

## Identification and utilization of lesser-known commercial timbers in Peninsular Malaysia 5: Balek Angin, Bayur Bukit, Bebatu and Beka

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### Introduction

This is the continuation of the earlier articles of the same series. As explained earlier, the purpose of the article is to provide a technical guide to the timber users in general and to those who are involved in the quality control, timber grading, and technical personnel in the wood processing industry, in particular.

This article looks at four more lesser-known commercial timbers (LKCT) i.e. balek angin (*Mallotus* spp.), bayur bukit (*Schoutenia* spp.), bebatu (*Chaetocarpus castanocarpus*) and beka (*Pajanelia longifolia*). Balek angin is a light to heavy timber with colour very similar to that of nyatoh. Planed surface can be quite smooth as the timber consists of small to medium-sized vessels. Bayur bukit are small trees except the species of *S. accrescens*, which can grow to 33 m tall. The timber is hard and heavy with density very close to common commercial timbers like balau and giam. Treatment of this timber is probably very difficult as most of the vessels are blocked with tyloses. Bebatu is a medium to heavy timber and if adequately protected with preservative, the timber can be used for medium to heavy construction. Beka is a very light and soft timber – the use of which may be confined to light duty purposes such as picture frames, moulding, skirting, lamination, boxes and crates.

### **Balek Angin (*Mallotus* spp.) (Figure 1) (Family: Euphorbiaceae)**

#### *Main species*

*M. leucodermis* Hk.f. (balek angin bopeng); *M. muticus* (M.A.) Airy Shaw

#### *Tree and distribution*

Medium to large trees up to 30 m tall and 240 cm girth, sometimes with steep buttresses. Found mainly in lowland primary forest, valley bottoms or swampy areas in Kelantan, Pahang, Selangor and Kedah.

### *Characteristics and physical properties*

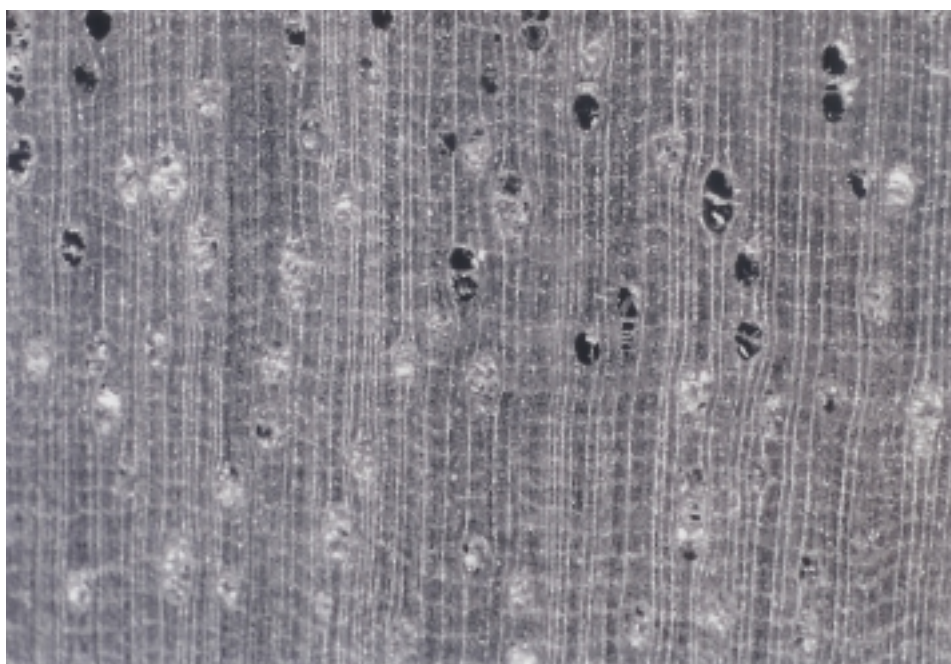
Heartwood is light brown with pinkish tinge in colour and not distinct from the sapwood. Texture is moderately fine to slightly coarse and even. Grain is generally straight. The timber is soft to moderately hard and light to heavy with an air-dry density of 365 to 818 kg m<sup>-3</sup> (average: 710 kg m<sup>-3</sup>).

### *Macroscopic structures*

**Growth rings** absent. **Vessels** small to medium-sized, barely distinct to the naked eye; few or moderately few; solitary and in radial groups of 2 to 10; tyloses sometimes abundant. **Wood parenchyma** abundant, mainly as narrow and broken apotracheal layers. **Rays** extremely fine or very fine and barely visible even with a lens on end and tangential surfaces; conspicuous on radial surface as dark patches against the lighter-coloured background. **Ripple marks** absent. **Intercellular canals** absent.

### *Uses*

The timber is suitable for furniture manufacture, solid door, wall panelling, domestic flooring, veneer and plywood.



**Figure 1** Balek angin (*Mallotus muticus* × 20)

**Bayur Bukit**  
**(*Schoutenia* spp.) (Figure 2)**  
**(Family: Tiliaceae)**

### *Main species*

*Schoutenia accrescens* (Mast.) Curtis (bayur bukit), *S. corneri* Roekmowati, *S. furfuracea* Kochummen, *S. glomerata* King and *S. kunstleri* King

### *Tree and distribution*

There are five species of *Schoutenia* occurring in Peninsular Malaysia and most of them are small trees except *S. accrescens* which can grow to 33 m tall and 240 cm girth. Occur in lowlands as well as mountain forests, sometimes near streams.

### *Characteristics and physical properties*

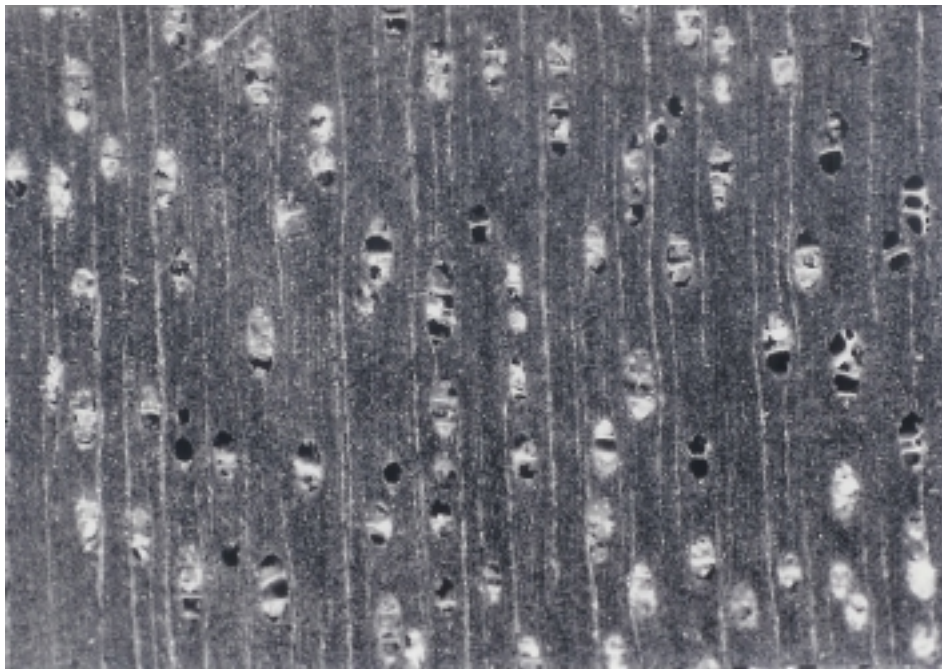
The sapwood is slightly lighter in colour and not well defined from the heartwood which is purple grey-brown to dark greyish purple-brown. Texture is moderately fine and even. Grain is straight or interlocked. Stripe figure on radial surface. Timber is hard and heavy with air-dry density ranging from 941 to 992 kg m<sup>-3</sup> (average: 960 kg m<sup>-3</sup>).

### *Macroscopic structures*

**Growth rings** indistinct, usually marked by layers of denser tissue or terminal parenchyma. **Vessels** moderately small to medium-sized, solitary and in radial multiples of up to 4, rarely more. Tyloses present, reddish brown -coloured deposit sometimes present. **Wood parenchyma** abundant, mainly as apotracheal diffuse, diffuse in aggregates and terminal parenchyma layers; paratracheal parenchyma as narrow vasicentric layer to the vessels and visible only with hand lens. **Rays** very fine and visible only with hand lens. **Ripple marks** present in some specimens examined but vague in others. **Intercellular canals** not observed.

### *Uses*

A hard and heavy timber suitable for structural purposes under cover, tool handles, flooring, heavy duty furniture, truss rafter, door and window frames, agriculture implements and other applications where strength is important.



**Figure 2** Bayur bukit (*Schoutenia accrescens* × 20)

**Bebatu**  
**(*Chaetocarpus castanocarpus*) (Figure 3)**  
**(Family: Euphorbiaceae)**

*Main species*

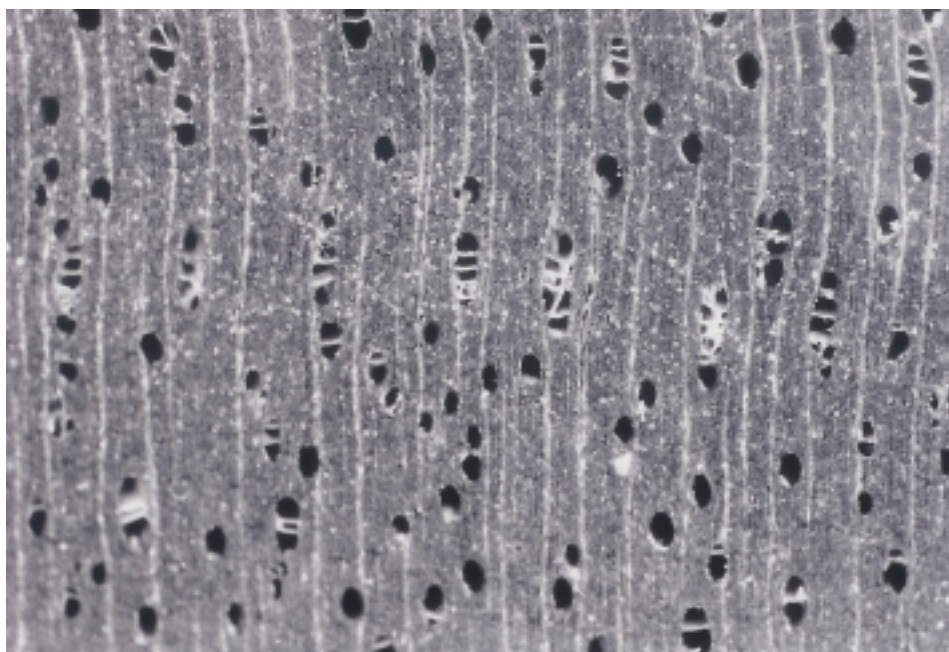
*Chaetocarpus castanocarpus* (Roxb.) Thw.

*Tree and distribution*

Usually small tree to 12 m tall and 60 cm girth but the tree is reported to grow to 45 m tall and branchless for up to 15 m. It occurs mainly in coastal peat-swamp and seasonal swamp forest and also primary inland dipterocarp forest of up to 500 m altitude.

*Characteristics and physical properties*

The sapwood is slightly lighter in colour and not distinct from the heartwood which is greyish-brown. Texture is moderately fine and even. Grain is straight or interlocked or sometimes spiral. Wood moderately hard to hard, moderately heavy to heavy with an air-dry density of 702 to 1043 kg m<sup>-3</sup> (average: 880 kg m<sup>-3</sup>).



**Figure 3** Bebatu (*Chaetocarpus castanopsis* × 20)

*Macroscopic structures*

**Growth rings** absent. **Vessels** small to medium-sized, solitary but mainly as radial multiples of 2 to 3, sometimes more. Tyloses present, deposit absent. **Wood parenchyma** abundant, mainly as apotracheal parenchyma in regular and narrow bands and barely visible to the naked eye due to poor contrast between the parenchyma bands and the background fibres. **Rays** fine but visible with hand lens. **Ripple marks** absent. **Intercellular canals** not observed.

### *Uses*

The timber is hard and heavy and suitable for structural applications under cover. Other uses include tool handles, flooring, truss rafters, heavy-duty furniture, telegraphic poles, door and window frames.

### **Beka** **(*Pajanelia longifolia*) (Figure 4)** **(Family: Bignoniaceae)**

#### *Main species*

*Pajanelia longifolia* (Willd.) K. Sch.

#### *Tree and distribution*

Only one species occurred in Peninsular Malaysia. The tree is medium-sized to large reaching 36 m tall and 350 cm girth. The tree is found in primary forest but it is also common in secondary forests and open country especially near mountains up to 1500 m altitude from Tanjong Malim and Kuala Lipis northwards, commonly planted as stakes for hedges in the rice fields in Kelantan.

#### *Characteristics and physical properties*

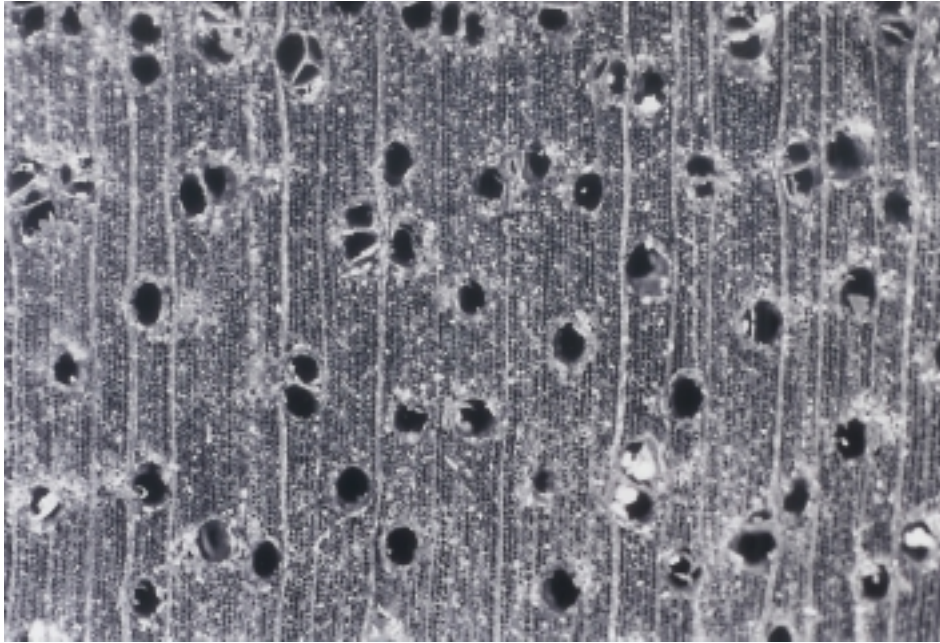
The sapwood is not differentiated from the heartwood, which is light reddish-brown; surface with coarse vessel lines and lighter-coloured speckled appearance giving rise to vague growth ring figure due to the presence of wood parenchyma; wood not lustrous; texture moderately coarse to medium and even. Grain shallowly interlocked. Wood soft and light with air-dry density of 340 to 380 kg m<sup>-3</sup> (average 352 kg m<sup>-3</sup>).

#### *Macroscopic structures*

**Growth rings** absent or **Vessels** moderately fine to medium in size; few; mostly in solitary ; tyloses absent. **Wood parenchyma**. Moderately abundant, mainly as broad paratracheal sheaths to vessels, linking two or more vessels together, with tendency to aliform and confluent. **Rays** moderately fine but vaguely visible to the naked eye on end and tangential surfaces, but conspicuous on radial surface. **Ripple marks** absent. **Intercellular canals** not observed.

### *Uses*

The timber is soft and light and can be used for picture frame, laminated timber, small boxes and crates for food packaging and general moulding.



**Figure 4** Beka (*Pajenella longifolia* × 20)

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