

Technology Transfer Fact Sheet



Center for Wood Anatomy Research

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Carapa guianensis

Family: Meliaceae

Crabwood

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Andiroba

Other Common Names: Cedro macho (Costa Rica), Bateo (Panama), Mazabalo (Colombia), Carapa (Venezuela), Krapa (Surinam), Figueroa, Tangare (Ecuador), Andiroba (Peru, Brazil).

Distribution: Occurs in the West Indies from Cuba to Trinidad and from Honduras south through Central America, the Guianas, and into Brazil, Colombia, and Peru, and the overflow delta lands of the Orinoco in Venezuela; often occurs in pure stands; a lowland species but also at high altitudes along rivers.

The Tree: Commonly 80 to 100 ft in height with diameters 2 to 3 ft; sometimes attain diameters up to 6 ft and heights of 170 ft. Buttresses are low, leaving a clear bole length of 50 ft or more; main stems are straight and of good form.

The Wood:

General Characteristics: Heartwood is a light salmon to reddish brown when fresh, becoming darker when dry, color very variable; sapwood is pinkish turning pale brown or grayish, not always sharply demarcated from heartwood. Texture varies from fine to coarse; luster ranges from low to high; grain usually straight but sometimes roey; odor and taste lacking.

Weight: Basic specific gravity (ovendry weight/green volume) 0.56; air-dry density 41 pcf.

Mechanical Properties: (First set of values based on 2-in. standard; second set, 1-in. standard.)

Moisture content (%)	Bending strength (Psi)	Modulus of elasticity (1,000 psi)	Maximum crushing strength (Psi)
Green (74)	11,110	1,560	4,930
12%	15,620	1,850	7,900
12% (24)	15,500	2,080	8,540

Janka side hardness 1,060 lb for green material and 1,220 lb at 12% moisture content. Forest Products Laboratory toughness average for green and dry material is 130 in.-lb (5/8-in specimen).

Drying and Shrinkage: Experience is variable, reported to air-season and kiln-dry rather slowly with a tendency to split, check, and collapse but without serious bowing or cupping; also reported to be only moderately difficult to air-dry with only slight checking and warp. Kiln schedule T3-C2 is suggested for 4/4 stock and T3-C1 for 8/4. Shrinkage green to oven-dry: radial 3.1%; tangential 7.6%; volumetric 10.4%. Movement in service is rated small.

Working Properties: Can be worked with machine and hand tools; reported to be somewhat harder to machine than mahogany; has a tendency to split when nailed; glues and screws well; peels well for veneer.

Durability: Very variable, laboratory tests report both high and low resistance to brown- and white-rot fungi; also variously reported to be resistant or poorly resistant to decay in the ground. Reported to be very susceptible to dry-wood termite attack; also vulnerable to powder-post beetle attack. Comparable to mahogany in weathering properties.

Preservation: Absorption is low and penetration is poor in heartwood treated by either pressure or non-pressure systems.

Uses: Suitable for all types of construction where durability is not a factor; furniture and cabinet work, flooring, joinery, millwork, veneer and plywood, and turnery.

Additional Reading: (24), (30), (46), (74)

24. Food and Agriculture Organization. 1970. Estudio de preinversion para el desarrollo forestal de la Guyana Venezolana. Informe final. Tomo III. Las maderas del area del proyecto. FAO Report FAO/SF: 82 VEN 5. Rome.

30. Instituto de Pesquisas Tecnologicas. 1956. Tabelas de resultados obtidos para madeiras nacionais. Bol. Inst. Pesqu. tec. Sao Paulo No. 31.

46. Longwood, F. R. 1962. Present and potential commercial timbers of the Caribbean. Agriculture Handbook No. 207. U.S. Department of Agriculture.

74. Wangaard, F. F., and A. F. Muschler. 1952. Properties and uses of tropical woods, III. Tropical Woods 98:1-190.

From: Chudnoff, Martin. 1984. Tropical Timbers of the World. USDA Forest Service. Ag. Handbook No. 607.