

Bilinga / Opepe*

From Tropical timber atlas – Technological characteristics and uses.

J. Gérard (coord.), D. Guibal (au.), J.-C. Cerre (au.), S. Paradis (au.), et 40 auteurs, 2016.
 Publisher Éditions Quæ, 1000 p.

<https://www.quae.com/produit/1477/9782759227716/tropical-timber-atlas>

Access to the general information leaflet:

<https://doi.org/10.19182/bft2021.347.a36353>

* Common commercial name Family.

Family. Rubiaceae.

Botanical names. *Nauclea diderrichii* Merr. (syn. *Sarcocephalus diderrichii*);
 (syn. *Nauclea trillesii*); *Nauclea gillettii* Merr.; *Nauclea xanthoxylon* Aubrév.

(syn. *Sarcocephalus xanthoxylon*).

Continent. Africa.

CITES (Washington Convention of 2017). No trade restrictions.

Log description

Diameter. 60 to 90 cm.

Thickness of sapwood. 3 to 5 cm.

Buoyancy. Does not float.

Log conservation. Good.

Wood description

Reference colour. Orange yellow sapwood.

Clearly demarcated texture. Medium.

Grain. Interlocked grain.

Interlocked grain. Marked.

Notes. Wood is a perfect golden yellow or slightly moiré orangey yellow. In interior end-uses, the colour remains stable.

Physical and mechanical properties

Property	Mean value
Density(1)	0.76
Monnin hardness(1)	5.3
Coefficient of volumetric shrinkage	0.55% per %
Total tangential shrinkage (Ts):	7.5%
Total radial shrinkage (Rs):	4.5%
T/R anisotropy ratio	1.7
Fibre saturation point	25%
Thermal conductivity (λ)	0.25 W/(m.K)
Lower heating value	19,600 kJ/kg
Crushing strength(1)	63 MPa
Static bending strength(1)	95 MPa
Longitudinal modulus of elasticity(1)	14,660 MPa

⁽¹⁾ At 12% moisture content, with 1 MPa = 1 N/mm².

Natural durability and treatability

Resistance to decay. Class 1 – very durable.

Resistance to dry wood borers. Class D – durable (sapwood demarcated, risk limited to sapwood).

Resistance to termites. Class D – durable.

Treatability. Class 2 – moderately treatable.

Use class covered by natural durability. Class 4 – in ground or fresh water contact.

Notes. This species is listed in the NF EN 350 standard. Bilinga naturally covers the use class 5 (wood permanently or regularly submerged in salt water, sea water or brackish water). According to the European standard NF EN 335 of May 2013, performance length might be modified by conditions in which it is used.



Flat sawn.
 Photo D. Guibal, Cirad.



Quarter sawn.
 Photo D. Guibal, Cirad.

Preservation treatment

Against dry wood borer attacks. This wood does not require any preservation treatment.
In case of temporary humidification. This wood does not require any preservation treatment.

In case of permanent humidification. This wood does not require any preservation treatment.

Drying

Drying rate. Slow.

Risk of distortion. Slight risk.

Risk of case hardening. No known specific risk.

Risk of checking. High risk.

Risk of collapse. No known specific risk.

Notes. Difficult to dry due to high interlocked grain. Quarter sawn recommended to reduce defects.

Suggested drying schedule. Schedule #6 (see explanatory note).

Sawing and machining

Blunting effect. Normal.

Tooth for sawing. Ordinary or alloy steel.

Machining tools. Ordinary suitability for peeling. Bad suitability for slicing. Good.

Assembling

Nailing/screwing. Good but pre-boring necessary.

Notes. Wood presents slight tendency to split when nailing. Wood is acidic: to be taken into account when gluing.

Commercial grading

Sawn timber appearance grading

According to SATA grading rules (1996).

For the General Purpose Market

Possible grading for square-edged timbers: choice I, choice II, choice III, choice IV.

Possible grading for short-length lumbers: choice I, choice II.

Possible grading for short-length rafters: choice I, choice II, choice III.

For the Special Market

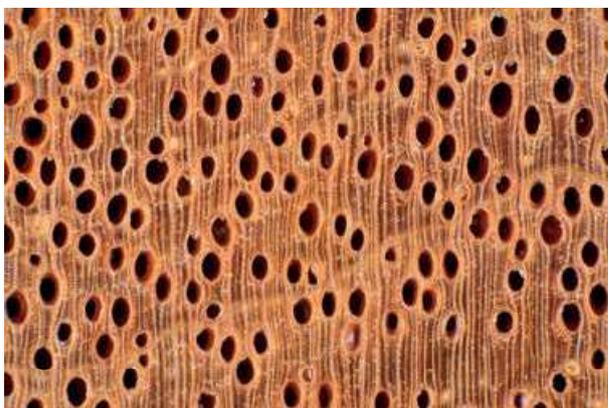
Possible grading for strips and small boards: choice I, choice II, choice III

Possible grading for rafters: choice I, choice II, choice III

Visual structure grading

According to European standard EN 1912 (2012) and associated national standards (see explanatory note), strength class D50 can be provided by visual grading. Strength class D35 can also be provided by visual grading according to French standard NF B 52-001-1 (2011).

Cross sections of *Nauclea diderrichii*.
Photo J.-C. Cerre.



Fire safety**Conventional French grading**

Thickness > 14 mm: M3 (moderately flammable).

Thickness < 14 mm: M4 (readily flammable).

Euroclass grading. D-s2, d0

Default grading for solid wood that meets requirements of European standard.

NF EN 14081-1 (April 2016): structural graded timber in vertical uses and ceilings with minimal mean density of 0.35 and minimal thickness of 22 mm.

Main end uses

Heavy carpentry.

Ship building (planking and deck).

Cabinetry (high-end furniture).

Vehicle or container flooring.

Panelling.

Interior joinery.

Built-in furniture or mobile item.

Flooring.

Industrial or heavy flooring.

Sliced veneer.

Decking.

Bridges (parts in contact with water or ground).

Bridges (parts not in contact with water or ground).

Poles.

Exterior panelling.

Hydraulic works (seawater).

Sleepers.

Notes. Risk of splitting in outdoor uses in dry, hot environments. Needs filling before polishing. Resistant to one or several acids.

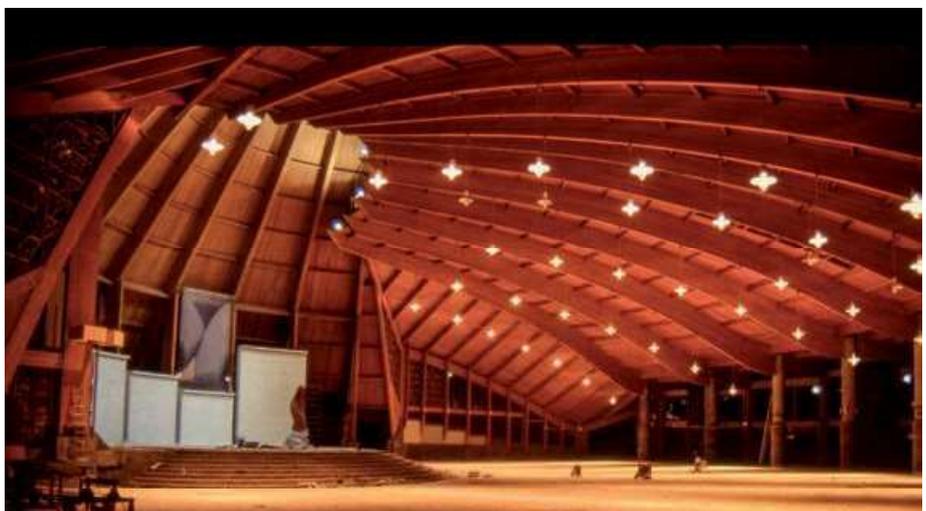
Common names

Country	Local name
Germany	Aloma
Angola	Engolo
Benin	Opépé
Cameroon	Akondoc
Congo	Linzi, Mokessé, N'gulu-maza,
Côte d'Ivoire	Badi
Gabon	Bilinga
Ghana	Kusia
Equatorial Guinea	Aloma
Nigeria	Opepe
Uganda	Kilingi
Central African Republic	Kilu
Democratic Republic of Congo	N'gulu-maza, Bonkingu
United Kingdom	Opepe
Sierra Leone	Bundui

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Glued laminated indoor structure at the Mary Queen of the Apostles Basilica in Yaoundé (Cameroon).
Photo J. Uhalde, UBC.