

INFORMATION LEAFLET
FOREIGN WOODS

Forest Products Laboratory,¹ Forest Service
U. S. Department of Agriculture
1956

PALOSAPIS
Anisoptera spp.
Family: Dipterocarpaceae



By

B. FRANCIS KUKACHKA, Forest Products Technologist
Division of Timber Growth and Utilization Relations

Palosapis is the official designation by the Philippine Bureau of Forestry for Anisoptera thurifera (Blanco) Blume, and it is the collective or lumber term for the product of all the Philippine species of the genus. The four Philippine species that enter commercial channels under the name palosapis are afu (A. brunnea Foxworthy), dagan (A. curtisii Dyer), Mindanao palosapis (A. mindanensis Foxworthy), and palosapis (A. thurifera (Blanco) Blume.)

The wood of the various species is moderately coarse textured, light yellow in color, and characterized by diffuse resin ducts. No attempt is made to separate the various species because of their extreme similarity, but wood that has roseate streaks is sometimes referred to as palosapis while wood without the streaks is often called afu. Palosapis is also known in the United States under the names bayott, bella rosa, and duali.

¹Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

Distribution and Habitat

Palosapis is widely distributed in the primary forests at low altitudes and also along streams in some secondary forests. In some places, it makes up the bulk of the larger trees in the forest; in others, it is associated with apitong, white lauan, and tangile (6, 7).²

The Tree

Palosapis trees attain heights of 125 to 150 feet and diameters of 4 to 6 feet. The trees are straight, unbuttressed, and they may be free of limbs for two-thirds of their height (6, 7).

The Wood

The sapwood varies in thickness from 2 to 5 inches. Although nearly white when fresh, it dries to a dingy gray or brown. The heartwood is yellowish with rose-colored streaks or blotches. Seasoned wood is typically a dull brownish yellow with irregular roseate streaks, but some of it may be much darker as in the case of rotary veneers cut through the reddish parts. The reddish portions tend eventually to fade with age. The wood has a slightly disagreeable odor when fresh, but this disappears when the wood is dried. The grain is more or less interlocked, which produces a ribbon effect in quartered material. The texture is rather coarse due to the numerous large pores or vessel lines, and a filler should be used before finishes are applied (6, 7).

Seasoning

Palosapis requires slow and careful seasoning, because it is inclined to shrink excessively. Once dried, however, it is reported to hold well. The British Forest Products Research Laboratory (1) recommends schedule 5 for kiln drying 4/4 stock of *Anisoptera* spp. The U. S. Forest Products Laboratory (9) schedule that would approximate this is T5-D2.

The following shrinkage values have been determined by Harrar (5) for palosapis and three American cabinet woods dried from the green to the oven-dry condition:

²Underlined numbers in parentheses refer to the list of numbered references at the end of the report.

	<u>Longitudinal</u> (Percent)	<u>Radial</u> (Percent)	<u>Tangential</u> (Percent)	<u>Volumetric</u> (Percent)
Black cherry	0.51	3.14	7.16	11.08
Black walnut	.23	5.14	8.34	12.08
Palosapis	.20	4.65	7.61	13.37
Yellow birch	.29	7.21	9.18	17.04

Mechanical Properties

The following values for air-dry timbers were determined in the Philippines (2) and converted into the more familiar English units used in the Forest Products Laboratory tests.

Moisture content-----percent	15
Specific gravity, based on ovendry volume at test-----	0.54
Static bending:	
Fiber stress at proportional limit-----p.s.i.	5,380
Modulus of rupture-----p.s.i.	10,180
Modulus of elasticity-----p.s.i.	1,550,000
Work to proportional limit---in.-lb. per cu. in.	1.11
Compression, crushing strength at proportional limit:	
Parallel to grain-----p.s.i.	3,780
Perpendicular to grain-----p.s.i.	830
Shear parallel to grain-----p.s.i.	1,220
Hardness (load required to embed a 0.444-inch ball to half its diameter):	
End-----lb.	800
Side-----lb.	780

In the following tabulation, additional side-hardness values determined by Harrar (3) are presented with similar values determined for three American species. The hardness values were based on the load in pounds required to embed a 0.444-inch ball to half its diameter, and they are the average of 100 tests on 10 pieces.

<u>Species</u>	<u>Moisture</u> <u>content</u> (Percent)	<u>Specific</u> <u>gravity</u> ²	<u>Side</u> <u>hardness</u> (Pound)	<u>Compared to</u> <u>black walnut</u> (Percent)
Black cherry	6.2	0.53	1,170	93
Black walnut	5.8	.60	1,260	100
Palosapis	6.1	.57	900	71
Yellow birch	5.2	.60	1,560	124

³-Specific gravity based on ovendry weight and volume.

The following values on screw-holding power were also determined by Harrar (4).

<u>Species</u>	<u>Moisture content</u> (Percent)	<u>Specific gravity</u> ²	<u>No. 6 screws</u>		<u>No. 10 screws</u>	
			<u>Side</u> (Pound)	<u>End</u> (Pound)	<u>Side</u> (Pound)	<u>End</u> (Pound)
Black cherry	6.2	0.53	580	436	766	516
Black walnut	5.8	.60	640	564	766	628
Palosapis	6.1	.57	530	476	648	508
Yellow birch	5.2	.60	656	436	720	562

Workability

The wood can be cut into veneer without particular difficulty, but the dry wood is reported to be hard to saw as compared with other woods of equivalent density. Palosapis accumulates deposits of silica in the wood ray cells that may vary in different portions of the same tree or in different trees; therefore, some variation in machinability may be expected. It has been reported that the wood requires more sanding and rubbing in finishing operations than walnut or birch (6, 7).

Durability

Palosapis has good durability for interior finish but only moderate durability when it is exposed to the weather or in contact with the ground (7).

Uses

In the Philippines, it is used in house construction for beams, joists, rafters, floors, doors, sheathing, and ceilings. It is also used for parts of native vehicles, ship planking, tight cooperage, and tank construction (8). It has been used in the United States to some extent for doors, drawer bottoms, cabinets, furniture, wainscoting, interior trim, and paneling (6, 7).

Identifying Features

The heartwood of palosapis is yellowish brown marked by irregular roseate streaks. The pores and wood rays are visible to the unaided eye on cross section. The pores diffuse, and, when viewed with a hand lens they appear mostly in solitary arrangement, with some short radial multiples. Resin ducts are diffused and filled with white deposits. Parenchyma is not distinct without a hand lens, and it occurs in diffuse arrangement, forming a broken net-like appearance between the wood rays. Occasionally this

wood is confused with the white and yellow lauans, but it can be readily distinguished on the basis of the resin ducts. In the lauans, the resin ducts occur in irregularly spaced arcs while those of palosapis are diffuse.

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