

INFORMATION LEAFLET  
FOREIGN WOODS

Forest Products Laboratory, <sup>1</sup>/<sub>Forest Service</sub>  
U. S. Department of Agriculture  
1954

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ODOKO

Scottellia coriacea A. Chev.  
Family: Flacourtiaceae

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Distribution and Habitat



There are more than 70 genera in the family Flacourtiaceae, widely distributed throughout the tropics. The genus Scottellia occurs in West Africa from Liberia to southern Nigeria and is reported to be abundant (2, 4, 6).<sup>2</sup>

The Tree

Size

Odoko varies from a medium height of 50 to 60 feet to a maximum of 100 feet, usually with a straight bole. Diameters range from about a foot to 2 or 3 feet (2, 4, 6).

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<sup>1</sup>Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

<sup>2</sup>Underlined numbers in parentheses refer to the list of numbered references at the end of the article.

### Bark

The outer bark is reddish (4).

### Leaves, Flowers, Fruits

The leaves are smooth and leathery, oval, and 3 to 5 inches long. The flowers are small, creamy yellow, and slightly fragrant. The fruits grow in clusters and are elongated capsules with a few orange-red seeds (4).

### The Wood

#### Color

The wood is pale yellow or straw-colored, without distinction between sapwood and heartwood. It is subject to blue stain (2, 4, 6).

#### Texture, Grain, Figure

Odoko is generally straight-grained, but it may occasionally have interlocked grain. The texture is fine. A distinct "silver-grain" figure appears on the quarter-cut surface because of the relatively conspicuous rays (2, 4, 6).

#### Weight

In tests conducted at the British Forest Products Research Laboratory, air-dried wood at 12 percent moisture content weighed 41 pounds per cubic foot; green wood at 50 percent moisture content weighed 53 pounds per cubic foot (1).

#### Mechanical Properties

Values obtained for the mechanical properties of odoko in the green and air-dry condition are presented in table 1 (1).

#### Seasoning and Shrinkage

Odoko is reported to develop checks and splits during air-drying. Blue stain may also occur. Warping is usually not excessive.

In kiln drying, the wood has a tendency to split and existing shakes tend to enlarge. There is little distortion in drying (2, 6). Kiln schedule 5 of the British Forest Products Research Laboratory has been recommended for this

timber (3). The U. S. Forest Products Laboratory schedule that appears most appropriate for 4/4 stock is T6-D2 (10). Limited tests at the British Forest Products Research Laboratory resulted in the following shrinkage data on kiln drying from the green condition to a moisture content of about 10 percent (2):

Tangential.....1/2 to 5/8 inch per foot, or  
4.0 to 5.0 percent.

Radial.....1/4 to 5/16 inch per foot, or  
2.3 to 2.4 percent.

### Durability

Odoko is not resistant to decay, but it can easily be treated with preservatives (2, 6).

### Working Characteristics

The wood is rated moderately easy to work. It finishes smoothly in planing and molding and takes a good polish, but some care is needed to prevent chipping in certain operations because of a slight brittleness. Quarter-sawn surfaces sometimes tend to flake. The timber is liable to split in nailing, but it has good gluing and screwholding characteristics (2, 6).

H. A. Cox (5) reported that logs from Nigeria showed a tendency to develop radial splits sometimes reaching to the circumference of the log during the process of cross-cutting to lengths suitable for the veneer cutting machine. This made peeling difficult, for the veneer tended to break across as it was removed from the peeler.

### Uses

Odoko is a good general utility timber somewhat similar to beech. It should prove useful for table tops as in bakeries and laundries, brush backs, shoe heels, and domestic woodenware (2, 6).

### Structure

Growth rings are not distinct. Pores are small and not visible without a lens. Wood parenchyma is absent or very sparse. Rays are conspicuous on the cross section but not on the tangential section; they are notably high and prominent on the radial surface where they stand out as lighter than the background (8, 9, 11).

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Table 1.--Mechanical properties of odoko (Scottellia coriacea) and the comparable hardwoods, European beech (Fagus sylvatica) and American beech (Fagus grandifolia)<sup>1</sup>

Property	Species and origin			
	Odoko ( <u>Scottellia coriacea</u> ) Nigeria	American Beech ( <u>Fagus grandifolia</u> ) United States	European Beech ( <u>Fagus sylvatica</u> ) United Kingdom	European Beech ( <u>Fagus sylvatica</u> ) Europe
Moisture content				
Green.....percent:	65	54	88	.....
Air-dry.....percent:	12	12	12	12
Weight per cubic foot				
At 50 percent moisture content.lb:	53	.....	52	.....
At 12 percent moisture content.lb:	41	45	43	40
Static bending				
Modulus of rupture				
Green.....p.s.i.:	11,500	8,600	8,900	.....
Air-dry.....p.s.i.:	16,000	14,900	16,200	13,500
Modulus of elasticity				
Green.....1,000 p.s.i.:	1,750	1,380	1,520	.....
Air-dry.....1,000 p.s.i.:	1,990	1,720	1,950	1,680
Work to maximum load				
Green.....in.-lb. per cu. in.:	12.7	11.9	13.2	.....
Air-dry.....in.-lb. per cu. in.:	12.0	51.1	17.4	14.1
Total work				
Green.....in.-lb. per cu. in.:	22.2	30.8	26.3	.....
Air-dry.....in.-lb. per cu. in.:	16.9	30.9	27.4	.....
Impact bending				
Height of drop causing complete failure (50-pound hammer)				
Green.....in.:	.....	43	36	.....
Air-dry.....in.:	.....	41	45	43
Compression parallel to grain				
Maximum crushing strength				
Green.....p.s.i.:	5,390	3,550	3,860	.....
Air-dry.....p.s.i.:	8,880	7,300	7,870	.....

Table 1.--Mechanical properties of odoko (Scottellia coriacea) and the comparable hardwoods, European beech (Fagus sylvatica) and American beech (Fagus grandifolia)<sup>1</sup> (Continued)

Property	Species and origin			
	Odoko ( <u>Scottellia coriacea</u> ) Nigeria	American Beech ( <u>Fagus grandifolia</u> ) United States	European Beech ( <u>Fagus sylvatica</u> ) United Kingdom	European Beech ( <u>Fagus sylvatica</u> ) Europe
Hardness <sup>2</sup>				
Green - end.....lb.	1,150	970	1,080	.....
Green - side.....lb.	990	850	960	.....
Air-dry - end.....lb.	1,620	1,590	1,820	1,690
Air-dry - side.....lb.	1,090	1,300	1,440	1,180
Shear parallel to grain; maximum shearing strength				
Green.....p.s.i.	1,280	1,290	1,210	.....
Air-dry.....p.s.i.	21,910	2,010	2,030	.....
Cleavage; load to cause splitting				
Green.....lb. per in. of width:	445	410	490	.....
Air-dry.....lb. per in. of width:	2400	490	525	430

<sup>1</sup>This table shows results of tests on odoko and European beech made by the British Forest Products Research Laboratory (1). The results of tests on American beech were taken from Tech. Bull. No. 479 of the U. S. Dept. of Agr. (7).

<sup>2</sup>The load in pounds required to embed a 0.444-inch steel ball to half its diameter.

<sup>3</sup>Limited number of tests.