-coloured timbers with low density i.e. Kelempayan, Melembu and Membuloh. The fourth timber species, i.e. Mempari is a light yellow timber when fresh, darkening on exposure to darker shade. The timber of Kelempayan is white with coarse surfaces due to the presence of large vessels. As the timber is soft and light, its uses are confined to light-weight purposes like picture frames, moulding, skirting, etc. Melembu is a very light and soft timber in which its uses are very similar to that of Kelempayan. Quarter-sawn material is likely to give rise to vague silver grain figure, as there is very little contrast in colour between rays and the background fibre tissues. Membuloh is a light to medium density timber but its uses are similar to that of Kelempayan and Melembu. This timber also possesses large rays which give rise to silver grain figure on radial or quarter-sawn surface. Mempari is light to medium and the timber is best suited to use for decorative purposes especially on flat-sawn surface due to the presence of broad parenchyma layers giving rise to growth rings figure. The identification and uses of the four timbers mentioned are described below.

### **Kelempayan** **(*Neolamarckia cadamba*) (Figure 1)** **(Family: Rubiaceae)**

#### *Main species*

*Neolamarckia cadamba* (Roxb.) Bosser.

### *Tree and distribution*

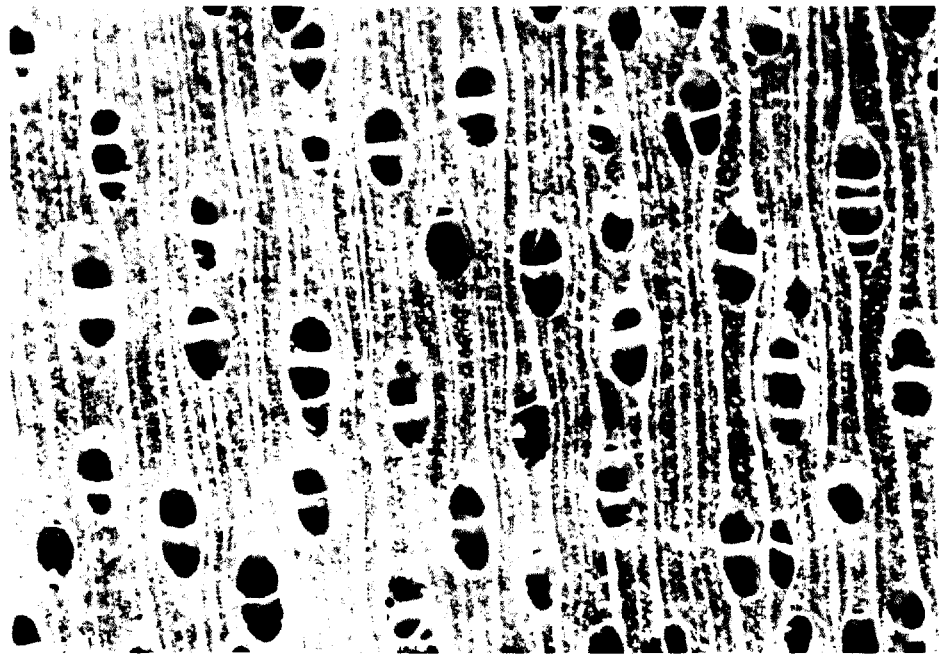
One species occurs in Peninsular Malaysia. Medium-sized to large trees to 40 m tall, sometimes 45 m tall; bole straight and cylindrical, often branchless of up to 25 m and a diameter of up to 100 cm, rarely up to 160 cm, sometimes with buttresses to 2 m tall. Distributed in lowland to mountain forests to 1000 m altitude; often by streams and rivers and in open sites in the forest.

### *Characteristics and physical properties*

The sapwood is not well defined from the heartwood, which is white turning to yellow on exposure. Texture is moderately coarse and even. Vessels lines present. Grain is generally straight. The timber is light and soft with an air-dry density of 290 to 465 kg m<sup>-3</sup>.

### *Macroscopic structures*

**Growth rings** moderately distinct, marked by layers of thicker fibres. **Vessels** medium-sized to large, solitary and in radial multiples of 2 to 4, sometimes in clusters, tyloses absent, gum-like deposit present. **Wood parenchyma** present but difficult to detect with the naked eye and just visible by using the lens due to the lack of contrast between the fibres and the parenchyma. Apotracheal parenchyma as diffuse and diffuse in aggregates, forming short uniseriate lines. Paratracheal parenchyma sparse and confine only to the immediate vicinity of the vessels. **Rays** of two distinct sizes, the broader rays can be observed easily with a handlens. **Ripple marks** absent. **Intercellular canals** not observed.



**Figure 1** Kelempayan (*Neolamarckia cadamba*) × 20

### *Uses*

A light-coloured and light-weight timber. The timber is suitable for use as picture frame, moulding, skiring, wooden sandals, disposable chopstick, general utility furniture, veneer and plywood.

**Melembu**  
**(*Pterocymbium* spp.) (Figure 2)**  
**(Family: Sterculiaceae)**

*Main species*

*Pterocymbium tinctorium* (Blanco) Merr., *P. tubulatum* (Mast.) Pierre.

*Tree and distribution*

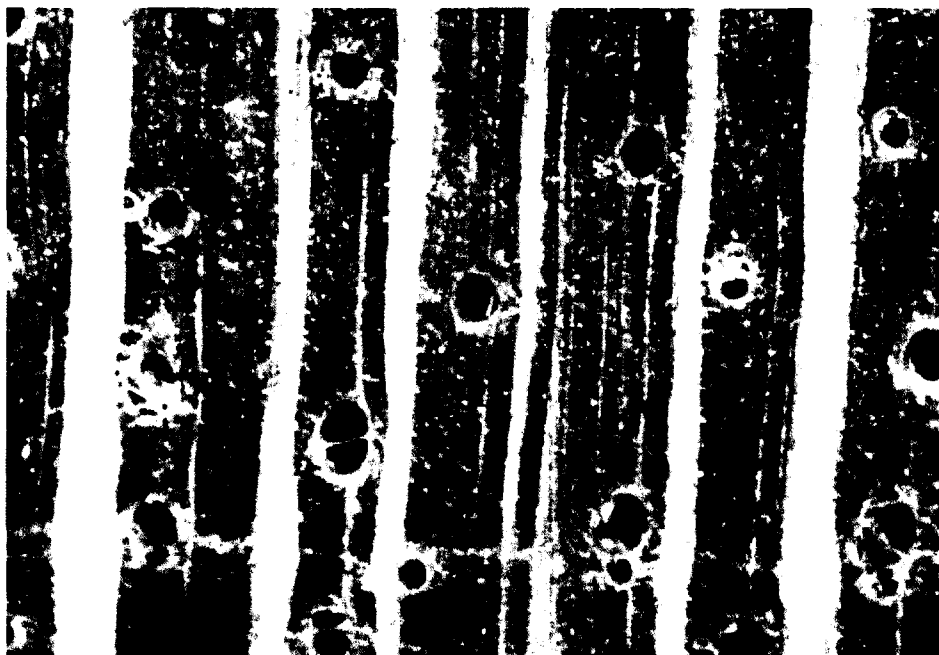
Medium-sized to fairly large tree up to 40 m tall and branchless up to 30 m, up to 90 cm in diameter. Common in the lowland to lower montane forest up to 1000 m altitude.

*Characteristics and physical properties*

The sapwood is white and not well defined from the heartwood, which is white turning to yellow on exposure. Texture is moderately coarse and even. Grain is straight. Faint silver grain figure on radial surface due to broader rays. The timber is soft and light with an average air-dry density of 466 kg m<sup>-3</sup>.

*Macroscopic structures*

**Growth rings indistinct** and if present, marked by the absence of vessels. **Vessels** large, predominating solitary, sometimes in radial multiples of 2 to 3, tyloses absent, deposit absent. **Wood parenchyma** abundant, mainly as paratracheal parenchyma in narrow vasicentric surrounding the vessels; apotracheal parenchyma diffuse in aggregates. **Rays** of two distinct sizes, the larger rays are fairly broad, distinct to the naked eyes giving faint 'silver grain' figure on radial surface. **Ripple marks** present. **Intercellular canals** of the traumatic type sometimes present.



**Figure 2** Melembu (*Pterocymbium tinctorium*) × 20

## Uses

A light-coloured timber. The timber is soft and light and it is suitable for moulding, picture frame, packing cases, match sticks and boxes, wooden clog, fish-net floats and possibly core veneer in plywood manufacture.

### **Membuloh** **(*Pellacalyx* spp.) (Figure 3)** **(Family: Rhizophoraceae)**

#### *Main species*

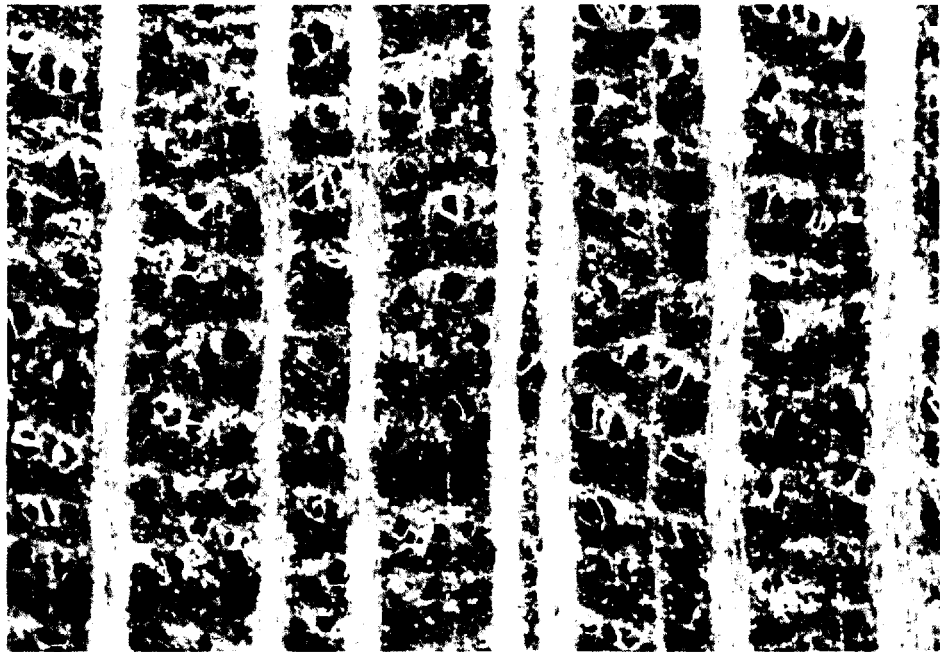
*Pellacalyx axillaries* Korth. (membuloh bulu), *P. saccardianus* Scort. (membuloh).

#### *Tree and distribution*

Small to moderately large tree to 30 m tall and 135 cm girth and buttresses up to 2 m high. Bole is usually straight. Widely distributed throughout the country in lowlands to montane forests up to 900 m and common along streams, swamps and in secondary forests.

#### *Characteristics and physical properties*

The sapwood is lighter in colour and not well defined from the heartwood which is yellow brown to pale brown. Texture is moderately coarse and uneven due to large rays. Grain is straight or interlocked. 'Silver grain' figure on radial surface. The timber is soft to moderately hard, light to moderately heavy with an air dry density of 469 to 636 kg m<sup>-3</sup>.



**Figure 3** Membuloh (*Pterocymbium axillaries*) × 20

### *Macroscopic structures*

**Growth rings** indistinct but the presence of parenchyma may give rise to growth ring figure on tangential surface of the timber. **Vessels** medium-sized to moderately large, solitary or in tangential multiples of 2 to 3, sometimes more, clusters also present. Tyloses sparse, deposit absent. **Wood parenchyma** abundant. Mainly as paratracheal parenchyma aliform and with tendency to confluent. **Rays** of two distinct sizes, the broader rays are moderately broad to broad and visible to the naked eye. **Ripple marks** absent. **Intercellular canals** absent.

### *Uses*

A light-coloured timber with a density very close to the Malaysian oak (rubberwood). It is suitable for use in furniture manufacture, laminated board, domestic flooring, interior finishing, moulding, core material for blockboard, veneer and plywood.

## **Mempari** **(*Millettia pinnata*) (Figure 4)** **(Family: Leguminosae)**

### *Main species*

*Millettia pinnata* (L.) Panigrahi.

### *Tree and distribution*

Small to medium-sized tree to 21 m tall, 1.2 m girth. The trees are commonly found on sandy and rocky coast throughout the country.

### *Characteristics and physical properties*

The sapwood is lighter in colour and not distinct from the heartwood, which is light yellow when fresh turning to darker colour when exposed to weather. Texture is moderately coarse to coarse and uneven due to broad layers of confluent type of parenchyma. Grain is interlocked. Stripe figure on radial surface due to the presence of interlocked grain. Prominent growth ring figure on flat-sawn surface due to broad layers of parenchyma. Freshly-sawn timber has foul odour. The wood is moderately hard to hard and moderately heavy to heavy with an air-dry density of 616 to 856 kg m<sup>-3</sup>.

### *Macroscopic structures*

**Growth rings** distinct, marked by broad layers of confluent parenchyma. **Vessels** medium-sized to moderately large, solitary and in radial multiples of 2 to 4, tyloses absent, deposit absent. **Wood parenchyma** abundant, apotracheal parenchyma in broad continuous layers and confluent. Very conspicuous to the naked eye. **Rays** very fine to moderately fine and visible to the naked eye. **Ripple marks** present and can be easily observed with the naked eye. **Intercellular canals** not observed.

A moderately hard and moderately heavy timber with a density very close to the more popular dark red meranti timber. Flat-sawn boards of the timber is rather decorative due to the presence of wide layers of parenchyma bands. It is suitable for decorative flooring, panelling, furniture, sliced veneer, moulding, skirting, interior finishing and other general utility purposes.

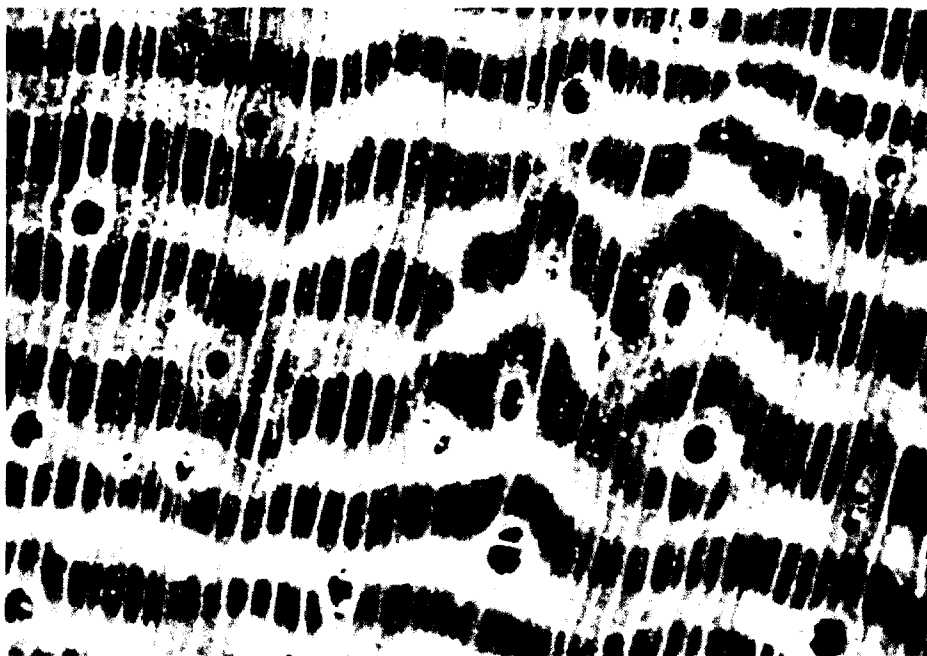


Figure 4 Mempari (*Milletia pinnata*) × 20

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