

Kelat



INTRODUCTION

The Standard Malaysian Name for the timber of *Syzygium* spp. (Myrtaceae). Vernacular names applied include *jambu* (Sarawak), *kelat* (Peninsular Malaysia) with various epithets, *keriang* (Peninsular Malaysia), *obah* (Sarawak) with various epithets and *ubah* (Sarawak). The latest taxonomic revision of the genus has produced 200 species. The sapwood is not sharply differentiated from the heartwood, which is light brown, pinkish brown, red-brown or purple-brown with a grey tinge.

Also known as Ubah (Brunei); Plong and Tram (Cambodia); Olala (Fiji); Jaman (India); Duhat, Jambu laut, Ki tembaga and Salam (Indonesia); Va kaew (Laos); Thabye and Thabye-gui (Myanmar); Water gum (Papua New Guinea); Binolan, Makassim, Mariig and Mekasim (Philippines); Asi (Samoa Islands); Batadomba and Madan (Sri Lanka); Daeng, Dang Khao, Mao and Wa (Thailand); and Plong and Tram (Vietnam).

DENSITY

The timber is a Medium Hardwood with a density of 495-1,010 kg/m³ air dry.

NATURAL DURABILITY

Kelat has been classified as a moderately durable timber with an average service life of 3.3 years under natural Malaysian conditions (Jackson, 1965). However, the result cannot be wholly-relied on as it was obtained only from the timber of *E. griffithii*. Considering the large number of *Eugenia* species, appreciable variation in durability within the genus is to be expected. Desch (1954) reported a test carried out on two sticks of *E. chlorantha*, one treated with a mixture of 50 percent creosote and 50 percent fuel oil (absorption of 123 kg/m³) and the other untreated. Both the sticks were exposed to marine conditions at Port Klang. The untreated stick remained serviceable for less than two years whereas the treated stick remained serviceable for only two to three years.

PRESERVATIVE TREATMENT

The timber of *kelat* does not absorb preservatives readily.

TEXTURE

Texture is moderately fine and even with interlocked, irregular or wavy grain.

STRENGTH PROPERTIES

The timber falls into Strength Group B (Burgess, 1958) or SG 3 (MS 544:Part 2:2001).

Strength Properties of Kelat (*E. griffithii*)

Test Condition	Modulus of Elasticity(MPa)	Modulus of Rupture(MPa)	Compression parallel to grain (MPa)	Compression perpendicular to grain (MPa)	Shear strength(MPa)
Green	-	-	43.0	4.6	8.6
Air dry	17,600	116	59.0	6.0	12.8

MACHINING PROPERTIES

It is easy to resaw and cross-cut. Planing is easy and the planed surface is smooth.

Machining Properties of Kelat (*E. griffithii*)

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	easy	easy	easy	smooth	moderately easy	fairly smooth	-	-
Air dry	easy	easy	easy	smooth	slightly difficult	slightly rough	difficult	smooth

NAILING PROPERTY

The nailing property is rated as poor.

AIR DRYING

The timber seasons very slowly with end-checking and insect attacks as the main defects. 13 mm thick boards take 5 months to air dry, while 38 mm thick boards take 10 months.

KILN-DRYING

Kiln Schedule C is recommended.

Kiln Schedule C

Moisture Content (%)	Temperature (Dry Bulb)		Temperature (Wet Bulb)		Relative Humidity (%) (approx.)
	° F	° C	° F	° C	
Green	105	40.5	101	38.0	85
60	105	40.5	99	37.0	80
40	110	43.5	102	39.0	75
35	110	43.5	100	38.0	70
30	115	46.0	103	39.5	65

25	125	51.5	109	43.0	60
20	140	60.0	118	47.5	50
15	150	65.5	121	49.0	40

SHRINKAGE

Shrinkage is high, with radial shrinkage averaging 1.9% and tangential shrinkage averaging 3.3%.

DEFECTS

Logs of *kelat* are normally free from any serious defects except for some occasional occurrence of end splits and heart shakes. Attacks by 'pin' and 'powder' post beetles are rare and not serious. *E. attenuata*, *E. dyeriana* and *E. polyantha* have been found to be attacked by dry wood termites.

USES

The timber is strong enough to be used for structural purposes like posts, beams, joists, rafters, medium heavy structures, telegraphic and power transmission posts and cross arms, staircase (angle blocks, rough brackets and newels), vehicle bodies (framework, floor boards and planking), ship and boat building (keels, keelsons and framework) as well as columns (light duty). If properly treated, it may be suitable for tramways, railway sleepers for secondary lines, bridges, wharves and agricultural implements.