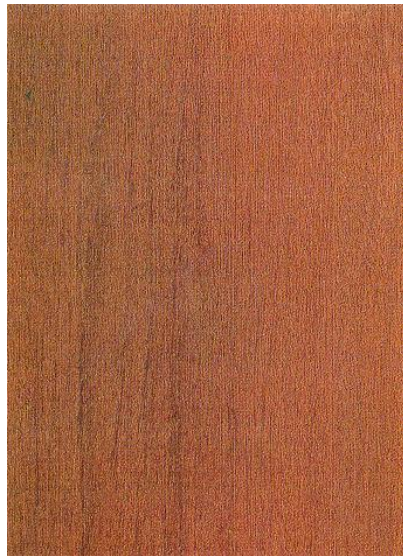


Kulim



INTRODUCTION

The Standard Malaysian Name for the timber of *Scorodocarpus borneensis* (Olacaceae). Vernacular names applied include *bawang hutan* (Sabah and Sarawak) and *ungsunah* (Sarawak). This is a monotypic timber. The sapwood is light yellow in colour and is moderately sharply differentiated from the heartwood, which is dark purple-brown to dark red-brown.

Also known as Bawan, Kasino, Kayu bawang, Kulim, Madudu and Sinduk (Indonesia); and Krathiam ton, Kuleng and Kulim (Thailand).

DENSITY

The timber is a Medium Hardwood with a density of 640-975 kg/m³ air dry.

NATURAL DURABILITY

Kulim is classified as moderately durable under Malaysian conditions. This rating is based on the standard graveyard test of untreated specimens of dimensions 50 mm x 50 mm x 600 mm conducted at the Forest Research Institute Malaysia (FRIM). In the test, 60 specimens were used and the average service life was found to be 4 years (Jackson, 1965).

Kulim is immune to powder post beetle attacks (Menon, 1958) but not to ambrosia beetles (Desch, 1941). Attack by termites does not appear to be severe. The main cause of destruction of the timber is rot. The timber is also immune to marine borers. Trials at Port Klang indicate

that it is not greatly inferior to *belian*. Untreated specimens of 13 x 13 cm (5 x 5 in) and 13 x 26 cm (5 x 10 in) remained serviceable for 2 to 3 and 4 to 5 years respectively, while treated specimens (13 x 13 cm, treated by open tank method to 107 kg/m³ absorption of 50/50 creosote and diesel fuel, and 13 x 26 cm treated to 107 kg/m³ absorption by a full-cell process) had a service life of 3 and 5 years respectively (Walter, 1941). From these figures, it is expected that 30 x 30 cm (12 x 12 in) untreated piles may have a service life of 7 to 10 years.

PRESERVATIVE TREATMENT

Kulim is classified as average in the amenability classification.

TEXTURE

Texture is moderately fine and even, with shallowly to deeply interlocked grain.

STRENGTH PROPERTIES

The timber falls into Strength Group B (Engku, 1988b) or SG 3 (MS 544:Part 2:2001).

Strength Properties of Kulim

Test Condition	Modulus of Elasticity(MPa)	Modulus of Rupture(MPa)	Compression parallel to grain (MPa)	Compression perpendicular to grain (MPa)	Shear strength(MPa)
Green	13,300	78	44.4	4.48	8.8
Air dry	14,900	107	57.0	5.10	10.3

MACHINING PROPERTIES

It is slightly difficult to difficult to resaw and is easy to slightly difficult to cross-cut. The air dried material is slightly difficult to plane but the quality of finish is smooth.

Machining Properties of Kulim

Test Condition	Sawing		Planing		Boring		Turning	
	Re-sawing	Cross Cutting	Ease of planing	Quality of finish	Ease of boring	Quality of finish	Ease of turning	Quality of finish
Green	slightly difficult	easy	easy	smooth	easy	smooth	-	-
Air dry	difficult	slightly difficult	slightly difficult	smooth	slightly difficult	smooth	moderately easy	slightly rough

NAILING PROPERTY

The nailing property is rated as very poor.

AIR DRYING

The timber seasons fairly rapidly, with moderate end-checking and splitting and slight surface-checking as the main sources of degrade. 13 mm thick boards take 2 months to air dry, while 38 mm thick boards take 4 months.

SHRINKAGE

Shrinkage is fairly high, with radial shrinkage averaging 1.7% and tangential shrinkage averaging 3.2%.

DEFECTS

The logs are generally free from defects except for the core which is often defective.

USES

The timber is suitable for medium construction under cover, posts, beams, joists, rafters, door and window frames and sills, bridges and tool handles (impact). The timber possesses a certain degree of resistance to marine borers and may be used in the marine environment. The timber is also suitable for ship and boat building (keels, keelsons and framework), flooring, railway sleepers, cooling towers (structural members), columns (light duty) and telegraphic and power transmission posts and cross arms when treated with preservatives.