BVRio is a non-profit organisation founded in 2011 with the objective to create and promote the use of market mechanisms to facilitate environmental objectives. Originally created in Brazil, BVRio now operates internationally. BVRio’s work is focused around four ambitious goals: climate change mitigation, sustainable forest management, sustainable agriculture, and circular economy. One of BVRio’s major programmes to achieve sustainable forest management is the promotion of trade in legal and certified timber from tropical countries. As part of this, in 2016 BVRio launched the Responsible Timber Exchange, an online negotiations platform for sourcing legal and sustainable timber products.

The Forestry Commission of Ghana is responsible for the regulation of utilisation of forest and wildlife resources, the conservation and management of those resources and the coordination of policies related to them. The Commission’s aim is to be a corporate body of excellence in the sustainable development management and utilisation of Ghana’s forest and wildlife resources meeting both national and global standards for forest and wildlife resource conservation and development. Within the Commission, the Timber Industry Development Division (TIDD) provides specialised services in promoting efficiency in product quality assurance and value-addition in the Timber Industry and Trade consistent with best environmental practices.

Forestry Research Institute of Ghana (FORIG) is one of the 13 institutes of the Council for Scientific and Industrial Research (CSIR). It is located at Fumesua near Kumasi in the Ashanti Region of Ghana. FORIG undertake demand-driven research, build capacity and promote the application of technologies for sustainable management of forest resources for the benefit of society.
CONTENTS

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Ghana’s vibrant timber industry has existed for more than 130 years, comprising of logging, sawmilling, veneer mills, ply mills, and moulding mills. There is an annual allowable cut of 2 million cubic metres of round logs which has been sustained over the years. All the round logs produced are locally processed following the Ghana Standard Authority (GSA) specifications that meet ISO standards. Over 80% of the exported products come from companies operating with FSC control wood and chain of custody certificates.

Ghana signed a VPA in 2009 with the EU and this has brought the industry into compliance with all the principles of sustainability. All exporting companies are assessed to meet the legal, social, environmental, and financial criteria before being issued with the export permits. With the VPA process almost complete, Ghana will soon become the second country able to issue FLEGT licenses. FLEGT-licensed timber products from Ghana will be able to enter the EU market without undergoing the due diligence checks required by the European Union Timber Regulation (EUTR).

WHY LESSER-KNOWN AND LESSER-USED SPECIES?

Lesser-known and lesser-used species refer in this booklet to under-utilised timber species from Ghana that have similar properties to other popular species.

There are more than 50,000 species of timber in the world, but only a small proportion of these are used commercially. Currently, Ghana has nearly 90 species that are regularly exploited and traded as timber. Lesser-known and lesser-used species can have similar and even better performance for some specific end-uses; they can also have a more distinctive and unique appearance compared to more popular ones. Using these species is not only a good business decision but also has the potential to improve livelihoods and protect biodiversity.

The 20 lesser-known and lesser-used species from Ghana displayed in this booklet have been selected based on their availability in terms of volume in the natural forests, their properties and their levels of utilization.
**APPEARANCE**

**Colour**
Refers to the natural colour of the wood, which is developed due to the accumulation of extractives during heartwood formation.

**Texture**
Refers to the size and proportional amount of woody elements and this can be described in relation to pore sizes as fine, medium and coarse.

**Lustre**
Refers to the way in which light reflecting from the wood appears to penetrate into and then shine from the surface of the board. It is classified as dull, moderate and lustrous.

**Fibre length**
Refers to how straight and unbroken a single fibre is under microscope. It influences the strength properties wood and pulping characteristics, and is measured in mm.

**Grain**
Indicates the orientation of the cells of the axial system or fiber direction as in "straight", "wavy", and "interlocked".

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**STRUCTURAL PROPERTIES**

Refer to the qualities of wood that indicate its ability to resist applied external forces. They are an important criteria in determining the relative suitability of the different wood species for various uses.

**Basic density**
Refers to the weight or mass of wood divided by the volume of the specimen at a given moisture content. It is one of the most important physical properties of wood. The following scale shows the classification used in accordance with TIDD (2012) and Farmer (1972).

<table>
<thead>
<tr>
<th>Classification</th>
<th>kg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>300–450</td>
</tr>
<tr>
<td>Medium</td>
<td>450–650</td>
</tr>
<tr>
<td>Heavy</td>
<td>650–800</td>
</tr>
<tr>
<td>Very Heavy</td>
<td>&gt;800</td>
</tr>
</tbody>
</table>
Modulus of Elasticity (MOE)
Refers to the resistance to deformation of wood during bending. It is the stiffness or the flexibility of wood when external forces are applied. These species are classified into five (5) strength groups or classes in accordance with BS 2568-2.

![Graph showing Modulus of Elasticity](image)

<table>
<thead>
<tr>
<th>Strength Group</th>
<th>D30</th>
<th>D40</th>
<th>D50</th>
<th>D60</th>
<th>D70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>9500</td>
<td>10800</td>
<td>15000</td>
<td>18500</td>
<td>21000</td>
</tr>
<tr>
<td>Minimum</td>
<td>6000</td>
<td>7500</td>
<td>12600</td>
<td>15600</td>
<td>18000</td>
</tr>
</tbody>
</table>

Shear parallel to the grain
Refers to the ability of a piece of wood to resist internal slipping of one part upon another along the grain when external forces act upon it in such a way that one portion tends to slide upon another adjacent to it.

![Graph showing Shear parallel to the grain](image)

<table>
<thead>
<tr>
<th>Classification</th>
<th>N/mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>4 – 9</td>
</tr>
<tr>
<td>Medium</td>
<td>10 – 15</td>
</tr>
<tr>
<td>Strong</td>
<td>16 – 19</td>
</tr>
<tr>
<td>Very Strong</td>
<td>&gt; 20</td>
</tr>
</tbody>
</table>

Modulus of Rupture (MOR)
Refers to the measure of the strength of wood before rupture during bending, also known as shear modulus. The hardwoods included here are classified as weak, medium, strong and very strong.

![Graph showing Modulus of Rupture](image)

<table>
<thead>
<tr>
<th>Classification</th>
<th>N/mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>30 – 69</td>
</tr>
<tr>
<td>Medium</td>
<td>70 – 99</td>
</tr>
<tr>
<td>Strong</td>
<td>100 – 169</td>
</tr>
<tr>
<td>Very Strong</td>
<td>&gt; 170</td>
</tr>
</tbody>
</table>

Janka side hardness
Refers to the resistance to indentation and/or abrasion (surface scratching).

![Graph showing Janka side hardness](image)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Janka side hardness (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>1000 – 2999</td>
</tr>
<tr>
<td>Medium</td>
<td>3000 – 5999</td>
</tr>
<tr>
<td>Strong</td>
<td>6000 – 8999</td>
</tr>
<tr>
<td>Very Strong</td>
<td>&gt; 9000</td>
</tr>
</tbody>
</table>

Compression parallel to the grain
Refers to the resistance to external forces acting longitudinally on a piece of wood.

![Graph showing Compression parallel to the grain](image)

<table>
<thead>
<tr>
<th>Classification</th>
<th>N/mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>10 – 29</td>
</tr>
<tr>
<td>Medium</td>
<td>30 – 59</td>
</tr>
<tr>
<td>Strong</td>
<td>60 – 79</td>
</tr>
<tr>
<td>Very Strong</td>
<td>&gt; 80</td>
</tr>
</tbody>
</table>
PERFORMANCE PROPERTIES

Durability
Refers to the ability of the wood species to resist the attacks of deteriorating organisms. Although wood is not completely immune to such attacks, some of the species possess superior resistance. The natural durability of the species are grouped according to ASTM D-2017 (2005), which is the decay resistance rating of the test specimens as indicated in the table below:

<table>
<thead>
<tr>
<th>Average weight loss (%)</th>
<th>Decay resistance class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 10</td>
<td>Highly resistant</td>
</tr>
<tr>
<td>11 – 24</td>
<td>Resistant</td>
</tr>
<tr>
<td>25 – 44</td>
<td>Moderately resistant</td>
</tr>
<tr>
<td>&gt; 45</td>
<td>Susceptible</td>
</tr>
</tbody>
</table>

Treatability
Refers to the ease with which a species of wood takes in preservatives using vacuum or pressure processes. The classification is described in the table below:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permeable</td>
<td>Timber species of which preservatives can be penetrated completely under pressure without difficulty</td>
</tr>
<tr>
<td>Moderately resistant</td>
<td>Species which are fairly easy to treat and are possible for lateral penetration to be obtained or penetration of large proportion of the vessels is possible</td>
</tr>
<tr>
<td>Resistant</td>
<td>Species that are difficult to impregnate under pressure and require a long period of treatment</td>
</tr>
<tr>
<td>Extremely resistant</td>
<td>Species with the possibility of absorbing only a small quantity of preservative even under long pressure treatments. Preservatives are not able to penetrate to an appreciable depth laterally and longitudinally</td>
</tr>
</tbody>
</table>

Movement in service
Refers to the changes in the moisture content of the wood according to the environment that surrounds it. As humidity increases, the moisture content increases, and the wood swells causing expansion, while a decrease in humidity decreases the moisture content thereby causing the wood to shrink. Different species exhibit different rates of movement in wood due to differences in their shrink-age rates. Wood surfaces coated expand or contract at a slower rate than the surfaces of raw wood. Movement does not occur in all directions equally and movement across the grain is higher while very little is experienced along the length. Wood being a complex material has many variables that affect moisture content and wood movement. The movement is classified as small, medium and large.

WORKING QUALITIES

Sawmilling
Refers to the ease of sawing or operation of sawmill equipment and scheduling of materials to produce optimum quantity and quality of sawn timber. The classification of easy, medium and difficult consider a band sawing approach.

Machining
Refers to the process of cutting wood into desired shapes and dimension using very simple or complex woodworking equipment such as moulder, routers, lathes and sanders. Machining improves surface quality and aesthetic value of wood. It is classified as poor, satisfactory and good.
**Blunting**
Refers to the blunting effect of edges of cutters and saws with timber. It is classified as severe, moderately severe and slight. It is affected by the type of wood species, the presence of inclusions and varies within particular species.

**Drying**
Refers to the process of removing moisture in wood to a desired level through application of Kiln drying schedule to improve its serviceability. It is classified as slow, moderately rapid and rapid. The drying of wood is influenced by density and anatomical structures.

**Gluing**
Refers to the use of wood adhesives to bond the timber to another surface. The application and subsequent bonding can be classified as good, satisfactory and poor.

**Finishing**
Refers to operations involved in the application of transparent or opaque liquid coatings on the wood to protect and enhance its durability and appearance. It is classified as poor, satisfactory and good.

**CLASSIFICATION OF WORKING QUALITIES**

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sawing</td>
<td>Easy</td>
</tr>
<tr>
<td>Machining</td>
<td>Good</td>
</tr>
<tr>
<td>Blunting</td>
<td>Slight</td>
</tr>
<tr>
<td>Drying</td>
<td>Rapid</td>
</tr>
<tr>
<td>Gluing</td>
<td>Good</td>
</tr>
<tr>
<td>Finishing</td>
<td>Good</td>
</tr>
<tr>
<td>Screw and nail holding</td>
<td>Good</td>
</tr>
</tbody>
</table>
AFINA

Common names
Afina (Ghana)

Scientific name
Strombosia glaucescens (Engl):
Synonym - Strombosia pustulata Oliv.

Appearance
Colour: Brown or pale-brown with purple streaks (Heartwood); Pale brown (Sapwood).
Texture: Fine
Lustre: Moderate
Fibre length: Above 1.6 mm
Grain: Fairly straight

Structural properties
Basic Density $\text{kg/m}^3$
- $850 - 1,020$ (very heavy)
Modulus of Elasticity (MOE) $\text{N/mm}^2$
- $16,370 - 20,190$
Modulus of Rupture (MOR) $\text{N/mm}^2$
- $170 - 243$
Compression parallel to grain $\text{N/mm}^2$
- $58 - 90$
Janka side hardness $\text{N/mm}^2$
- $5,300 - 7,900$

Performance properties
Durability
- moderately resistant

Treatability
- extremely resistant

Moisture movement
- large

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 300,000m$^3$, for conversion into lumber, poles, and veneer.

Similarity with other species
Denya/Okan (Cyclodiscus gabunensis);
Apome/Ananta (Cynometra ananta);
Dialium Eyoum (Dialium aubrevillei);
Tali/Missanda (Erythrophleum africanum);
Ekki (Lophira alata);
Manilkara/Monghinza (Manilkara obovata);
African greenheart/Sougue (Parinari excelsa).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Heavy construction
Sleepers
Flooring
Turnery
AFRICAN GREENHEART

Common name
Afam (Ghana)

Scientific name
Parinari excelsa (Sabine)

Appearance
Colour: Pale red, chocolate-brown or greenish-grey (Heartwood); Yellowish-white (Sapwood).
Texture: Coarse
Lustre: Dull
Fibre length: 0.9 – 1.6 mm
Grain: Wavy to interlocked

Structural properties
Basic Density kg/m³
730 – 920 (very heavy)
Modulus of Elasticity (MOE) N/mm²
10,900 – 18,050
Modulus of Rupture (MOR) N/mm²
111 – 204
Compression parallel to grain N/mm²
42 – 88
Sheer parallel to grain N/mm²
10 – 16
Janka side hardness N/mm²
7,640 – 8,880

Performance properties
Durability
moderately resistant
Treatability
moderately resistant
Moisture movement
medium

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 52,100 m³, for conversion into lumber, poles, veneer and plywood.

Similarity with other species
Afzelia/Papao/Doussie (Afzelia africana);
Apome/Ananta (Cynometra ananta);
Dialium Eyoum (Dialium aubrevillei);
Tali/Missanda (Erythrophleum africanum);
African apple/Bompagya (Mammea africana);
Danta (Nesogordonia papaverifera);
Essia (Petersianthus macrocarpus);
Dahome/Dabema (Piptadeniastrum africanum);
Afena/Strombosia (Strombosia glaucescens).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Heavy construction
Flooring
Joinery
Steps and stairs
Trims and frames
Sleepers
Furniture
Turnery
**AAKEE**

**Common names**
Akye fufuo (Ghana)

**Scientific name**
Blighia sapida (K.D. Koenig)

**Appearance**
- Colour: Reddish-brown, brown-orange (Heartwood); White (Sapwood).
- Texture: Medium
- Lustre: Dull
- Fibre length: 1.4 mm
- Grain: Straight/slightly wavy

**Structural properties**
- Basic Density kg/m³: 521 – 680 (medium)
- Modulus of Elasticity (MOE) N/mm²: 12,190 – 22,650
- Modulus of Rupture (MOR) N/mm²: 65 – 159
- Compression parallel to grain N/mm²: 30 – 62
- Sheer parallel to grain N/mm²: 16 – 22
- Janka side hardness N/mm²: 3,100 – 23,000

**Performance properties**
- Durability: moderately resistant
- Treatability: permeable
- Moisture movement: small

**Availability**
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 39,500m³, for conversion into lumber.

**Similarity with other species**
Other Blighia species (B. unijugata, and B. welwitschii);
Aningre / Asanfena (Aningeria altissima);
Celtis/Ohio (Celtis adolfi-friderici);
Celtis/Ohio (Celtis mildbraedii);
Chrysophyllum Longhi (C.albidum);
Akossika (Scottellia klaineana).

**Working qualities**
- Sawing
- Machining
- Blunting
- Drying
- Gluing
- Finishing
- Screw and nail holding

**End-uses**
- Construction
- Pallets and crates
- Furniture
- Turnery
- Cabinet work
- Handicrafts
APOME / ANANTA

Common names
Ananta (Ghana)

Scientific name
Cynometra Ananta (Hutch. & Dalziel)

Appearance
Colour: Dark red with darker streaks (Heartwood); Pink-brown (Sapwood).
Texture: Coarse
Fibre length: 0.9 – 2.0 mm
Grain: Straight to wavy

Structural properties
Basic Density kg/m³
- 910 – 1,000 [very heavy]

Modulus of Elasticity (MOE) N/mm²
- 14,700 – 17,840

Modulus of Rupture (MOR) N/mm²
- 126 – 187

Compression parallel to grain N/mm²
- 72 – 83

Janka side hardness N/mm²
- 11,700

Performance properties
Durability
highly resistant

Treatability
extremely resistant

Moisture movement
large

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 248,000m³, for conversion into lumber and poles.

Similarity with other species
Denya/Okan (Cyclidiscus gabunensis);
Dialium Eyoum (Dialium aubrevillei);
Tali/Missanda (Erythrophleum africanum);
Ekki (Lophira alata);
Manilkara/Monghinza (Manilkara obovata);
African greenheart/Afam/Sougue (Parinari excelsa);
Dahoma/Dabema (Piptadeniasturn africanum);
Afena/Strombosia (Strombosia glaucescens).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Flooring
Heavy construction
Sleepers
Joinery
Turnery
Furniture
**ALSTONIA**

**Common names**
Sinuro/sinduro, Nyamedua (Ghana)

**Scientific name**
Alstonia boonei (De Wild)

### Appearance
- **Colour:** Yellowish-white (Heartwood and Sapwood)
- **Texture:** Medium
- **Fibre length:** 0.9 – 1.6 mm
- **Grain:** Straight and sometimes wavy

### Structural properties
- **Basic Density kg/m³**
  - 360 – 420 (low)
- **Modulus of Elasticity (MOE) N/mm²**
  - 5,780 – 10,500
- **Modulus of Rupture (MOR) N/mm²**
  - 48 – 73
- **Compression parallel to grain N/mm²**
  - 23 – 37
- **Sheer parallel to grain N/mm²**
  - 6 – 7
- **Janka side hardness N/mm²**
  - 1,820

### Performance properties
- **Durability** susceptible
- **Treatability** permeable
- **Moisture movement** small

### Availability
Annual round log production equivalent to the annual allowable cut is estimated at 178,900 m³, for conversion into lumber, veneer and plywood.

### Similarity with other species
- Chenchen/Ako/Antiaris (Antriis toxicaria);
- African canarium/Aiele (C. schweinfurthii);
- Colawood/Watapuo (Cola gigantea);
- Ogea (Daniellia ogea);
- Sese/Holarhena (Holarrhena floribunda);
- Lannea/Kumanini/Kumbi (L. welwitschii);
- Asoma/Essang (Parkia bicolor).

### Working qualities
- **Sawing**
- **Machining**
- **Blunting**
- **Drying**
- **Gluing**
- **Finishing**
- **Screw and nail holding**

### End-uses
- **Construction**
- **Furniture**
- **Cabinet work**
- **Moulding**
- **Joinery**
- **Trims and frames**
- **Pallets and crates**
- **Handicrafts**
AVODIRE

**Common name**
Apapaye (Ghana)

**Scientific name**
*Turreanthus africanus* (Welw.) Pellegr

### Appearance
- **Colour:** Creamy-white to pale-yellow, darkening to golden-yellow (Heartwood and Sapwood)
- **Texture:** Fine
- **Lustre:** Lustrous
- **Fibre length:** 1.4 – 2.3 mm
- **Grain:** Straight to interlocked

### Structural properties
- **Basic Density kg/m³:**
  - D40: 460 – 660 [medium]

- **Modulus of Elasticity (MOE) N/mm²:**
  - 8,300 – 12,100

- **Modulus of Rupture (MOR) N/mm²:**
  - 83 – 166

- **Compression parallel to grain N/mm²:**
  - 36 – 61

- **Sheer parallel to grain N/mm²:**
  - 9 – 19

- **Janka side hardness N/mm²:**
  - 4,800

### Performance properties
- **Durability:** susceptible
- **Treatability:** permeable
- **Moisture movement:** small

### Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 16,000m³, for conversion into lumber, veneer and plywood.

### Similarity with other species
- African canarium/Aiele (Canarium schweinfurthii);
- Gmelina (Gmelina arborea);
- Koto/African pterygota (Pterygota macrocarpa);
- Akossika (Scottellia klaineana);
- Sterculia yellow /Eyong/Ohaa (Sterculia oblonga).

### Working qualities
- **Sawing**
- **Machining**
- **Blunting**
- **Drying**
- **Gluing**
- **Finishing**
- **Screw and nail holding**

### End-uses
- Furniture
- Joinery
- Cabinet work
- Paneling
DANTA / KOTIBE

Common names
Danta, Epro, Akumaba (Ghana)

Scientific name
Nesogordonia papaverifera (A. Chev.) R. Capuron

Appearance
Colour: Red-brown (Heartwood); Pale red-brown (Sapwood).
Texture: Fine
Lustre: Dull
Fibre length: 0.8 – 1.3 mm
Grain: Straight

Structural properties
Basic Density kg/m³
740 (heavy)

Modulus of Elasticity (MOE) N/mm²
11,700

Modulus of Rupture (MOR) N/mm²
137

Compression parallel to grain N/mm²
69.3

Sheer parallel to grain N/mm²
12

Janka side hardness N/mm²
8,204

Performance properties
Durability highly resistant
Treatability extremely resistant
Moisture movement small

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 120,000m³, for conversion into lumber, veneer and plywood.

Similarity with other species
Utile/Sipo (Entandrophragma utile); Scented Guarea/Bosse (Guarea cedrata); African apple/Bompagya (M. africana); Essia (Petersianthus macrocarpus); Stercilia brown/Wawabima (S. rhinopetala); Makore/Baku (Tieghemella heckelii).

Working qualities
Sawing Machining Blunting Drying Gluing Finishing Screw and nail holding

End-uses
Joinery Turnery Cabinet work Flooring Paneling Furniture
**DENYA / OKAN**

**Common names**
Denya (Ghana)

**Scientific name**
*Cylicodiscus gabunensis* (Harms)

**Appearance**
- **Colour:** Yellow brown to yellowish-red (Heartwood); Grayish-pink (Sapwood).
- **Texture:** Coarse
- **Lustre:** Lustrous
- **Fibre length:** 1.1 – 1.9 mm
- **Grain:** Interlocked

**Structural properties**
- **Basic Density kg/m³**
  - 770 – 1,100 (heavy)
- **Modulus of Elasticity (MOE) N/mm²**
  - 14,700 – 22,600
- **Modulus of Rupture (MOR) N/mm²**
  - 129 – 230
- **Compression parallel to grain N/mm²**
  - 64 – 108
- **Sheer parallel to grain N/mm²**
  - 8 – 22
- **Janka side hardness N/mm²**
  - 10,600 – 12,800

**Performance properties**
- **Durability**
  - Highly resistant
- **Treatability**
  - Extremely resistant
- **Moisture movement**
  - Medium

**Availability**
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 500,000m³, for conversion into lumber and poles.

**Similarity with other species**
- Apome/Ananta (*Cynometra ananta*)
- Dialium Eyoum (*Dialium aubrevillei*)
- Tali/Missanda (*Erythrophleum africanum*)
- Ekki (*Lophira alata*)
- Manilkara/Monghinza (*Manilkara obovata*)
- African greenheart/Afam/Sougue (*Parinari excelsa*)
- Dahoma/Dabema (*P. africanum*)
- Afena/Strombosia (*Strombosia glaucescens*).

**Working qualities**
- **Sawing**
- **Machining**
- **Blunting**
- **Drying**
- **Gluing**
- **Finishing**
- **Screw and nail holding**

**End-uses**
- Heavy construction
- Flooring
- Furniture
- Joinery
- Steps and stairs
- Sleepers
DIALIUM

Common names
Duabankye (Ghana)

Scientific name
Dialium aubrevillei (Pellegr)

Appearance
Colour: Pink-brown or almost black, brown-orange (Heartwood);
Pale-pink brown (Sapwood).
Texture: Fine
Fibre length: 1.1 – 1.7 mm
Grain: Straight

Structural properties
Basic Density $\text{kg/m}^3$:
- $900 - 1,050$ (very heavy)
Modulus of Elasticity (MOE) $\text{N/mm}^2$:
- $20,600 - 25,500$ (D70)
Modulus of Rupture (MOR) $\text{N/mm}^2$:
- $165 - 203$
Compression parallel to grain $\text{N/mm}^2$:
- $96 - 128$

Performance properties
Durability
- highly resistant
Treatability
- extremely resistant
Moisture movement
- medium

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 51,900m$^3$, for conversion into lumber, poles and posts.

Similarity with other species
Denya/Okan (Cylicodiscus gabunensis);
Apome/Ananta (Cynometra ananta);
Tali/Missanda (Erythrophleum africanum);
Ekki (Lophira alata);
Manilkara/Monghinza (Manilkara obovata);
African greenheart/Afam/Sougue (Parinari excelsa);
Afena/Strombosia (Strombosia glaucescens).

Working qualities
Sawing
- Machining
- Blunting
- Drying
- Gluing
- Finishing
- Screw and nail holding

End-uses
- Heavy construction
- Steps and stairs
- Flooring
- Sleepers

LESSER-KNOWN & LESSER-USED TIMBER SPECIES
Appearance

Colour: White or yellowish-white (Heartwood and Sapwood).

Texture: Coarse

Fibre length: 1.6 mm

Grain: Interlocked to straight

Structural properties

Basic Density $\text{kg/m}^3$

- 350 (low)

Modulus of Elasticity (MOE) $\text{N/mm}^2$

- 3,800 – 8,200

Modulus of Rupture (MOR) $\text{N/mm}^2$

- 44 – 53

Performance properties

Durability

- susceptible

Treatability

- permeable

Moisture movement

- medium

Availability

Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 67,500$m^3$, for conversion into lumber, billets, veneer and plywood.

Similarity with other species

Chenchen/Ako/Antiaris (*Antiaris toxicaria*);

African canarium/Aiele (*C. schweinfurthii*);

Colawood/Watapuo (*Cola gigantea*);

Ogea (*Daniellia ogea*);

Sese/Holarrhena (*Holarrhena floribunda*);

Asoma/Essang (*Parkia bicolor*).

Working qualities

Sawing

Machining

Blunting

Drying

Gluing

Finishing

Screw and nail holding

End-uses

- Turnery
- Trims and frames
- Furniture
- Cabinet work
Appearance
Colour: Brown, pale-brown (Heartwood); Yellowish (Sapwood).
Texture: Coarse
Lustre: Lustrous
Fibre length: 0.9 – 1.6 mm
Grain: Straight to interlocked

Structural properties
Basic Density kg/m³
- 460 – 630 (medium)
Modulus of Elasticity (MOE) N/mm²
- 9,500 – 11,600
Modulus of Rupture (MOR) N/mm²
- 35 – 126
Compression parallel to grain N/mm²
- 34 – 44
Sheer parallel to grain N/mm²
- 6 – 7
Janka side hardness N/mm²
- 2,470

Performance properties
Durability
- susceptible
Treatability
- moderately resistant
Moisture movement
- medium

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 191,250m³, for conversion into lumber, veneer and plywood.

Similarity with other species
Chenchena/Ako/Antiaris (Antiaris toxicaria); African canarium/Aiele (C. schweinfurthii); Colawood/Watapuo (Cola gigantea); Ogea (Daniellia ogea); Sese/Holarrhena (Holarrhena floribunda).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Construction
Joinery
Trims and frames
Furniture
Cabinet work
Pallets and crates
KROMA/ EUEVUSS

Common names
Kroma, Kruma (Ghana)

Scientific name
Klainedoxa gabonensis (Pierre)

Appearance

Colour: Orange-yellow or golden-brown, darken to dark-brown (Heartwood and Sapwood).
Texture: Medium
Lustre: Dull
Fibre length: 1.6 – 2.0 mm
Grain: Straight to wavy

Structural properties

Basic Density kg/m³
- 940 – 1,150 [very heavy]

Modulus of Elasticity (MOE) N/mm²
- 15,970 – 21,280

Modulus of Rupture (MOR) N/mm²
- 167 – 250

Compression parallel to grain N/mm²
- 83 – 104

Sheer parallel to grain N/mm²
- 14 – 18

Janka side hardness N/mm²
- 7,700 – 18,200

Performance properties

Durability
highly resistant

Treatability
moderately resistant

Moisture movement
large

Availability

Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 114,000m³, for conversion into lumber and poles.

Similarity with other species

Denya/Okan (Cyclicodiscus gabunensis);
Apome/Ananta (Cynometra ananta);
Dialium Eyoum (Dialium aubrevillei);
Tali/Missanda (Erythrophleum africanum);
Ovengkol/Hyedua (Guibourtia ehie);
Ekki (Lophira alata);
Manilkara/Monghinza (Manilkara obovata);
Afena/Strombosia (Strombosia glaucescens).

Working qualities

Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses

Heavy construction
Flooring
Furniture
Joinery
Sleepers
Turnery
**Appearance**

- Colour: Pink-gray to pale brown (Heartwood and Sapwood).
- Texture: Medium
- Lustre: Dull
- Fibre length: 1.4 mm
- Grain: Straight to interlocked

**Structural properties**

- Basic Density kg/m³: 321 - 701 (medium)
- Modulus of Elasticity (MOE) N/mm²: 8,356 - 12,540
- Modulus of Rupture (MOR) N/mm²: 46 – 91
- Compression parallel to grain N/mm²: 11 – 30
- Sheer parallel to grain N/mm²: 6 – 10
- Janka side hardness N/mm²: 2,450 – 7,370

**Performance properties**

- Durability: susceptible
- Treatability: moderately resistant
- Moisture movement: medium

**Availability**

Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 21,200m³, for conversion into lumber, veneer and plywood.

**Similarity with other species**

- Okoro/Nongo (Albizia zygia);
- Chenchen/Ako/Antiaris (Antiaris toxicaria);
- African canarium/Aiele (C. schweinfurthii);
- Colawood/Watapuo (Cola gigantea);
- Ogea (Daniellia ogea);
- Edinam/Tiama/Gedu-Nohor (E. angolense);
- Sapele/Sapelli (E. cylindricum);
- Utile/Sipo (Entandrophragma utile);
- Sese/Holarrhena (Holarrhena floribunda).

**Working qualities**

- Sawing
- Machining
- Blunting
- Drying
- Gluing
- Finishing
- Screw and nail holding

**End-uses**

- Joinery
- Pallets and crates
- Trims and frames
- Paneling
- Moulding

**Common names**

Kumanini (Ghana)

**Scientific name**

*Lannea welwitschii* (Hiern) Engl.
**LATI / YAYA**

**Common names**
Yaya (Ghana)

**Scientific name**
Amphimas pterocarpoides (Harms)

**Appearance**
- **Colour:** Yellowish-brown (Heartwood); Yellowish-white (Sapwood).
- **Texture:** Coarse
- **Lustre:** Dull
- **Fibre length:** Unavailable
- **Grain:** Straight to wavy

**Structural properties**
- **Basic Density kg/m³:** 670 – 880 (heavy)
- **Modulus of Elasticity (MOE) N/mm²:** 11,600 – 16,300
- **Modulus of Rupture (MOR) N/mm²:** 50 – 60
- **Compression parallel to grain N/mm²:** 50 – 64
- **Sheer parallel to grain N/mm²:** 16
- **Janka side hardness N/mm²:** 5,800

**Performance properties**
- **Durability:** moderately resistant
- **Treatability:** permeable
- **Moisture movement:** medium

**Availability**
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 62,000m³, for conversion into lumber, veneer and plywood.

**Similarity with other species**
- Ayan/Movingui (*Distemonanthus benthamianus*)
- Ketele/Holoptelea (*Holoptelea grandis*)
- Akossika (*Scottellia klaineana*)
- Sterculia yellow/Eyong/Ohaa (*Sterculia oblonea*)

**Working qualities**
- **Sawing**
- **Machining**
- **Blunting**
- **Drying**
- **Gluing**
- **Finishing**
- **Screw and nail holding**

**End-uses**
- **Construction**
- **Flooring**
- **Joinery**
- **Furniture**
- **Trims and frames**
- **Pallets and crates**
- **Sleepers**
- **Steps and stairs**
**Niangon**

**Common names**
Nyankom (Ghana)

**Scientific name**
Heritiera utilis (Sprague)

**Appearance**

Colour: Pink-brown (Heartwood); Pale pink-brown (Sapwood).
Texture: Coarse
Fibre length: 0.5 – 2.1 mm
Grain: Straight to interlocked

**Structural properties**

Basic Density $\text{kg/m}^3$
- 625 – 700 (heavy)

Modulus of Elasticity (MOE) $\text{N/mm}^2$
- 9,120 – 14,400

Modulus of Rupture (MOR) $\text{N/mm}^2$
- 74 – 171

Compression parallel to grain $\text{N/mm}^2$
- 38 – 62

Sheer parallel to grain $\text{N/mm}^2$
- 4 – 13

Janka side hardness $\text{N/mm}^2$
- 3,740 – 4,650

**Performance properties**

Durability
- moderately resistant

Treatability
- extremely resistant

Moisture movement
- medium

**Availability**

Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 100,000m$^3$, for conversion into lumber, veneer and plywood.

**Similarity with other species**

Edinam/Tiama/Gedu-Nohor (Entandrophragma angolense);
Sapele/Sapelli (E. cylindricum);
Utile/Sipo (Entandrophragma utile);
Scented Guarea/Bosse (Guarea cedrata);
African apple/Bompagya (M. africana);
Danta (Nesogordonia papaverifera);
Stercilia brown/Wawabima (S. rhinopetala);
Makore/Baku (Tieghemella heckelii).

**Working qualities**

Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

**End-uses**

Construction
Joinery
Cabinet work
Trims and frames
Doors
Sleepers
OKORO / NONGO

Common names
Okoro, Okura (Ghana)

Scientific name
Albizia zygia (DC.) J.F.Macbr.

Appearance
Colour: Light pinkish-brown, yellowish-brown (Heartwood); Yellowish-white (Sapwood).
Texture: Coarse
Lustre: Moderate
Fibre length: 11 – 1.4 mm
Grain: Straight to interlocked

Structural properties
Basic Density kg/m³
- 500 – 720 (medium)

Modulus of Elasticity (MOE) N/mm²
- 8,400 – 12,000

Modulus of Rupture (MOR) N/mm²
- 66 – 118

Compression parallel to grain N/mm²
- 42 – 65

Sheer parallel to grain N/mm²
- 11 – 16

Janka side hardness N/mm²
- 2,790 – 5,910

Performance properties
Durability
moderately resistant

Treatability
resistant

Moisture movement
small

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 2,047 m³, for conversion into lumber, veneer and plywood.

Similarity with other species
Antrocaryon/Onzabili (A. micraster);
African canarium/Aiele (C. schweinfurthii);
Scented Guarea/Bosse (Guarea cedrata);
Niangon (Heritiera utilis);
African Walnut/Dibetou (Lovoa trichilioides);
Limba/Fraké/Ofram (Terminalia superba).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Construction
Flooring
Joinery
Turnery
Trims and frames
Pallets and crates
Steps and stairs
Cabinet works
Handicrafts
Furniture
**Appearance**

- **Colour:** Reddish-brown (Heartwood); Whitish to grayish (Sapwood).
- **Texture:** Coarse
- **Fibre length:** 1.1 – 1.7 mm
- **Grain:** Interlocked

**Structural properties**

- **Basic Density kg/m³:** 610 – 720 (medium)
- **Modulus of Elasticity (MOE) N/mm²:** 8,820
- **Modulus of Rupture (MOR) N/mm²:** 95 – 159
- **Compression parallel to grain N/mm²:** 48 – 73
- **Sheer parallel to grain N/mm²:** 8 – 12
- **Janka side hardness N/mm²:** 6,310

**Performance properties**

- **Durability:** Moderately resistant
- **Treatability:** Permeable
- **Moisture movement:** Small

**Availability**

Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 60,000m³, for conversion into lumber, veneer and plywood.

**Similarity with other species**

- Edinam/Tiama/Gedu-Nohor (E. angolense);
- Sapele/Sapelli (E. cylindricum);
- Utile/Sipo (Entandrophragma utile);
- Scented Guarea/Bosse (Guarea cedrata);
- African apple/Bompagya (M. Africana);
- Danta (Nesogordonia papaverifera);
- Stercilia brown/Wawabima (S. rhinopetala);
- Makore/Baku (Tieghemella heckelii).

**Working qualities**

- Sawing
- Machining
- Blunting
- Drying
- Gluing
- Finishing
- Screw and nail holding

**End-uses**

- Construction
- Flooring
- Joinery
- Furniture
- Cabinet work
- Steps and stairs
- Turnery
- Paneling
TETEKON

Common names
Tetekon (Ghana)

Scientific name
Gilbertiodendron limba (Scott-Elliot)

Appearance
Colour: dark or copper-brown (Heartwood); Graysih and yellowish (Sapwood).
Texture: Medium
Lustre: Moderate
Fibre length: 1.4 mm

Structural properties
Basic Density kg/m³
492 – 694 (medium)

Modulus of Elasticity (MOE) N/mm²
5,101 – 12,690

Modulus of Rupture (MOR) N/mm²
51 – 100

Compression parallel to grain N/mm²
30 – 42

Sheer parallel to grain N/mm²
12 – 14

Janka side hardness N/mm²
4,400 – 10,970

Performance properties
Durability resistant
Treatability resistant
Moisture movement medium

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 19,400 m³, for conversion into lumber.

Similarity with other species
Antrocaron/Onzabili (A. micraster);
Berlinia/Ebiara (Berlinia confusa);
African Walnut/Dibetou (Lovoa trichilioides);
Manson/Bété (Mansonia altissima);
Iroko/Odum (Milicia excelsa);
Sterculia brown/Wawabima (S. rhinopetala);
Emire/Idigbo / Framiré (Terminalia ivorensis);
Limba/Fracké / Ofram (Terminalia superba);
Makore/Baku (Tieghemella heckelii).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Construction
Flooring
Furniture
Joinery
Trims and frames
Steps and stairs
**Appearance**

**Colour:** Grey-brown, brown-orange (Heartwood); Whitish-yellow (Sapwood).
**Texture:** Coarse
**Lustre:** Lustrous
**Fibre length:** 1.5 mm
**Grain:** Interlocked

**Structural properties**

- **Basic Density kg/m\(^3\)**:
  - 470 (medium)

- **Modulus of Elasticity (MOE) N/mm\(^2\)**:
  - 9,818

- **Modulus of Rupture (MOR) N/mm\(^2\)**:
  - 77

**Performance properties**

- **Durability**:
  - Moderately resistant
- **Treatability**:
  - Permeable
- **Moisture movement**:
  - Medium

**Availability**

Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 65,400 m\(^3\), for conversion into lumber.

**Similarity with other species**

- Chenchen/Ako/Antiaris (*Antiaris toxicaria*)
- African canarium/Aiele (*C. schweinfurthii*)
- Ogea (*Daniellia ogea*)
- Sese/Holarrhena (*Holarrhena floribunda*)
- Lannea/Kumanini/Kumbi (*L. welwitschii*)

**Working qualities**

- **Sawing**
- **Machining**
- **Blunting**
- **Drying**
- **Gluing**
- **Finishing**
- **Screw and nail holding**

**End-uses**

- Construction
- Trims and frames
- Moulding
- Furniture
- Cabinet work
- Pallet and crates
- Handicrafts
Appearance
Colour: Dark red-brown (Heartwood); Pale red-brown (Sapwood).
Texture: Coarse
Fibre length: 1.5 – 2.0 mm
Grain: Straight to slightly interlocked

Structural properties
Basic Density kg/m³
- 720 – 890 [very heavy]
Modulus of Elasticity (MOE) N/mm²
- 13,400 – 18,700
Modulus of Rupture (MOR) N/mm²
- 116 – 186
Compression parallel to grain N/mm²
- 57 – 81
Sheer parallel to grain N/mm²
- 14 – 15
Janka side hardness N/mm²
- 6,180 – 8,050

Performance properties
Durability moderately resistant
Treatability permeable
Moisture movement medium

Availability
Log production is from sustainably managed production natural forest based on the Ghana forest management standards. Annual round log production equivalent to the annual allowable cut is estimated at 170,000m³, for conversion into lumber, veneer and plywood.

Similarity with other species
Utile/Sipo (Entandrophragma utile);
Scented Guarea/Bosse (Guarea cedrata);
African apple/Bompagya (M. africana);
Danta (Nesogordonia papaverifera);
Essia (Petersianthus macrocarpus).

Working qualities
Sawing
Machining
Blunting
Drying
Gluing
Finishing
Screw and nail holding

End-uses
Construction
Flooring
Joinery
Furniture
Turnery
Trims and frames
Doors
APPENDIX: SUMMARY OF THE NAMES OF THE TWENTY SELECTED TIMBER SPECIES

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Common/Local names</th>
<th>Scientific name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afina</td>
<td>Afena (Ghana), Poe (Cote d’Ivoire); Others: Mukundu, Efenna, Omenam</td>
<td>Strombosis glaucescens</td>
</tr>
<tr>
<td>Akee</td>
<td>Akefufuo (Ghana); Akee (Cote d’Ivoire); Others: Tsana</td>
<td>Blighia sapida</td>
</tr>
<tr>
<td>African Greenheart</td>
<td>Afam (Ghana); Piolo, Sougue (Cote d’Ivoire); Others: Mbura, Ofam, Pembe</td>
<td>Parinari excelsa</td>
</tr>
<tr>
<td>Apome / Ananta</td>
<td>Ananta (Ghana); Apome (Cote d’Ivoire); Others: Wonyae</td>
<td>Cynometra ananta</td>
</tr>
<tr>
<td>Alstonia</td>
<td>Sinoro/sinduro, Nyamedua (Ghana); Emien (Cote d’Ivoire); Ekouk (Cameroon); Others: Stoolwood, Patternwood</td>
<td>Alstonia boonei</td>
</tr>
<tr>
<td>Avodire</td>
<td>Apapaye (Ghana); Avodire (Cote d’Ivoire); Others: Apaya, Engan, Lusamba, wansenwa</td>
<td>Turraeanthus africanus</td>
</tr>
<tr>
<td>Danta / Kotibe</td>
<td>Danta, Epro, Akumaba (Ghana); Kotibe (Cote d’Ivoire); Ovoui, Owoe (Cameroon); Others: Aborbora, kondofindo</td>
<td>Nesogordonia papaverifera</td>
</tr>
<tr>
<td>Denya / Okan</td>
<td>Denya (Ghana); Bouemon (Cote d’Ivoire); Okan, Aduom (Cameroon); Others: Edum</td>
<td>Cylicodiscus gabunensis</td>
</tr>
<tr>
<td>Dialium</td>
<td>Duabankye (Ghana); Kofina, Afanbeou (Cote d’Ivoire); Mfang (Cameroon); Others: Kasusu, Omvong, Bongola, Pau veludo, Gbelle-flu, Gia kaba, Ziba</td>
<td>Dialium aubrevillei</td>
</tr>
<tr>
<td>Effeu</td>
<td>Hotro-Hotro, Fotie (Ghana); Effeu (Cote d’Ivoire); Nomozek (Cameroon); Others: Hotoro</td>
<td>Hannoa klaineana</td>
</tr>
<tr>
<td>Essang / Asoma</td>
<td>Asoma (Ghana); Lo (Cote d’Ivoire); Essang (Cameroon); Others: Asona, Dawadua, Osoma, Saoma, Locust bean</td>
<td>Parkia bicolor</td>
</tr>
<tr>
<td>Trade name</td>
<td>Common/Local names</td>
<td>Scientific name</td>
</tr>
<tr>
<td>------------</td>
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<td>-----------------</td>
</tr>
<tr>
<td>Kroma / Eveuss</td>
<td>Kroma, Kruma [Ghana, Cote d’Ivoire]; Others: Eveuss, Eves, Ududu</td>
<td>Klainedoxa gabonensis</td>
</tr>
<tr>
<td>Kumbi</td>
<td>Kumanini [Ghana]; Loloti [Cote d’Ivoire]; Ekos [Cameroon]; Others: Asanfran, Bokanga, Edzui, Muizi, Va Tue</td>
<td>Lannea welwitschii</td>
</tr>
<tr>
<td>Lati / Yaya</td>
<td>Yaya [Ghana]; Lati [Cote d’Ivoire]; Edjin-Edzil [Cameroon]; Others: Asanfran, Bokanga, Edzui, Muizi, Va Tue</td>
<td>Amphimas pterocarpoides</td>
</tr>
<tr>
<td>Okoro / Nongo / Red Nongo</td>
<td>Okoro, Okuro [Ghana]; Bangbaye [Cote d’Ivoire]; Salémo [Cameroon]; Others: Omulera, Kassa-kassa, Ohura, Red nongo</td>
<td>Albizia zygia</td>
</tr>
<tr>
<td>Red Oak / Kwatafompaboа</td>
<td>Kwatafompaboа [Ghana]; Others: Abem, Ebiara, Melegba, Pocouli, Samata, Samanta</td>
<td>Berlinia confusa</td>
</tr>
<tr>
<td>Niangon</td>
<td>Nyankom [Ghana]; Niangon [Cote d’Ivoire]; Others: Anguekong, Ogue, Kwaeduma, Wishmore</td>
<td>Heretiera utilis</td>
</tr>
<tr>
<td>Tetekon</td>
<td>Tetekon [Ghana]; Vaa [Cote d’Ivoire]; Others: Agyamera, Bembe, Ekobem, Epal, Ligudu, Molapa, Sehmeh, Mbombi</td>
<td>Gilbertiodendro limba</td>
</tr>
<tr>
<td>Watapuo</td>
<td>Watapuo, Wobre, Dodowa [Ghana]; Ouara [Cote d’Ivoire]; Others: Not available</td>
<td>Cola gigantea</td>
</tr>
<tr>
<td>Wawabima / Brown Sterculia</td>
<td>Wawabima [Ghana]; Lotofa [Cameroon]; Others: Awasea, N’kwanang</td>
<td>Sterculia rhinopetala</td>
</tr>
</tbody>
</table>
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