Woods of Peru

Perú

Species: Yacushapana

Index

Peru

is home to the second largest forest area in Latin America and through its great diversity contributes to the sustainable development of the planet.

Durable woods from a diverse forest

Species: Huayruro

Protecting and showcasing Peru's vast forests and diverse natural resources demands proper management. It is for this reason that PROMPERÚ and the business community work together to ensure timber is exported from well managed forests under international certification standards.

Peru's timber market contains 237 commercial species, all fully identified and studied. This catalog aims to publicize and promote work of local companies which properly manage their forests and have great potential to diversify their species and products to target the international market.

We encourage

companies to use species which are lesser known internationally in order to decrease the pressure on certain species and to stimulate sustainable management of tropical forests.

Wood catalog

Species: Pumaquiro

Aguano masha

Species

Paramachaerium schunkei

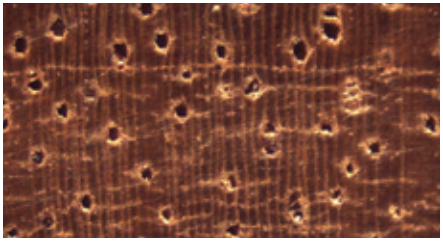
Family

Fabaceae-Papilionoideae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

When freshly cut the sapwood is white in color, whilst the heartwood is brown and displays regular form. Once dry the sapwood turns pale yellow.

Technical properties

Basic density	0.73 g/cm^3
Tangential shrinkage	4.90%
Radial shrinkage	2.71%
T/R ratio	1.80

Bending modulus of elasticity	139 000 kg/cm^2
Breakage modulus of elasticity	1102 kg/cm^2
Parallel compression (RM)	574 kg/cm^2
Perpendicular compression (ELP)	127 kg/cm^2
Grain parallel cut	135 kg/cm^2
Hardness on the sides	1052 kg/cm^2
Firmness (resistance to impact)	5.90 kg-m

Technical recommendations

The wood is heavy, with medium linear contractions and stable volumetric contraction. Its mechanical resistance is at the medium level of the high category, which makes sawing moderately difficult.

The workability is good and the finish is suitable for producing parquet for export. The wood is stable during the drying process and the risk of warping is low.

Whilst the heartwood is resistant to biological attack, the sapwood is more susceptible and needs to be preserved.

Uses

The wood is used in floors, sleepers, house structures, interior carpentry, craft products, and for the manufacture of parquet for export.

Caimitillo (anigre)

Species

Pouteria caimito (Ruiz & Pav.) Radlk.

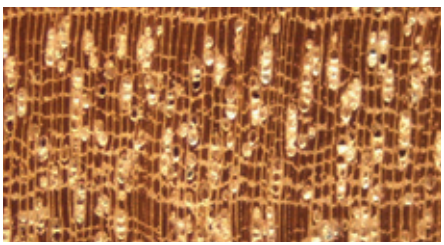
Family

Sapotaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

The tree can grow to between 15 and 25 meters in height, with a diameter of between 20 and 100 centimeters. The outer bark is reddish brown in color and is cracked. The inner barks expels a white latex secretion.

Although astringent, the wood lacks characteristic odor and taste. The heartwood is reddish brown and the sapwood is a paler shade of this color. The grain is straight or interlocked.

Technical properties

Basic density	0.74 g/cm^3
Tangential shrinkage	10.01%
Radial shrinkage	5.08%
T/R ratio	2.07

Bending modulus of elasticity	164 000 kg/cm^2
Breakage modulus of elasticity	897 kg/cm^2
Parallel compression (RM)	363 kg/cm^2
Perpendicular compression (ELP)	100 kg/cm^2
Grain parallel cut	110 kg/cm^2
Hardness on the sides	795 kg/cm^2
Firmness (resistance to impact)	5.10 kg-m

Technical recommendations

Due to its silica content the wood is difficult to saw. Although abrasive with high mechanical resistance, it rates well for workability, brushing, and turning. Drilling is not difficult and the wood is suitable for molding.

The natural drying process is slow; however, a moderately severe artificial drying program will yield a good result. The wood is very resistant to fungi and insect attack. Preservation using a thermal bath and vacuum pressure is partially irregular.

Uses

The wood is used for sleepers, and in joinery, general carpentry, and heavy construction (beams and columns).

Capirona
(pau-mulato)

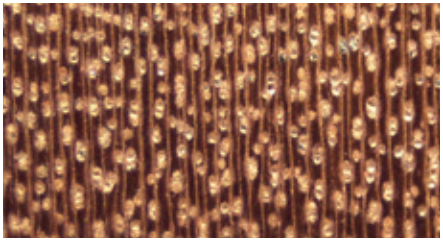
Species
Calycophyllum spruceanum

Family
Rubiaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood is creamy white in color and the heartwood a dull white with light brown streaks.

Technical properties

Basic density	0.76 g/cm^3
Tangential shrinkage	9.00%
Radial shrinkage	5.00%
T/R ratio	2.30

Bending modulus of elasticity	100 000 kg/cm^2
Breakage modulus of elasticity	723 kg/cm^2
Parallel compression (RM)	283 kg/cm^2
Perpendicular compression (ELP)	67 kg/cm^2
Grain parallel cut	87 kg/cm^2
Hardness on the sides	425 kg/cm^2
Firmness (resistance to impact)	2.00 kg-m

Technical recommendations
The wood is very heavy, with low linear contraction and moderately stable volumetric contraction.

Its mechanical resistance is medium to high, which gives it good workability and makes it reasonably easy to saw.

Although the wood behaves normally under artificial drying, to avoid cracking a mild setting is necessary.

It resists biological attack well, needs no preservation, and is durable, especially when not in contact with the ground.

Uses
The wood is used in floors, parquet, moldings, plugs, turning, handles, bodywork, marine construction, heavy beams, and sporting goods such tennis rackets and bats.

Chamisa

Species

Anthodiscus pilosus (Ducke)

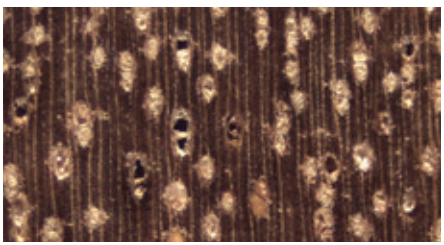
Family

Caryocaraceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

From a straight base with small and thick buttresses, the tree grows up to 30 meters in height. The outer bark is blackish with fissures that contain scattered and rounded lenticels.

The inner bark has a yellowish-creamy color, is fibrous, slightly bitter, and emits a characteristic odor.

When freshly cut the sapwood is creamy in color and the heartwood is a pale brown.

Once dry the sapwood turns pale yellow and the heartwood becomes a yellowish brown.

Technical properties

Basic density	0.63 g/cm^3
Tangential shrinkage	10.2%
Radial shrinkage	3.4%
T/R ratio	3.0

Bending modulus of elasticity	178 000 kg/cm^2
Breakage modulus of elasticity	647 kg/cm^2
Parallel compression (RM)	296.9 kg/cm^2
Perpendicular compression (ELP)	50.5 kg/cm^2
Grain parallel cut	58 kg/cm^2
Hardness on the sides	516.3 kg/cm^2
Firmness (resistance to impact)	1.7 kg-m

Technical recommendations

The wood can be difficult to saw, to brush, and to use with cutting machines. It is not recommended for gluing, or for making laminates such as plywood, but the fiber reacts well to nailing.

Uses

The wood is used for exteriors, floors, tools, packaging, pallets, and beam and joist construction.

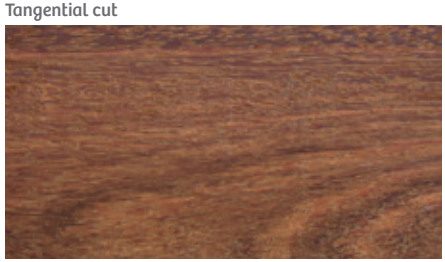
Chontaquiro
(sucupira)

Species
Diplotropis purpurea (Rich.) Amshoff

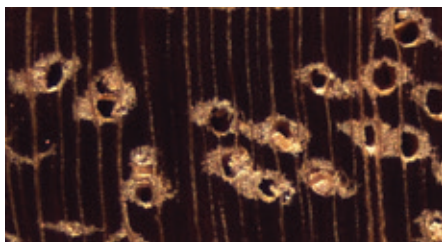
Family
Fabaceae

Radial cut

Tangential cut



Cross cut 10X



Characteristics
The tree can grow up to 40 meters in height and has undeveloped buttresses. The wood lacks characteristic odor or taste. The sapwood is clearly differentiated from the heartwood, which, although initially dark brown, becomes lighter following exposure. Whilst very resistant to fungi and termite attack, the wood is susceptible to marine borers.

Technical properties

Basic density	0.81 g/cm^3
Tangential shrinkage	7.4%
Radial shrinkage	5.3%
T/R ratio	1.4

Bending modulus of elasticity	204 667 kg/cm^2
Breakage modulus of elasticity	997 kg/cm^2
Parallel compression (RM)	459 kg/cm^2
Perpendicular compression (ELP)	84 kg/cm^2
Grain parallel cut	135 kg/cm^2
Hardness on the sides	973 kg/cm^2
Firmness (resistance to impact)	2.90 kg-m

Technical recommendations
The wood is moderately difficult to saw, so tape saws with stellite tips are recommended. It is suitable for cutting decorative veneers.

When straight, the grain facilitates even brushing; but when interlocked, the flat surfaces may be left with flaws. The wood responds well to nailing, although working with manual tools can be difficult.

Uses
The wood is used in home construction and for interior furniture and carpentry (mainly cabinets), but is so versatile that its uses also include sleepers, moldings, turning, packaging, laminates, plywood, and musical instruments. At a local level is also used for crafts.

Copaiba

Species

Copaifera officinalis

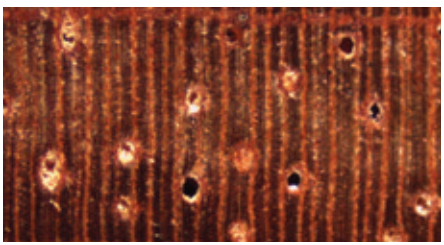
Family

Fabaceae-Caesalpinioideae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

When freshly cut the sapwood is beige in color and the heartwood is reddish brown with dark streaks. Once dry the sapwood turns pinkish white and the heartwood becomes a yellowish red with dark oily streaks.

Technical properties

Basic density	0.61 g/cm^3
Tangential shrinkage	7.00%
Radial shrinkage	3.40%
T/R ratio	2.30

Bending modulus of elasticity	112 000 kg/cm^2
Breakage modulus of elasticity	736 kg/cm^2
Parallel compression (RM)	268 kg/cm^2
Perpendicular compression (ELP)	74 kg/cm^2
Grain parallel cut	99 kg/cm^2
Hardness on the sides	587 kg/cm^2
Firmness (resistance to impact)	3.40 kg.-m

Technical recommendations

The wood is heavy, with low linear contraction and moderately stable volumetric contraction. It is easy to saw, rates well for workability, and, when cut, offers medium mechanical resistance. The wood's natural drying is moderately slow and its natural durability is low to medium.

It is resistant to biological attack when wet. Although the heartwood is not easy to preserve, good penetration occurs in the sapwood.

Uses

The wood is used in carpentry, beams, columns, floors, parquet, plywood, parquet, furniture, moldings, formwork, laminates, interior linings, tongue and groove joining, turned objects, and box manufacture. Its qualities make the timber a good substitute for Oregon pine. When preserved it can be used in wooden stakes or fence posts. It is suitable for particle boards and wood-cement boards.

Huangana
(Sloanea)

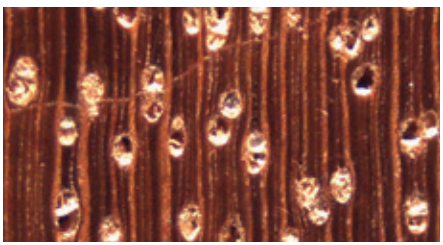
Species
Sloanea guianensis (Aubl.) Benth.

Family
Elaeocarpaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
The tree can grow up to 20 meters in height. The trunk has laminar buttresses. The outer bark is light brown in color and the texture feels scaly when touched. The inner bark has a reddish color and the flowers are yellowish. The tree has numerous stamens.

Once dried the wood displays a gradual transition between the sapwood (light brown) and the heartwood (dark brown). The wood lacks characteristic odor or taste. The medium textured grains are interlocked but have no shine. Although oxidation can leave the wood discolored, there is no streaking.

Technical properties

Basic density	0.74 g/cm^3
Tangential shrinkage	8.35%
Radial shrinkage	4%
T/R ratio	2.1

Bending modulus of elasticity	126 000 kg/cm^2
Breakage modulus of elasticity	688 kg/cm^2
Parallel compression (RM)	264 kg/cm^2
Perpendicular compression (ELP)	87 kg/cm^2
Grain parallel cut	138 kg/cm^2
Hardness on the sides	674 kg/cm^2
Firmness (resistance to impact)	2.25 kg-m

Technical recommendations
The wood is difficult to preserve because of the resins that reduce its permeability. For this same reason sawing is difficult and its silica can damage incorrectly chosen cutting tools.

Uses
Although the wood is used in home construction and for interior furniture and carpentry (mainly cabinets), it is so versatile that its uses also include sleepers, moldings, turning, packaging, laminates, plywood, and musical instruments. At a local level, it is also used for crafts.

Huayruro
(tento)

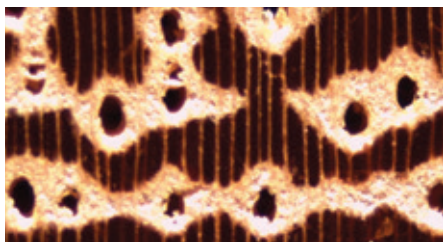
Species
Ormosia coccinea

Family
Fabaceae-Papilionoideae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood is a very light brown in color and the heartwood is a yellowish red.

Technical properties

Basic density	0.60 g/cm^3
Tangential shrinkage	6.40%
Radial shrinkage	3.20%
T/R ratio	2.10

Bending modulus of elasticity	134 000 kg/cm^2
Breakage modulus of elasticity	843 kg/cm^2
Parallel compression (RM)	443 kg/cm^2
Perpendicular compression (ELP)	70 kg/cm^2
Grain parallel cut	113 kg/cm^2
Hardness on the sides	661 kg/cm^2
Firmness (resistance to impact)	3.60 kg-m

Technical recommendations
The wood has high basic density with medium linear contractions and stable volumetric contraction. Due to its hardness and mechanical resistance, the wood is somewhat difficult to saw. It rates well for workability, brushing, and molding. Drilling is moderately difficult.

The natural drying process is slow, but the wood behaves well under artificial drying. The natural durability is good. The wood is moderately resistant to biological attack: the sapwood is susceptible, but the heartwood requires no preservation.

Due to the high proportion of sapwood, whilst the logs are large their yield in final product is usually low.

Uses
The wood is used in carpentry work, furniture, decorative veneers, floors (tongue and groove parquet, staircase steps), building structures (beams, joists, columns, trusses) and heavy construction (bridges, mine supports, pylons, bodywork, and packaging).

Peru's

timber market contains 237 commercial species with clear comparative advantages, all fully identified, studied, and ready for commercial use.

Species: Pumaquiro

Machimango colorado

Species

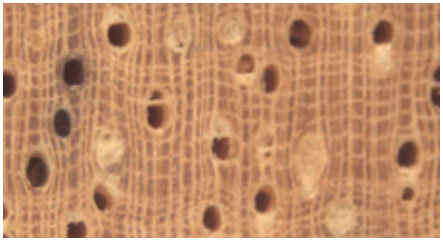
Eschweilera coriacea S. A. Mori

Family

Lecythidaceae

Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 35 meters in height and frequently has elevated buttresses. Its outer bark is brown to dark brown in color, often almost black.

The wood is hard and heavy, with an interlocked grain, a medium to fine texture, and a yellow to pale brown color. It lacks characteristic odor or taste and has low luster.

A product with great durability, it is highly resistant to termites and reacts poorly to preservation treatment.

Technical properties

Basic density	0.86 g/cm^3
Tangential shrinkage	13%
Radial shrinkage	7.3%
T/R ratio	1.8

Bending modulus of elasticity	124 000 kg/cm^2
Breakage modulus of elasticity	1843 kg/cm^2
Parallel compression (RM)	907 kg/cm^2
Perpendicular compression (ELP)	40 kg/cm^2
Grain parallel cut	150 kg/cm^2
Hardness on the sides	1143 kg/cm^2
Firmness (resistance to impact)	1.3 kg-m

Technical recommendations

Although the wood dries easily, certain defects have been reported: deformations can be severe where the grain is irregular.

As the species tends to split, machining operations can be difficult. The finishes are very fine.

Uses

The wood is used mainly for exteriors, but also for sleepers, crossbeams, struts, and beams.

Manchinga
(charo amarillo)

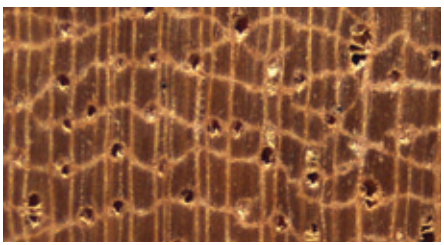
Species
Brosimum alicastrum

Family
Moraceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood has a yellow color which closely resembles that of the heartwood.

Technical properties

Basic density	0.68 g/cm^3
Tangential shrinkage	8.13%
Radial shrinkage	4.96%
T/R ratio	1.60

Bending modulus of elasticity	117 000 kg/cm^2
Breakage modulus of elasticity	785 kg/cm^2
Parallel compression (RM)	365 kg/cm^2
Perpendicular compression (ELP)	75 kg/cm^2
Grain parallel cut	109 kg/cm^2
Hardness on the sides	720 kg/cm^2
Firmness (resistance to impact)	3.60 kg-m

Technical recommendations
The wood is heavy, with low linear contraction and moderately stable volumetric contraction. Its mechanical resistance is medium to high, which makes sawing moderately difficult. It rates well for workability. To obtain good quality products, radial sawing is recommended as it releases tension.

The natural drying process is slow. A less severe setting should be used when drying artificially. As the wood is susceptible to biological attack from chromogenic fungi, when wet it must be processed immediately and conserved by immersion using preservatives.

The hot-cold method will preserve the dry wood. In the case of products for export, autoclave pressure drying is necessary.

Uses
The wood is used for joinery, furniture, carpentry, beams, columns, trusses, parquet, floors, stairs, veneers, plywood, tool handles, and decorative elements.

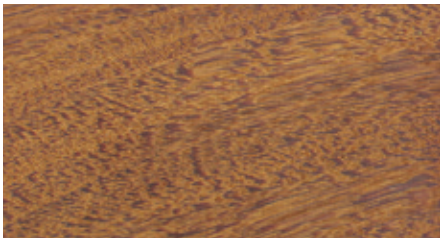
Mari mari
(faveira amargosa)

Species
Vatairea guianensis

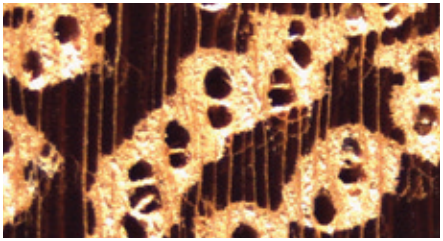
Family
Fabaceae-Papilionoideae

Radial cut

Tangential cut



Cross cut 10X



Characteristics
When freshly cut the sapwood is white to beige and the heartwood is a deep yellow.

Technical properties

Basic density	0.77 g/cm^3
Tangential shrinkage	7.80%
Radial shrinkage	3.50%
T/R ratio	2.20

Bending modulus of elasticity	160 000 kg/cm^2
Breakage modulus of elasticity	1315 kg/cm^2
Parallel compression (RM)	622 kg/cm^2
Grain parallel cut	489 kg/cm^2
Radial cut hardness	139 kg/cm^2
Hardness on the sides	633 kg/cm^2
Rigidness	10 300 kg/cm^2

Technical recommendations
The wood is heavy, with medium linear contractions and moderately stable volumetric contraction. Its mechanical resistance is medium. Its high density gives the wood high mechanical properties. To achieve the best results, saws should first be treated with stellite.

Its rating for workability is moderate. The wood behaves well when subjected to artificial drying. Preservation is advisable as the sapwood is very susceptible to insect attack.

The heartwood is highly resistant to attack by xylophagous organisms. Once the wood has dried it needs no preserving. Under pressure treatment the wood is moderately permeable to preservative solutions.

Uses
The wood is used as firewood in bakeries and brick kilns, and also for canoes, bodywork, furniture, parquet, heavy construction, structural parts, and general carpentry.

Mashonaste
(guariuba)

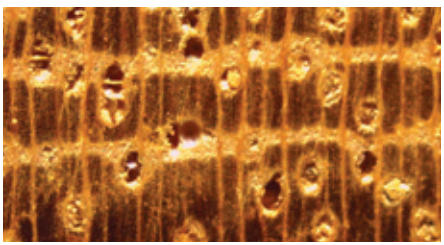
Species
Clarisia racemosa

Family
Moraceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood is yellowish white in color and the heartwood is a bright yellow (like egg yolk).

Technical properties

Basic density	0.56 g/cm^3
Tangential shrinkage	6.30%
Radial shrinkage	3.00%
T/R ratio	2.10

Bending modulus of elasticity	139 000 kg/cm^2
Breakage modulus of elasticity	926 kg/cm^2
Parallel compression (RM)	536 kg/cm^2
Perpendicular compression (ELP)	76 kg/cm^2
Grain parallel cut	100 kg/cm^2
Hardness on the sides	690 kg/cm^2
Firmness (resistance to impact)	2.90 kg-m

Technical recommendations
The wood is semi-heavy and of good quality. Its mechanical resistance is medium to high.

Due to the high level of silica, the wood is somewhat difficult to saw and doing so as soon as possible after felling is recommended, using carbide tools with stellite teeth.

The wood's workability is good and it is suitable for drilling, turning, molding, gluing, and nailing. The natural drying process is moderately slow and the risk of warping is low.

The wood behaves well under artificial drying. It needs no preservation and resists biological attack from termites, dry wood insects, and the xylophagous fungi.

Uses
The wood is used in beams, columns, floors, sleepers, canoes, boats, bodywork, furniture, pallets, marine construction, and interior and exterior carpentry.

Moena alcanfor

Species

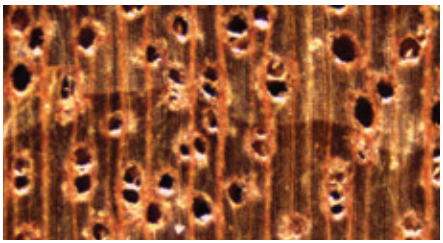
Ocotea costulata

Family

Lauraceae

Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 35 meters in height, with a diameter of up to 120 centimeters. The trunk is striated or irregular.

The sapwood and the heartwood are difficult to differentiate, although once dry the heartwood becomes pale brown in color with light yellowish brown strips. The wood has an interlocked grain and a medium to coarse texture.

Technical properties

Basic density	0.46 g/cm^3
Tangential shrinkage	6.0%
Radial shrinkage	3.8%
T/R ratio	1.6

Bending modulus of elasticity	106 000 kg/cm^2
Breakage modulus of elasticity	688 kg/cm^2
Parallel compression (RM)	381 kg/cm^2
Perpendicular compression (ELP)	52 kg/cm^2
Grain parallel cut	69 kg/cm^2
Hardness on the sides	330 kg/cm^2
Firmness (resistance to impact)	3.0 kg-m

Technical recommendations

The wood is easy to saw but moderately difficult to preserve. It responds well to machine and manual tools. Villosity can occur in the interlocked grains.

After a 45-hour program of intense drying the moisture contents drops from 65% to 13%, with no defects. The wood dries slowly in fresh air and has few defects from warping, collapsing, and twisting.

Uses

The wood is used in construction (floors, sheets, and plywood), formwork, wooden accessories, and tools and handles.

Moena amarilla

Species

Aniba amazónica Meiz

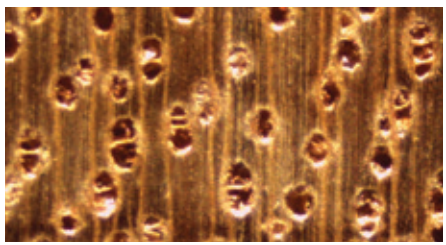
Family

Lauraceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 32 meters in height, with a commercial height of 18 to 22 meters.

Once dry the wood is golden-yellow in color with shades of light green and dark strips due to the interlocked grain. There is streaking that consists of alternating bands which are bright at the tangential section and opaque at the radial section.

Technical properties

Basic density	0.56 g/cm^3
Tangential shrinkage	9%
Radial shrinkage	4.3%
T/R ratio	2.10

Bending modulus of elasticity	130 000 kg/cm^2
Breakage modulus of elasticity	699 kg/cm^2
Parallel compression (RM)	278 kg/cm^2
Perpendicular compression (ELP)	37 kg/cm^2
Grain parallel cut	87 kg/cm^2
Hardness on the sides	430 kg/cm^2
Firmness (resistance to impact)	2.0 kg-m

Technical recommendations

The wood is easy to saw and work with common carpentry tools and machines. Despite the interlocked grain, smooth surfaces and a good finish are possible using cutting angles of 25°, 30° and 35° on the brush. The wood is good for longitudinal molding and also appropriate for crosswise molding.

It responds normally to drilling and turning. It is moderately difficult to dry in the open air and can develop some deformations.

Uses

The wood is used in carpentry, tongue and groove floors, pallets, housing structures, and decorative veneers.

Moena negra

Species

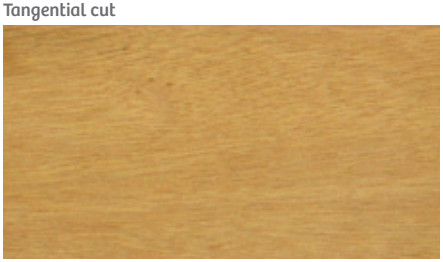
Nectandra reticulata (Ruiz & Pav.) Mez

Family

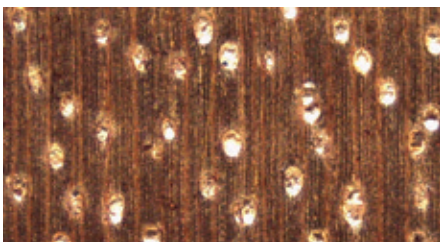
Lauraceae

Radial cut

Tangential cut



Cross cut 10X



Characteristics

The tree can grow up to 15 to 30 meters in height, with a diameter between 30 and 90 centimeters. The trunk is cylindrical and the branching begins from the second third. The base of the trunk is straight and has small buttresses.

Once dry the transition from one layer to the next is gradual: the sapwood has a clear brown-grayish color and the heartwood is a yellowish brown.

Technical properties

Basic density	0.45 g/cm^3
Tangential shrinkage	6.6%
Radial shrinkage	2.9%
T/R ratio	2.2

Bending modulus of elasticity	105 000 kg/cm^2
Breakage modulus of elasticity	584 kg/cm^2
Parallel compression (RM)	241 kg/cm^2
Perpendicular compression (ELP)	48 kg/cm^2
Grain parallel cut	56 kg/cm^2
Hardness on the sides	282 kg/cm^2
Firmness (resistance to impact)	-

Technical recommendations

The wood behaves well and dries rapidly in natural outdoor air. It is usually of A-grade quality, but with a few cracks. A non-severe drying program is recommended: the wood takes 51 days to drop from 58% to 20% moisture content.

The wood is easy to saw and responds well to carpentry machines. For molding the finish is good. The wood has moderate resistance to insect and xylophagous fungi attack but is difficult to preserve.

Uses

When suitably treated the wood is quite versatile and can be used in interiors, drawers, doors, windows, formwork, laminates, toys, furniture, and home construction.

Palisangre

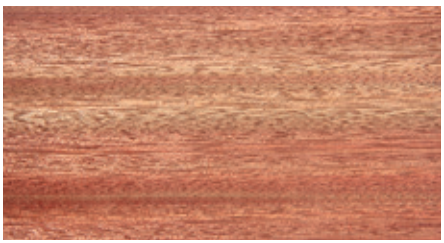
Species

Brosimum rubescens

Family

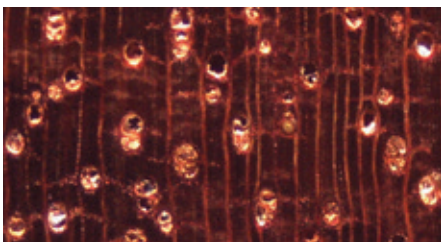
Moraceae

Radial cut



Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 35 in height, with a commercial height of 25 meters. The trunk is cylindrical and the branching begins from the second third.

The semi-hard and medium weight wood is pale-yellowish in color, can have a straight or a slightly interlocked grain, and a medium to coarse texture. The wood lacks a characteristic odor.

Technical properties

Basic density	0.72 g/cm^3
Tangential shrinkage	4.80%
Radial shrinkage	2.70%
T/R ratio	1.90

Bending modulus of elasticity	188 000 kg/cm^2
Breakage modulus of elasticity	1469 kg/cm^2
Parallel compression (RM)	756 kg/cm^2
Perpendicular compression (ELP)	170 kg/cm^2
Grain parallel cut	220 kg/cm^2
Hardness on the sides	1090 kg/cm^2
Firmness (resistance to impact)	5.30 kg-m

Technical recommendations

The wood is easy to saw and its workability is normal. The high mechanical resistance is useful for brushing and turning but not as helpful for molding and less helpful for drilling.

The natural drying process is slow, taking up to 150 days and leaving form defects. An intense artificial drying program will yield a good result. The wood is difficult to preserve and susceptible to fungi and insect attack.

Uses

The wood is used in carpentry and building, floors (parquet and tongue and groove), staircases, and decorative veneers.

Species: Huayruro

Wood

from the Peruvian Amazon stands out for its high resistance, durability, exclusivity, exoticism and natural beauty.

Palo bastón

Species

Crepidospermum goudotianum (Tul.) Triana & Planch.

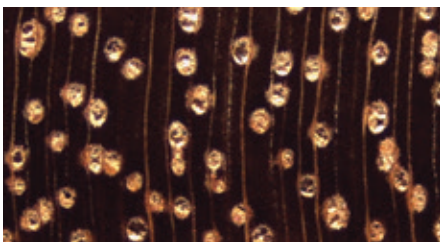
Family

Burseraceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 30 meters in height, with a diameter of 100 centimeters. It has a cylindrical trunk. Once dry in the open air the sapwood has a yellow color and the heartwood shows streaking.

The wood has an interlocked grain, medium texture and luster, and streaks in overlapping arcs and parallel bands.

Technical properties

Basic	0.83 g/cm^3
Tangential shrinkage	7.88%
Radial shrinkage	4.49%
T/R ratio	1.8

Bending modulus of elasticity	130 150 kg/cm^2
Breakage modulus of elasticity	832 kg/cm^2
Parallel compression (RM)	480 kg/cm^2
Perpendicular compression (ELP)	44 kg/cm^2
Grain parallel cut	86 kg/cm^2
Hardness on the sides	873 kg/cm^2
Firmness (resistance to impact)	13 kg-m

Technical recommendations

The wood is moderately difficult to saw and occasionally the interlocked grain leaves flaws in the flat surfaces. It responds well to nailing but resists work using hand tools. The wood is naturally durable.

Uses

The wood is used for canoes, boats, construction, and general carpentry.

It is also recommended for use in tool handles and joinery, handicrafts, laminates, decorative veneers, stairs (steps and risers), floors (parquet and tongue and groove), and turned parts (balustrades, handrails).

Parinari

Species

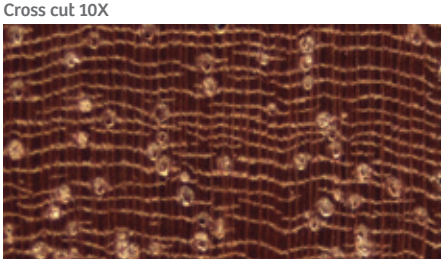
Licania micrantha Miq.

Family

Chrysobalanaceae

Tangential cut

Cross cut 10X



Characteristics

The tree can grow to between 15 and 30 meters in height, with a diameter of up to 70 centimeters. The bark has lenticels and is light brown in color with gray spots.

The sapwood is pink and gradually shifts to light brown in the heartwood. The wood lacks a characteristic odor. Its grains are straight to interlocked and slightly streaked.

Technical properties

Basic density	0.63 g/cm^3
Tangential shrinkage	8.7%
Radial shrinkage	4.1%
T/R ratio	2.12

Bending modulus of elasticity	158 000 kg/cm^2
Breakage modulus of elasticity	1275 kg/cm^2
Parallel compression (RM)	616 kg/cm^2
Perpendicular compression (ELP)	101 kg/cm^2
Grain parallel cut	102 kg/cm^2
Hardness on the sides	657 kg/cm^2
Firmness (resistance to impact)	4.16 kg-m

Technical recommendations

The wood is easy to process mechanically and a good finish on the surface is possible. It is moderately permeable, with high entachlorophenol absorption in a hot and cold bath with 5% concentration.

Without preservation treatment the wood lacks durability.

Uses

The wood is used in carpentry, joinery, floors (parquet), decorative veneers, bodywork, toys, sleepers, drawers, and marine construction.

Pumaquiro
(araracanga)

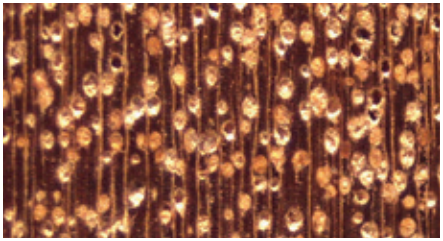
Species
Aspidosperma macrocarpon

Family
Apocynaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood is yellow in color and the heartwood is a reddish yellow. Once dry the sapwood turns yellow but the heartwood retains its reddish yellow.

Technical properties

Basic density	0.67 g/cm^3
Tangential shrinkage	8.00%
Radial shrinkage	4.10%
T/R ratio	2.10

Bending modulus of elasticity	148 000 kg/cm^2
Breakage modulus of elasticity	955 kg/cm^2
Parallel compression (RM)	522 kg/cm^2
Perpendicular compression (ELP)	96 kg/cm^2
Grain parallel cut	122 kg/cm^2
Hardness on the sides	739 kg/cm^2
Firmness (resistance to impact)	3.90 kg-m

Technical recommendations
The wood is heavy, with medium to moderate volumetric shrinkage. The shrinkage ratio indicates stability. It behaves well after drying. Its resistance in all mechanical properties is superior to species such as oak, white ash, and Oregon pine. When sawed in a wet state the bark gives off lint that can irritate the skin.

The wood's rating for workability is regular due to its high to very high mechanical resistance. A less severe to mild artificial drying program will yield a good result. The wood has good natural durability and is resistant to fungal attack.

Uses
The wood is used in furniture, joinery, floors, turning, carvings, tool handles, sporting goods, interior finishes, and agricultural implements. It is also applied in heavy construction (bridges, mine supports heavy packaging, boat keels), construction and formwork.

Quillobordon amarillo

Species

Aspidosperma parvifolium A. DC.

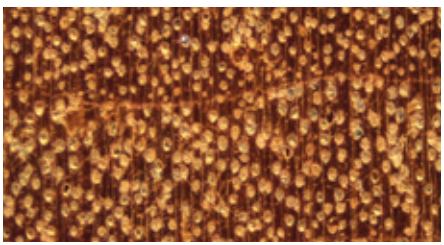
Family

Apocyanaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 35 meters in height (a commercial height of 20 meters), with a diameter of 80 centimeters at chest height. The bark has a grayish brown color, a compact texture, a thickness of 10 millimeters, and very conspicuous lenticels.

The color displays a gradual transition between the sapwood (light yellow) and the heartwood (a slightly darker yellow). The wood has a medium luster, interlocking grains, fine texture, and streaks with overlapping arcs. It lacks a characteristic odor.

Technical properties

Basic density	0.60 g/cm^3
Tangential shrinkage	8.3%
Radial shrinkage	5.2%
T/R ratio	1.6

Bending modulus of elasticity	146 000 kg/cm^2
Breakage modulus of elasticity	389 kg/cm^2
Parallel compression (RM)	152 kg/cm^2
Perpendicular compression (ELP)	81 kg/cm^2
Grain parallel cut	104 kg/cm^2
Hardness on the sides	625 kg/cm^2
Firmness (resistance to impact)	3.8 kg-m

Technical recommendations

The wood reacts well to natural drying and has no defects such as spots or shapes. Moderately easy to saw, it rates well for workability due to the interlocked grain. The wood is resistant to biological attack and has good natural durability.

Uses

The wood is used in construction of exteriors and interiors, floors, laminates, furniture, joinery, drawers, and in the manufacture of boats and ships.

Quina quina

Species

Pouteria reticulata (Engl.)
Eyma.

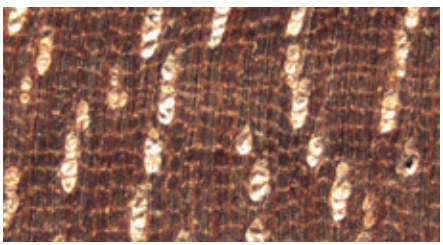
Family

Sapotaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

The tree can grow to between 25 to 35 meters in height, with a diameter of between 40 and 80 centimeters. The trunk is straight and cylindrical. Its buttresses can reach up to two meters high.

The wood is semi-hard and semi-heavy. It has a medium texture, but contains abundant white latex.

It lacks characteristic odor or taste. The heartwood is reddish brown and the sapwood is a paler shade of this color. The grains are straight or interlocking. The surface has a moderate luster with no streaking.

Technical properties

Basic density	0.73 g/cm^3
Tangential shrinkage	10.7%
Radial shrinkage	5.6%
T/R ratio	1.9

Bending modulus of elasticity	208 000 kg/cm^2
Breakage modulus of elasticity	1 482 kg/cm^2
Parallel compression (RM)	689 kg/cm^2
Perpendicular compression (ELP)	137 kg/cm^2
Grain parallel cut	120 kg/cm^2
Hardness on the sides	1050 kg/cm^2
Firmness (resistance to impact)	5 kg-m

Technical recommendations

The wood is easy to saw, brush, mold, and drill.

Uses

The wood is normally used outdoors (poles, crosses, and crosstrees), for construction (beams, joists, decking, frames, rungs, hardware), containers, bodywork, truck floors, for marine construction, and as sheets and plywood for sports equipment and tool handles.

Quinilla
(maçaranduba)

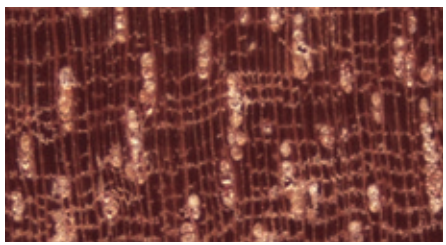
Species
Manilkara bidentata

Family
Sapotaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood is light chestnut in color and the heartwood is a dark reddish brown. Once dry the sapwood turns light reddish brown and the heartwood become lighter in color.

Technical properties

Basic density	0.87 g/cm^3
Tangential shrinkage	11.01%
Radial shrinkage	6.76%
T/R ratio	2.20

Bending modulus of elasticity	184 000 kg/cm^2
Breakage modulus of elasticity	1 204 kg/cm^2
Parallel compression (RM)	476 kg/cm^2
Perpendicular compression (ELP)	140 kg/cm^2
Grain parallel cut	135 kg/cm^2
Hardness on the sides	1 090 kg/cm^2
Firmness (resistance to impact)	6.6 kg-m

Technical recommendations
The wood is very heavy and exhibits low linear contractions and moderately stable volumetric contraction. Although its high mechanical resistance and its hardness lower the wood's overall workability, it responds well to brushing, drilling, turning, and molding.

The wood's natural drying is slow but it behaves well under artificial drying with a less severe schedule. It has high natural durability. The heartwood is resistant to biological attack but is susceptible to marine insects. The vacuum-pressure method is recommended for preservation.

Uses
The wood is used in sleepers, heavy construction, bridge elements, poles, floors, parquet, decorative arches, turning and musical instruments.

Yacushapana
(tanimbuca)

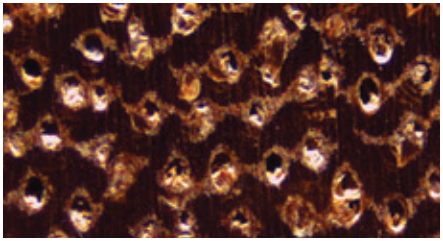
Species
Terminalia oblonga

Family
Combretaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics
When freshly cut the sapwood is creamy in color and the heartwood is pale brown. Once dry the sapwood turns pale yellow and the heartwood becomes yellowish brown.

Technical properties

Basic density	0.73 g/cm^3
Tangential shrinkage	8.59%
Radial shrinkage	4.93%
T/R ratio	1.76

Bending modulus of elasticity	127 000 kg/cm^2
Breakage modulus of elasticity	807 kg/cm^2
Parallel compression (RM)	472 kg/cm^2
Perpendicular compression (ELP)	96 kg/cm^2
Grain parallel cut	111 kg/cm^2
Hardness on the sides	768 kg/cm^2
Firmness (resistance to impact)	5.3 kg-m

Technical recommendations
The wood is very heavy and exhibits low linear contractions and moderately stable volumetric contraction.

Its high mechanical resistance is medium and stellite saws are recommended for cutting due to its hardness, silica content, and interlocked grains. Once sawed, the product often contains the fish eye defect.

When cut into two-inch pieces the wood behaves well under artificial drying using a mild schedule. It has good natural durability, resists attack by fungi, and needs no preservation.

Uses
The wood is used in general construction (beams, columns, floors, parquet, tongue and groove, sleepers, decorative veneers,) and sporting goods.

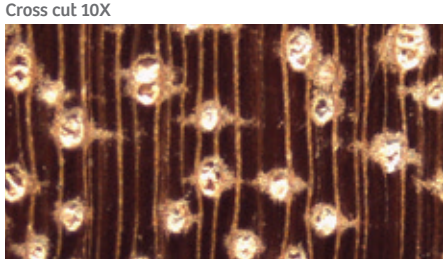
Yesca caspi
(mandioqueira)

Species
Qualea paraensis Ducke

Family
Vochysiaceae

Tangential cut

Cross cut 10X



Characteristics
This large tree has an abrupt acuminate apex and is obtuse or acute at the base. The leaves are coriaceous, and have an oblong, or elliptical-oblong shape.

The yellowish sapwood is clearly distinguished from the heartwood, which is light yellowish beige or slightly pink in color.

The grain is straight, the texture is medium, and it has low to moderate luster. The wood is durable and moderately resistant to fungal attack. It lacks a characteristic odor.

Technical properties

Basic density	0.64 g/cm³
Tangential shrinkage	10.9%
Radial shrinkage	6.1%
T/R ratio	1.8

Bending modulus of elasticity	140 100 kg/cm²
Breakage modulus of elasticity	1201 kg/cm²
Parallel compression (RM)	653 kg/cm²
Perpendicular compression (ELP)	110 kg/cm²
Grain parallel cut	133 kg/cm²
Hardness on the sides	758 kg/cm²
Firmness (resistance to impact)	6.68 kg-m

Technical recommendations
The wood is easy to process, has a good finish, and responds well to sawing, nailing, screwing, and gluing.

Uses
The wood is used in housing construction (exterior and interior), and for planks, boards, laminates, pallets, moldings, packaging, containers, decorative veneers, sporting equipment, and oars and other marine construction.

Zapote

Species

Quararibea cordata
(Humboldt & Bonpland)
Vischer

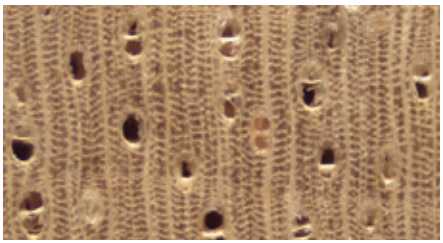
Family

Bombacaceae

Radial cut

Tangential cut

Cross cut 10X



Characteristics

The tree can grow up to 50 meters in height, with a diameter of 90 centimeters. The main bark is fibrous, 2 centimeters thick, and divided into two layers. It has well defined veins, vascular lines, slightly differentiated overlapping arcs, and narrow parallel bands with golden reflections.

Technical properties

Basic density	0.43 (g/cm^3)
Tangential shrinkage	8,97%
Radial shrinkage	3.81%
T/R ratio	2.35

Bending modulus of elasticity	89 000 kg/cm^2
Breakage modulus of elasticity	488 kg/cm^2
Parallel compression (RM)	239 kg/cm^2
Perpendicular compression (ELP)	40 kg/cm^2
Grain parallel cut	55 kg/cm^2
Hardness on the sides	272 kg/cm^2
Firmness (resistance to impact)	2.10 kg-m

Technical recommendations

The wood is moderately light and exhibits low linear contractions and moderately stable volumetric contraction. Its mechanical resistance is medium, making it easy to saw and responsive to brushing, turning, molding, and drilling.

The natural drying process is quite fast and it behaves well under artificial drying with a mild schedule.

The natural durability is moderate and the sapwood is susceptible to biological attack. A thermal bath and vacuum pressure is recommended for preservation.

Uses

The wood is used in carpentry work, formwork, drawer making, and furniture. Because of its appearance and characteristics, it can replace Oregon pine.

Species: Quinilla

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