



## Identification and utilization of lesser-known commercial timbers in Peninsular Malaysia. 3. Gaham Badak, Gapis, Gerok and Kayu Masam

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### Introduction

This is the continuation of the earlier articles of the same title. 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. Gaham Badak (*Blumeodendron* spp.), Gapis (*Saraca* spp.), Gerok (*Exbucklandia populnea*) and Kayu Masam (*Aporosa* spp.). Some of the LKCT may not be in abundance in the forest and the bole may not be in good form e.g. Gapis, but once they are harvested from the forest, the best possible uses of the timber will have to be found so that forest resources can be utilized in the most efficient manner. Gaham Badak can grow to a fairly large tree and the timber is useful for use under cover; corewood of the timber may be decorative. The stem of Gapis is usually poor in form and the recovery may be low. The timber is low in strength and as such, its uses may be limited to temporary light construction works, boxes and crates. Gerok is a medium density timber and it is useful for light to medium construction under cover. Kayu Masam is a medium density timber and it can be used for decorative purpose, particularly on quarter-sawn material due to the presence of broad rays. Details of the characteristic, physical, macroscopic features and possible uses of the four timbers are described below.

### Gaham Badak (*Blumeodendron* spp.) (Figure 1) (Family: Euphorbiaceae)

#### *Main species*

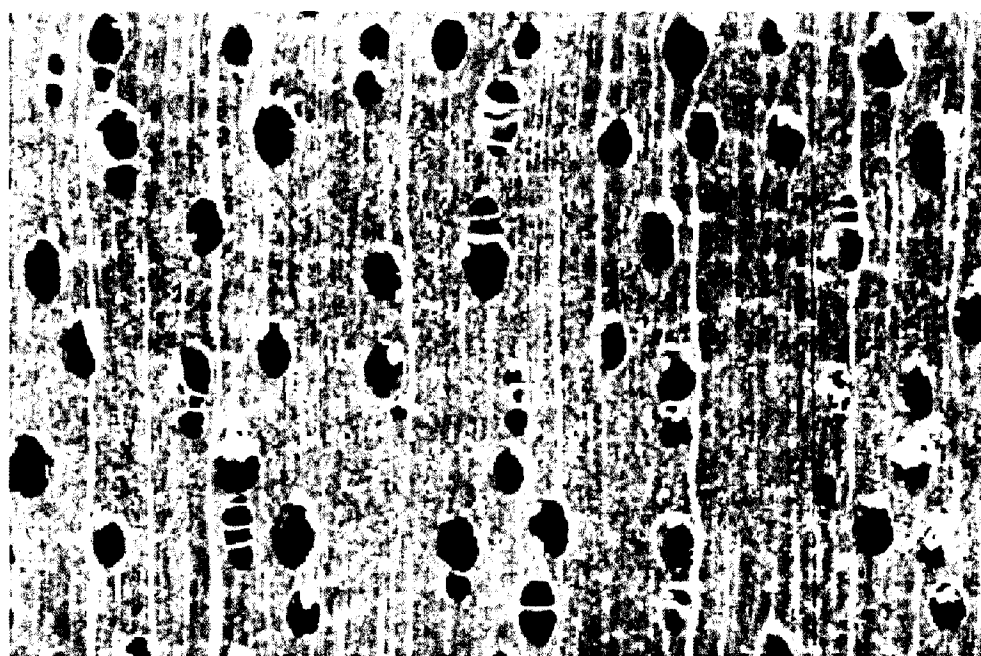
*Blumeodendron calophyllum* Airy Shaw; *B. kurzii* (Hook.f.) J.J. Smith; *B. subrotundifolium* (Elm.) Merr.; *B. tokbrai* (Bl.) J.J. Smith.

### *Tree and distribution*

There are five species of *Blumeodendron* recorded in Peninsular Malaysia. Trees are small to big and found scattered throughout Peninsular Malaysia, particularly in lowland, sometimes in swamps and hills of up to 450 m. the most common species is *B. tokbrai* and the trees often reach 18 m tall, 90 cm girth but sometimes, may reach 36 m tall and 240 cm girth.

### *Characteristics and physical properties*

The heartwood is light brown in colour and not distinct from the lighter-coloured sapwood. Occasionally, a corewood of dark-brown with black streaks is produced. Texture is moderately coarse and even. Grain is straight or shallowly interlocked. The timber is moderately hard and moderately heavy with air-dry density of 622 to 894 kg m<sup>-3</sup>.



**Figure 1** Gaham Badak (*Blumeodendron calophyllum*) × 20

### *Macroscopic structures*

**Growth rings** present, formed by layers of denser fibres. **Vessels** medium to moderately large-sized; few to very few; commonly solitary and in radial pairs or multiples of 3 to 4 but radial multiples of 6 to 10 may be found scattered among the vessels; tyloses present but not abundant. **Wood parenchyma** abundant, mainly as narrow continuous apotracheal layers, just visible to the naked eyes. **Rays** fine to moderately fine and not visible to the naked eye. **Ripple marks** absent. **Intercellular canals** not observed.

### *Uses*

A medium to heavy timber suitable for internal use, furniture, domestic flooring, cladding under cover, non-structural components in house construction, veneer and plywood.

**Gapis**  
**(*Saraca* spp.) (Figure 2)**  
**(Family: Leguminosae)**

*Main species*

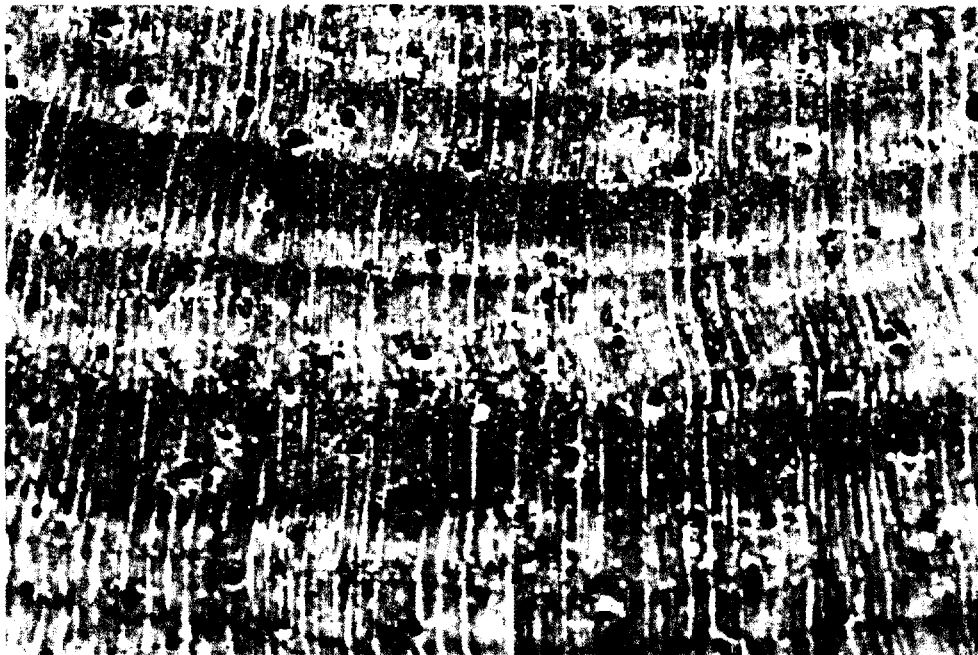
*Saraca asoca* (Roxb.) De Wilde., *S. declinata* (Jack.) Miq., *S. indica* L., *S. thaipingensis* Prain.

*Tree and distribution*

Small to medium-sized trees up to 20 m tall, sometimes can grow up to 30 m, diameter up to 40 cm or sometimes more. Bole usually poorly formed. The trees are found in primary and secondary forests up to 900 m altitude. They are particularly abundant along small streams, sometimes in swamp forest and also hill slopes.

*Characteristics and physical properties*

The sapwood is yellow white and wide and distinct from the heartwood which is dark grey-brown and with dark streaks. Texture is moderately fine to medium and even. Grain is straight or shallowly interlocked. The wood is soft to moderately hard with an air-dry density of 510 to 632 kg m<sup>-3</sup>.



**Figure 2** Gapis (*Saraca indica*) × 20

*Macroscopic structures*

**Growth rings** distinct due to the layers of marginal parenchyma. **Vessels** medium to large, solitary and in radial multiples of 2 to 3, rarely more; tyloses absent or sparse, vessels occasionally filled with white-coloured deposits. **Wood parenchyma** abundant, consisting of both apotracheal and paratracheal parenchyma; apotracheal parenchyma in narrow marginal bands whereas the paratracheal parenchyma in vasicentric and aliform and

conspicuous to the naked eye. **Rays** fine but distinct on radial surface. **Ripple marks** absent. **Intercellular canals** not observed.

#### *Uses*

A light to medium weight wood suitable for temporary light construction, packing cases, pallets, small articles, domestic flooring, general utility furniture, veneer and plywood.

### **Gerok** **(*Exbucklandia populnea*) (Figure 3)** **(Family: Hamamelidaceae)**

#### *Main species*

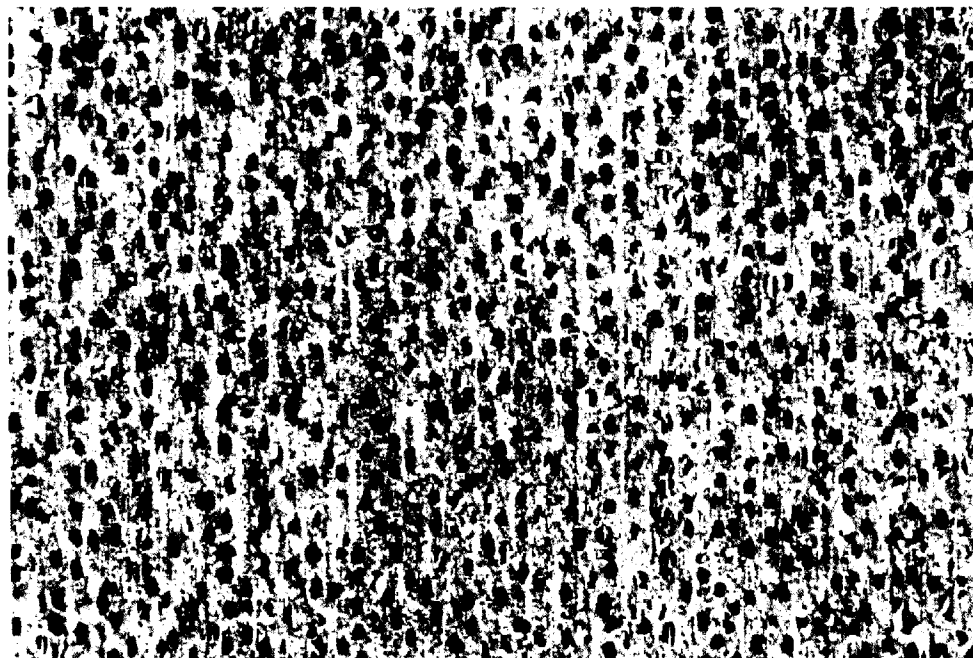
*Exbucklandia populnea* (R.Br. ex Griff.) R.W.Brown.

#### *Tree and distribution*

Only one species occurs in Peninsular Malaysia. Small to large tree, reaching 36 m tall, 330 cm girth. Bole large and usually in good form but with swelling at the butt end. Occur in lower montane forest throughout the country, sometimes gregarious. Common in disturb or secondary, ridge crests and upper hillsides in mountain forest of up to 3000 m.

#### *Characteristics and physical properties*

The sapwood is lighter in colour and not well defined from the heartwood, which is red to dark-brown. Texture is fine and even. Grain is straight or shallowly interlocked. Stripe figure present on radial surface due to interlocked grain. The timber is moderately hard and moderately heavy with an air-dry density of 646 to 781 kg m<sup>-3</sup>.



**Figure 3** Gerok (*Exbucklandia populnea*) × 20

### *Characteristics and physical properties*

The sapwood is lighter in colour and not well defined from the heartwood, which is red to dark-brown. Texture is fine and even. Grain is straight or shallowly interlocked. Stripe figure present on radial surface due to interlocked grain. The timber is moderately hard and moderately heavy with an air-dry density of 646 to 781 kg m<sup>-3</sup>.

### *Macroscopic structures*

**Growth rings** absent or indistinct. Occasionally marked by layers of thicker fibres. **Vessels** Fine to moderately fine, almost exclusively solitary, tyloses absent. White-coloured deposit present. **Wood parenchyma** sparse. Apotracheal parenchyma diffuse, diffuse in aggregates and not readily visible to the naked eye. **Rays** fine and not readily visible to the naked eye due to the lack of contrast with the fibre. **Ripple marks** absent. **Intercellular canals** not observed.

### *Uses*

A medium weight timber suitable for light to medium construction under cover, interior works, domestic flooring, non-impact tool handle, veneer and plywood.

## **Kayu Masam** **(*Aporosa* spp.) (Figures 4a and b)** **(Family: Euphorbiaceae)**

### *Main species*

*Aporosa arborea* (Bl.) M.A., *A. aurea* Hk.f., *A. benthamiana* Hk.f., *A. bracteosa* P.et H., *A. dioica* (Roxb.) M.A., *A. elmeri*, *A. frutescens* Bl., *A. falcifera* Hk.f., *A. grandistipulata*, *A. nervosa* Hk. f., *A. nigricans* Hk. f., *A. prainiana* King ex Gage. and *A. stellifera* Hk.f.

### *Tree and distribution*

Small to medium trees, rarely large tree to 45 m tall and 200 cm girth. Bole is usually straight. Distributed in lowland and lower montane primary and disturbed rain forest, dry land and less commonly in seasonal or permanent swamps.

### *Characteristics and physical properties*

The sapwood is lighter coloured and not sharply distinct from the heartwood, which is pale yellow-brown to brown with orange to purple red tinge. Texture moderately fine to coarse and uneven due to broad rays. Attractive silver grain figure on radial surface. Grain is straight. Wood moderately hard to hard with an air-dry density of 651 to 890 kg m<sup>-3</sup>.

### *Macroscopic structures*

**Growth rings** absent. **Vessels** moderately small in *A. prainiana* and medium-sized in *A. falciflora*, solitary and in radial multiples of 2 to 4, tyloses sparse, deposit absent. **Wood parenchyma** abundant, apotracheal parenchyma as diffuse in aggregate, extending from

ray to ray, with tendency to reticulate, visible with handlens. **Rays** of two sizes, the broader rays visible to the naked eye particularly for the species of *A. prainiana* whereas the species of *A. falciflora* has rays of about half the size of *A. prainiana*. **Ripple marks** absent. **Intercellular canals** not observed.



Figure 4a Kayu Masam (*Aporosa prainiana* × 20)

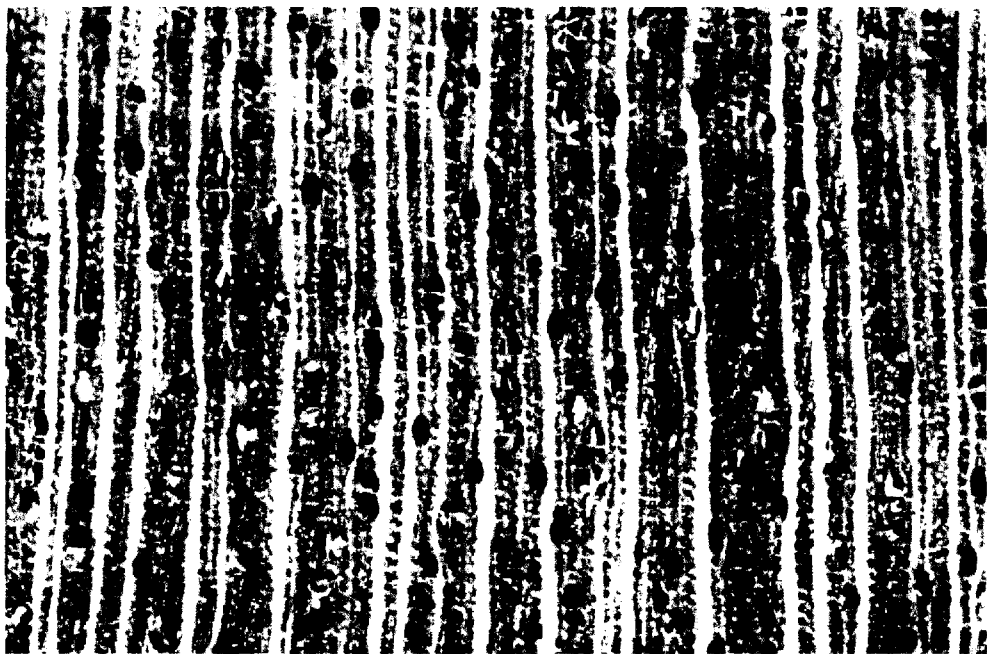


Figure 4b Kayu Masam (*A. falciflora* × 20)

#### *Uses*

The timber is suitable for furniture manufacture, tool handles, flooring, veneer and plywood. The silver grain figure on quarter-sawn material is rather attractive and is suitable for decorative flooring, paneling and high class furniture.

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Series Editor: Y. E. Tan

Typesetter : Rohayu Yunus



No: 0110461



No: 1124



No: 0111014



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