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## McCown Archaeobotany Laboratory Reports

### Title

90. Pearsall Ecuadorian Comparative Wood Reference Collection: Scanning Electron Micrographs of Charred Samples (Part 1)

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# Pearsall Ecuadorian Comparative Wood Reference Collection: Scanning Electron Micrographs of Charred Samples 2022

McCown Archaeobotany Laboratory Report #90

Part 1 of 2

By:  
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**Berkeley**  
UNIVERSITY OF CALIFORNIA



**ARCHAEOLOGICAL  
RESEARCH  
FACILITY**



# Methodology

1. Samples were collected for the National Science Foundation project "Human Ecology in the Jama River Valley" by James Ziedler & Deborah Pearsall (Principal Investigators) during October-December 1982, March-April 1988, January 1990, August 1991. All sample numbering and identifications are from this original collection and can be found at <https://www.tropicos.org/person/35870>. The EWC notation in front of a sample number refers to the "Ecuador Wood Collection."
2. Charred wood specimen were fractured in order to view a flat surface of the transverse, tangential, and radial anatomical views. This fracture was either done by hand with a 'snapping' motion or using slight pressure from a knife or blade under the view of a WILD M3B stereomicroscope (6x-40x) in the McCown Archaeobotany Laboratory. The reverse side of the specimen was then shaved down flat so that each piece could be positioned appropriately.
3. Specimen were fixed onto an aluminum ½" slotted head mount (Ted Pella Prod No. 16111) using PELCO Colloidal Graphite (Ted Pella Prod No. 16053).
4. Samples were imaged using a TM-1000 Environmental Scanning Electron Microscope at the University of California's Archaeological Research Facility.
5. Generally, images were recorded for each anatomical view at 50x, 100x, and 200x magnifications. Vessel wall texture images were recorded anywhere between 500x and 1000x, depending on the size of the feature.
6. Anatomical measurements recorded for each hardwood specimen include:
  - a. vessel size, frequency, arrangement, and presence of tyloses, gum, or resin,
  - b. ray thickness and frequency,
  - c. parenchyma type, and
  - d. porosity.
7. Anatomical measurements followed the modern hardwood feature descriptions by the IAWA.
  - a. (InsideWood. 2004-onwards. Published on the Internet. <http://insidewood.lib.ncsu.edu/search>).
8. After imaging, all specimen were returned to their original storage boxes.

# EWC 9 RHAMNACEAE *Ziziphus thrysiflora* Benth.

**Common Name:** "Perra de Montaña, ebanos"

**Elevation:** 25 m

**Description:** Tree, white bark, crown not spreading; leaves light green, palmately veined, alternate; no flowers; fruits round, 1.5-2 cm in diameter, drupe. Beginning of epiphytic infestation *Psitacanthus obovatus* HBK. Thorns along mature branches, trunk. Common names: "Perra de Montaña, ebanos". Side arroyo off large arroyo west of El Real.

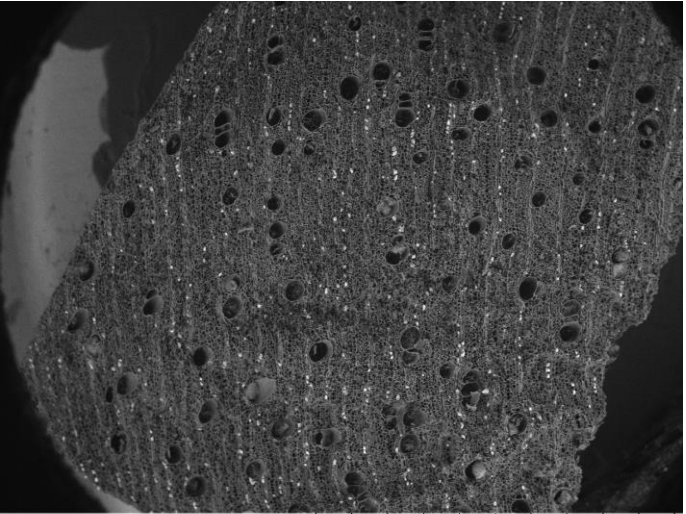
**Location:** Ecuador, Guayas

**Locality:** El Real area, Santa Elena Peninsula. N97 37, E5 31. Outer coastal plain, semi-desert (xerophytic) vegetation.

**Vessels**  
**Size:** 50-150µm  
**Freq.:** 5 to 20  
**Arrangement:** solitary, pairs, chains  
**Tyloses:** common

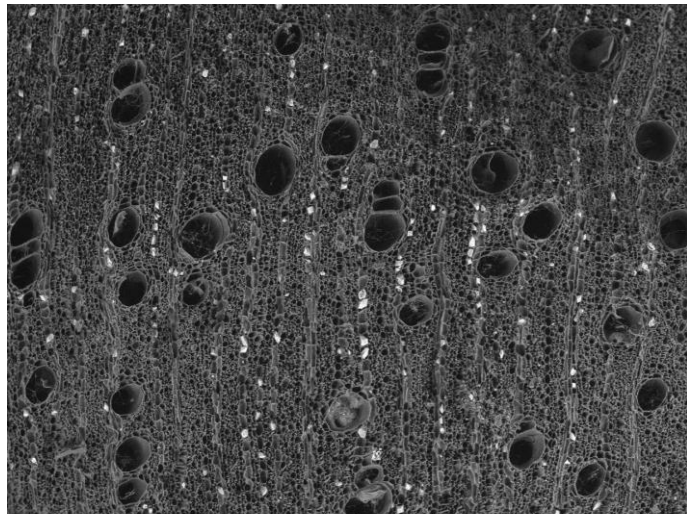
**Rays:**  
**# per mm:** 4-12  
**Thickness (cells):** 1 to 3, of two distinct sizes  
**Parenchyma Type:** Diffuse  
**Porosity:** semi-ring porous

**Transverse 50x**



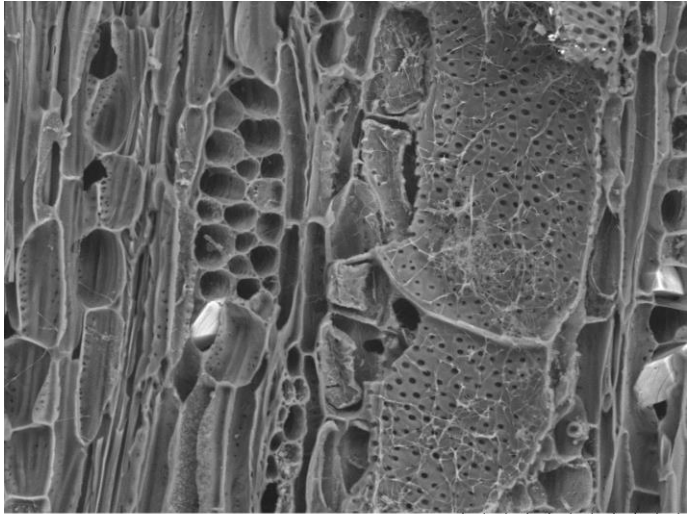
EWC 9 2022/07/21 04:17 L D2.8 x50 2 mm

**Transverse 100x**



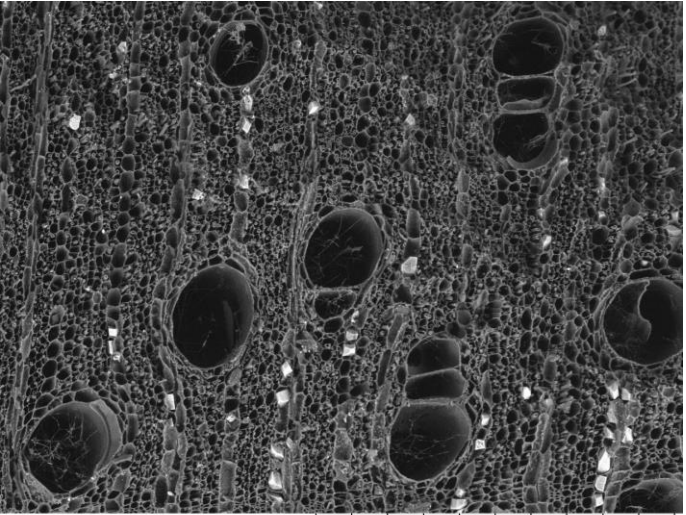
EWC 9 2022/07/21 04:19 L D2.8 x100 1 mm

**Vessel Wall**



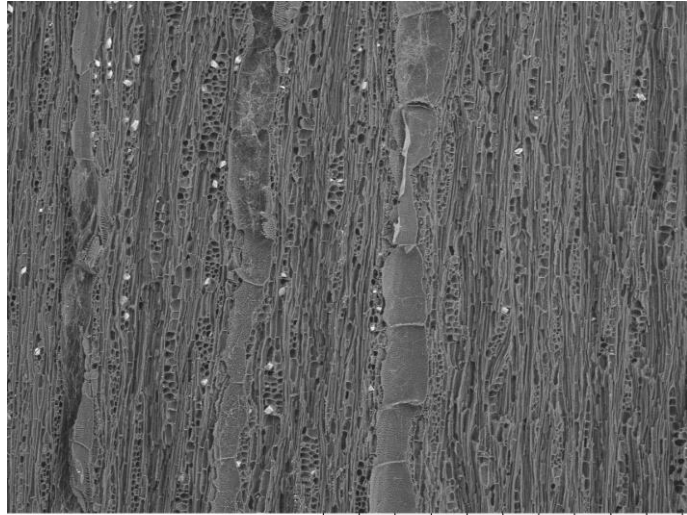
EWC 9 2022/07/21 04:34 L D3.6 x600 100 um

**Transverse 200x**



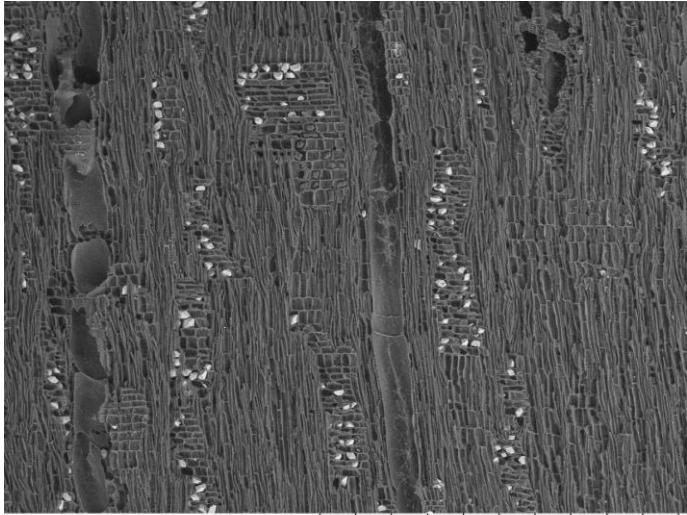
EWC 9 2022/07/21 04:20 L D2.8 x200 500 um

**Tangential**



EWC 9 2022/07/21 04:31 L D3.6 x100 1 mm

**Radial**



EWC 9 2022/07/21 04:38 L D4.2 x100 1 mm

# EWC 91 POLYGONACEAE *Triplaris Guayaquilensis* HBK

## Vessels

Size: 50-100µm  
Freq.: 20 to 40  
Arrangement: solitary and pairs  
Tyloses: absent  
Vessel Wall: alternate pitting

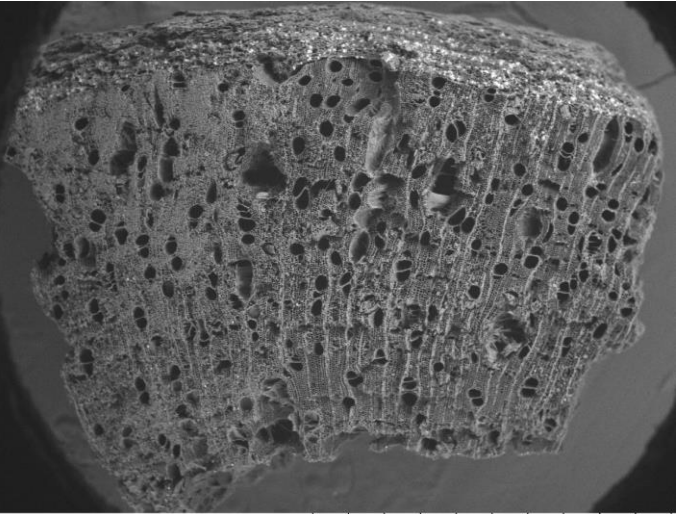
## Rays:

# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Diffuse  
**Porosity:** semi-ring porous

## Common Name:

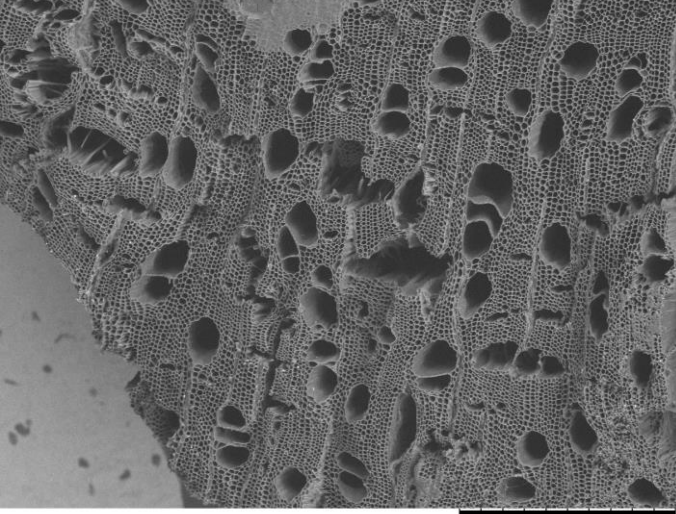
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

Transverse 50x



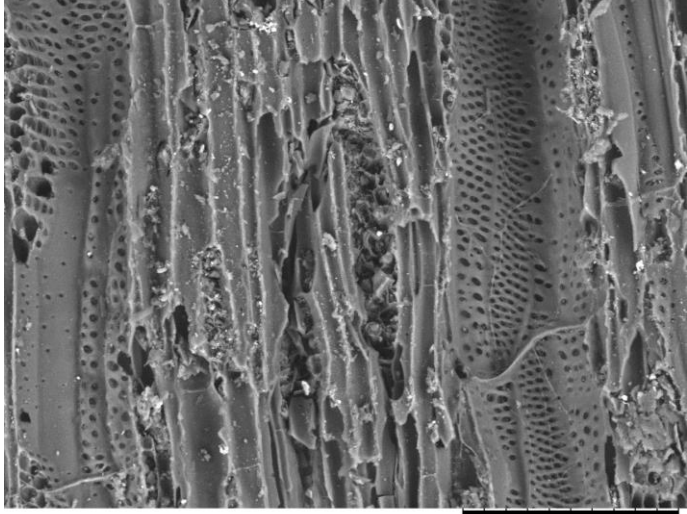
EWC 91 2022/07/21 01:54 L D2.6 x50 2 mm

Transverse 100x



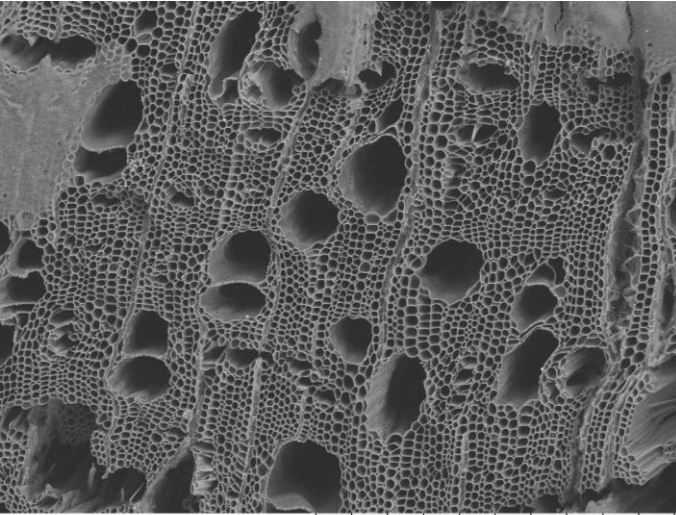
EWC 91 2022/07/21 02:07 L D4.4 x120 500 um

Vessel Wall



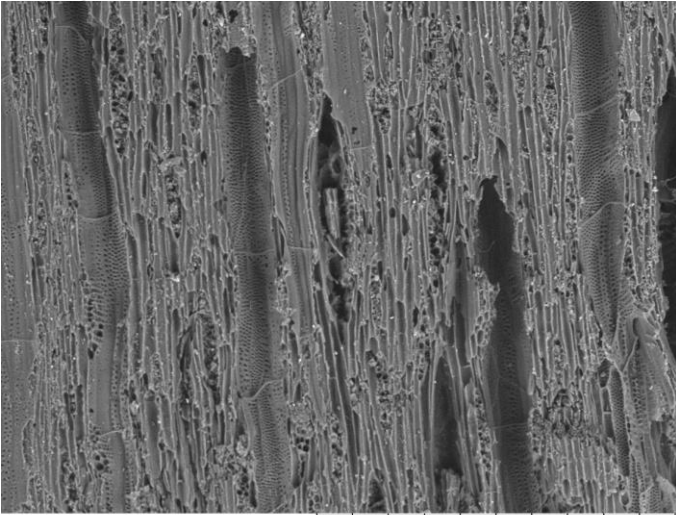
EWC 91 2022/07/21 02:47 L D3.8 x600 100 um

Transverse 200x



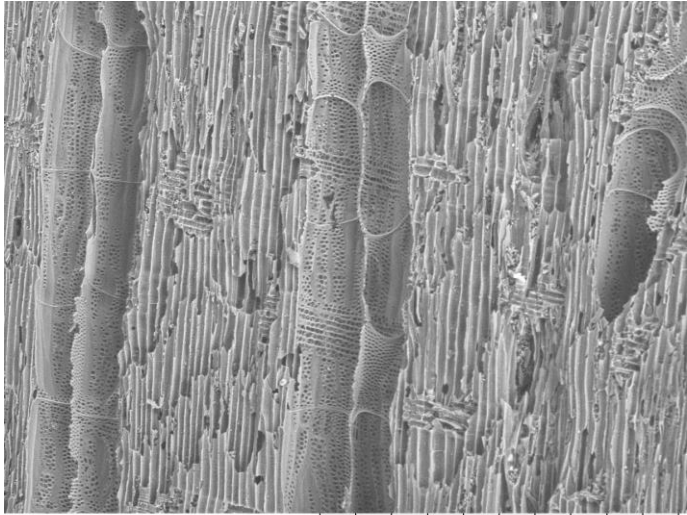
EWC 91 2022/07/21 02:09 L D4.4 x200 500 um

Tangential



EWC 91 2022/07/21 02:45 L D4.0 x200 500 um

Radial



EWC 91 2022/07/21 02:39 L D3.3 x200 500 um

# EWC 482 Unknown Identification

## Vessels

Size: 50-100µm

Freq.: 40 to 100

Arrangement: pairs, chains

Tyloses: absent

Vessel Wall: Simple Alternate Pits

## Rays:

# per mm: 4-12

Thickness (cells): 1 to 3

Parenchyma Type: Absent

Porosity: diffuse

**Common Name:** "lengua de vaca"  
"putilla"

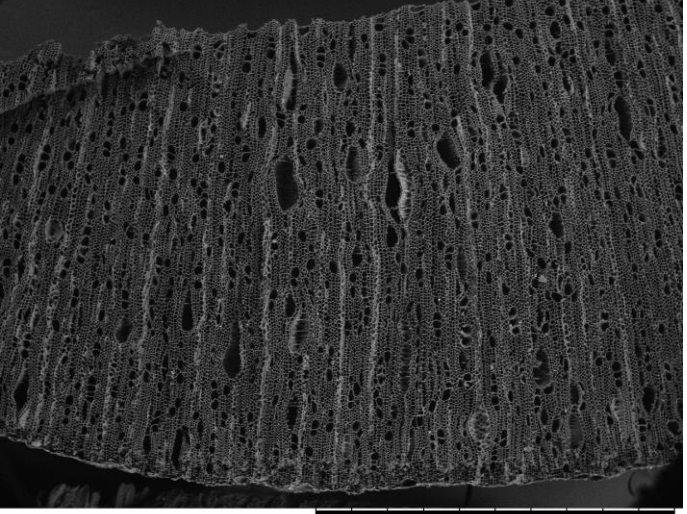
**Elevation:**

**Description:**

**Location:** Ecuador

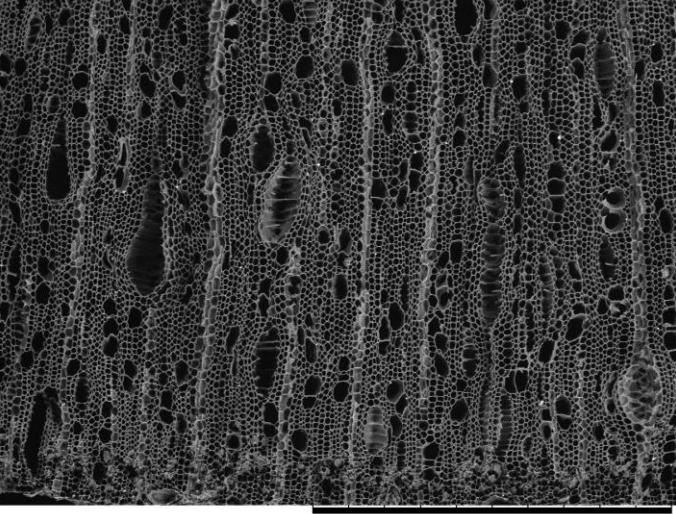
**Locality:**

**Transverse 50x**



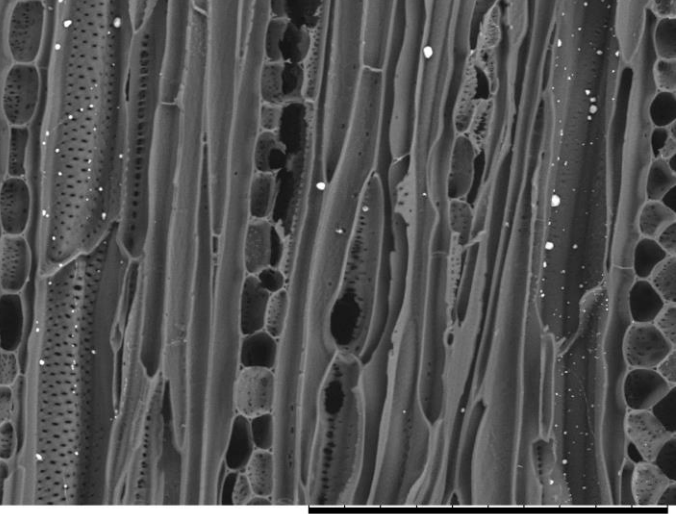
EWC 482 2022/07/21 04:47 L D3.9 x50 2 mm

**Transverse 100x**



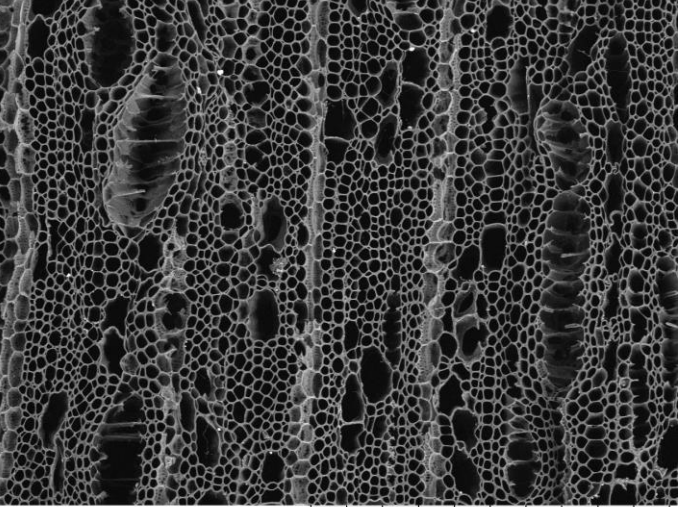
EWC 482 2022/07/21 04:49 L D3.9 x100 1 mm

**Vessel Wall**



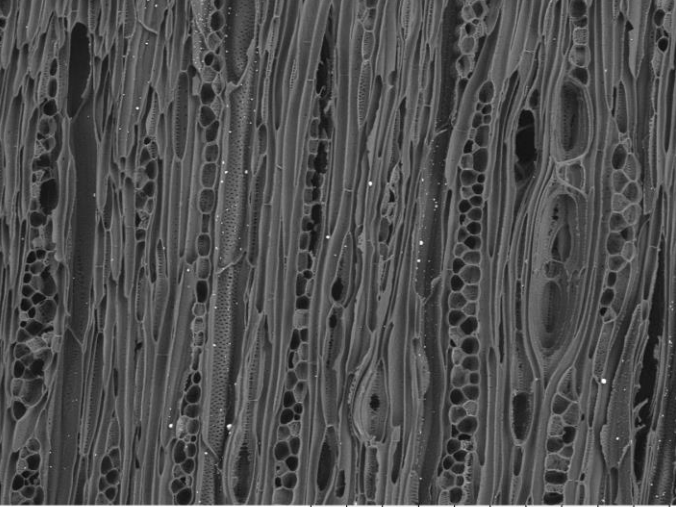
EWC 482 2022/07/21 04:45 L D4.1 x500 200 µm

**Transverse 200x**



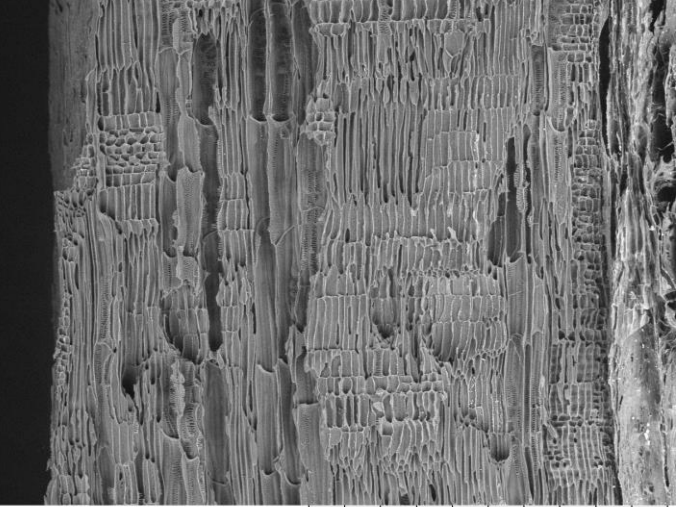
EWC 482 2022/07/21 04:50 L D3.9 x200 500 µm

**Tangential**



EWC 482 2022/07/21 04:43 L D4.1 x200 500 µm

**Radial**



EWC 482 2022/07/21 04:52 L D4.0 x100 1 mm

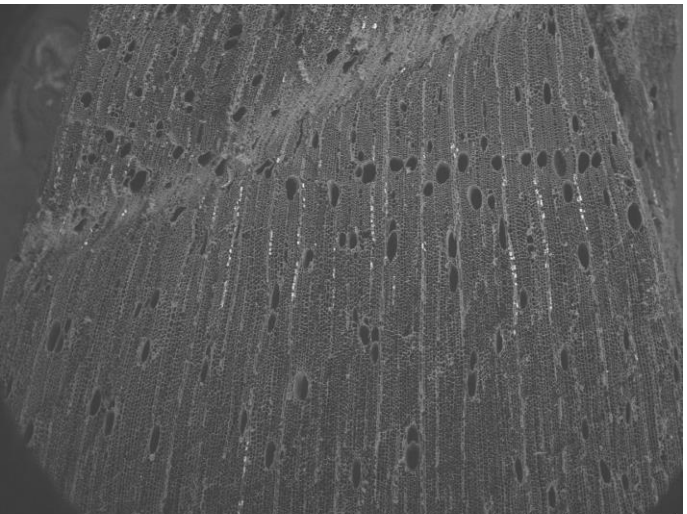
# EWC 490 FAMILY Unknown Identification

**Vessels**  
Size: <50-100µm  
Freq.: 5 to 20  
Arrangement: solitary, pairs  
**Tyloses:** absent  
**Porosity:** ring porous

**Rays:**  
# per mm: 4-12  
Thickness (cells): uniseriate, 1 to 3, of two distinct sizes  
**Parenchyma Type:** Absent, Diffuse in aggregate

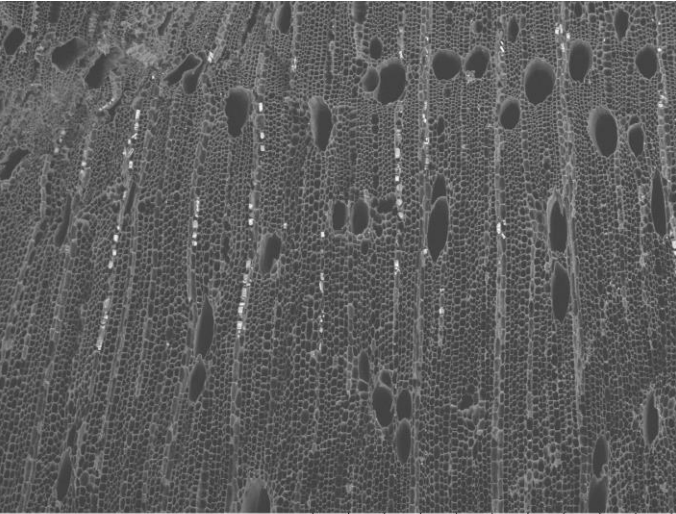
**Common Name:** "tutumo"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



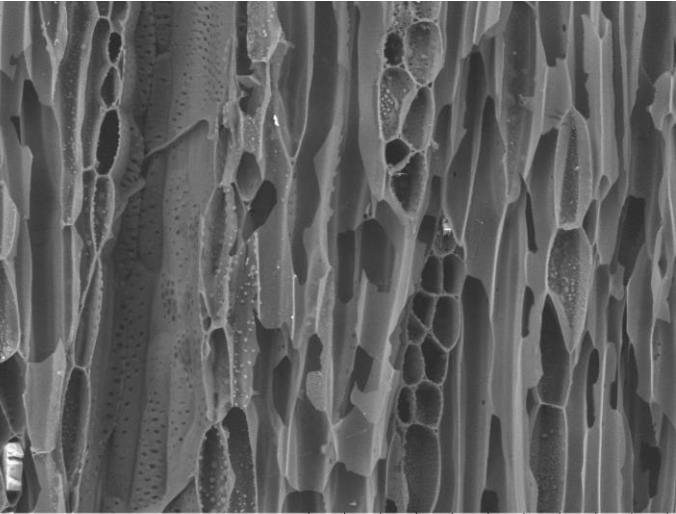
EWC 490 2022/07/25 23:41 L D3.5 x50 2 mm

**Transverse 100x**



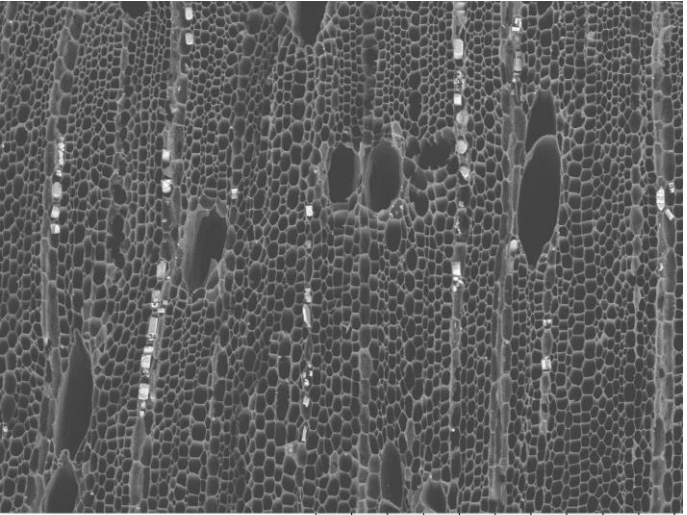
EWC 490 2022/07/25 23:42 L D3.5 x100 1 mm

**Vessel Wall**



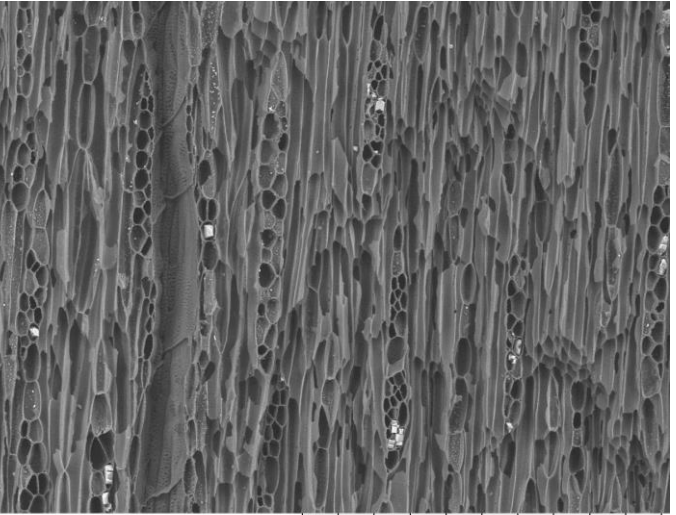
EWC 490 2022/07/25 23:20 L D3.9 x500 200 µm

**Transverse 200x**



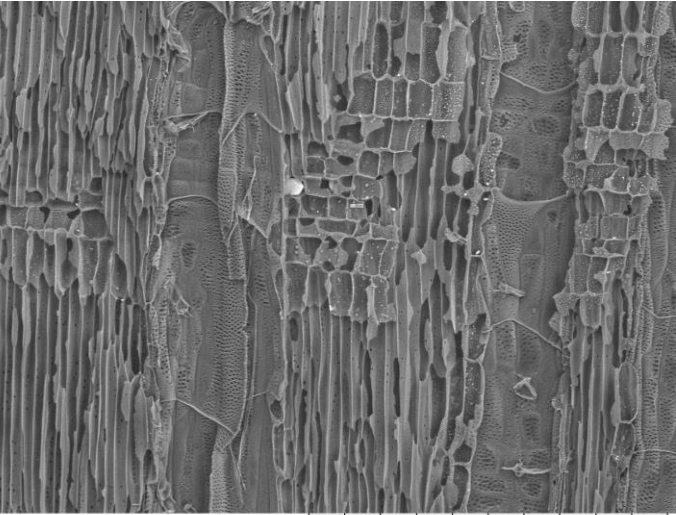
EWC 490 2022/07/25 23:43 L D3.5 x200 500 µm

**Tangential**



EWC 490 2022/07/25 23:18 L D3.9 x200 500 µm

**Radial**



EWC 490 2022/07/25 23:24 L D3.9 x200 500 µm

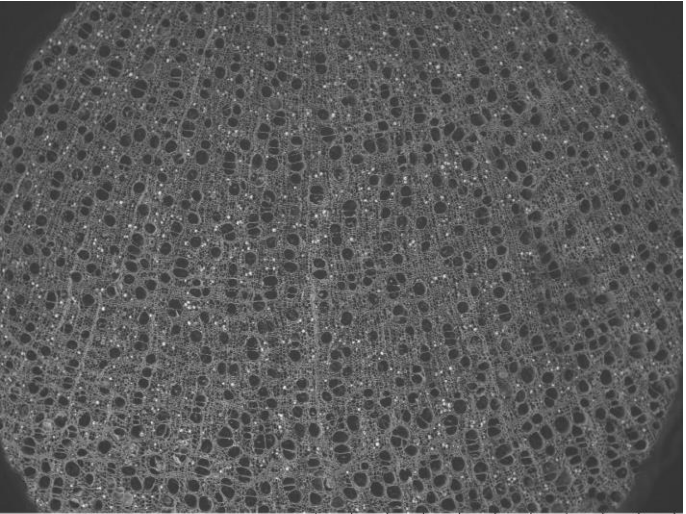
# EWC 492 MYRTACEAE *Eugenia*

**Vessels**  
Size: 50-100,100-200µm  
Freq.: 40 to 100 (~70)  
Arrangement: solitary, pairs, chains  
**Tyloses:** common

**Rays:**  
# per mm: <4  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Banded (thin and thick)  
**Porosity:** diffuse

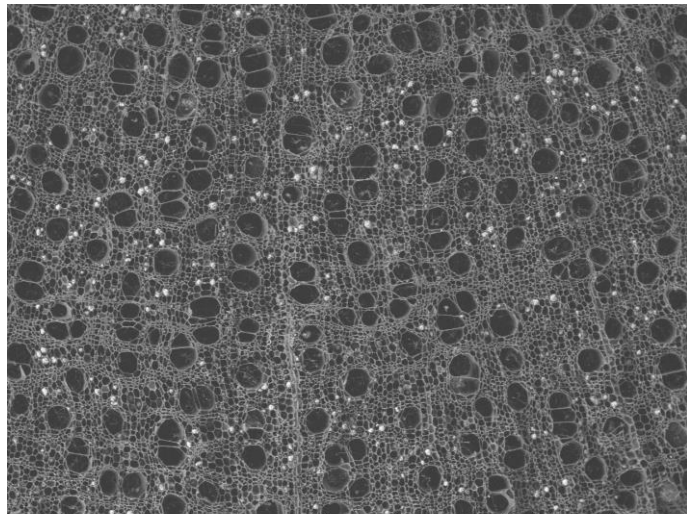
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



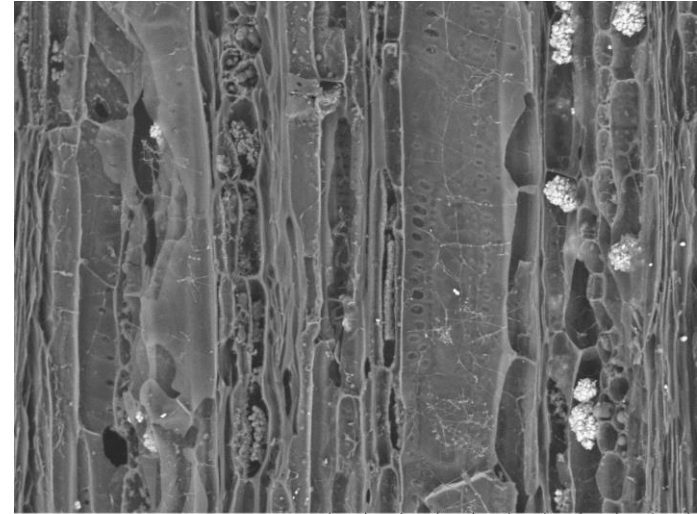
EWC 1607 2022/07/25 22:45 L D2.8 x50 2 mm

**Transverse 100x**



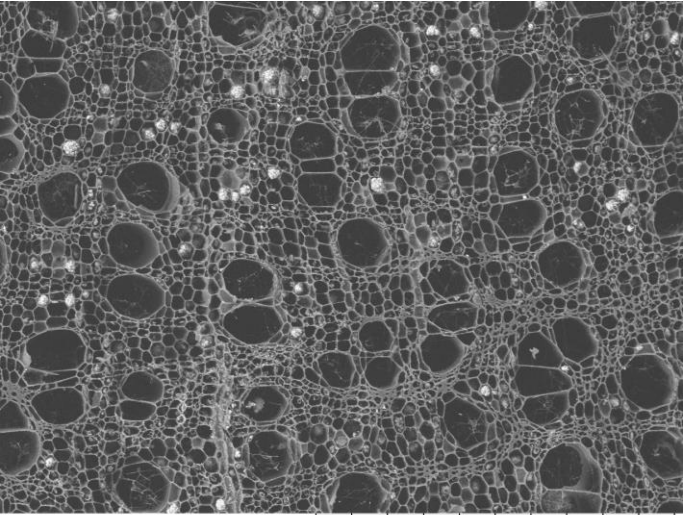
EWC 1607 2022/07/25 22:46 L D2.8 x100 1 mm

**Vessel Wall 500x**



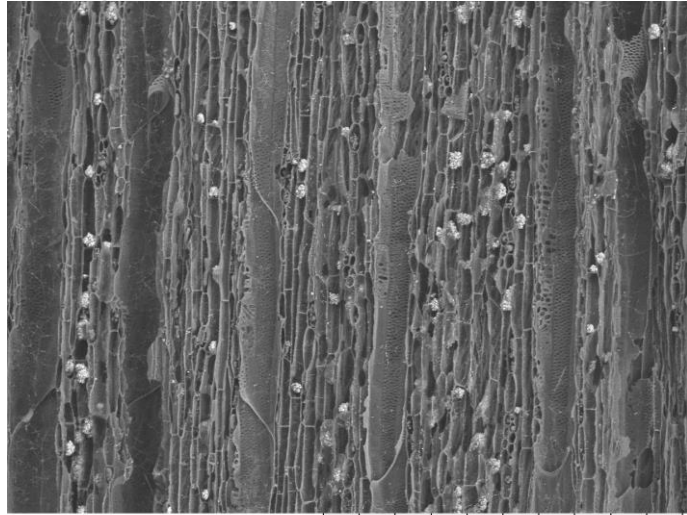
EWC 1607 2022/07/25 23:02 L D4.1 x500 200 µm

**Transverse 200x**



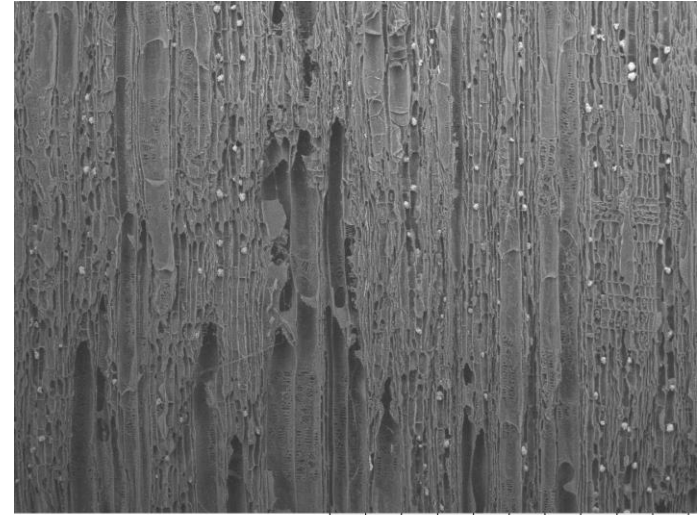
EWC 1607 2022/07/25 22:48 L D2.8 x200 500 µm

**Tangential 200x**



EWC 1607 2022/07/25 23:08 L D3.3 x200 500 µm

**Radial 100x**



EWC 492 2022/09/21 00:46 L D3.4 x100 1 mm



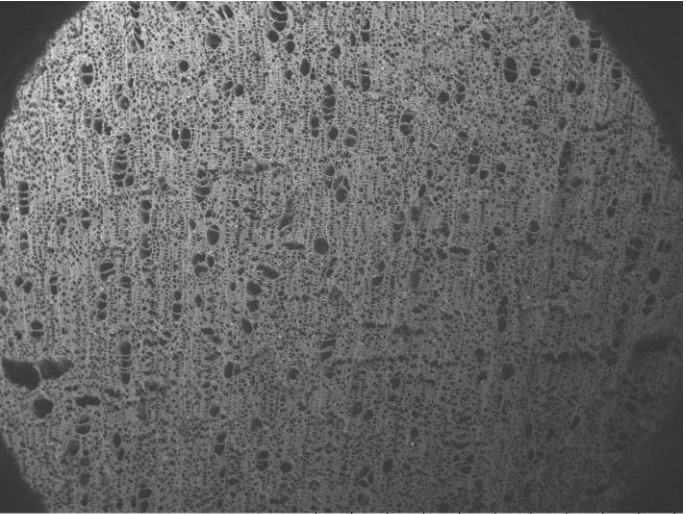
# EWC 495 SAPOTACEAE *Chrysophyllum auratum* Miq.

**Vessels**  
Size: 50-100µm, 100-200µm  
Freq.: 5 to 20 (~19)  
Arrangement: pairs, chains, some clusters  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): uniseriate  
**Parenchyma Type:** diffuse-in-aggregates, thin bands  
**Porosity:** diffuse

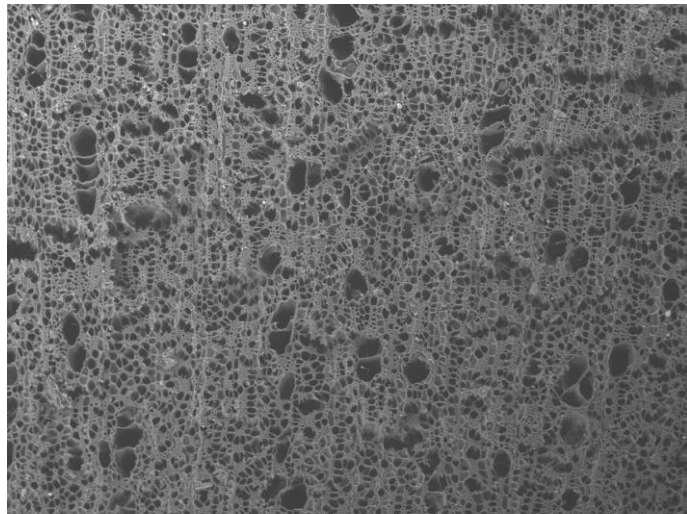
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



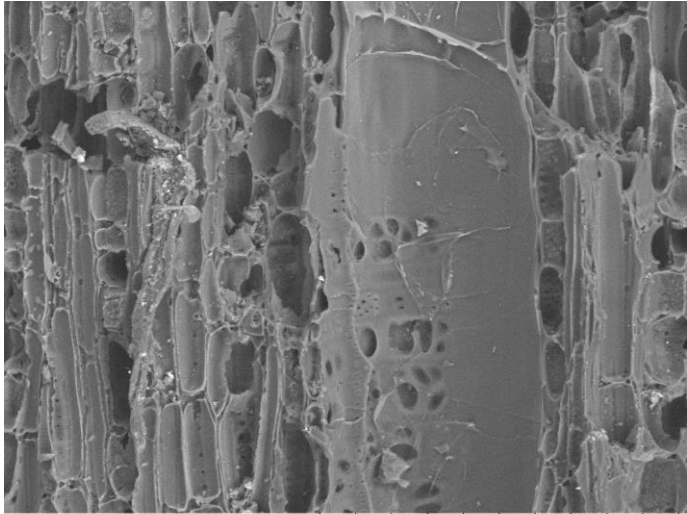
EWC 495 2022/09/21 00:51 L D2.7 x50 2 mm

**Transverse 100x**



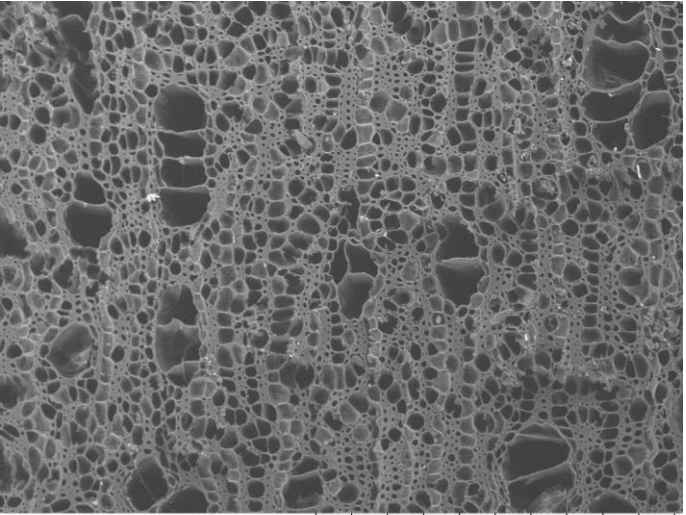
EWC 495 2022/09/21 00:56 L D2.7 x100 1 mm

**Vessel Wall**



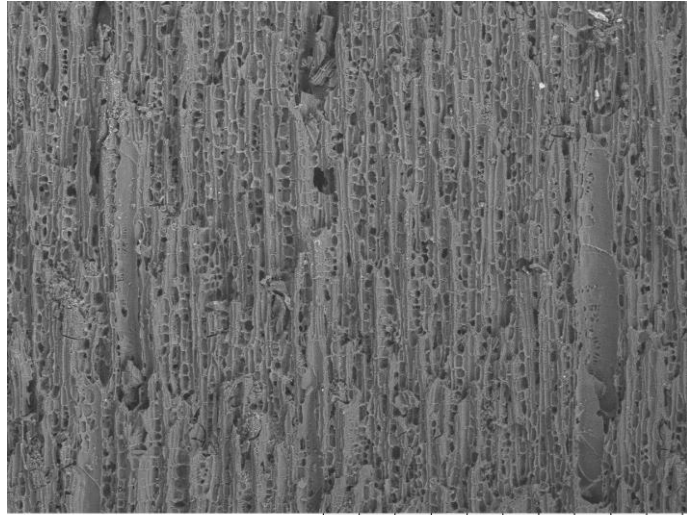
EWC 495 2022/07/19 02:27 L D4.7 x500 200 µm

**Transverse 200x**



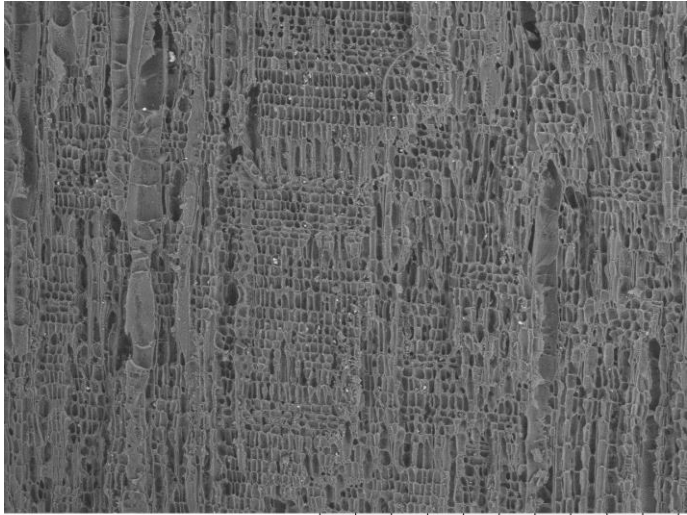
EWC 495 2022/09/21 00:55 L D2.7 x200 500 µm

**Tangential 100x**



EWC 495 2022/07/19 02:23 L D4.7 x100 1 mm

**Radial 100x**



EWC 495 2022/07/19 02:09 L D5.6 x100 1 mm

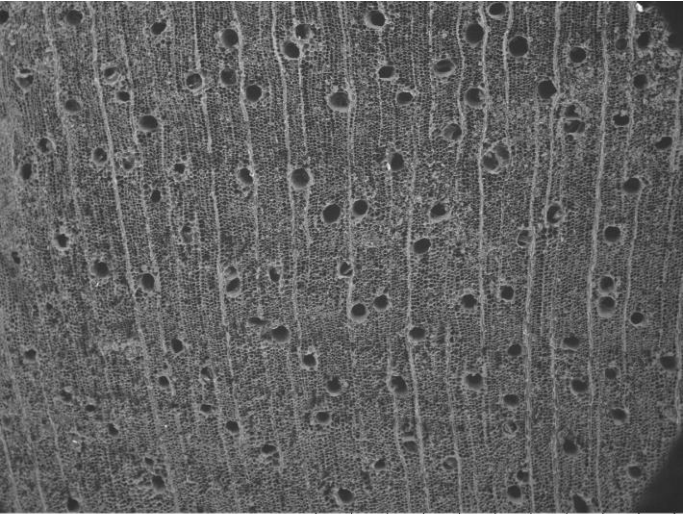
# EWC 497 LAURACEAE *Nectandra*

**Vessels**  
Size: 50-100µm, 100-200µm  
Freq.: 5 to 20 (~7)  
Arrangement: solitary, pairs  
**Tyloses:** common

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Vascentric,  
Scanty  
**Porosity:** diffuse

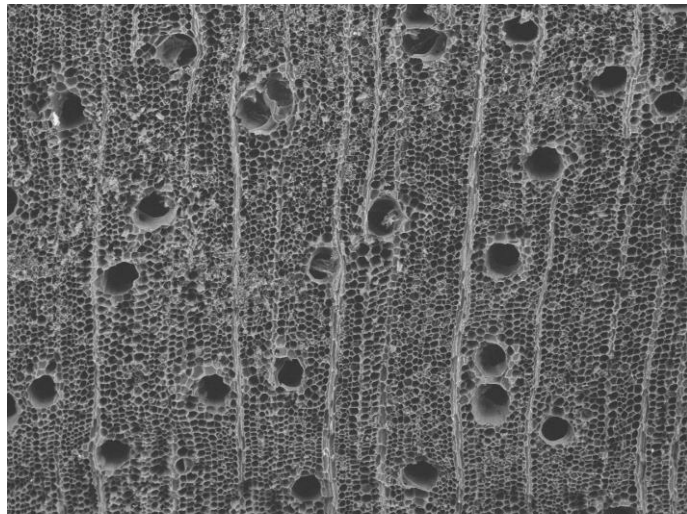
**Common Name:** "higua maria"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



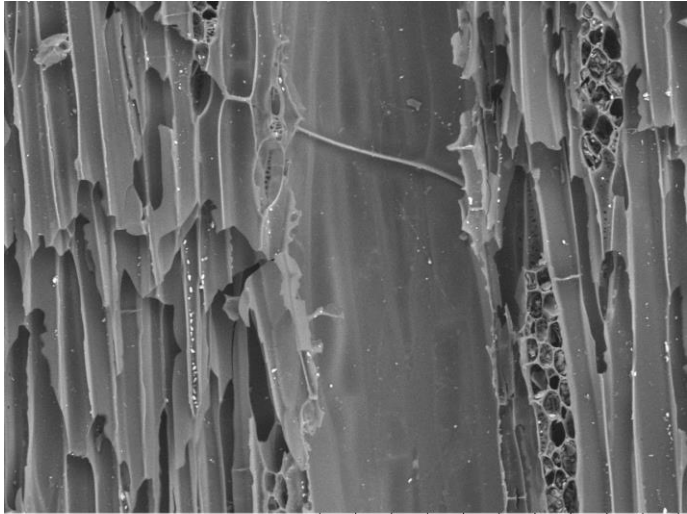
EWC 497 2022/07/21 01:29 L D4.2 x50 2 mm

**Transverse 100x**



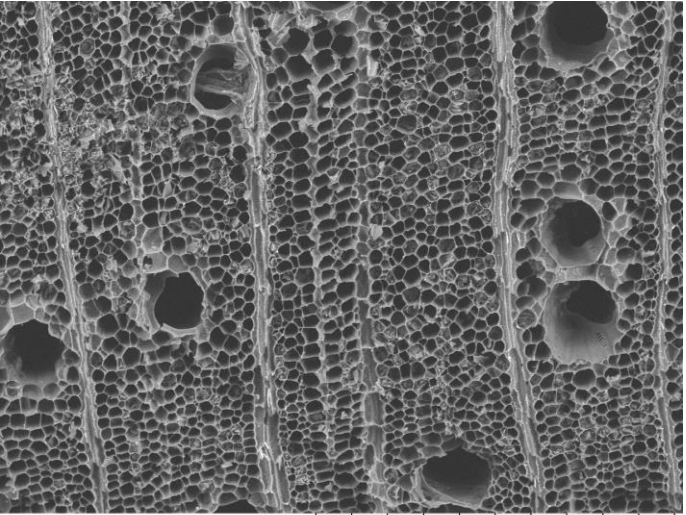
EWC 497 2022/07/21 01:32 L D4.2 x100 1 mm

**Vessel Wall 500x**



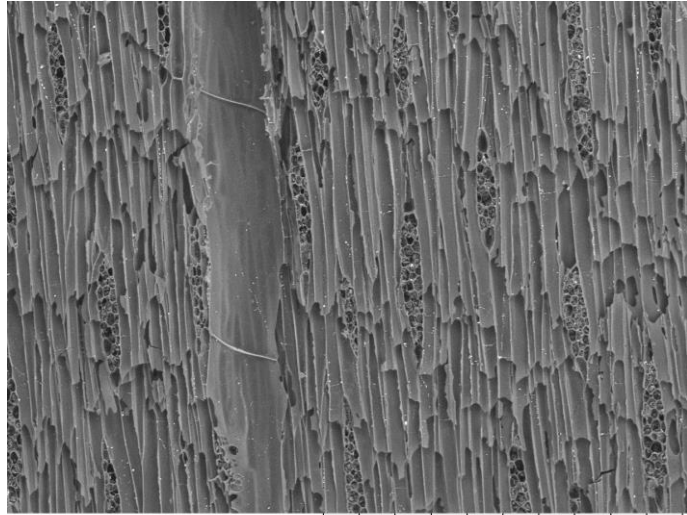
EWC 497 2022/07/21 01:48 L D4.2 x500 200 µm

**Transverse 200x**



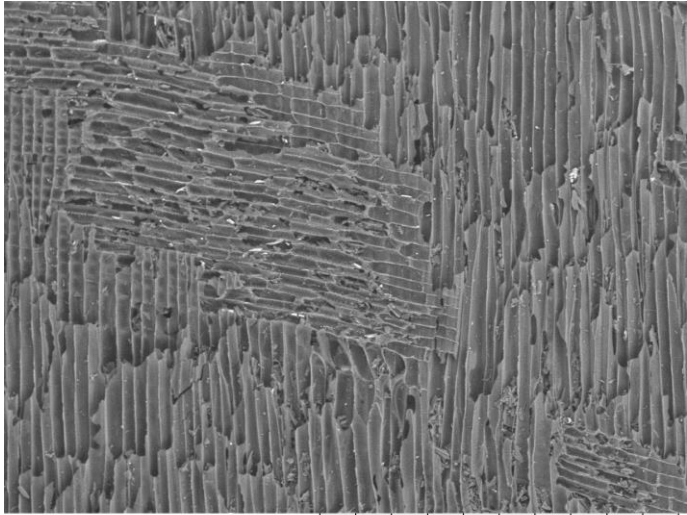
EWC 497 2022/07/21 01:34 L D4.2 x200 500 µm

**Tangential 200x**



EWC 497 2022/07/21 01:46 L D4.2 x200 500 µm

**Radial 200x**



EWC 497 2022/07/21 01:40 L D4.8 x200 500 µm

# EWC 502 MALVACEAE *Sterculia corrugata* Little

**Common Name:** "piragua"

**Elevation:** 150 m

**Description:** leaves leathery, glossy, opposite, abundant; bark light brown, rough; trees of large size seen farther up the San Francisco Valley; 2 specimens and wood. Deciduous coastal forest.

**Location:** Ecuador, Guayas

**Locality:** Las N nuez area, Ol n. Same as number 501: Lower area of the Rio Bototito Valley, near Las N nuez, area cleared of most trees, with shrub growth.

## Vessels

Size: 100-200µm

Freq.: 20 to 40

Arrangement: pairs, chains

Tyloses: common

Vessel Wall: Simple Alternate Pits

## Rays:

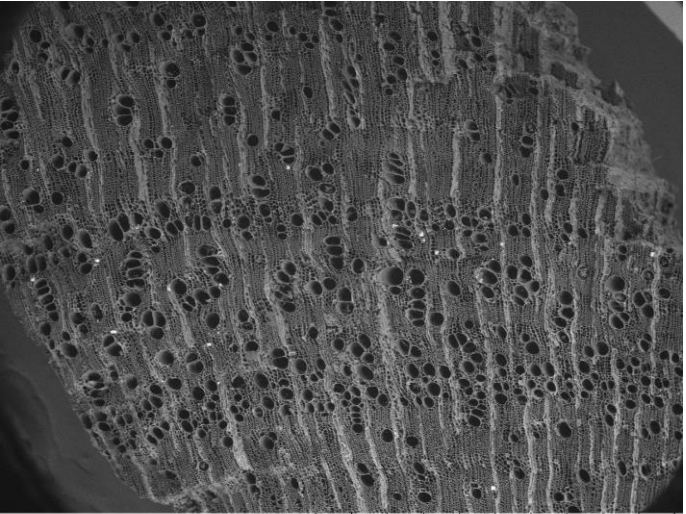
# per mm: 4-12

Thickness (cells): 1 to 3

Parenchyma Type: Banded (thick),

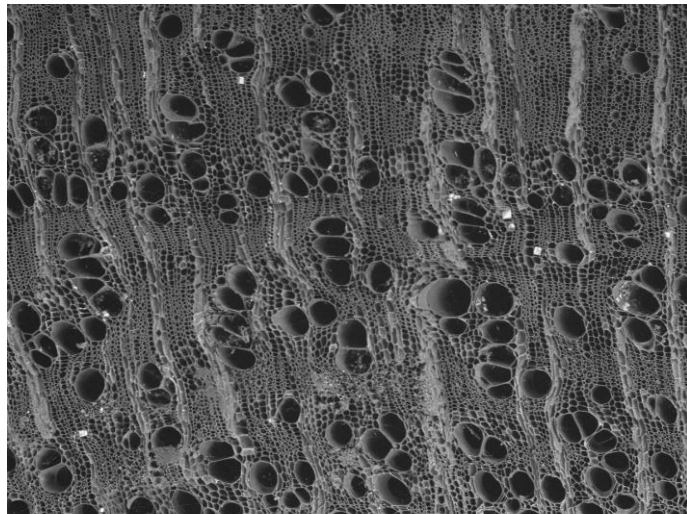
Porosity: semi-ring porous

**Transverse 50x**



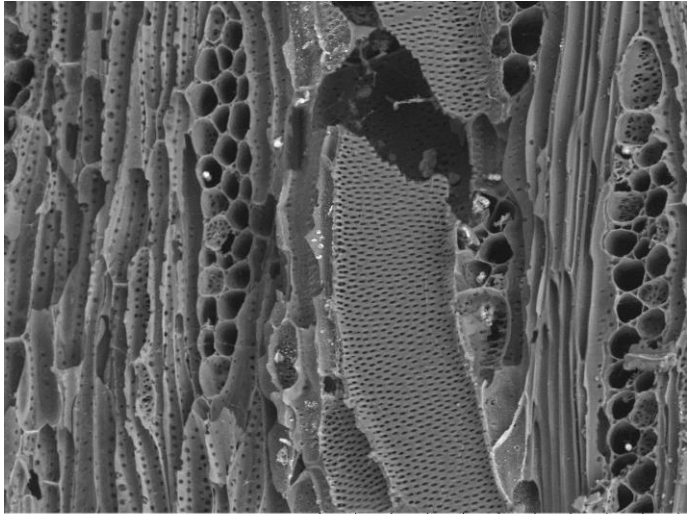
EWC 502 2022/07/26 00:37 L D3.6 x50 2 mm

**Transverse 100x**



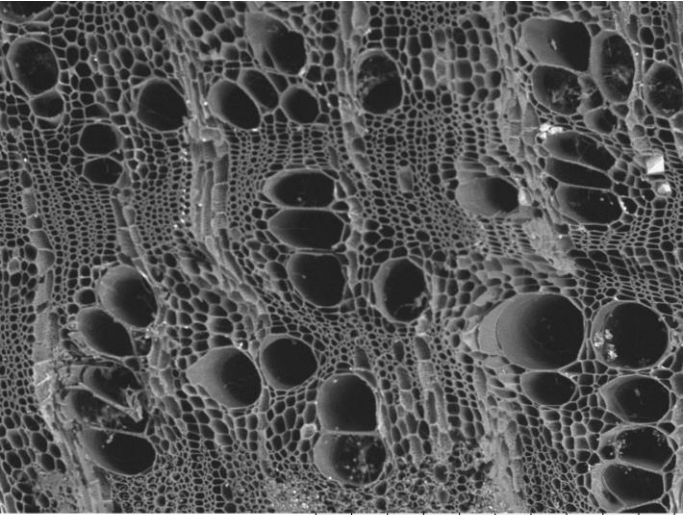
EWC 502 2022/07/26 00:38 L D3.6 x100 1 mm

**Vessel Wall**



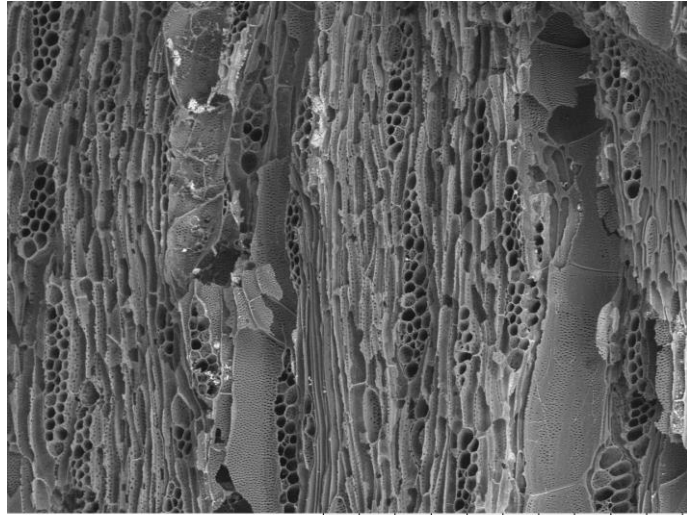
EWC 502 2022/07/26 00:59 L D4.7 x500 200 µm

**Transverse 200x**



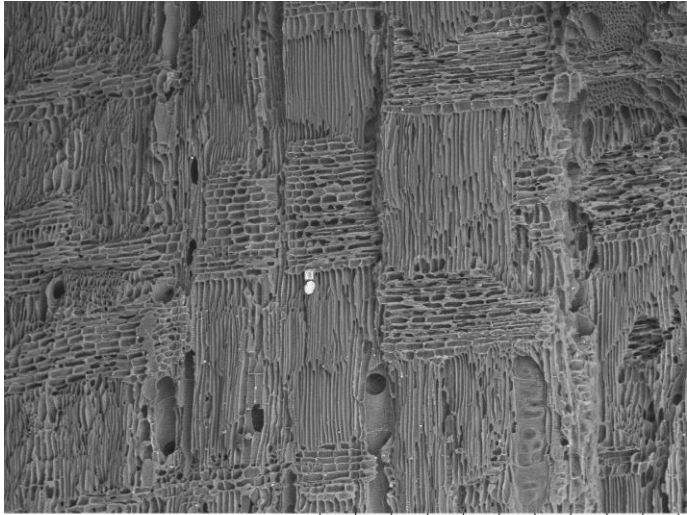
EWC 502 2022/07/26 00:39 L D3.6 x200 500 µm

**Tangential**



EWC 502 2022/07/26 00:57 L D4.7 x200 500 µm

**Radial**

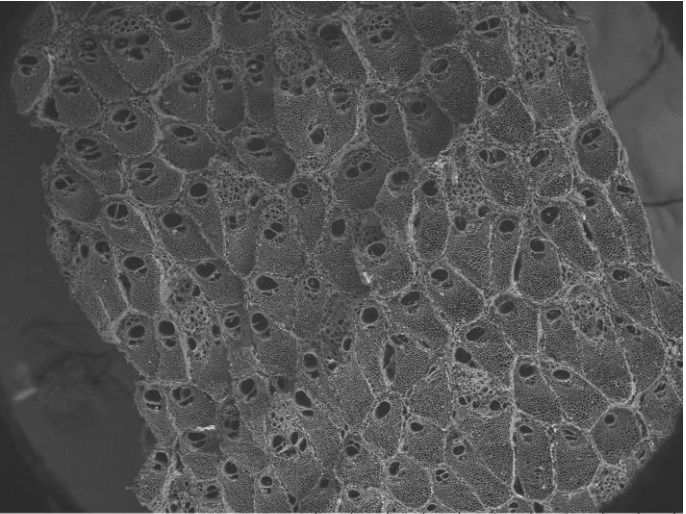


EWC 502 2022/07/26 00:51 L D3.9 x100 1 mm

# EWC 1061 ARECACEAE *Socratea*

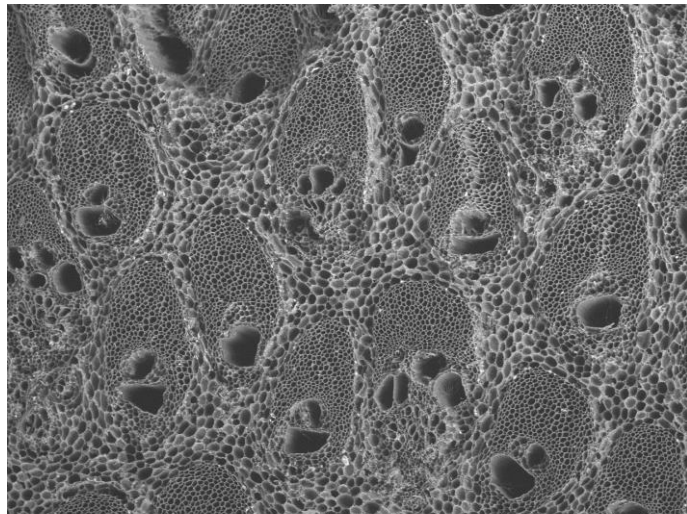
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



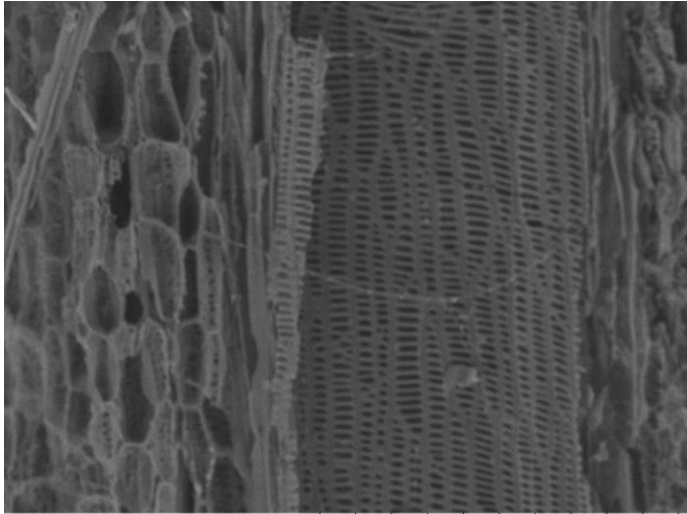
EWC 1061 2022/07/26 01:03 L D3.0 x50 2 mm

**Transverse 100x**



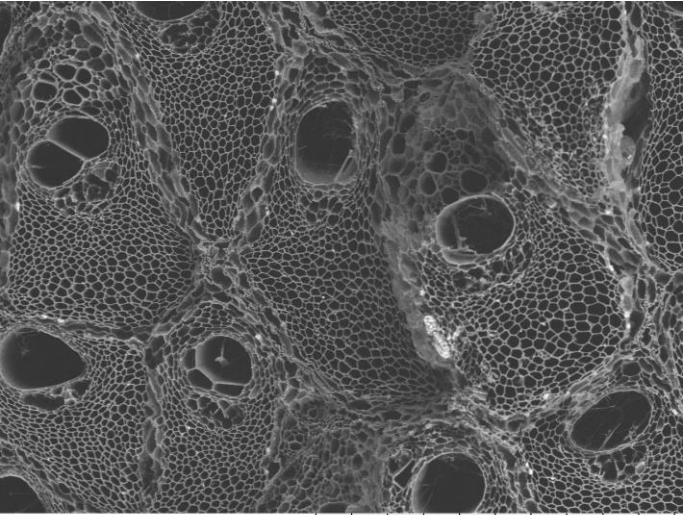
EWC 1061 2022/08/09 00:28 L D2.8 x100 1 mm

**Vessel Wall**



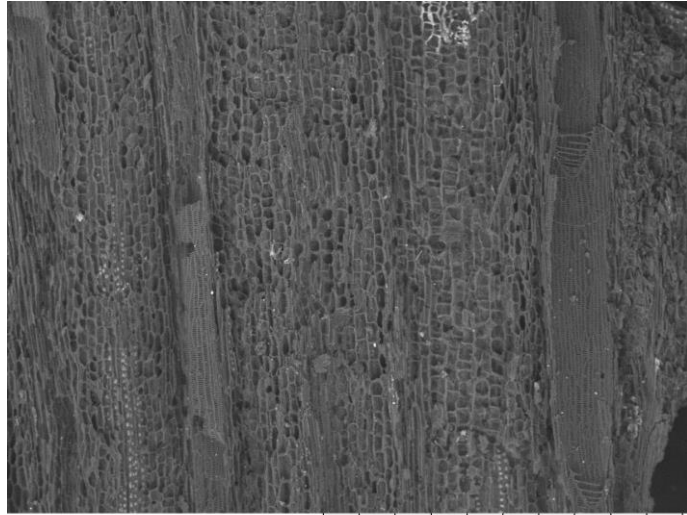
EWC 1061 2022/08/09 00:40 L D4.5 x500 200 um

**Transverse 200x**



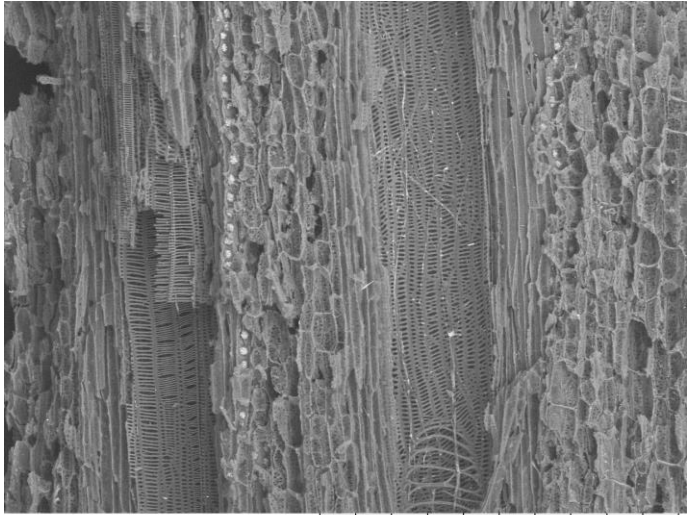
EWC 1061 2022/07/26 01:06 L D3.0 x200 500 um

**Tangential**



EWC 1061 2022/08/09 00:38 L D4.5 x100 1 mm

**Radial**



EWC 1061 2022/08/09 00:44 L D6.7 x200 500 um

# EWC 1075 FABACEAE *Inga*

## Vessels

Size: 50-100µm

Freq.: 20 to 40

Arrangement: solitary, pairs, chains

Tyloses: common

## Rays:

# per mm: 12+

Thickness (cells): uniseriate

Parenchyma Type: Banded (thin)

Porosity: diffuse

## Common Name:

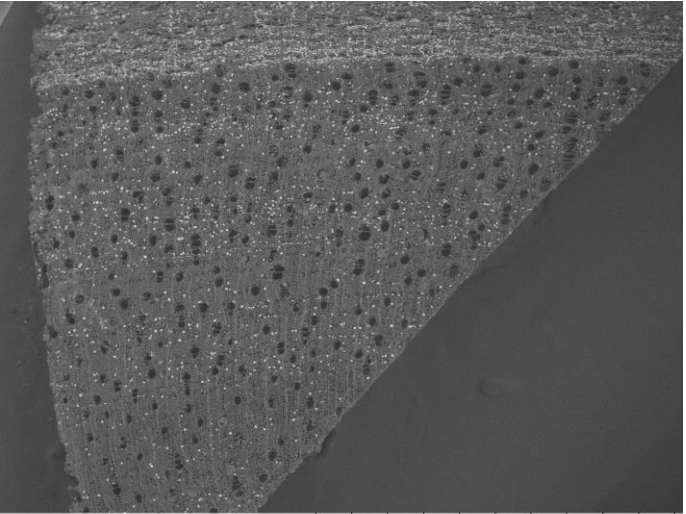
Elevation:

Description:

Location: Ecuador

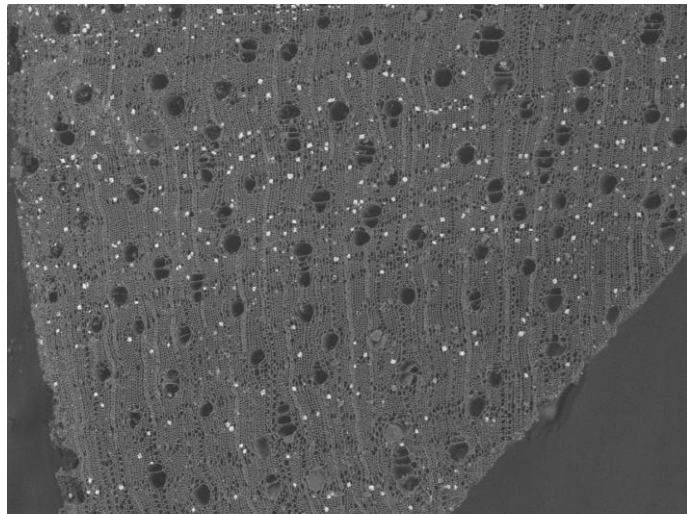
Locality:

Transverse 50x



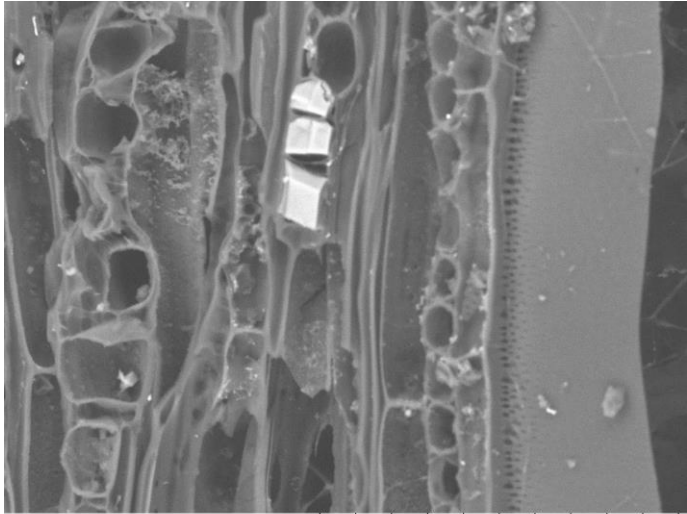
EWC 1075 2022/08/08 23:03 L D6.0 x50 2 mm

Transverse 100x



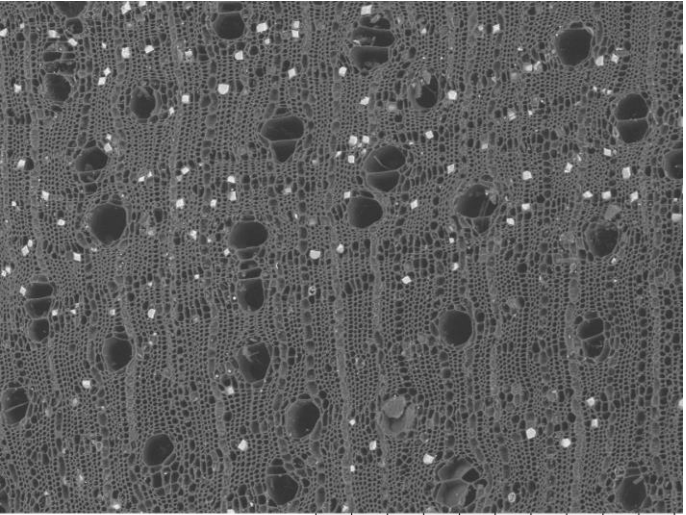
EWC 1075 2022/08/08 23:04 L D6.0 x100 1 mm

Vessel Wall 1000x



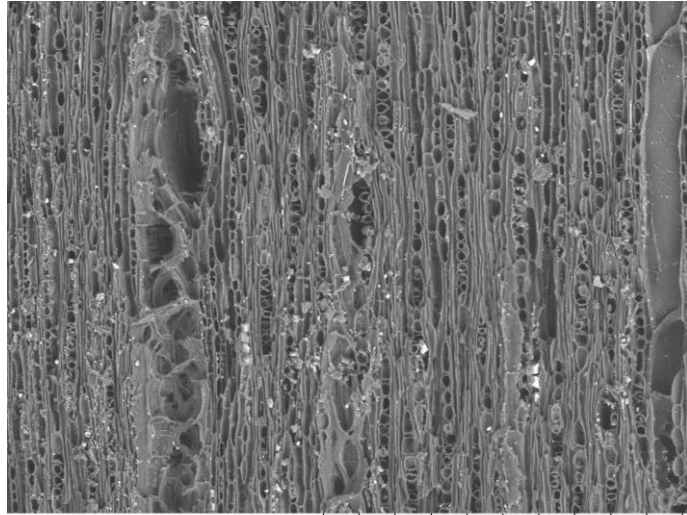
EWC 1075 2022/09/21 01:03 L D4.0 x1.0k 100 um

Transverse 200x



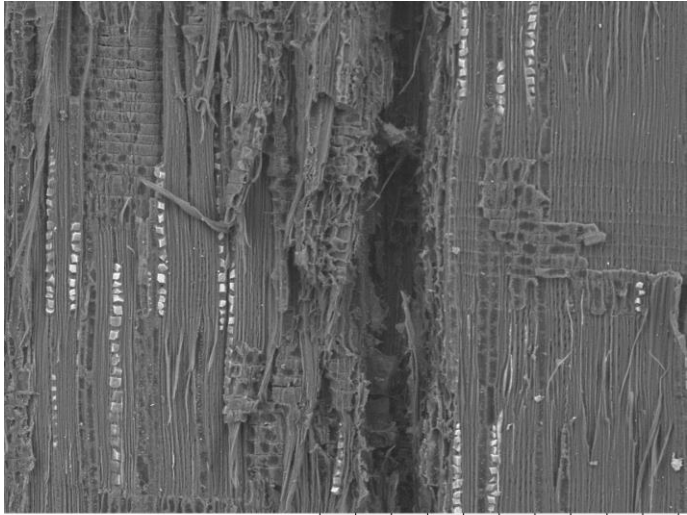
EWC 1075 2022/08/08 23:05 L D6.0 x200 500 um

Tangential 200x



EWC 1075 2022/08/08 23:16 L D4.6 x200 500 um

Radial 200x



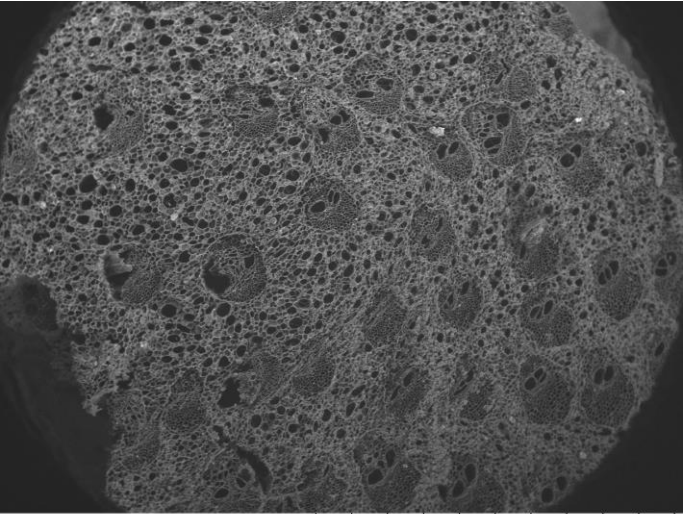
EWC 1075 2022/08/08 23:21 L D4.8 x200 500 um

# EWC 1084 ARECACEAE cf. *Geonoma*

**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador

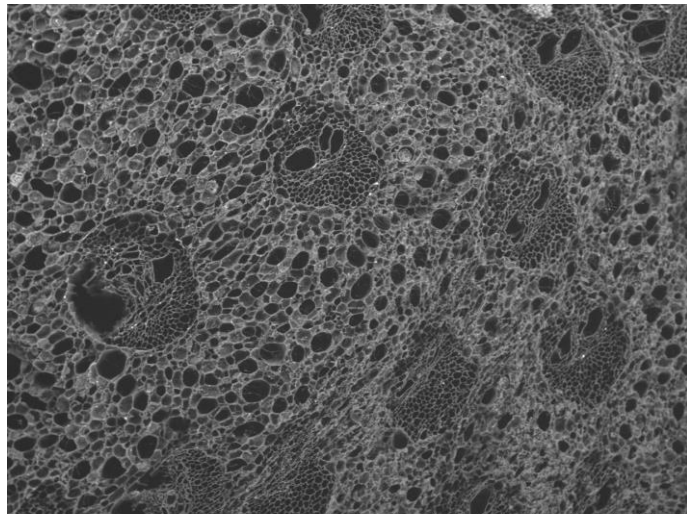
**Locality:**

**Transverse 50x**



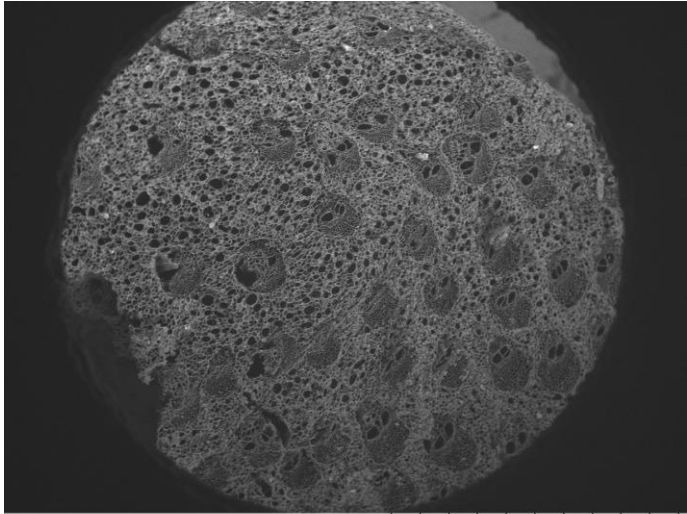
EWC 1084 2022/08/09 00:51 L D2.2 x50 2 mm

**Transverse 100x**



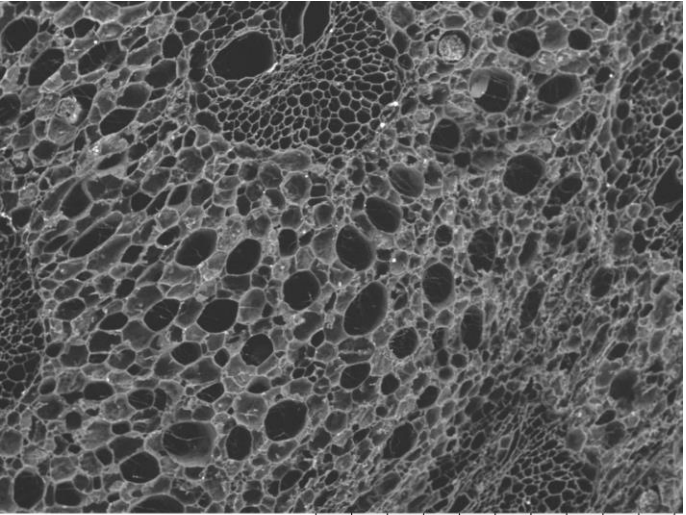
EWC 1084 2022/08/09 00:52 L D2.2 x100 1 mm

**Transverse 40x**



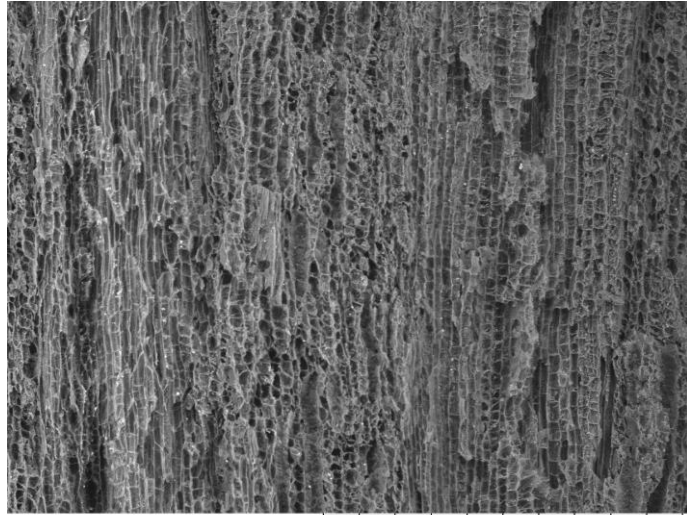
EWC 1084 2022/08/09 00:49 L D2.2 x40 2 mm

**Transverse 200x**



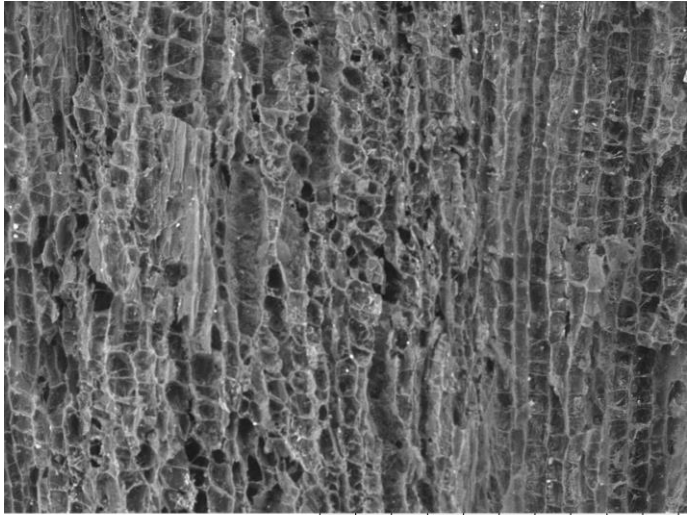
EWC 1084 2022/08/09 00:53 L D2.2 x200 500 um

**Tangential**



EWC 1084 2022/08/09 00:57 L D3.4 x100 1 mm

**Radial**



EWC 1084 2022/08/09 00:58 L D3.4 x200 500 um

# EWC 1091 MELIACEAE *Cedrela odorata* L.

## Vessels

Size: 100-200  $\mu$ m  
Freq.: 5 to 20  
Arrangement: solitary, pairs  
Tyloses: common

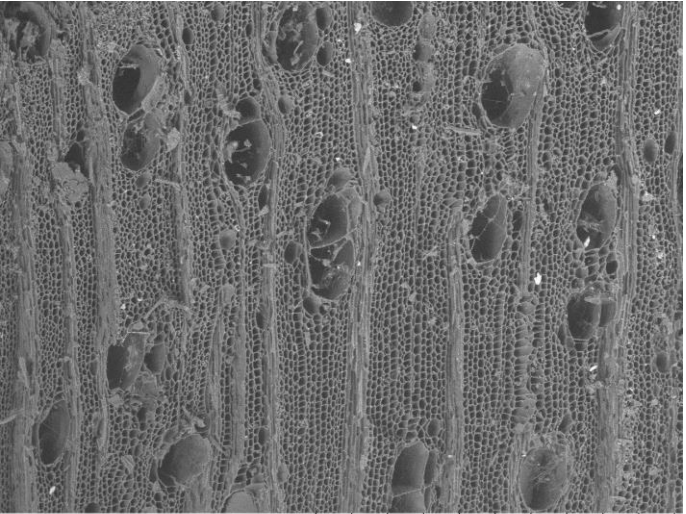
## Rays:

# per mm: 4-12  
Thickness (cells): 1-3  
**Parenchyma Type:** scanty  
paratracheal, diffuse, unilateral  
**Porosity:** diffuse

## Common Name:

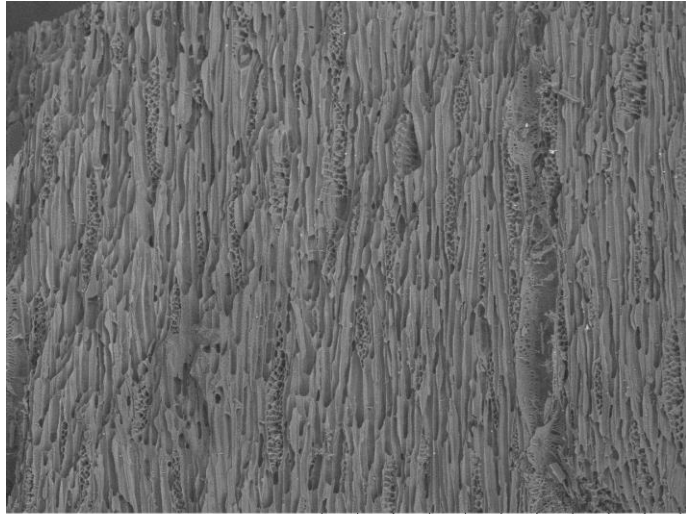
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

Transverse 100x



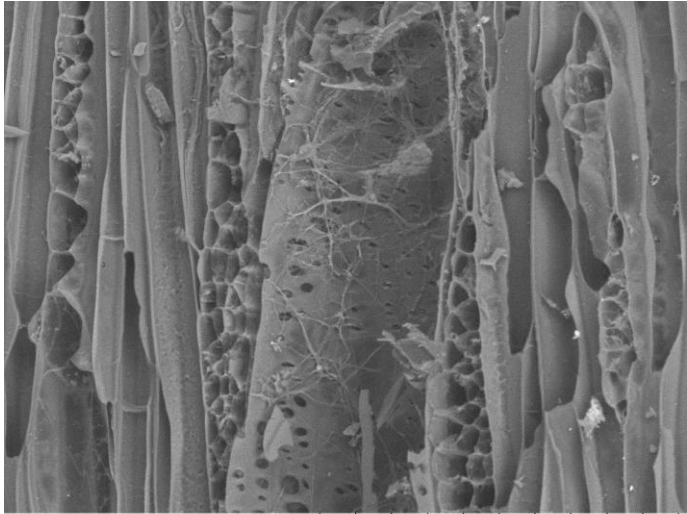
EWC 1091 2022/07/19 01:45 L D5.1 x100 1 mm

Tangential 100x



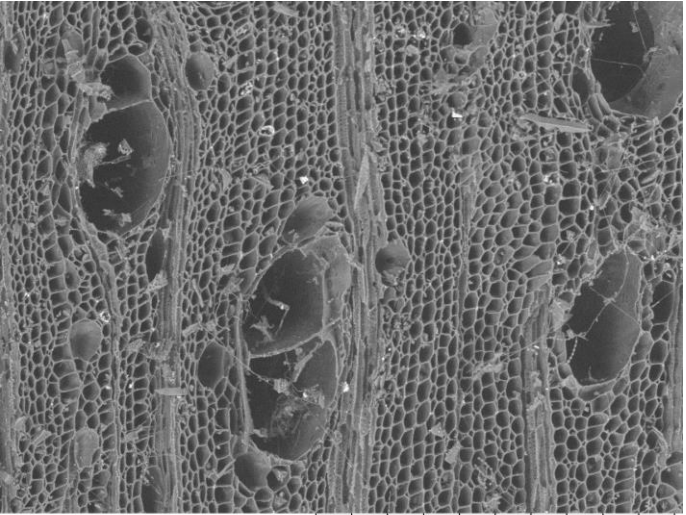
EWC 1091 2022/07/19 02:02 L D5.8 x100 1 mm

Vessel Wall 500x



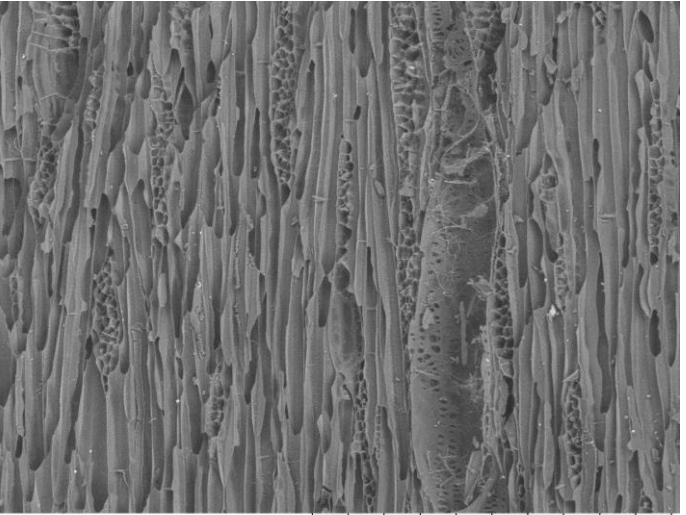
EWC 1091 2022/07/19 02:06 L D5.8 x500 200  $\mu$ m

Transverse 200x



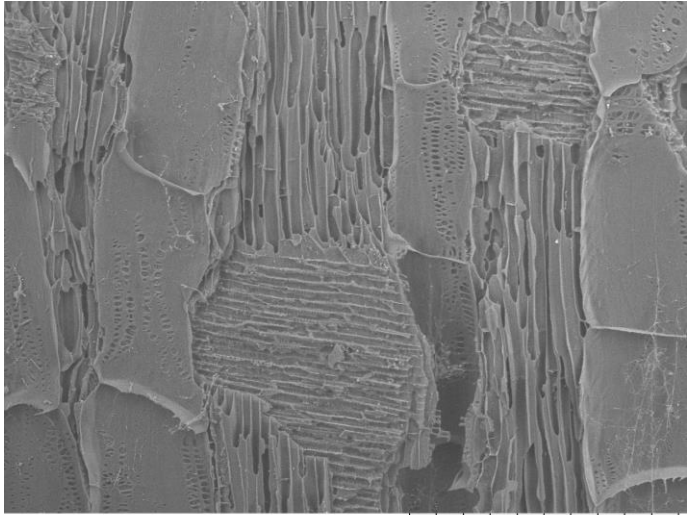
EWC 1091 2022/07/19 01:47 L D5.1 x200 500  $\mu$ m

Tangential 200x



EWC 1091 2022/07/19 02:04 L D5.8 x200 500  $\mu$ m

Radial 150x



EWC 1091 2022/09/21 01:09 L D3.9 x150 500  $\mu$ m

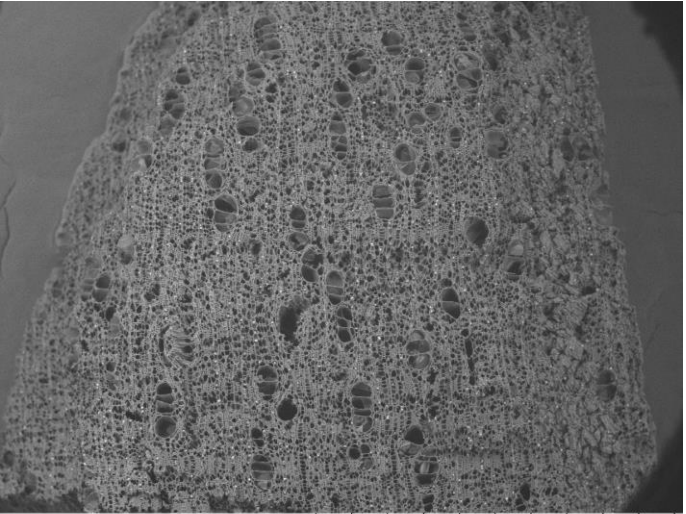
# EWC 1092 Unknown Identification

**Vessels**  
Size: 50-100µm, 100-200µm,  
Freq.: 5 to 20  
Arrangement: solitary, chains, clusters  
**Tyloses:** common

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1-3  
**Parenchyma Type:** Thin bands,  
Diffuse-in-aggregates  
**Porosity:** diffuse

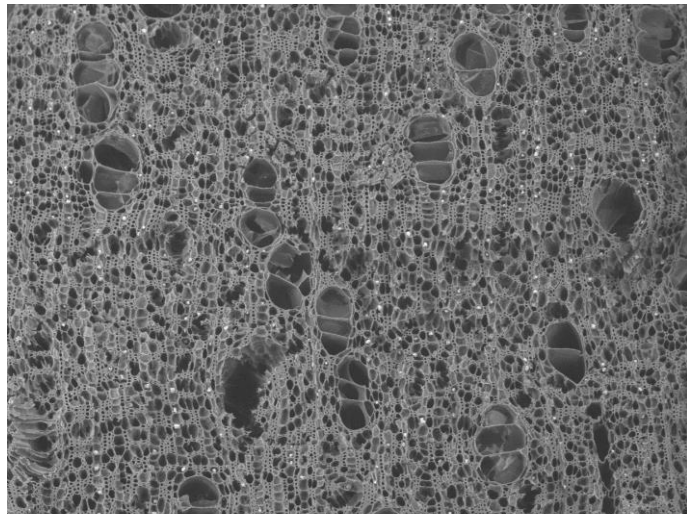
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



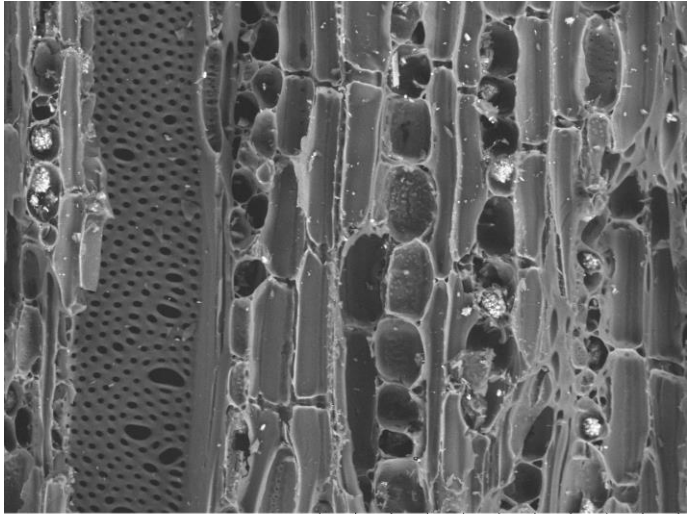
EWC 1092 2022/07/23 01:19 L D3.8 x50 2 mm

**Transverse 100x**



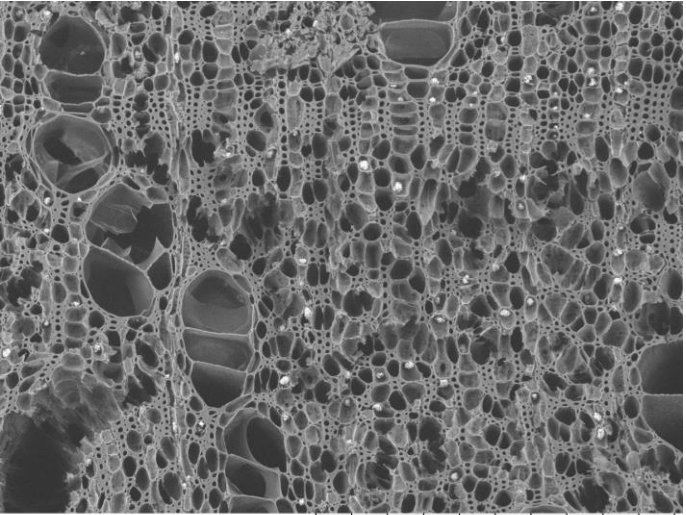
EWC 1092 2022/07/23 01:20 L D3.8 x100 1 mm

**Vessel Wall 500x**



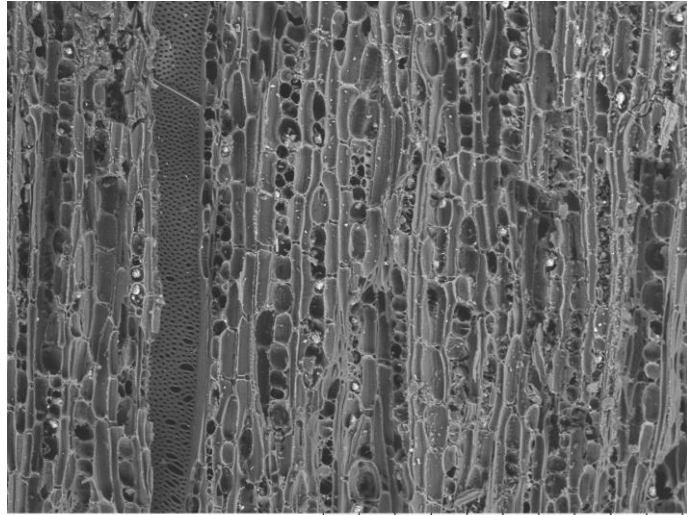
EWC 1092 2022/07/23 02:01 L D2.4 x500 200 µm

**Transverse 200x**



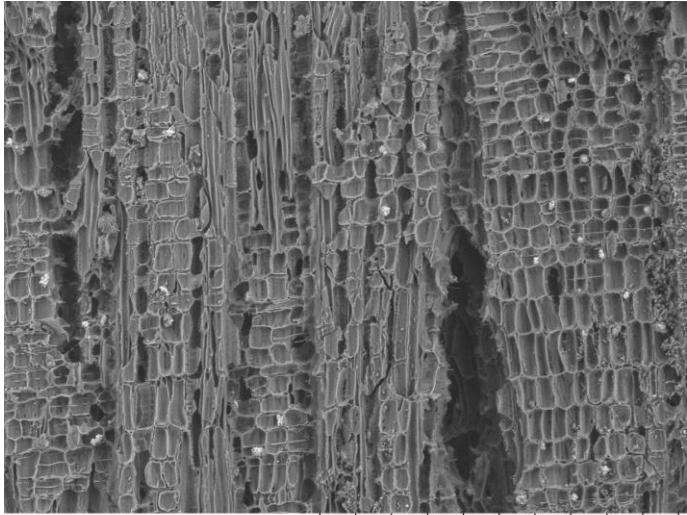
EWC 1092 2022/07/23 01:22 L D3.8 x200 500 µm

**Tangential 200x**



EWC 1092 2022/07/23 02:00 L D2.4 x200 500 µm

**Radial 200x**



EWC 1092 2022/07/23 01:13 L D3.6 x200 500 µm



# EWC 1602 Unknown Identification

## Vessels

Size: <50µm

Freq.: 20 to 40, 40 to 100

Arrangement: solitary, pairs, chains, clusters

Tyloses: absent

## Rays:

# per mm: 4-12

Thickness (cells): 4+

Parenchyma Type: Scanty, Banded (thick)

Porosity: diffuse

Common Name: "ceibo de micu"

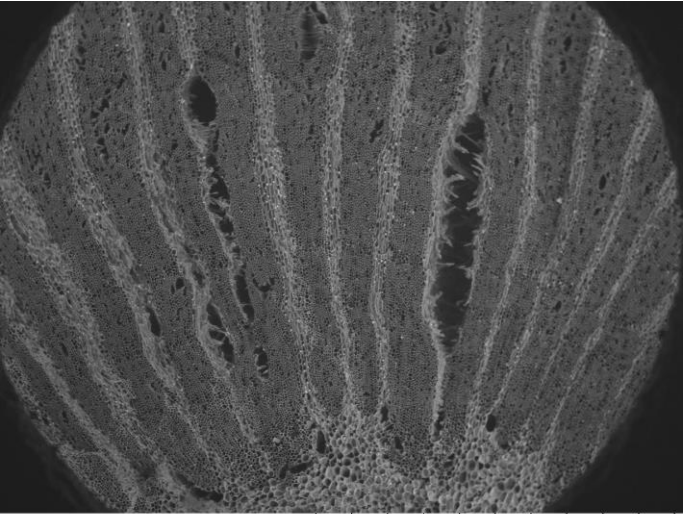
Elevation:

Description:

Location: Ecuador

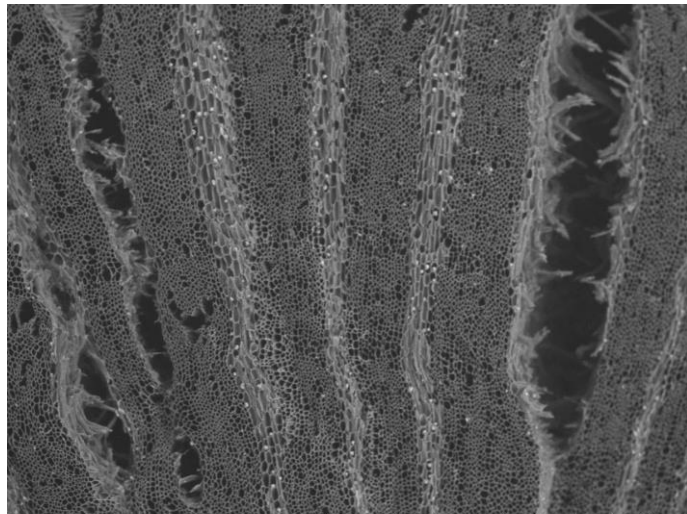
Locality:

Transverse 50x



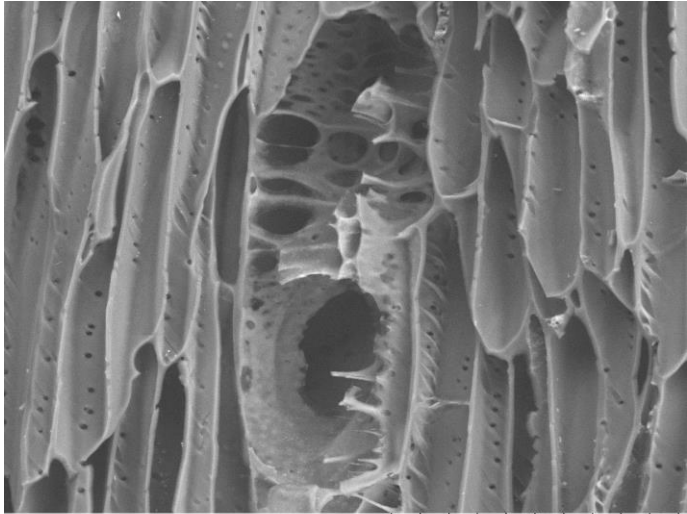
EWC 1602 2022/07/26 01:34 L D2.1 x50 2 mm

Transverse 100x



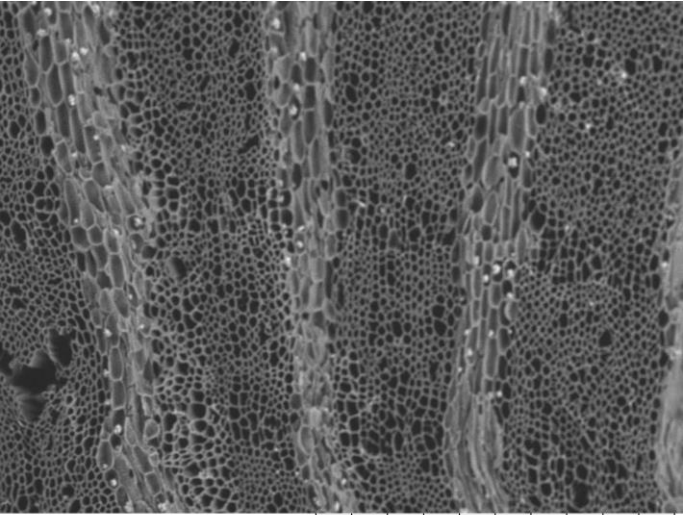
EWC 1602 2022/07/26 01:35 L D2.1 x100 1 mm

Vessel Wall



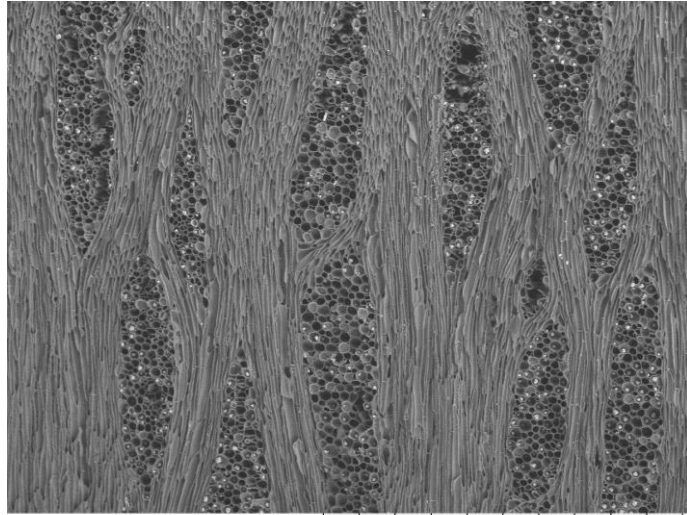
EWC 1602 2022/10/13 16:17 D3.2 x800 100 um

Transverse 200x



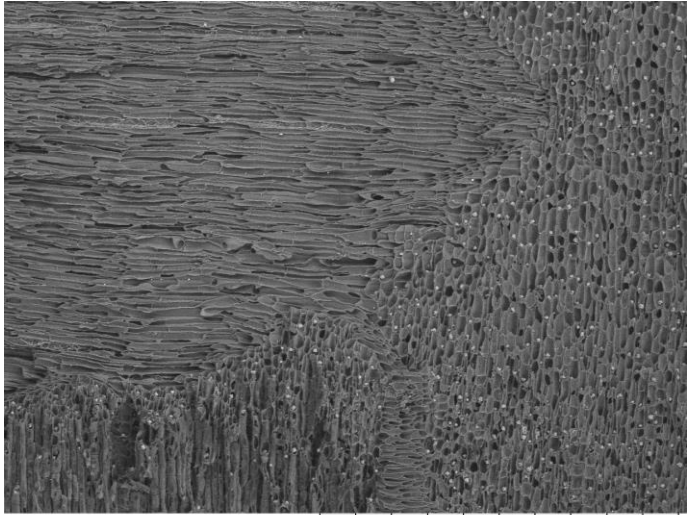
EWC 1602 2022/07/26 01:36 L D2.1 x200 500 um

Tangential



EWC 1602 2022/08/08 23:59 L D4.1 x100 1 mm

Radial



EWC 1602 2022/08/09 00:04 L D4.9 x100 1 mm

# EWC 1603 Unknown Identification

## Vessels

Size: <50-100µm

Freq.: 40 to 100

Arrangement: solitary, pairs, chains

Tyloses:absent

## Rays:

# per mm:12+

Thickness (cells): 1 to 3

Parenchyma Type: Diffuse

Porosity: Diffuse

Common Name: "ajicillo blanco"

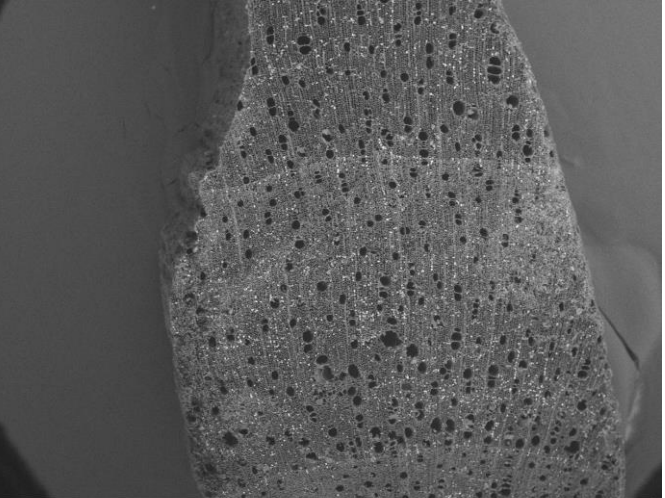
Elevation:

Description:

Location: Ecuador

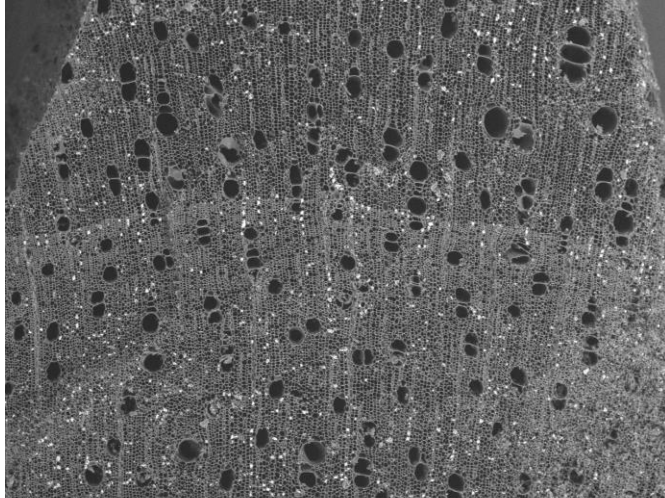
Locality:

Transverse 50x



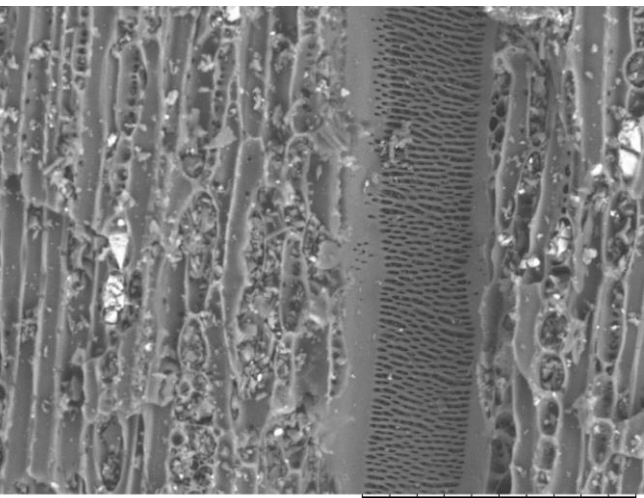
EWC 1603 2022/07/21 03:01 L D3.9 x50 2 mm

Transverse 100x



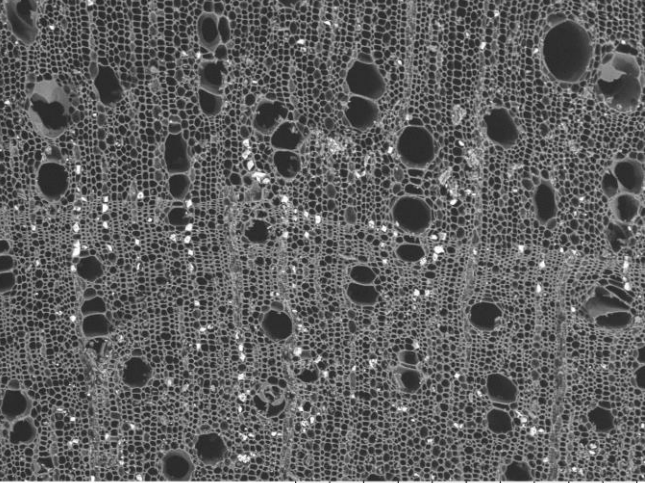
EWC 1603 2022/07/21 03:03 L D3.9 x100 1 mm

Vessel Wall



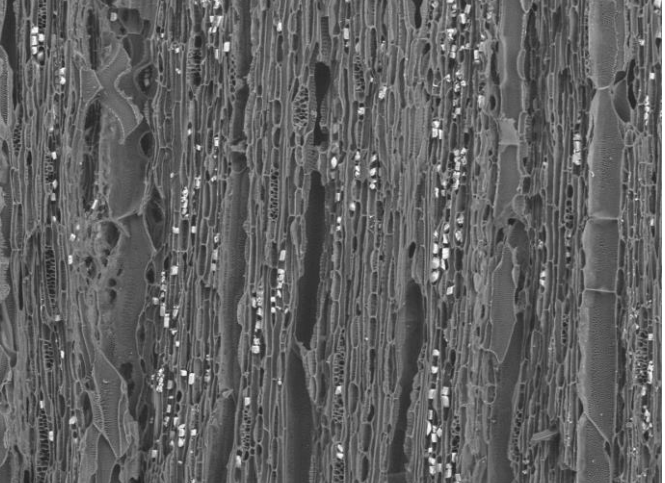
EWC 1603 2022/07/21 03:34 L D4.1 x800 100 um

Transverse 200x



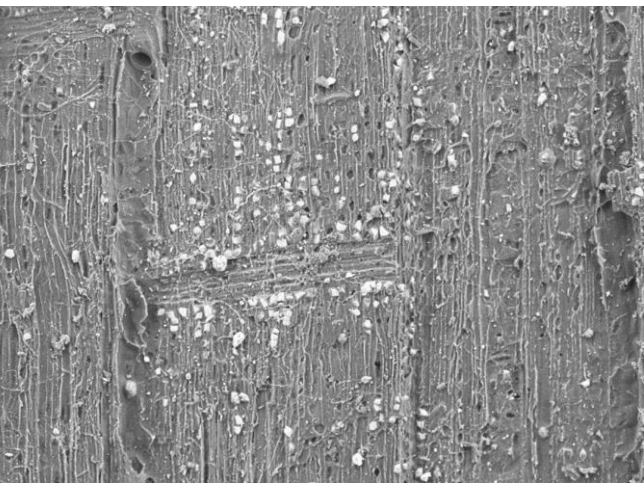
EWC 1603 2022/07/21 03:05 L D3.9 x200 500 um

Tangential



EWC 1603 2022/07/21 02:57 L D3.5 x200 500 um

Radial



EWC 1603 2022/10/13 16:11 D3.3 x200 500 um

# EWC 1605 ARECACEAE *Aiphanes* Willd.

**Common Name:**

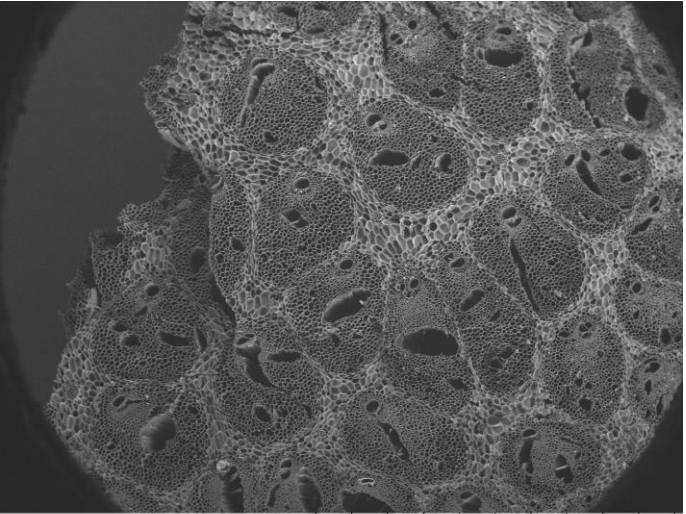
**Elevation:** 160 m

**Description:**

**Location:** Ecuador, Manabí, Jama

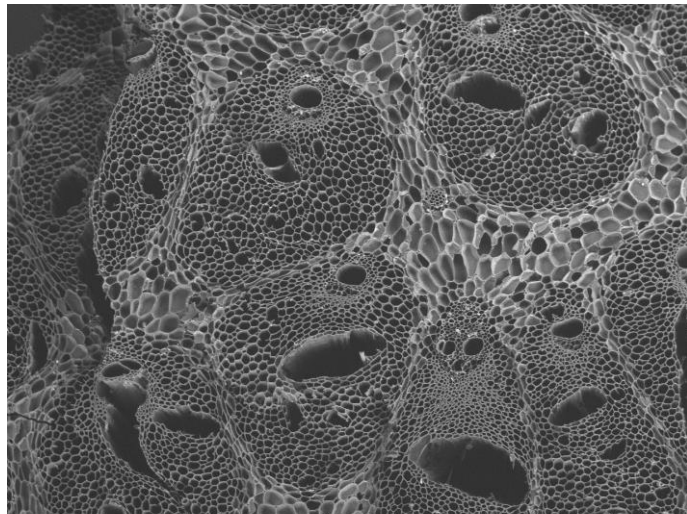
**Locality:** El Quemado: approx. 5 km NE of Jama, foothills of the Jama lowlands. Gently sloping hilltop. Tree of the lower canopy; red fruit. Locally known as "corroso."

**Transverse 50x**



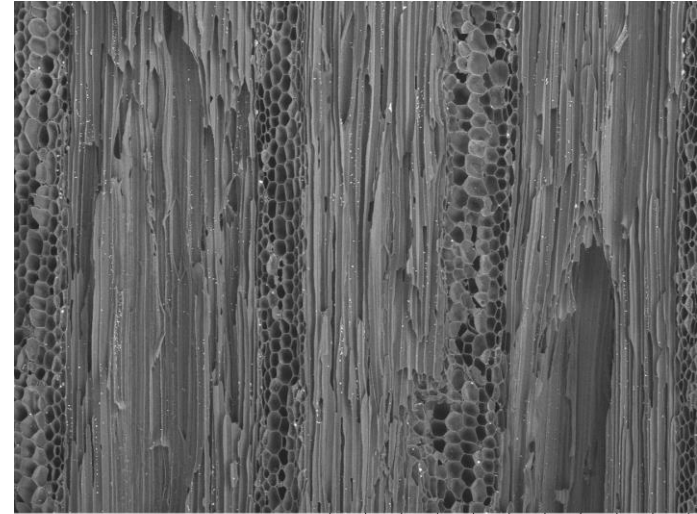
EWC 1605 2022/08/09 00:12 L D2.5 x50 2 mm

**Transverse 100x**



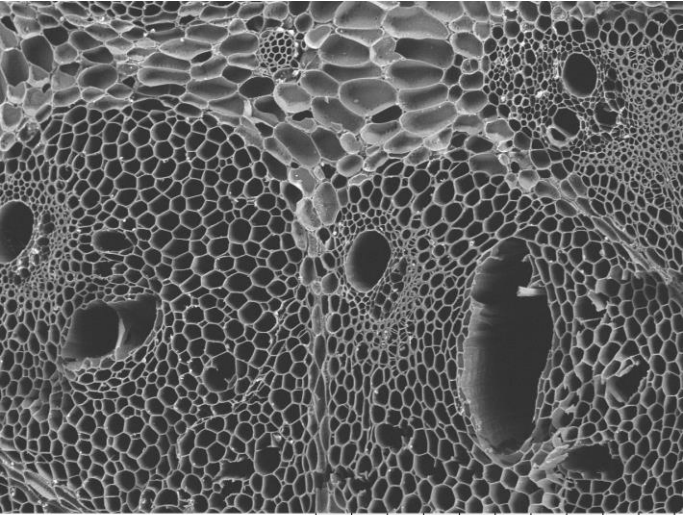
EWC 1605 2022/08/09 00:13 L D2.5 x100 1 mm

**Tangential 100x**



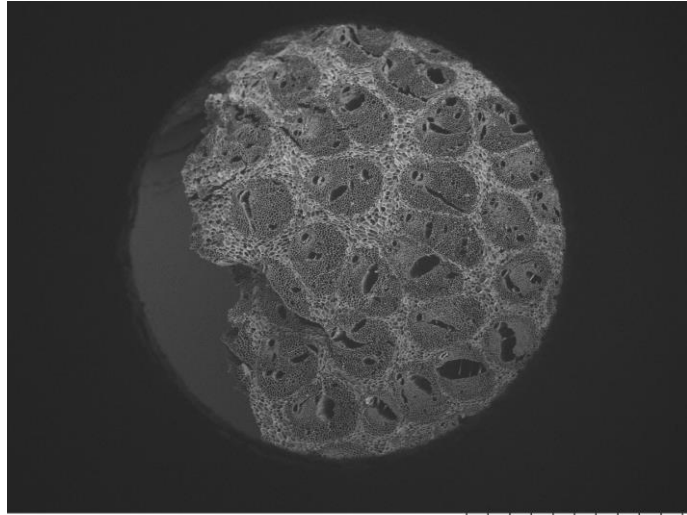
EWC 1605 2022/08/09 00:19 L D3.9 x100 1 mm

**Transverse 200x**



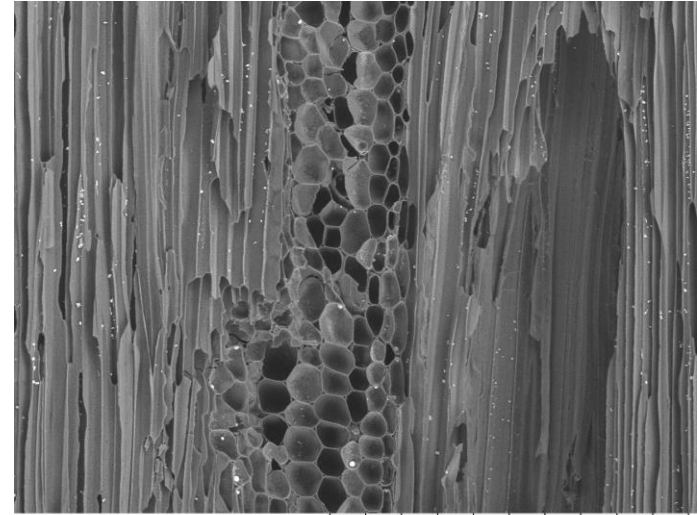
EWC 1605 2022/08/09 00:15 L D2.5 x200 500 um

**Transverse 30x**



EWC 1605 2022/08/09 00:10 L D2.5 x30 2 mm

**Tangential 200x**



EWC 1605 2022/08/09 00:20 L D3.9 x200 500 um

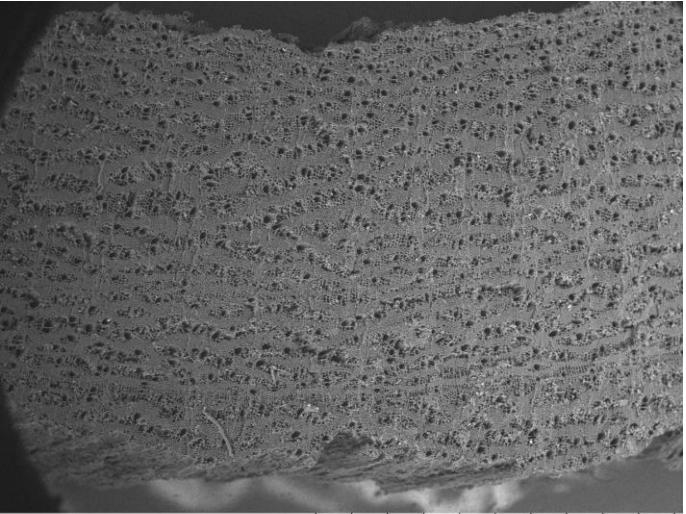
# EWC 1606 BIGNONIACEAE *Tabebuia guayacan* (Seem.) Hemsl.

**Vessels**  
Size: <50µm  
Freq.: 20 to 40  
Arrangement: solitary, pairs  
**Tyloses:** absent

**Rays:**  
# per mm: 12+  
Thickness (cells): mostly uniseriate  
**Parenchyma Type:** Banded (thick),  
Vasicentric (winged, confluent)  
**Porosity:** diffuse

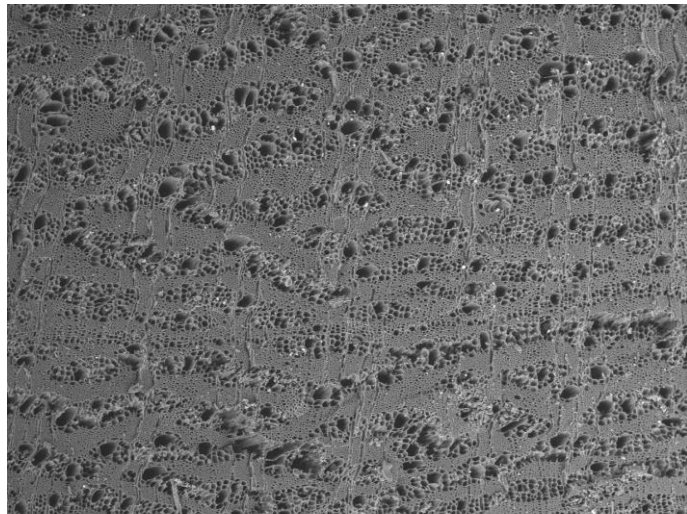
**Common Name:** "Guayacán"  
**Elevation:** 160 m  
**Description:** Large tree of the upper canopy.  
**Location:** Ecuador, Manabí, Jama  
**Locality:** El Quemado: Approximately 5 km  
NE of Jama, in the foothills of the Jama  
lowlands. Collected on a gently sloping hilltop.  
Convento topo map 1:50,000, cuadrícula  
(block) N80 E87.

**Transverse 50x**



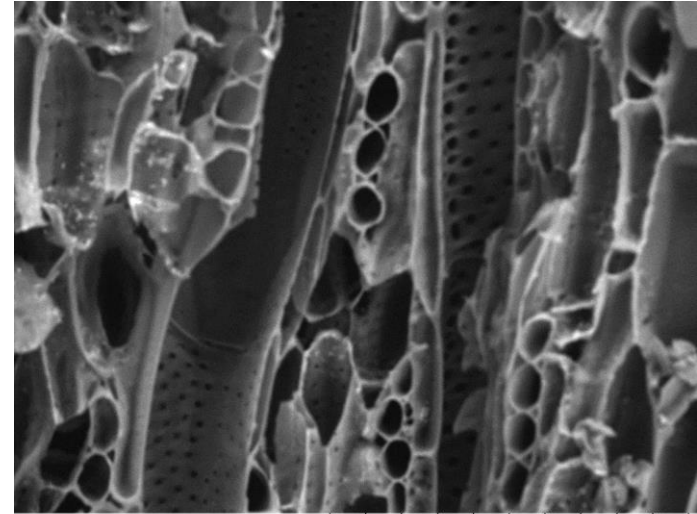
EWC 1606 2022/07/21 03:43 L D3.6 x50 2 mm

**Transverse 100x**



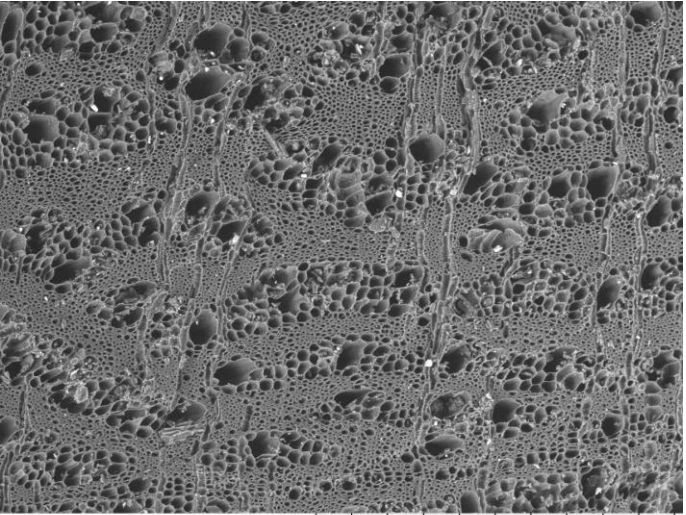
EWC 1606 2022/07/21 03:45 L D3.6 x100 1 mm

**Vessel Wall**



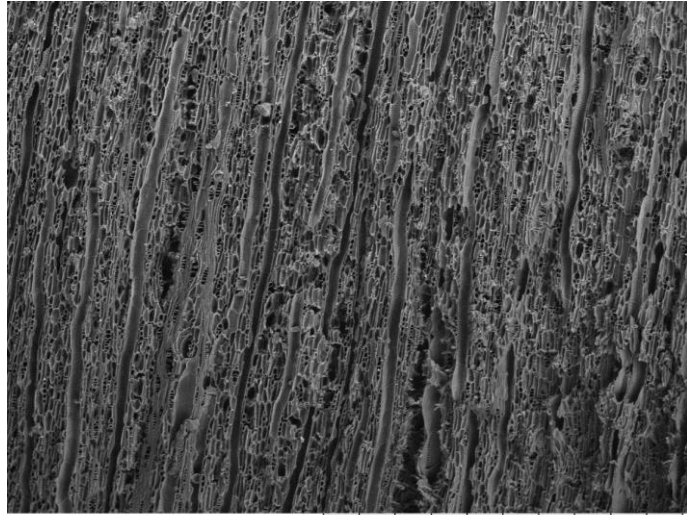
EWC 1606 2022/07/21 03:59 L D2.8 x1.0k 100 um

**Transverse 200x**



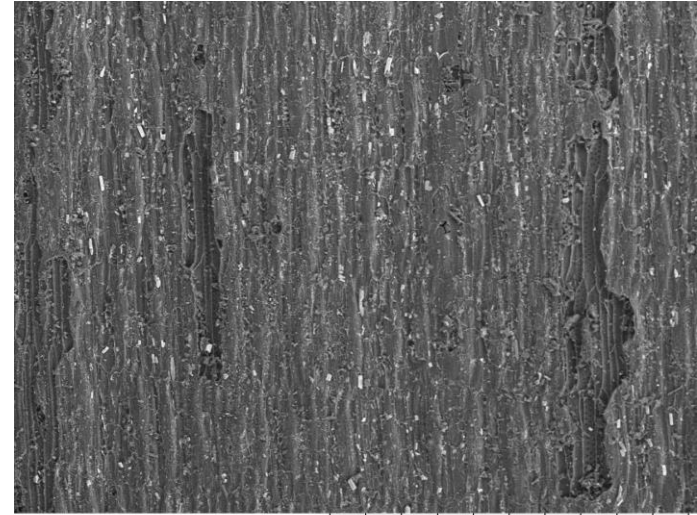
EWC 1606 2022/07/21 03:46 L D3.6 x200 500 um

**Tangential**



EWC 1606 2022/07/21 03:57 L D2.7 x100 1 mm

**Radial**



EWC 1606 2022/07/21 03:54 L D3.9 x200 500 um

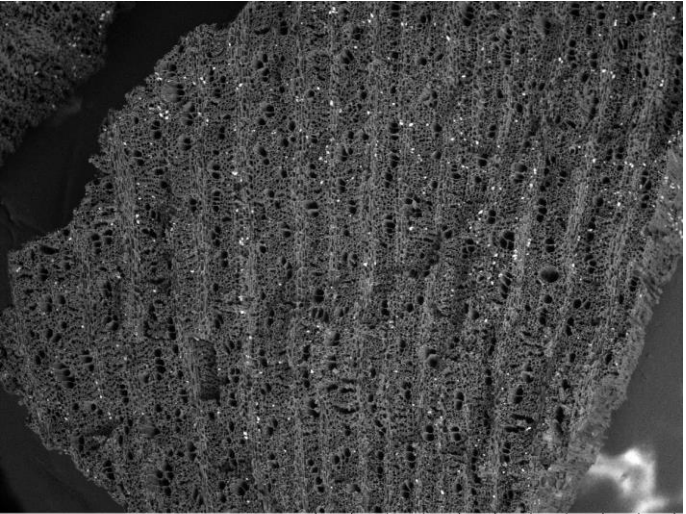
# EWC 1607 LECTYTHIDACEAE *cf. Gustavia dodsonii* Mori

**Vessels**  
Size: <50µm, 50-100µm  
Freq.: 20 to 40  
Arrangement: solitary, pairs, chains, clusters  
Tyloses: absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3, 4+, of two distinct sizes  
**Parenchyma Type:** Banded (thin)  
**Porosity:** diffuse

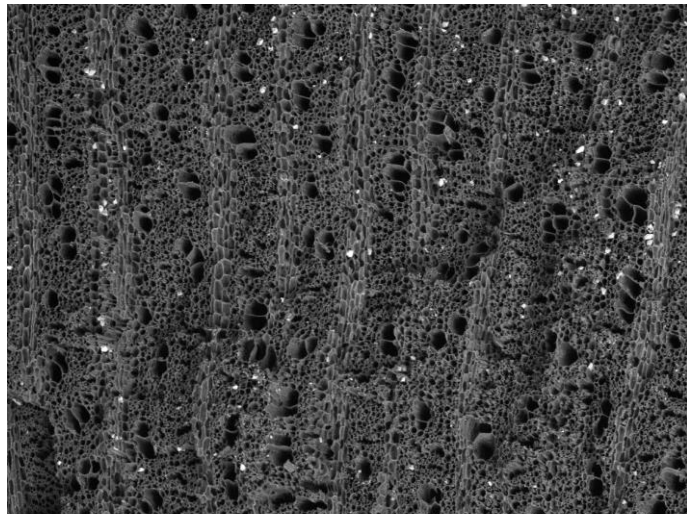
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



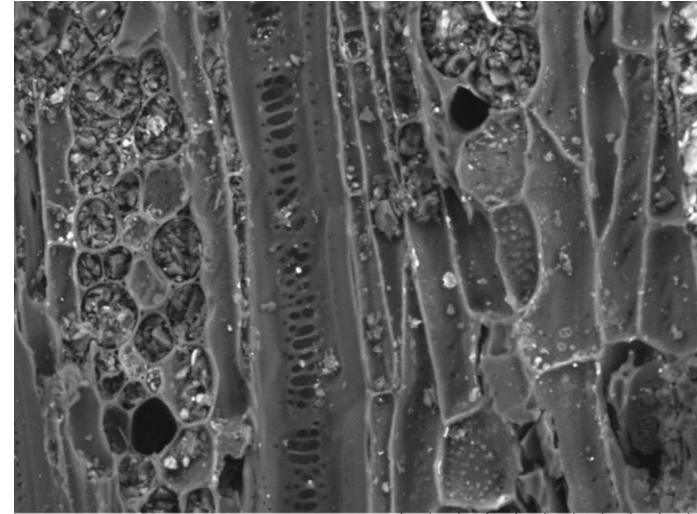
EWC 1607 2022/07/23 02:52 L D4.9 x50 2 mm

**Transverse 100x**



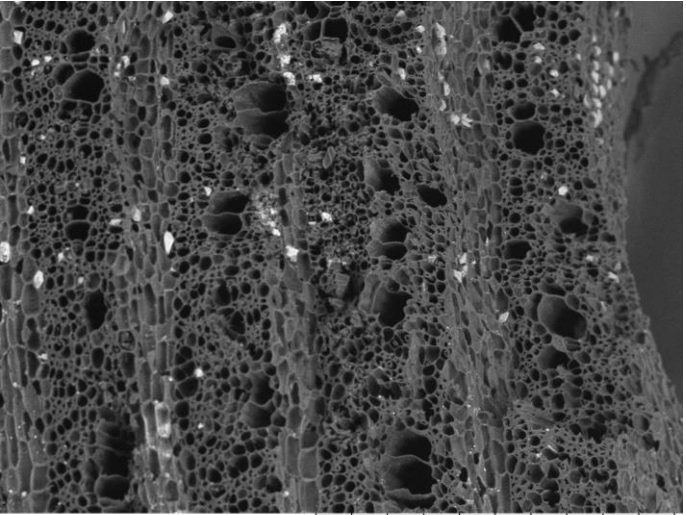
EWC 1607 2022/07/23 02:53 L D4.9 x100 1 mm

**Vessel Wall**



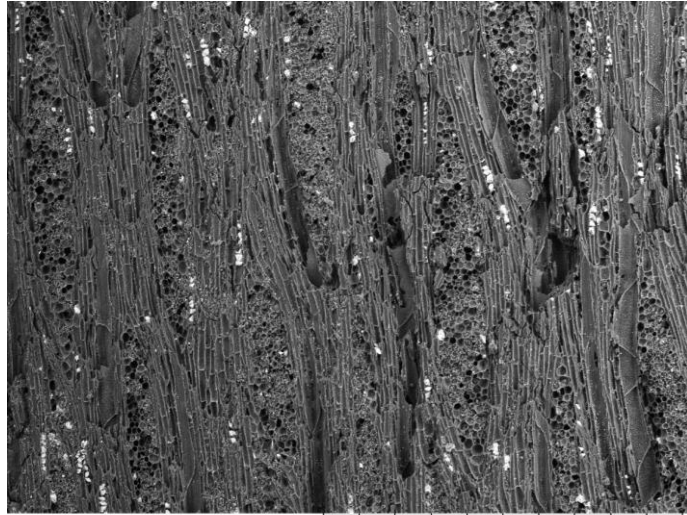
EWC 1607 2022/07/26 02:20 L D4.2 x800 100 um

**Transverse 200x**



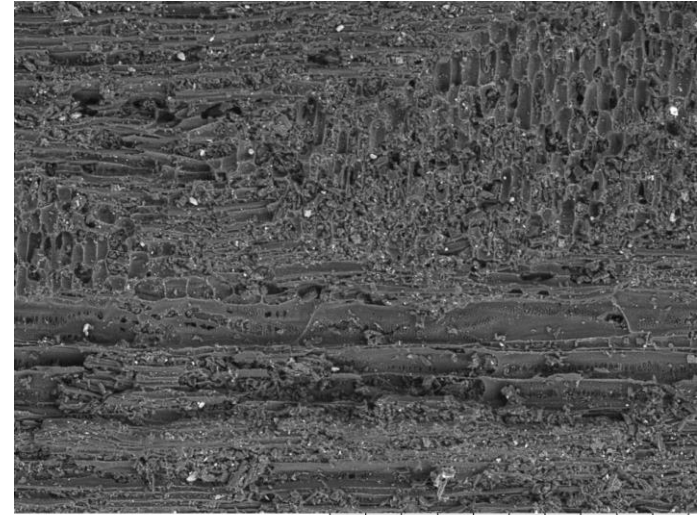
EWC 1607 2022/07/23 02:49 L D4.8 x200 500 um

**Tangential**



EWC 1607 2022/07/26 02:16 L D4.3 x100 1 mm

**Radial**



EWC 1607 2022/07/26 02:11 L D4.8 x200 500 um

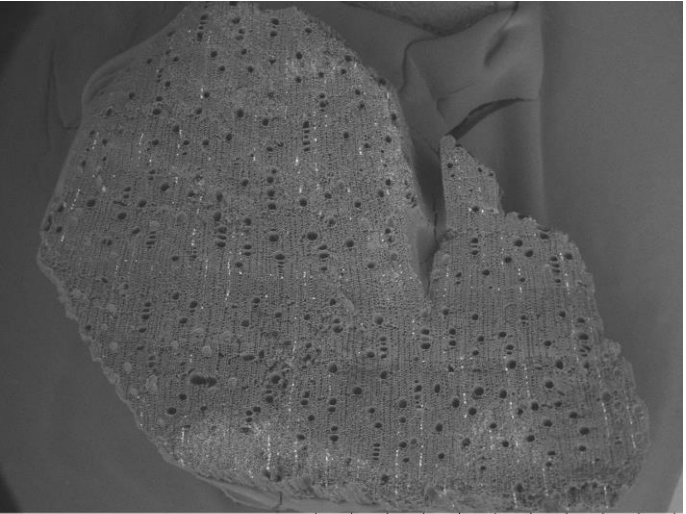
# EWC 1608 Unknown Identification

**Vessels**  
Size: <50µm, 50-100µm  
Freq.: 40 to 100  
Arrangement: solitary, pairs, chains  
**Tyloses:** common  
**Porosity:** diffuse

**Rays:**  
# per mm: 4-12  
Thickness (cells): uniseriate  
**Parenchyma Type:** Diffuse-in-aggregates, Thin bands, Vasicentric - winged

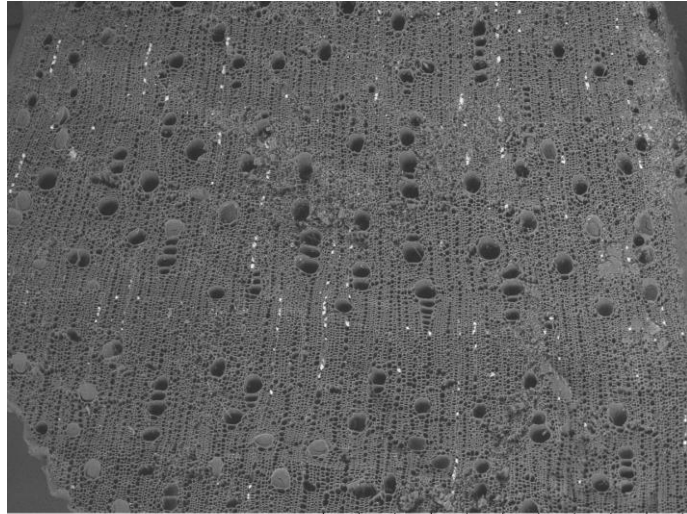
**Common Name:** "ajcillo macho"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



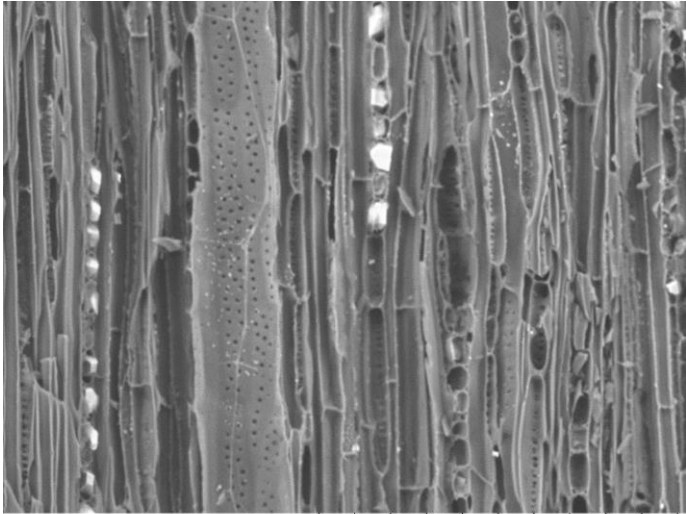
EWC 1608 2022/07/23 01:44 L D4.4 x50 2 mm

**Transverse 100x**



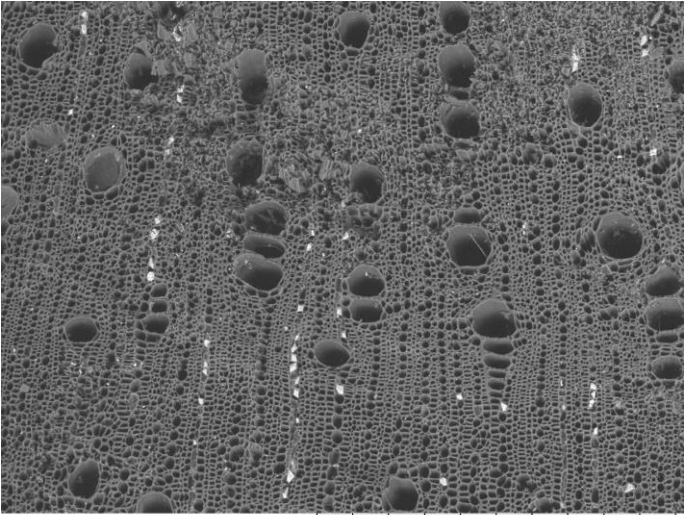
EWC 1608 2022/07/23 01:45 L D4.4 x100 1 mm

**Vessel Wall**



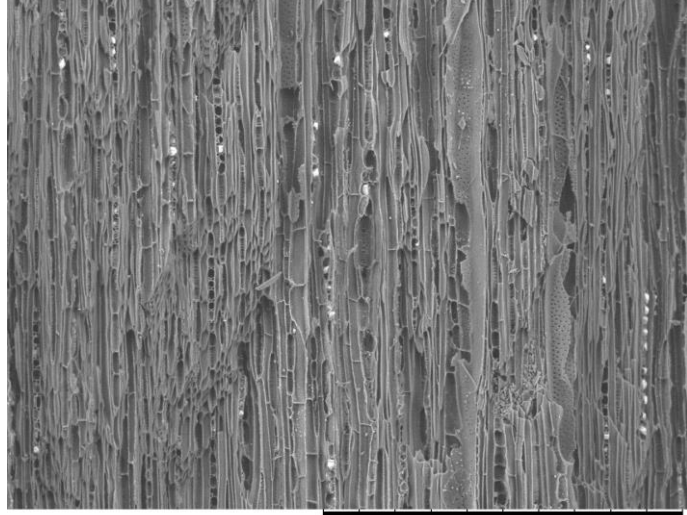
EWC 1608 2022/07/23 01:32 L D4.0 x500 200 um

**Transverse 200x**



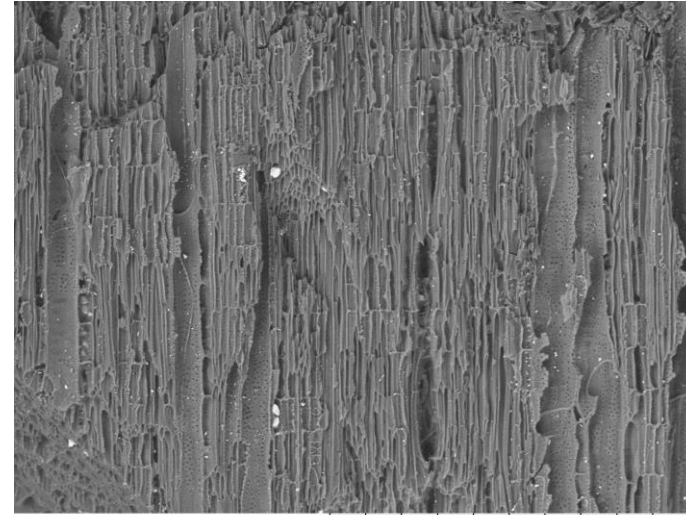
EWC 1608 2022/07/23 01:46 L D4.4 x200 500 um

**Tangential**



EWC 1608 2022/07/23 01:30 L D4.0 x200 500 um

**Radial**



EWC 1608 2022/07/23 01:52 L D4.9 x200 500 um

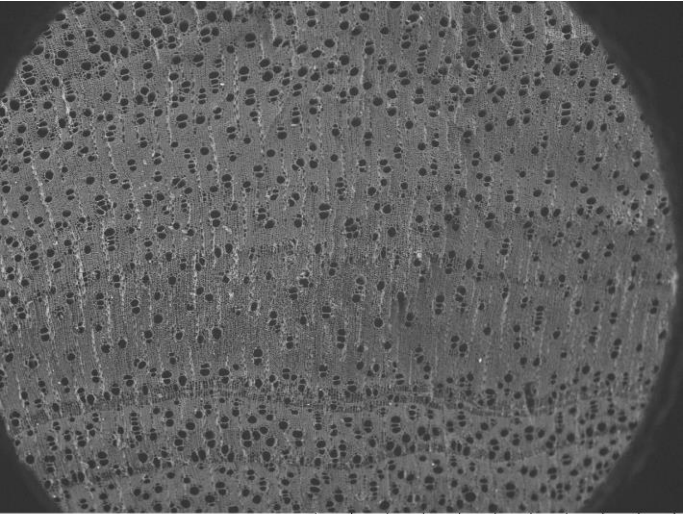
# EWC 1609 FABACEAE cf. *Inga*

**Vessels**  
Size: 50-100µm  
Freq.: 40 to 100  
Arrangement: solitary, chains  
**Tyloses:** absent  
**Porosity:** semi-ring porous

**Rays:**  
# per mm: 4-12+  
Thickness (cells): 1 to 3, of two distinct sizes  
**Parenchyma Type:** Banded (thin),  
vasicentric, unilateral

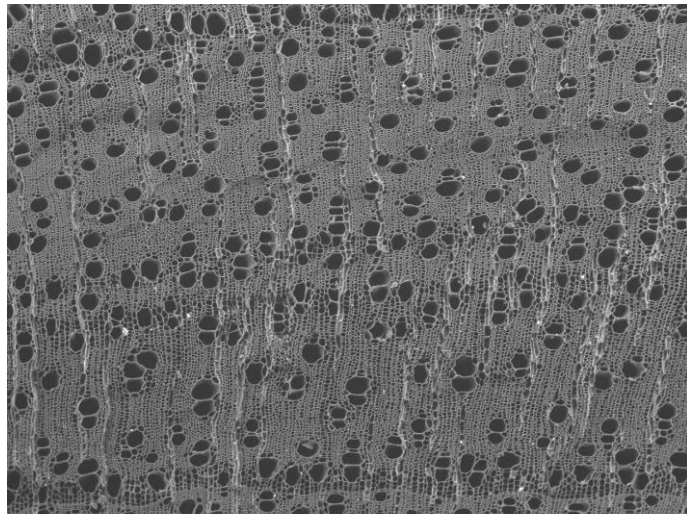
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



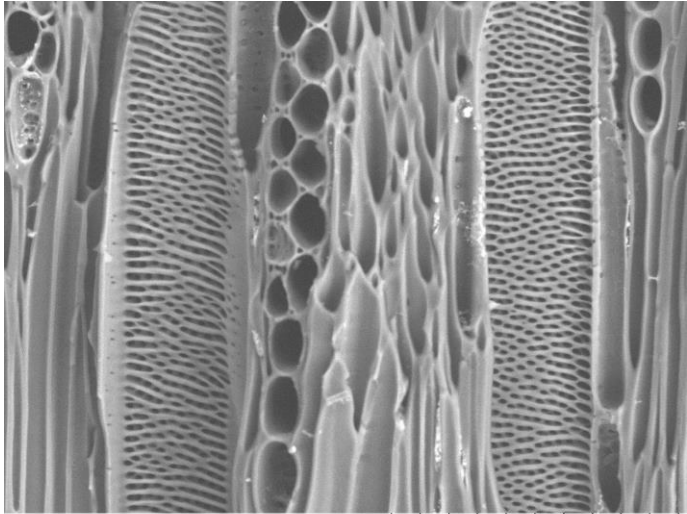
EWC 1609 2022/07/26 01:49 L D2.4 x50 2 mm

**Transverse 100x**



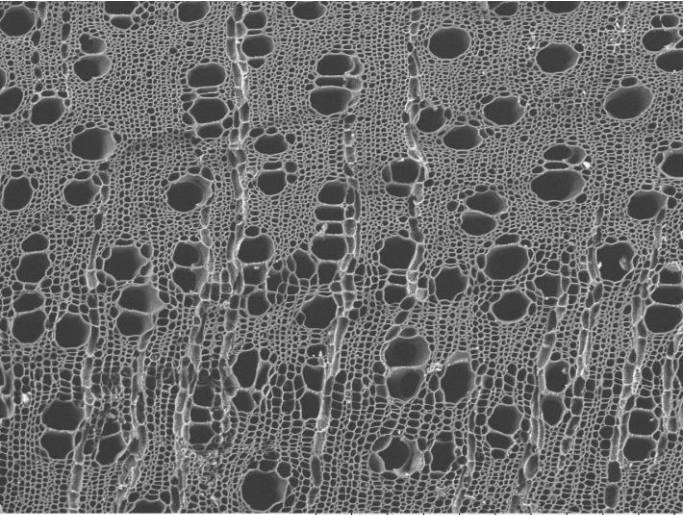
EWC 1609 2022/10/07 13:36 D2.3 x100 1 mm

**Vessel Wall**



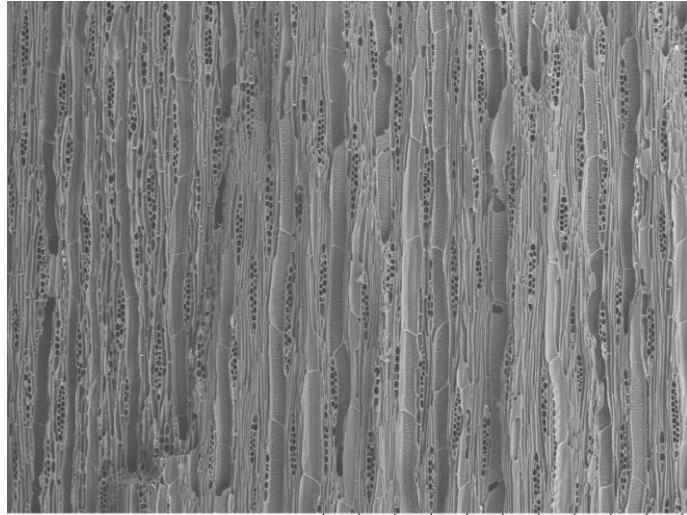
EWC 1609 2022/10/07 13:35 D2.5 x800 100 µm

**Transverse 200x**



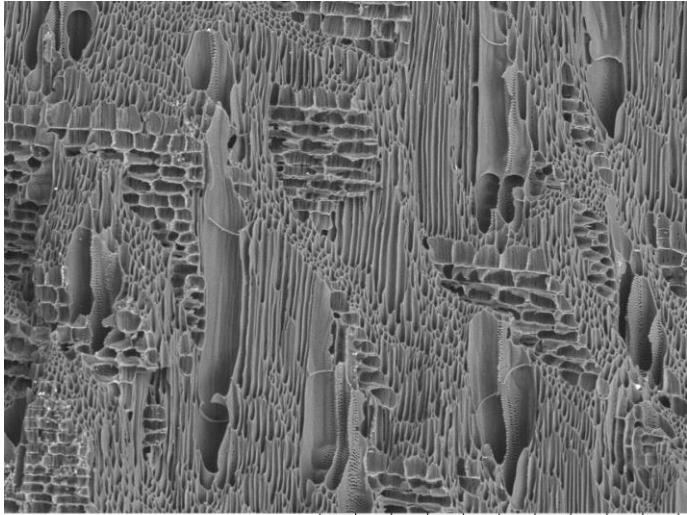
EWC 1609 2022/10/07 13:38 D2.3 x200 500 µm

**Tangential**



EWC 1609 2022/10/07 13:33 D2.5 x100 1 mm

**Radial**



EWC 1609 2022/07/26 01:40 L D3.7 x200 500 µm

# EWC 1610 MYRTACEAE *Psidium variable* O. Berg

**Common Name:** "Guayabo"

**Elevation:** 160 m

**Description:** Tall tree.

**Location:** Ecuador, Manabí, Jama

**Locality:** El Quemado: Approximately 5 km NE of Jama, in the foothills of the Jama lowlands. Collected on a gently sloping hilltop. Convento topo map 1:50,000, cuadrícula (block) N80 E87.

## Vessels

**Size:** <50µm

**Freq.:** 100+

**Arrangement:** solitary

**Tyloses:** absent

## Rays:

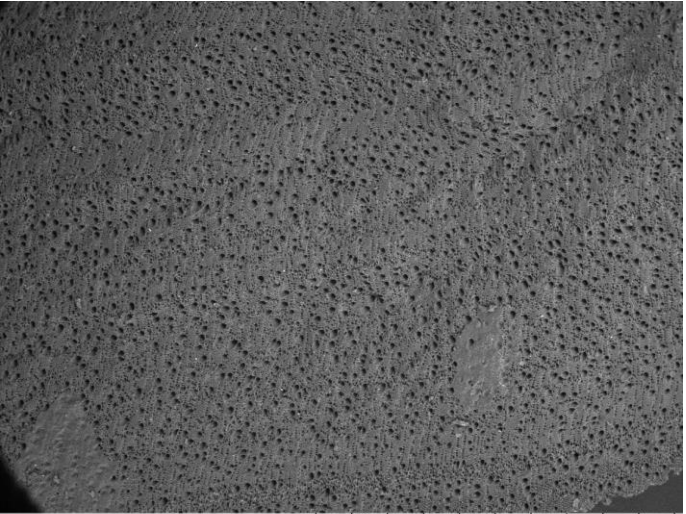
**# per mm:** 12+

**Thickness (cells):** 1 to 3

**Parenchyma Type:** Banded (thin and thick)

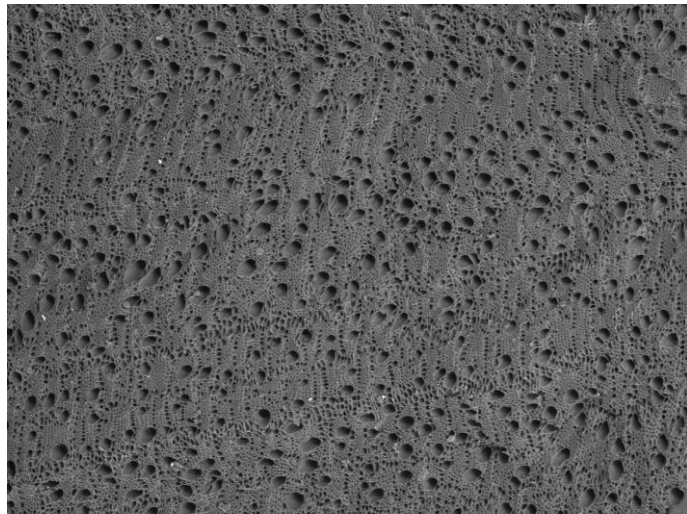
**Porosity:** semi-ring porous

**Transverse 50x**



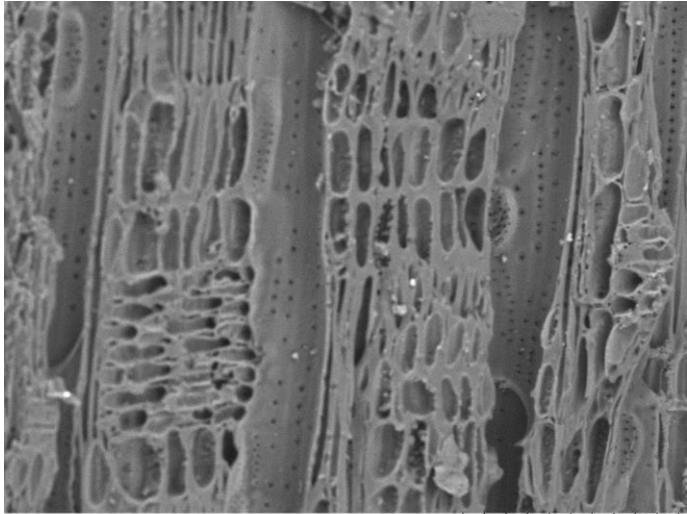
EWC 1610 2022/07/23 02:32 L D4.5 x50 2 mm

**Transverse 100x**



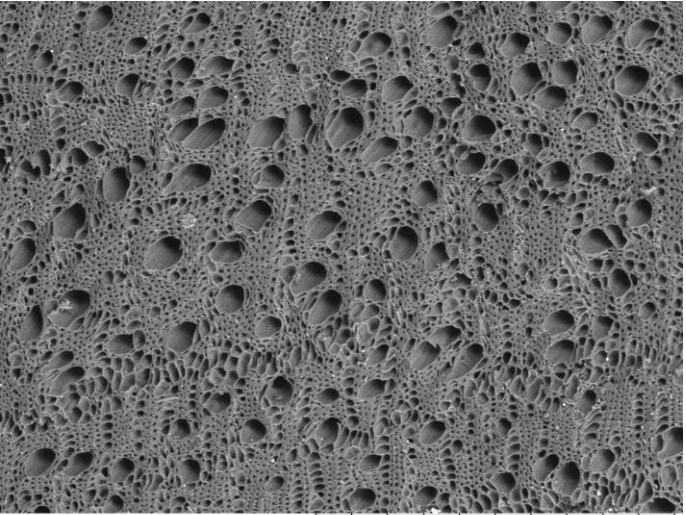
EWC 1610 2022/07/23 02:34 L D4.5 x100 1 mm

**Vessel Wall**



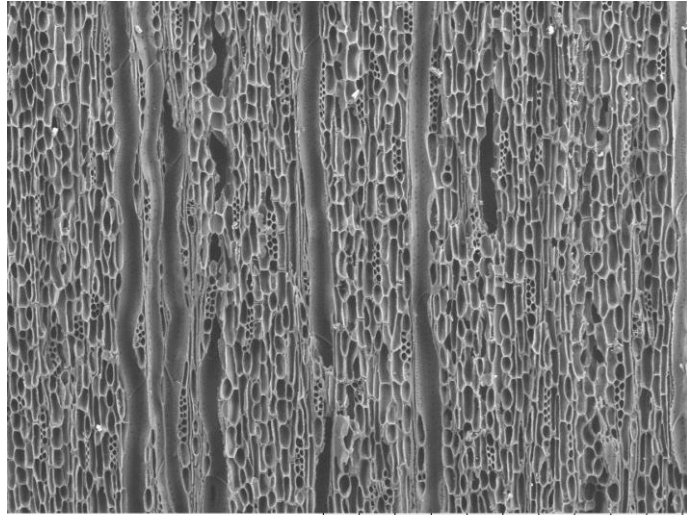
EWC 1607 2022/07/23 03:09 L D4.1 x600 100 um

**Transverse 200x**



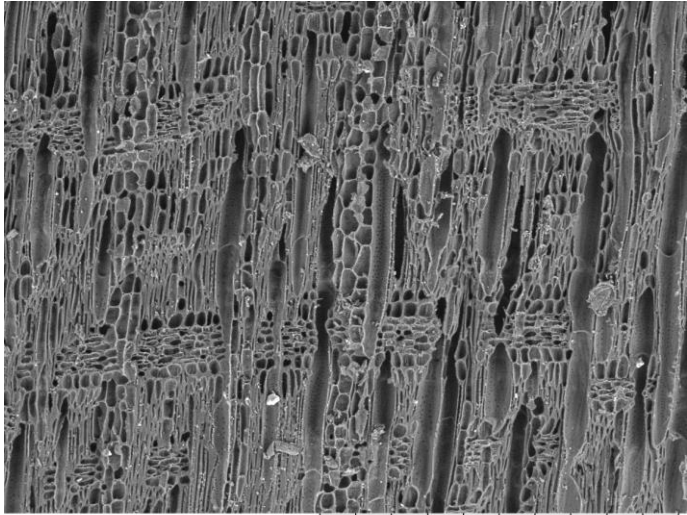
EWC 1610 2022/07/23 02:36 L D4.5 x200 500 um

**Tangential**



EWC 1610 2022/10/07 13:41 D2.4 x200 500 um

**Radial**



EWC 1610 2022/07/23 02:40 L D3.2 x200 500 um



# EWC 1611 Unknown Identification

### Vessels

Size: <50µm

Freq.: 5 to 20

Arrangement: solitary, pairs, chains, clusters

Tyloses: absent

### Rays:

# per mm: 4-12

Thickness (cells): 1 to 3

Parenchyma Type: Diffuse, Absent, unilateral, scanty

Porosity: diffuse

Common Name: "catillo blanco," "guacharaca."

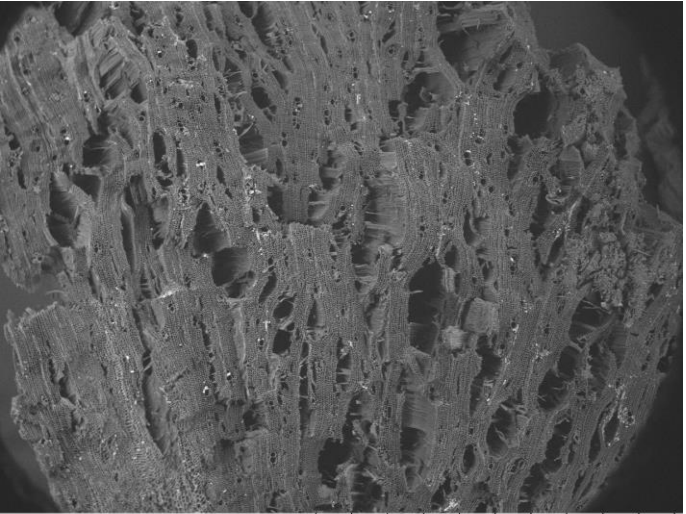
Elevation:

Description:

Location: Ecuador

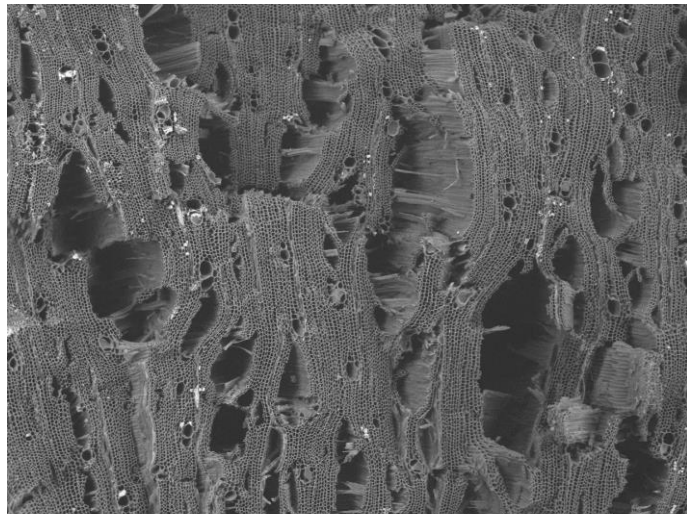
Locality:

Transverse 50x



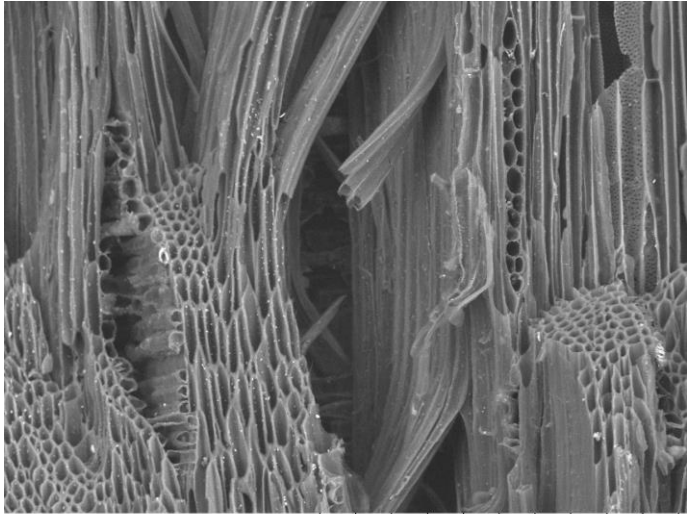
EWC 1611 2022/08/08 23:41 L D3.0 x50 2 mm

Transverse 100x



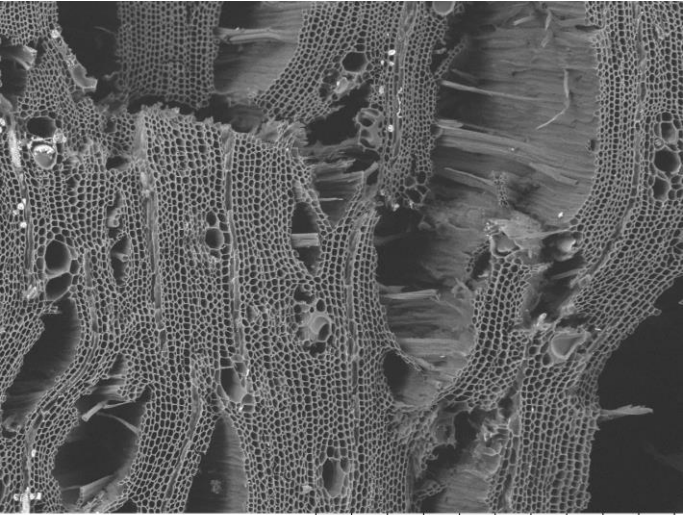
EWC 1611 2022/08/08 23:43 L D3.0 x100 1 mm

Vessel Wall



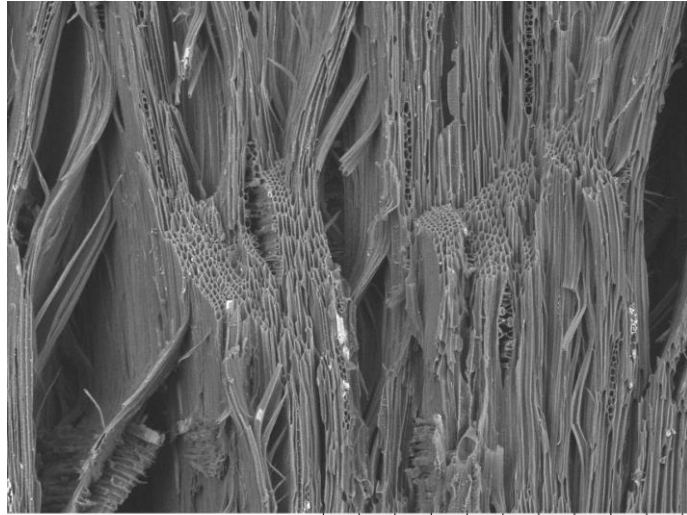
EWC 1611 2022/08/08 23:30 L D3.8 x500 200 µm

Transverse 200x



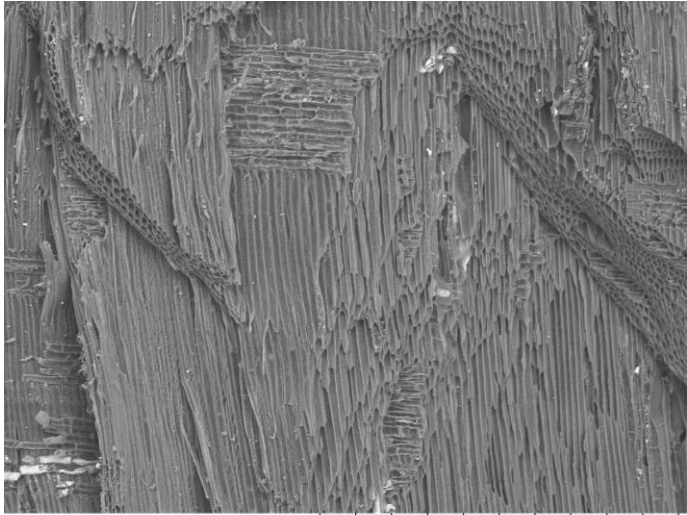
EWC 1611 2022/08/08 23:44 L D3.0 x200 500 µm

Tangential



EWC 1611 2022/08/08 23:25 L D3.8 x200 500 µm

Radial



EWC 1611 2022/08/08 23:37 L D5.2 x200 500 µm

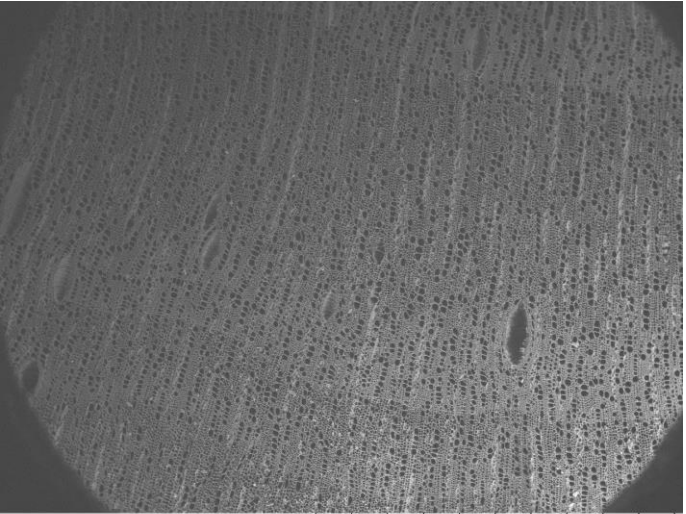
# EWC 1612 Unknown Identification

**Vessels**  
Size: <50µm  
Freq.: 100+  
Arrangement: solitary, pairs, mostly chains  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3, of two distinct sizes  
**Parenchyma Type:** diffuse-in-aggregates  
**Porosity:** semi-ring porous

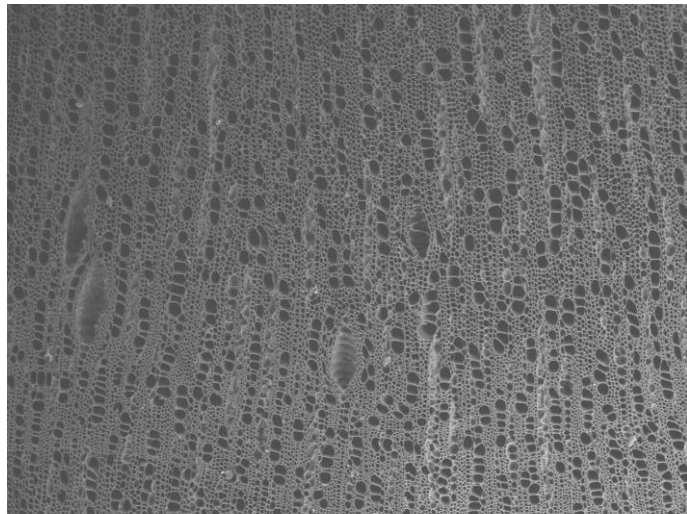
**Common Name:** "bruja"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



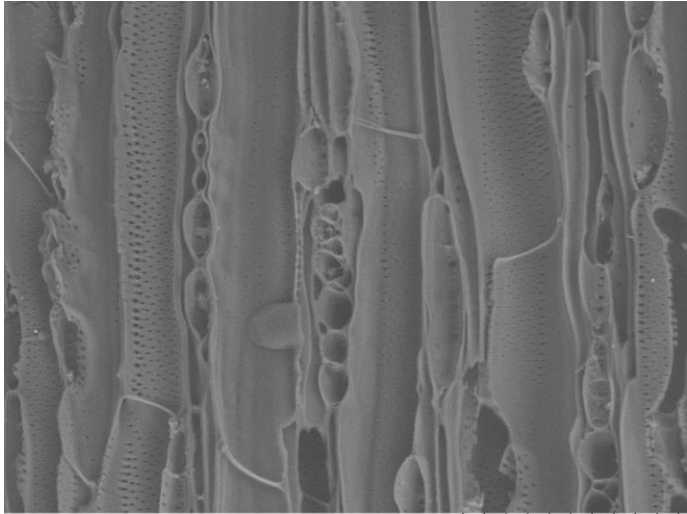
EWC 1612 2022/09/15 22:27 L D2.9 x50 2 mm

**Transverse 100x**



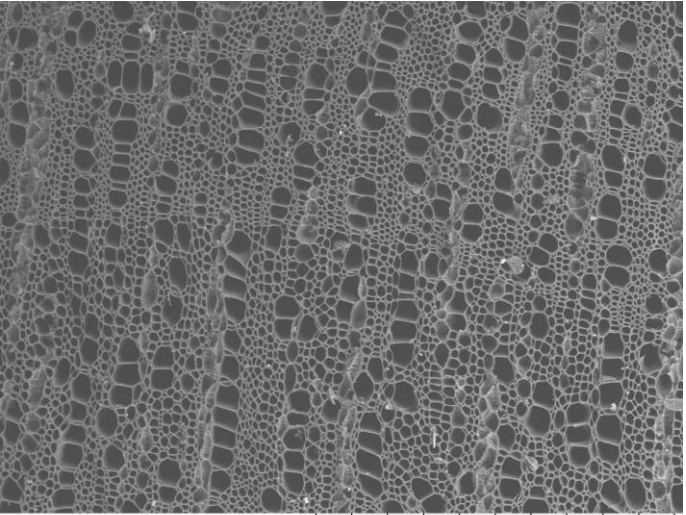
EWC 1612 2022/09/15 22:28 L D2.9 x100 1 mm

**Vessel Wall**



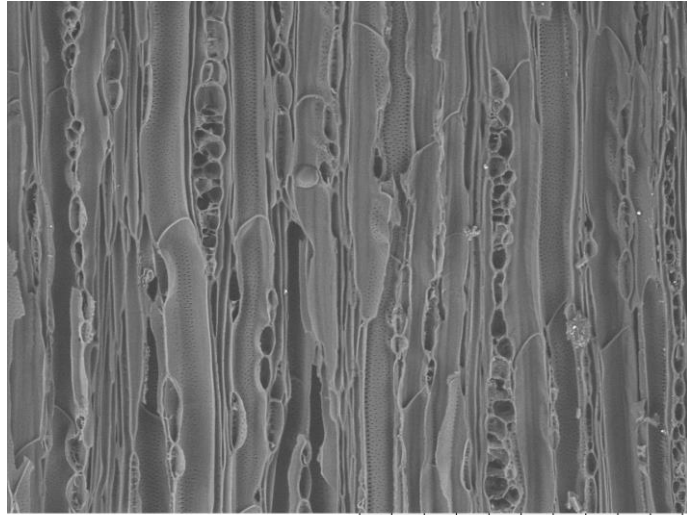
EWC 1612 2022/09/16 04:30 L D3.2 x600 100 um

**Transverse 200x**



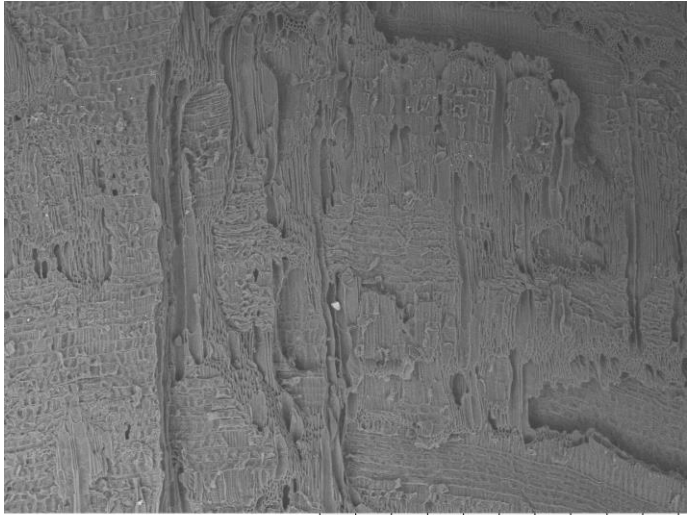
EWC 1612 2022/09/15 22:30 L D2.9 x200 500 um

**Tangential**



EWC 1612 2022/09/15 22:47 L D3.2 x300 300 um

**Radial**



EWC 1612 2022/09/15 22:38 L D4.4 x100 1 mm

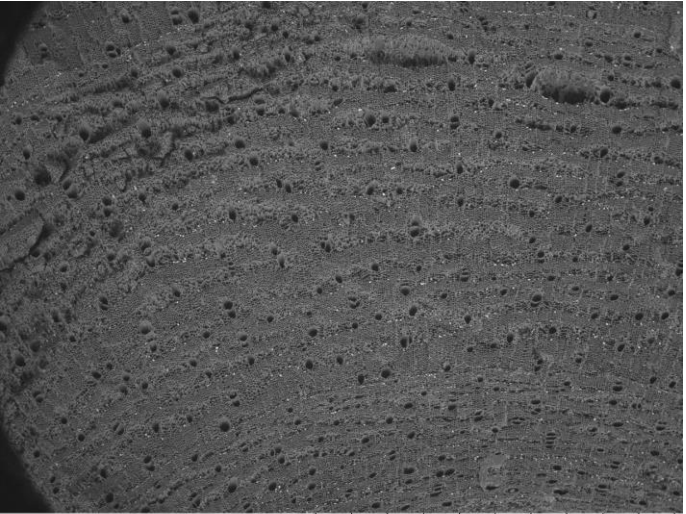
# EWC 1613 FABACEAE *Machaerium millei* Standl.

**Vessels**  
Size: <50µm, 50-100µm  
Freq.: 20 to 40  
Arrangement: solitary, chains, clusters  
**Tyloses:** absent

**Rays:**  
# per mm: 12+  
Thickness (cells): 1 to 3, storied  
**Parenchyma Type:** Bands (thick),  
vasicentric (confluent)  
**Porosity:** diffuse

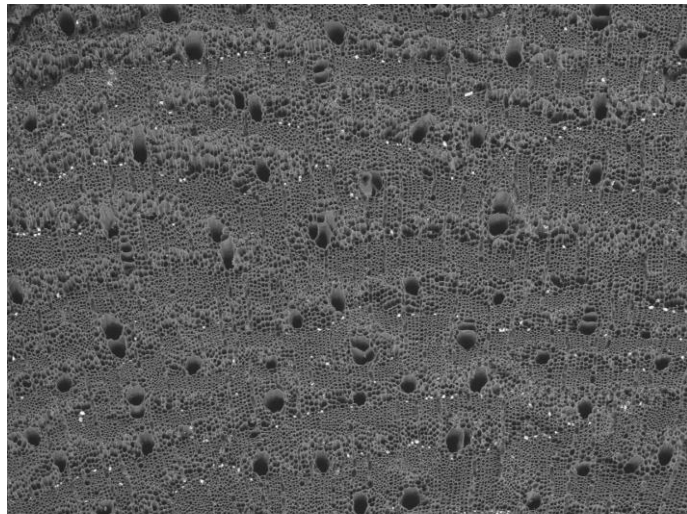
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



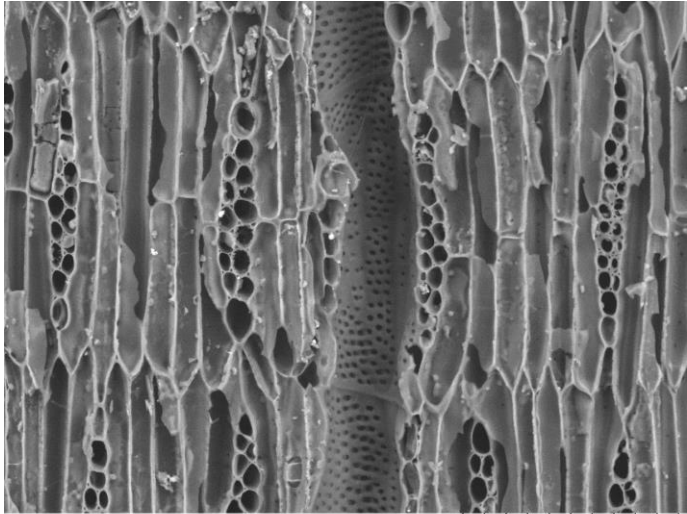
EWC 1613 2022/07/26 02:52 L D4.0 x50 2 mm

**Transverse 100x**



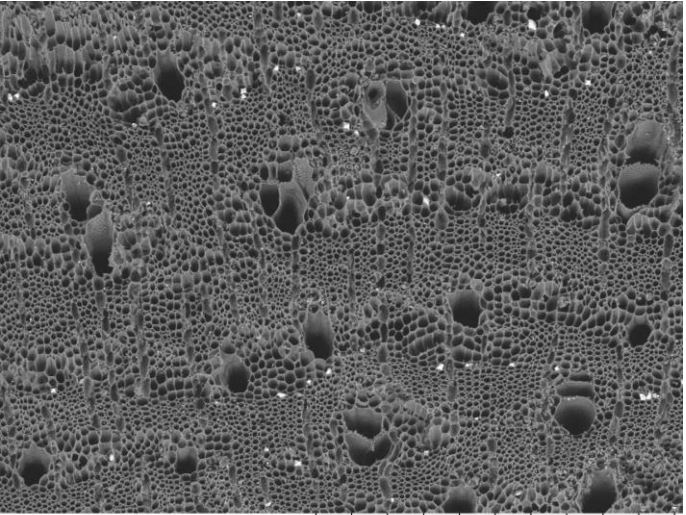
EWC 1613 2022/07/26 02:54 L D4.0 x100 1 mm

**Vessel Wall**



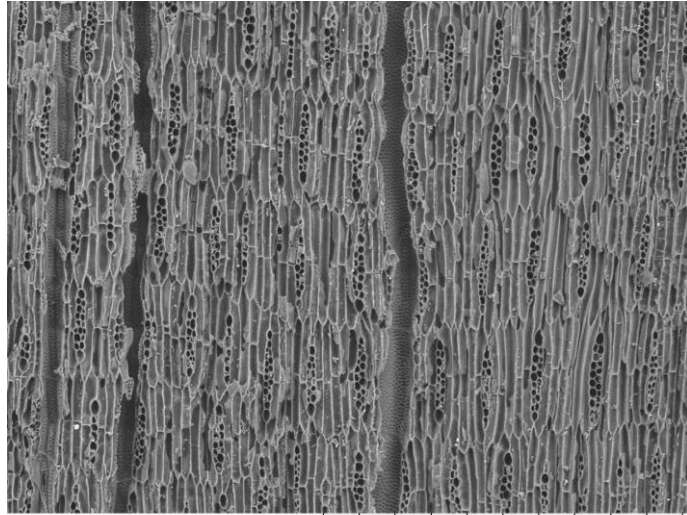
EWC 1613 2022/07/26 03:04 L D4.4 x600 100 µm

**Transverse 200x**



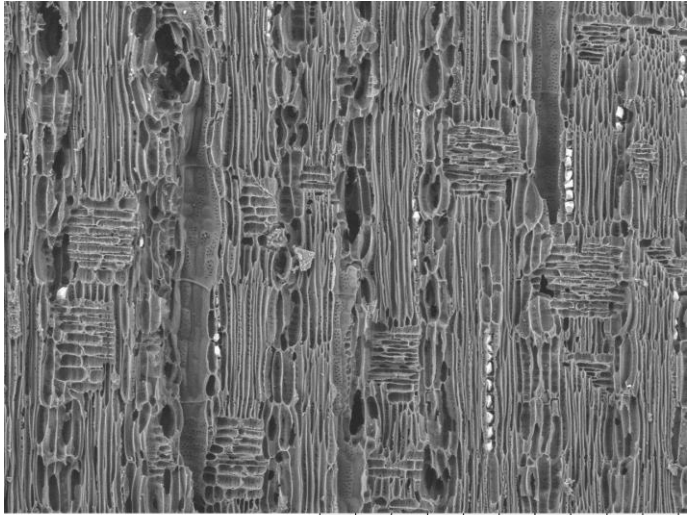
EWC 1613 2022/07/26 02:55 L D4.0 x200 500 µm

**Tangential**



EWC 1613 2022/07/26 03:03 L D4.4 x200 500 µm

**Radial**



EWC 1613 2022/10/07 13:46 D3.1 x200 500 µm

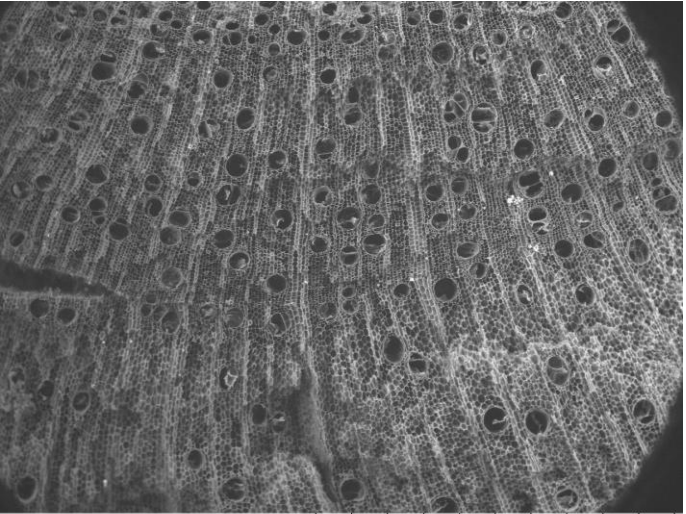
# EWC 1614 BOMBACEAE *Pseudobombax millei* (Standl.) A. Robyns

**Vessels**  
Size: 100-200µm  
Freq.: 5 to 20  
Arrangement: solitary  
**Tyloses:** common

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1-3, 4+, of two distinct sizes  
**Parenchyma Type:** Diffuse, Diffuse-in-aggregates  
**Porosity:** semi-ring porous

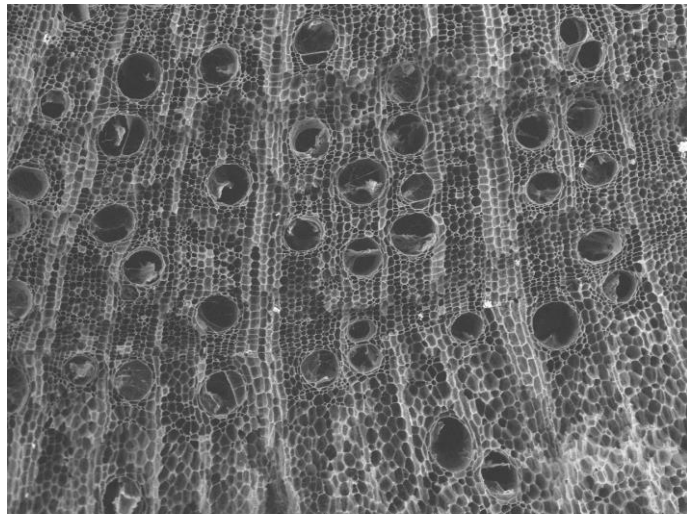
**Common Name:**  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



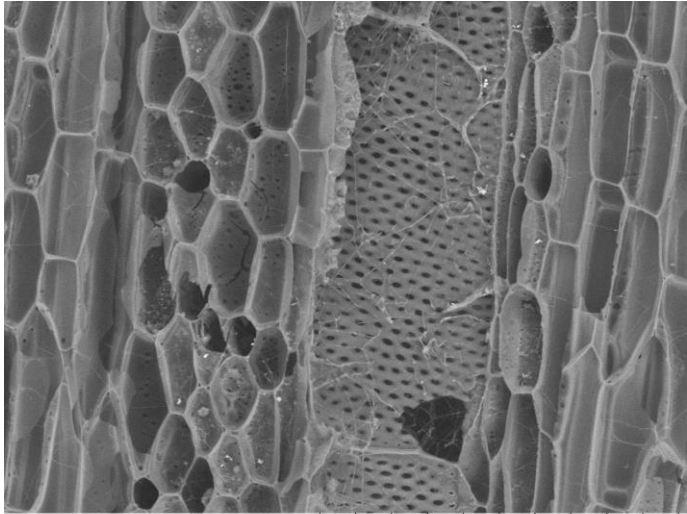
EWC 1614 2022/07/26 03:34 L D3.3 x50 2 mm

**Transverse 100x**



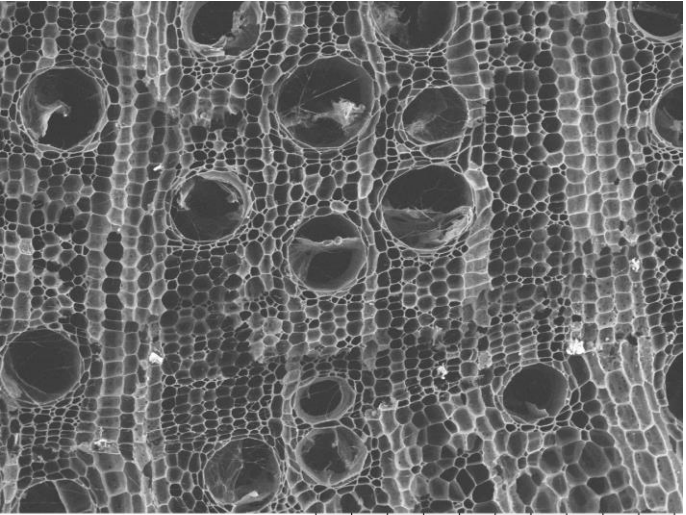
EWC 1614 2022/07/26 03:35 L D3.3 x100 1 mm

**Vessel Wall**



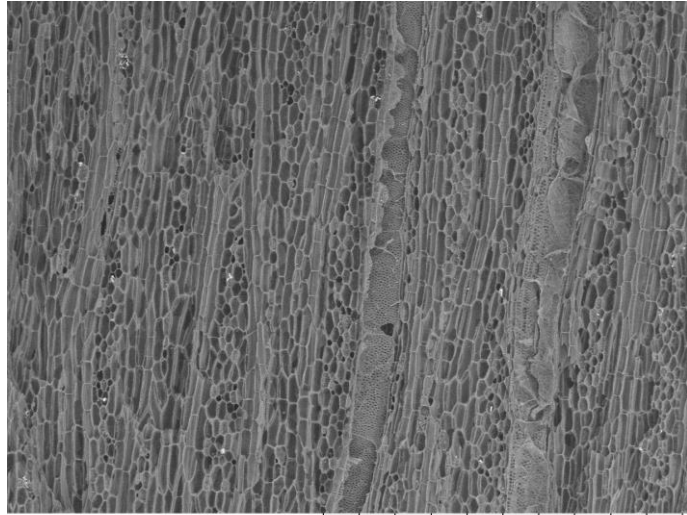
EWC 1614 2022/07/26 03:44 L D7.1 x500 200 µm

**Transverse 200x**



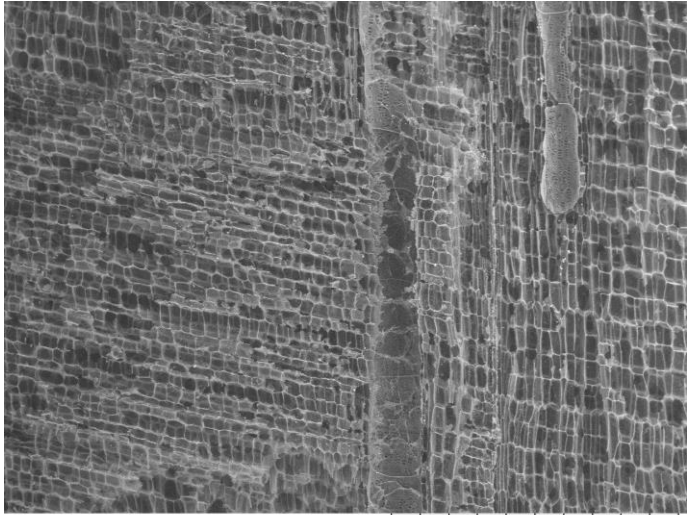
EWC 1614 2022/07/26 03:37 L D3.3 x200 500 µm

**Tangential**



EWC 1614 2022/07/26 03:42 L D7.1 x100 1 mm

**Radial**



EWC 1614 2022/10/07 13:56 D2.5 x80 1 mm

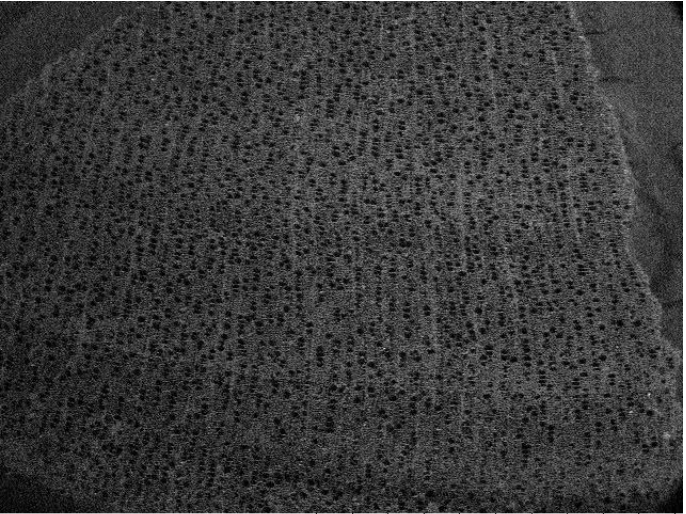
# EWC 1615 Unknown Identification

**Vessels**  
Size: <50µm, 50-100µm  
Freq.: 100+  
Arrangement: pairs, chains  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Diffuse, Diffuse-in-aggregates, Absent  
**Porosity:** diffuse, semi-ring porous

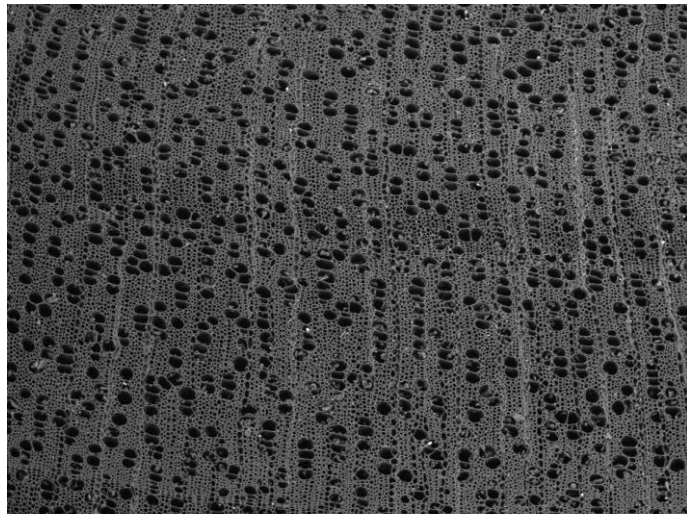
**Common Name:** "bruja"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



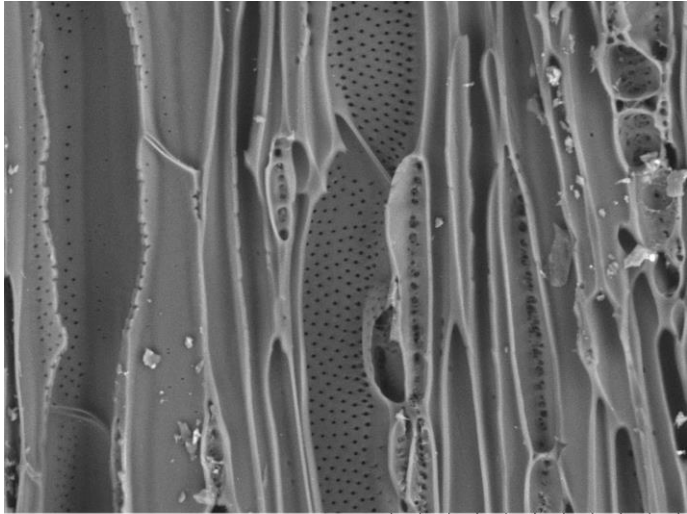
EWC 1615 2022/07/26 02:23 L D4.3 x50 2 mm

**Transverse 100x**



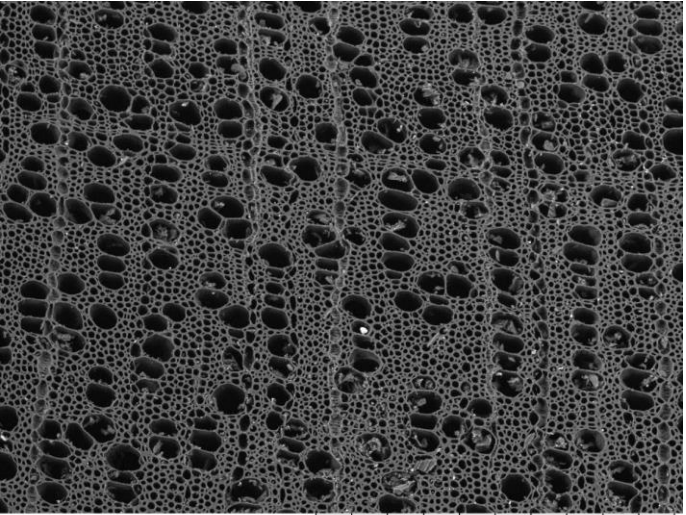
EWC 1615 2022/07/26 02:24 L D4.3 x100 1 mm

**Vessel Wall**



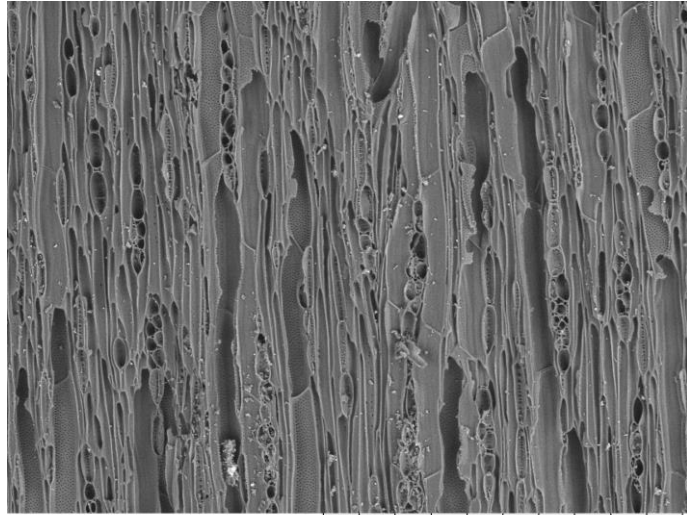
EWC 1615 2022/07/26 02:48 L D4.7 x800 100 µm

**Transverse 200x**



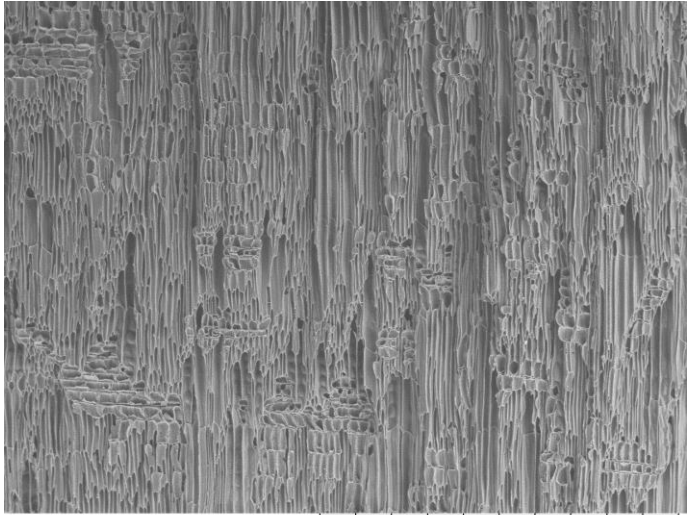
EWC 1615 2022/07/26 02:26 L D4.3 x200 500 µm

**Tangential**



EWC 1615 2022/07/26 02:47 L D4.7 x200 500 µm

**Radial**



EWC 1615 2022/10/08 13:54 D2.2 x100 1 mm

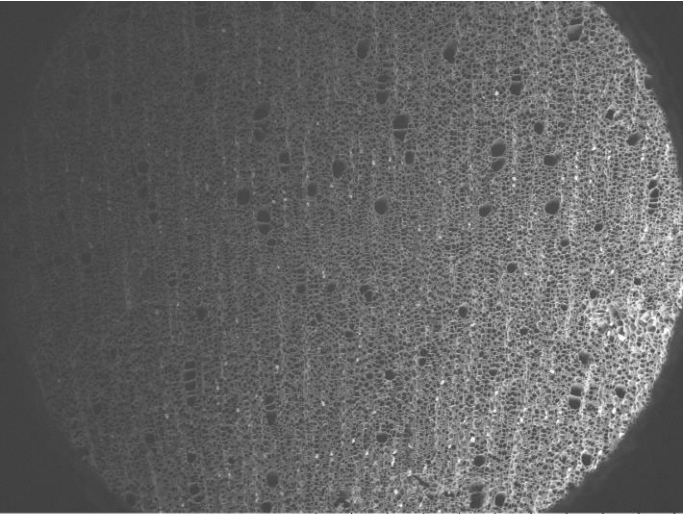
# EWC 1616 RHAMNACEAE *Ziziphus thyrsoiflora* Benth.

**Vessels**  
Size: <50-100µm  
Freq.: 5 to 20  
Arrangement: solitary, pairs, chains  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Thin bands,  
Diffuse-in-aggregates  
**Porosity:** diffuse

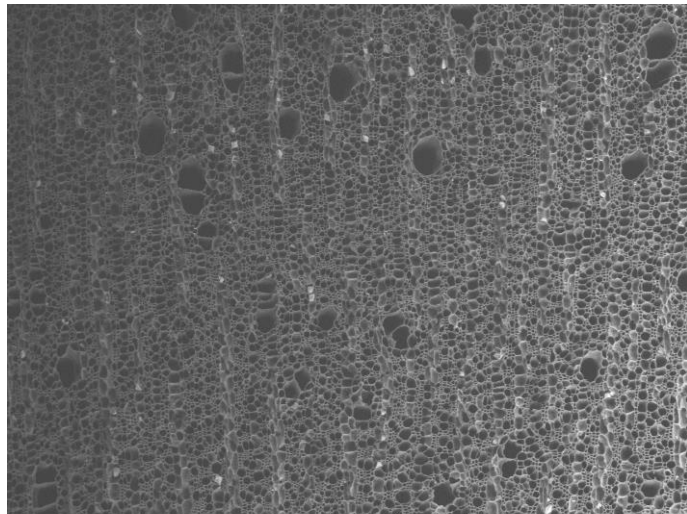
**Common Name:** "Ébano"  
**Elevation:** 160 m  
**Description:** Large tree with spines on trunk and branches.  
**Location:** Ecuador, Manabí, Jama  
**Locality:** El Quemado: Approximately 5 km NE of Jama, in the foothills of the Jama lowlands. Collected on a gently sloping hilltop. Convento topo map 1:50,000, cuadrícula (block) N80 E87.

**Transverse 50x**



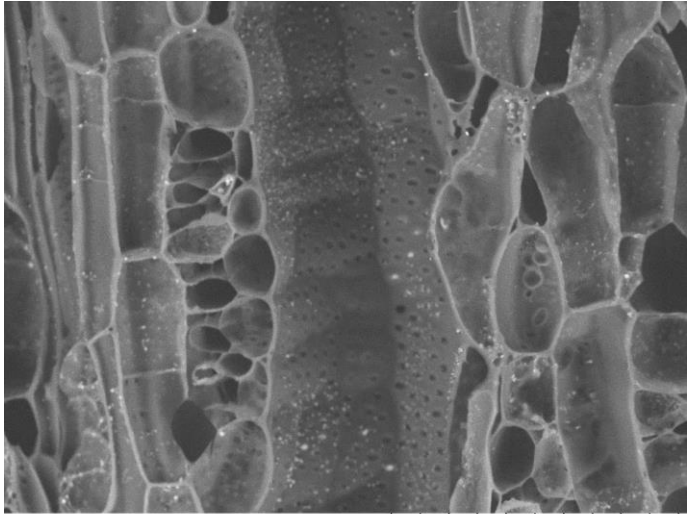
EWC 1616 2022/09/16 05:27 L D2.1 x50 2 mm

**Transverse 100x**



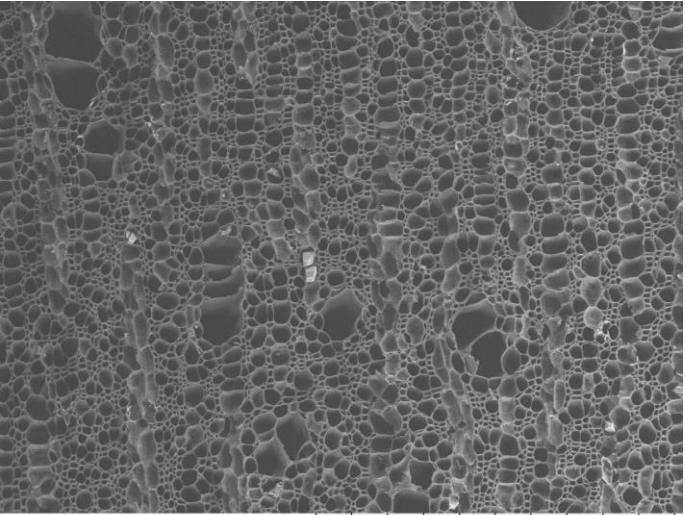
EWC 1616 2022/09/16 05:28 L D2.1 x100 1 mm

**Vessel Wall**



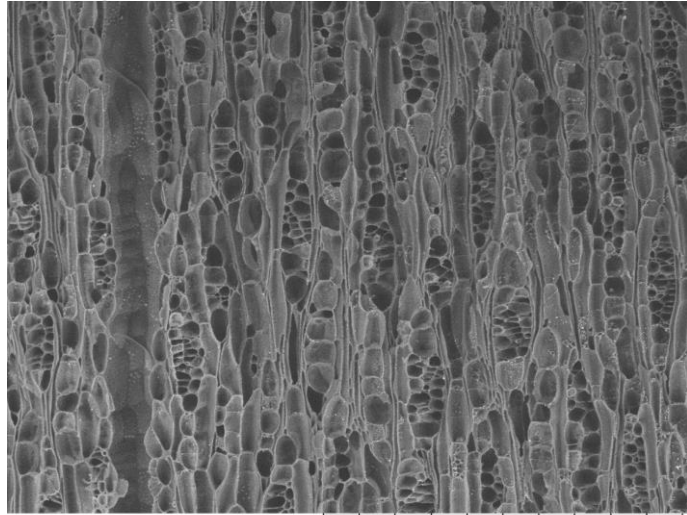
EWC 1616 2022/09/16 05:52 L D3.5 x800 100 µm

**Transverse 200x**



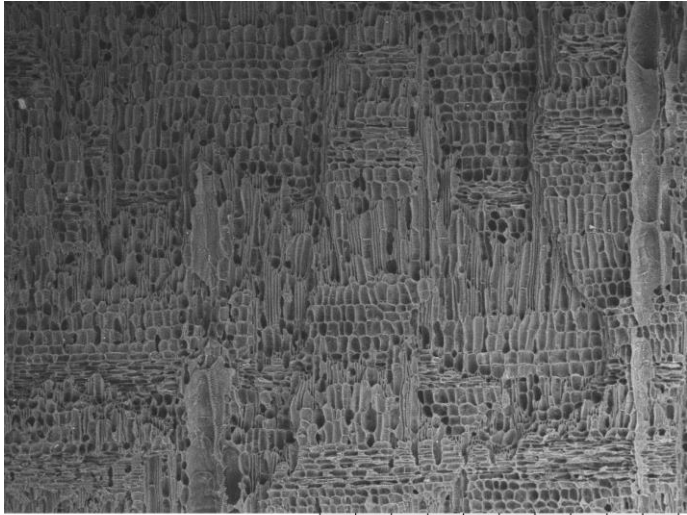
EWC 1616 2022/09/16 05:30 L D2.1 x200 500 µm

**Tangential 200x**



EWC 1616 2022/09/16 05:49 L D3.5 x200 500 µm

**Radial 100x**



EWC 1616 2022/09/16 05:37 L D3.8 x100 1 mm

# EWC 1619 PRIMULACEAE *Jacquinia* L.

**Common Name:** "Barbasco"

**Elevation:** 30 m

**Description:** Small tree with an orange spherical fruit (aprox. 3 cm in diameter). Forest with closed canopy and few remnant trees.

**Location:** Ecuador, Manabí

**Locality:** Jama River Valley. Jama, Area 1: Approximately 1 km directly South of Jama, and West of the Jama River. Jama topo map 1:50,000, cuadrícula (block) N77 E81. On a NW facing slope.

## Vessels

**Size:** 50-100µm

**Freq.:** <5, 5-20

**Arrangement:** solitary, pairs

**Tyloses:** common

## Rays:

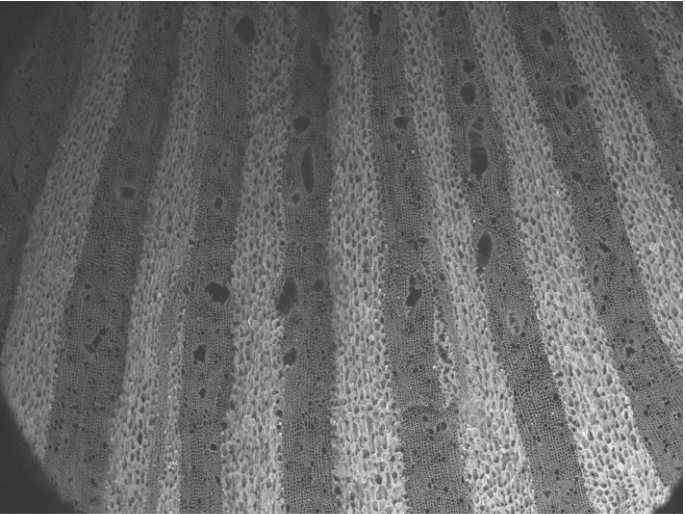
**# per mm:** <4

**Thickness (cells),** 4+

**Parenchyma Type:** Absent, Scanty, Diffuse

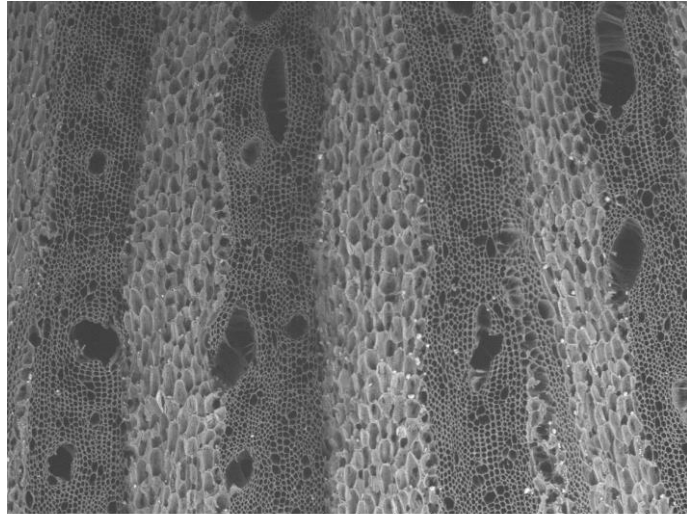
**Porosity:** diffuse

**Transverse 50x**



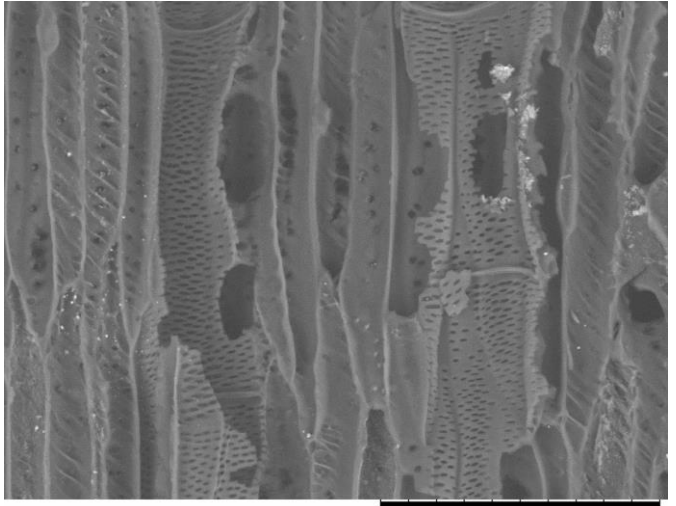
EWC 1619 2022/09/22 05:18 L D3.6 x50 2 mm

**Transverse 100x**



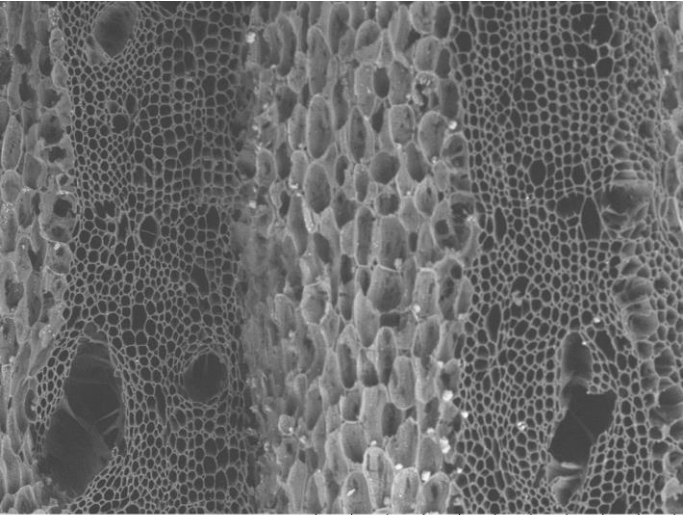
EWC 1619 2022/09/22 05:19 L D3.6 x100 1 mm

**Vessel Wall**



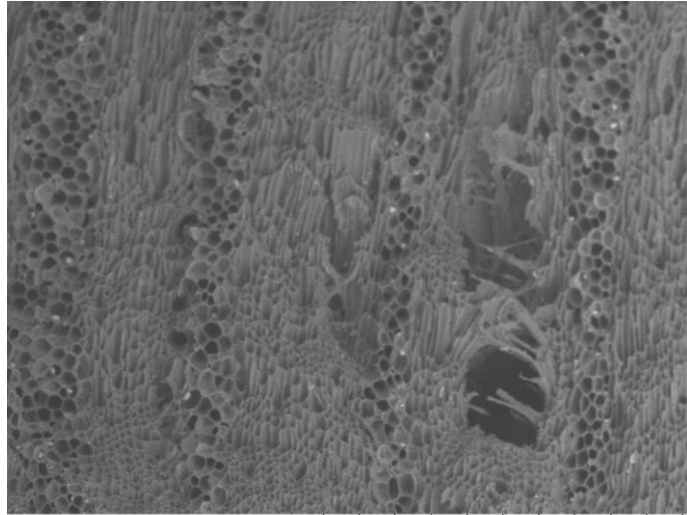
EWC 1619 2022/09/22 05:01 L D5.5 x800 100 um

**Transverse 200x**



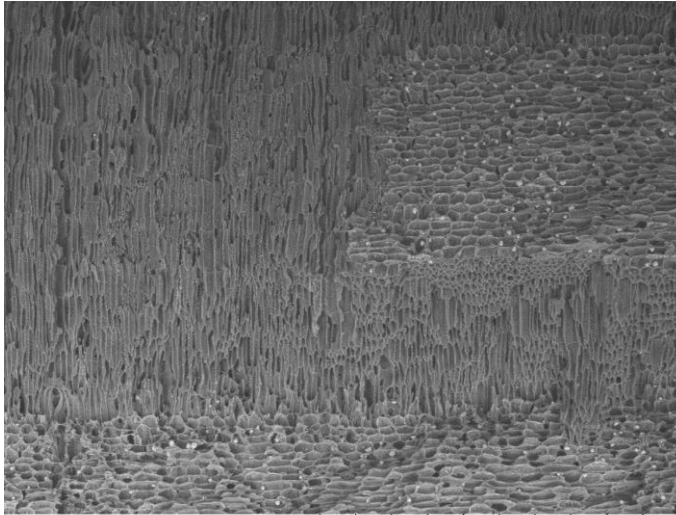
EWC 1619 2022/09/22 05:20 L D3.6 x200 500 um

**Tangential**



EWC 1619 2022/09/22 05:26 L D4.5 x200 500 um

**Radial**



EWC 1619 2022/09/22 04:58 L D5.5 x100 1 mm

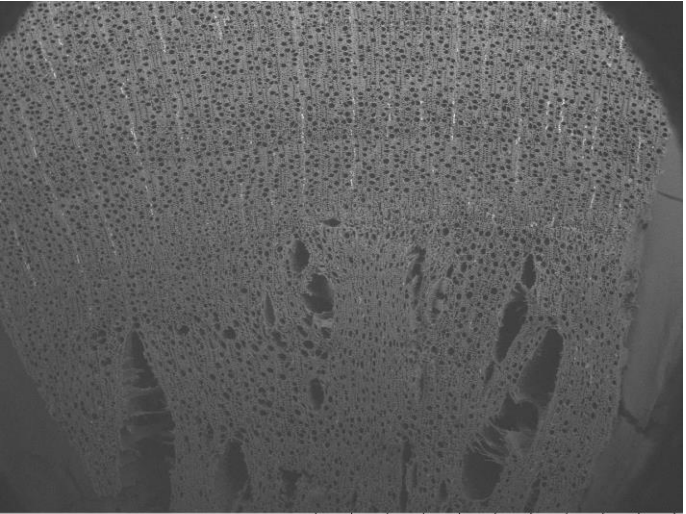
# EWC 1621 RUBIACEAE *Randia humboldtiana* (Roem. & Schult.) DC.

**Vessels**  
Size: <50µm  
Freq.: 40 to 100, 100+  
Arrangement: solitary, pairs  
**Tyloses:** absent

**Rays:**  
# per mm: 12+  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Diffuse, Diffuse-in-aggregates  
**Porosity:** semi-ring porous

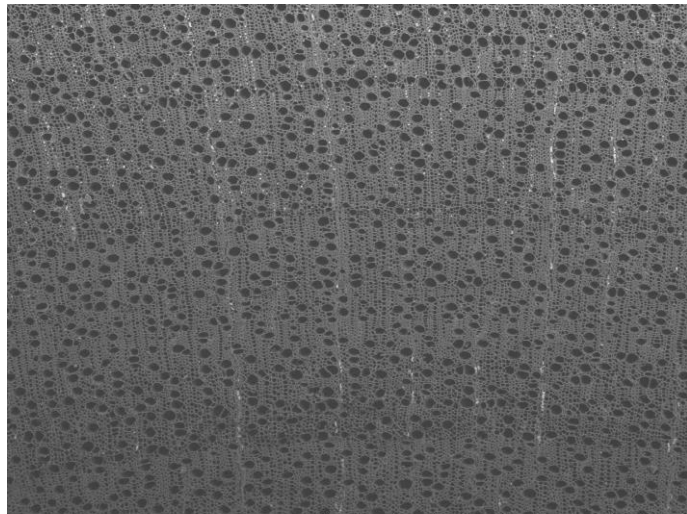
**Common Name:** "Cereza de Monte"  
**Elevation:** 30 m  
**Description:** Small tree with paired spines on branches and a distinctive branching pattern.. Collected on NW facing slope. Forest with closed canopy.  
**Location:** Ecuador, Manabí  
**Locality:** Jama River Valley. Jama, Area 1: Approximately 1 km directly South of Jama, and West of the Jama River. Jama topo map 1:50,000, cuadrícula (block) N77 E81

**Transverse 50x**



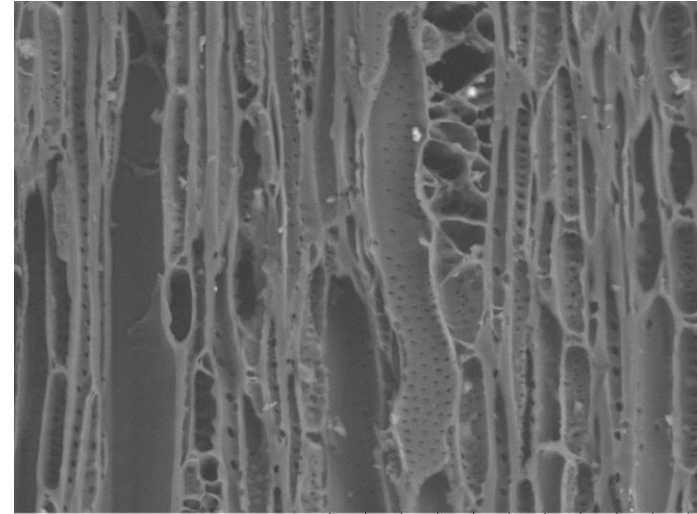
EWC 1621 2022/09/16 02:34 L D3.3 x50 2 mm

**Transverse 100x**



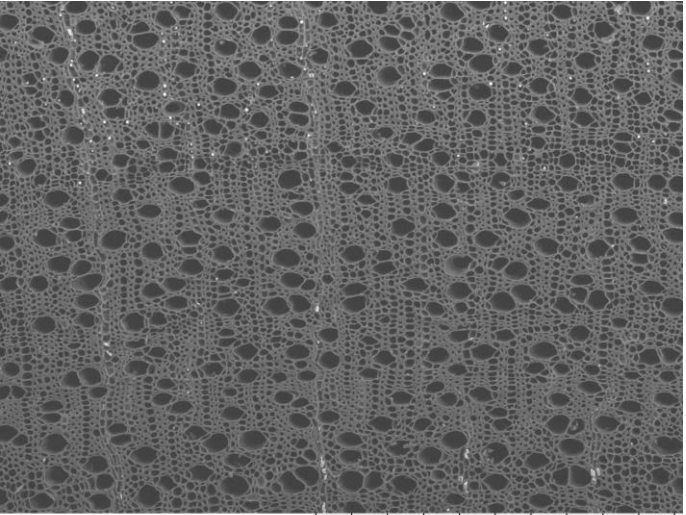
EWC 1621 2022/09/16 02:36 L D3.3 x100 1 mm

**Vessel Wall**



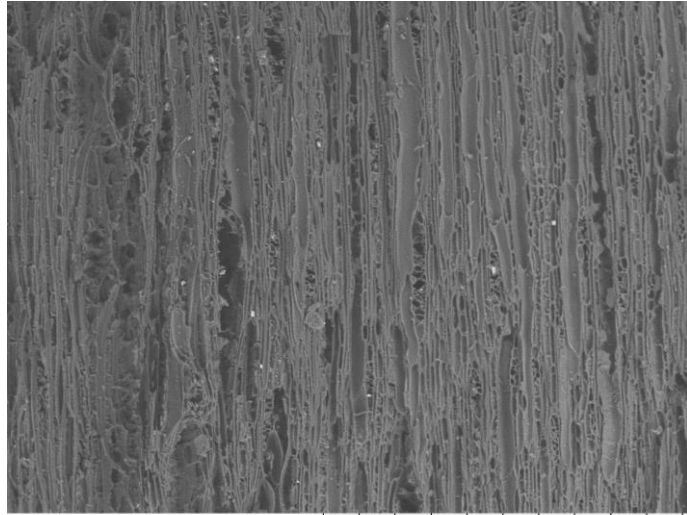
EWC 1621 2022/09/16 02:57 L D4.0 x1.0k 100 µm

**Transverse 200x**



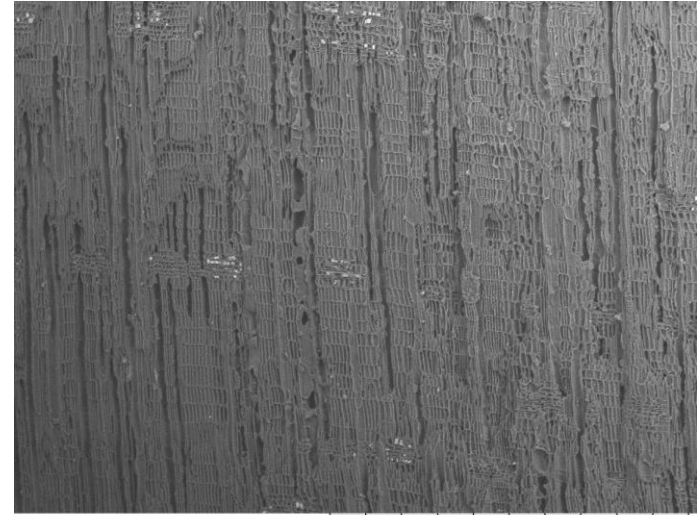
EWC 1621 2022/09/16 02:37 L D3.3 x200 500 µm

**Tangential**



EWC 1621 2022/09/16 02:53 L D3.9 x200 500 µm

**Radial**



EWC 1621 2022/09/16 02:44 L D4.2 x100 1 mm



# EWC1622 MALPIGHIACEAE *Bunchosia cornifolia* Kunth

### Vessels

Size: <50µm

Freq.: 100+

Arrangement: solitary, pairs, chains

Tyloses: absent

### Rays:

# per mm: 4-12, 12+

Thickness (cells): uniseriate

Parenchyma Type: Diffuse, Diffuse-in-

aggregates, Absent

Porosity: semi-ring porous

Common Name: "Cereza de Monte"

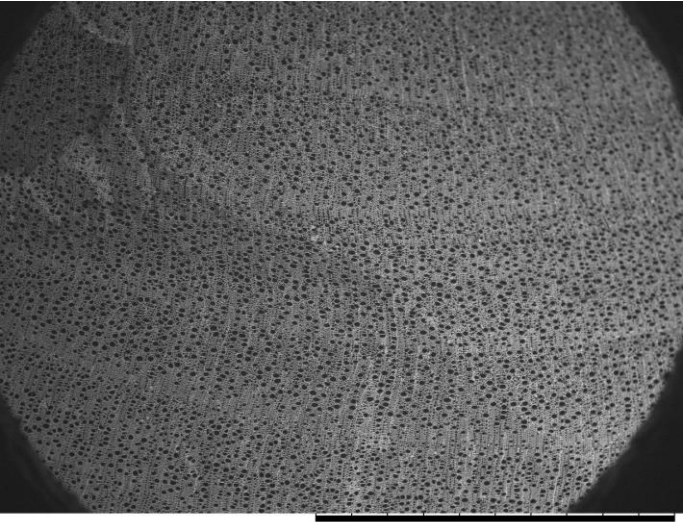
Elevation: 20 m

Description: Small tree with paired spines at the tips of branches.

Location: Ecuador, Manabí, Jama

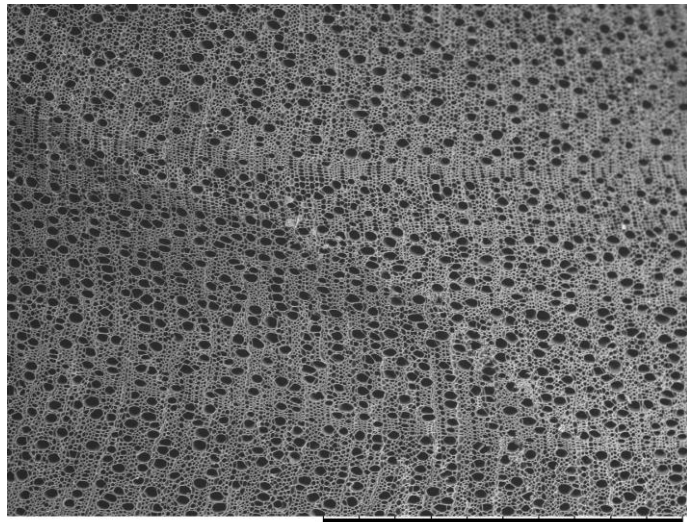
Locality: Jama, Area 1: Approximately 1 km directly south of Jama, and west of the Jama River. Collected on NW facing slope. In a wooded area with closed canopy and few remnant trees. Jama topo map 1:50,000, cuadrícula (block) N77 E81.

Transverse 50x



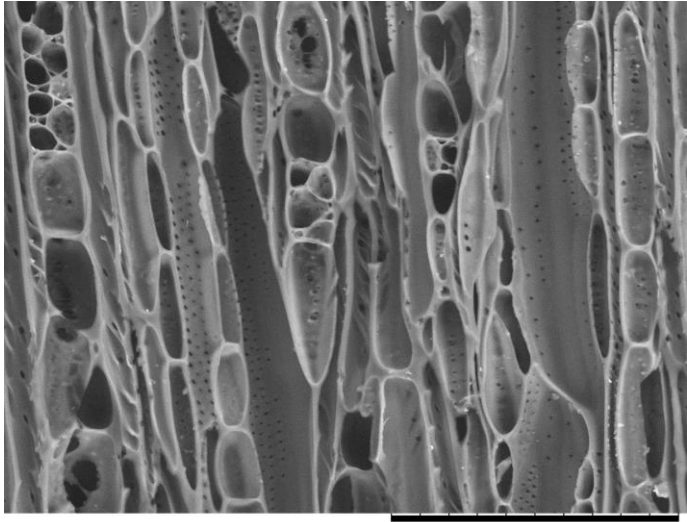
EWC 1622 2022/07/26 04:30 L D2.6 x50 2 mm

Transverse 100x



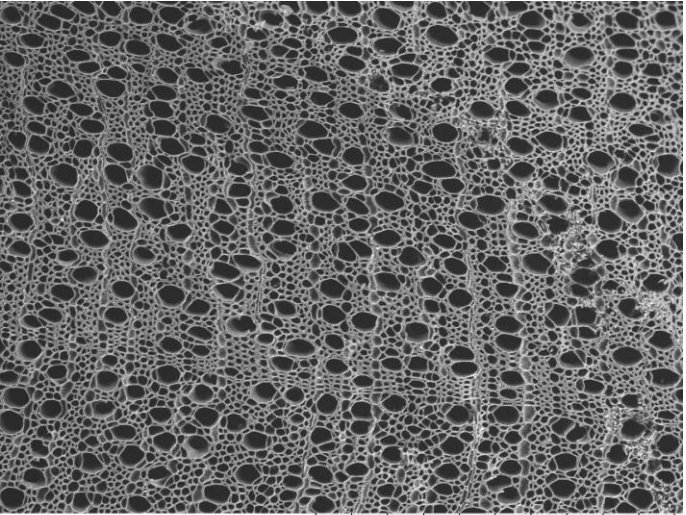
EWC 1622 2022/07/26 04:31 L D2.6 x100 1 mm

Vessel Wall



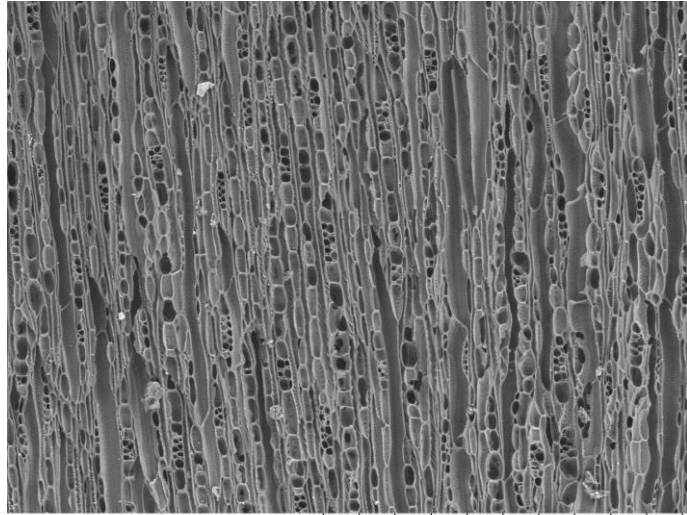
EWC 1622 2022/07/26 04:38 L D3.7 x800 100 µm

Transverse 200x



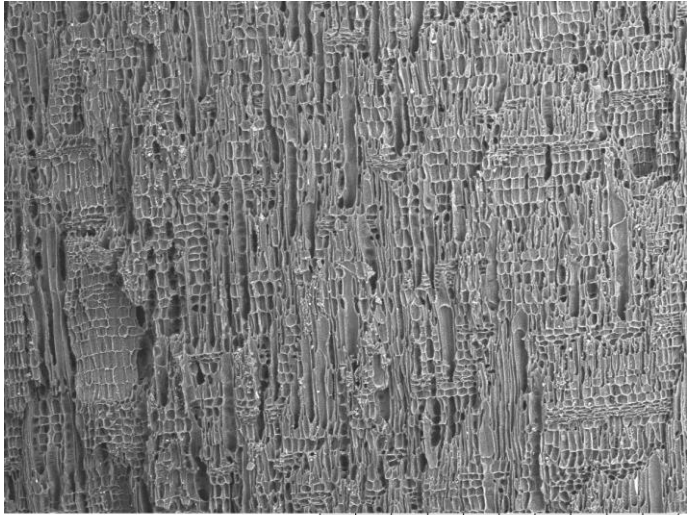
EWC 1622 2022/07/26 04:32 L D2.6 x200 500 µm

Tangential



EWC 1622 2022/07/26 04:36 L D3.7 x200 500 µm

Radial



EWC 1622 2022/07/26 04:41 L D5.9 x100 1 mm

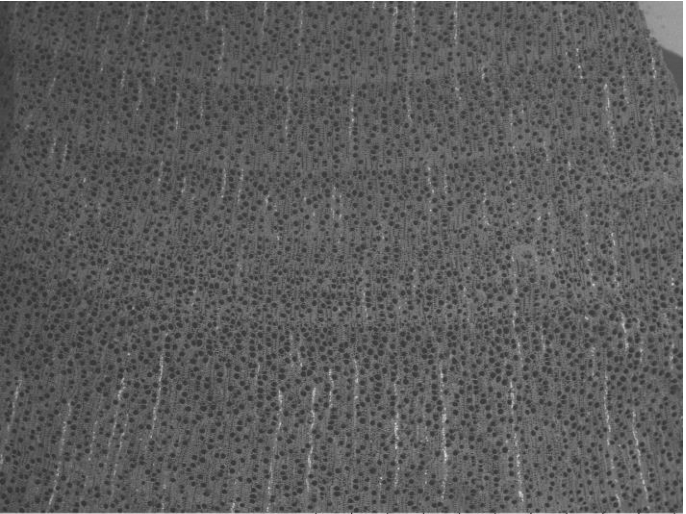
# EWC 1623 RUBIACEAE *Randia humboldtiana* (Roem. & Schult.) DC.

**Vessels**  
Size: <50µm  
Freq.: 40 to 100, 100+  
Arrangement: solitary, pairs, chains, clusters  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Diffuse-in-aggregates  
**Porosity:** ring porous

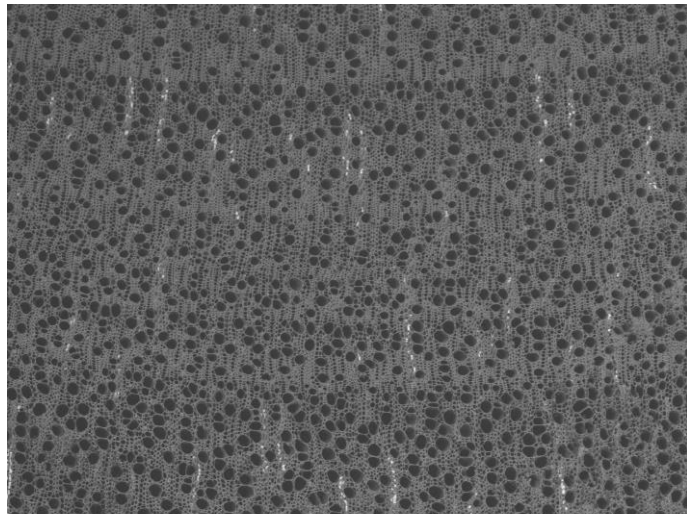
**Common Name:** "Cereza de Monte"  
**Elevation:** 30 m  
**Description:** Small tree with single spines on trunk; double on branches.. In a wooded area with closed canopy and few remnant trees.  
**Location:** Ecuador, Manabí  
**Locality:** Jama River Valley. Jama, Area 1: Approximately 1 km directly South of Jama, and West of the Jama River. Collected on NW facing slope. Jama topo map 1:50,000, cuadrícula (block) N77 E81.

**Transverse 50x**



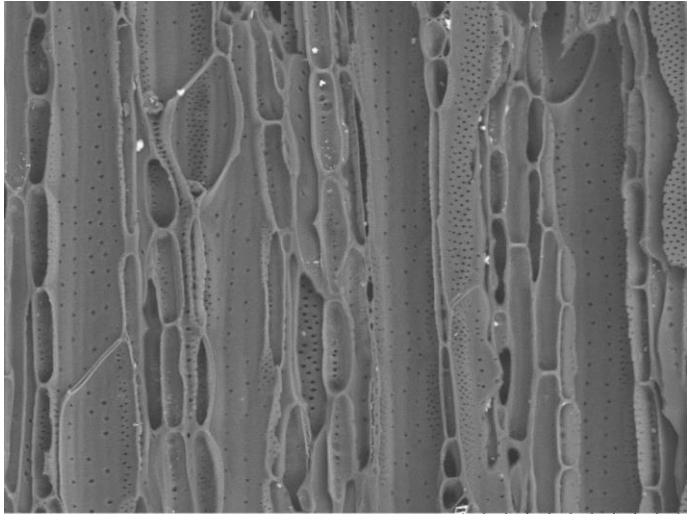
EWC 1623 2022/07/26 03:56 L D6.4 x50 2 mm

**Transverse 100x**



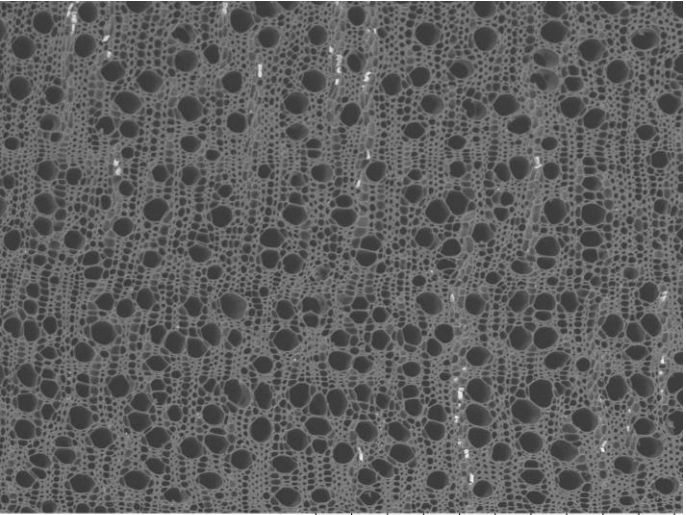
EWC 1623 2022/07/26 03:57 L D6.4 x100 1 mm

**Vessel Wall**



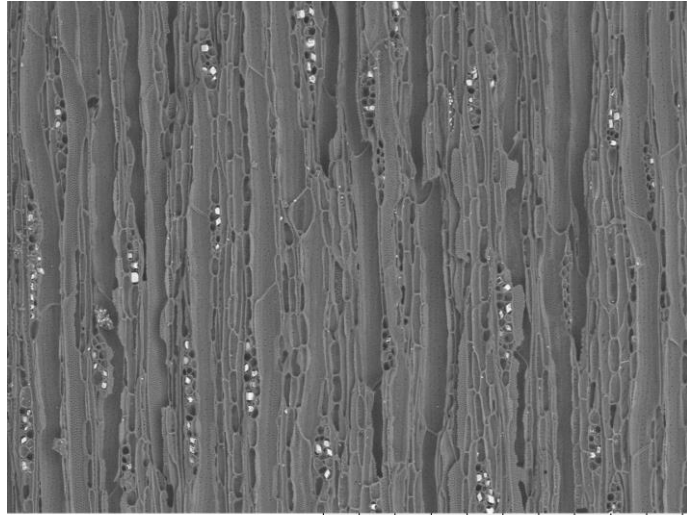
EWC 1623 2022/07/26 04:09 L D7.0 x600 100 µm

**Transverse 200x**



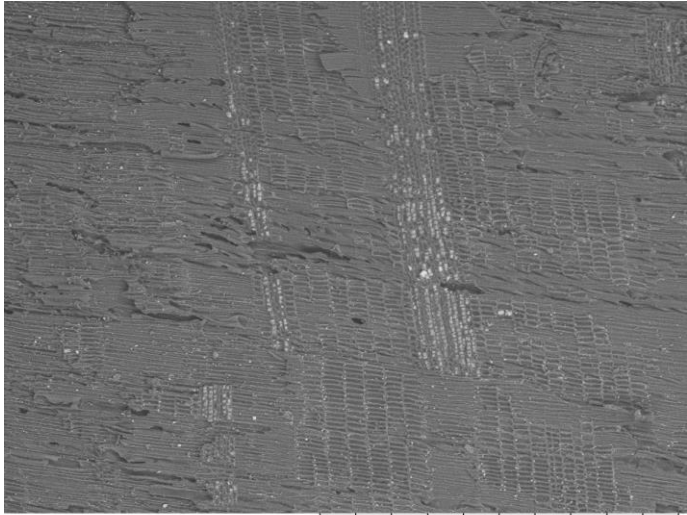
EWC 1623 2022/07/26 04:00 L D6.4 x200 500 µm

**Tangential**



EWC 1623 2022/07/26 04:08 L D7.0 x200 500 µm

**Radial**



EWC 1623 2022/07/26 04:03 L D7.7 x100 1 mm

# EWC 1624 FABACEAE *Bauhinia*

## Vessels

Size: <50µm, 50-100µm

Freq.: 20 to 40, 40 to 100

Arrangement: solitary, pairs, chains, clusters

Tyloses: absent

## Rays:

# per mm: 4-12

Thickness (cells): 1 to 3, 4+

Parenchyma Type: Banded (thick or thin), Vascentric (winged, confluent, unilateral), Diffuse-in-aggregates

Porosity: diffuse

## Common Name:

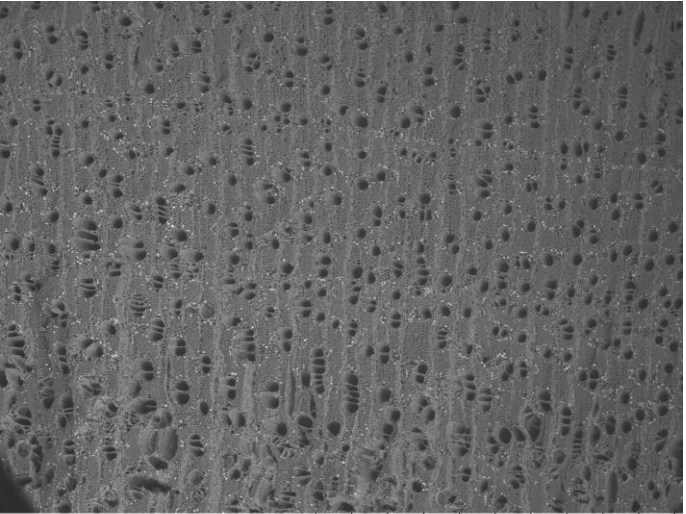
Elevation:

Description:

Location: Ecuador

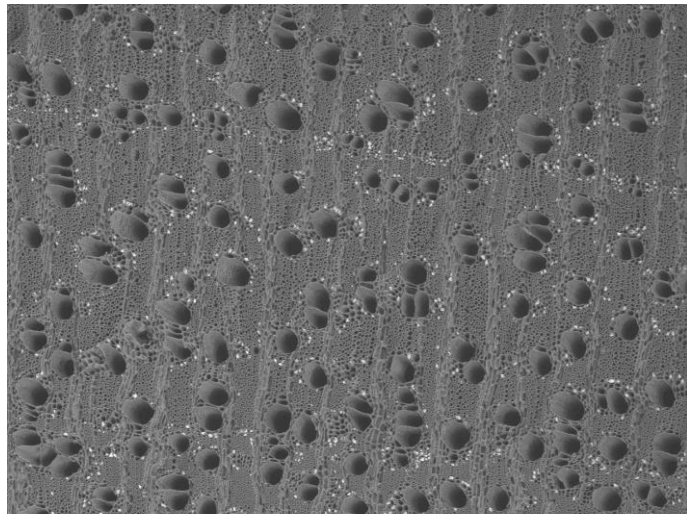
Locality:

Transverse 50x



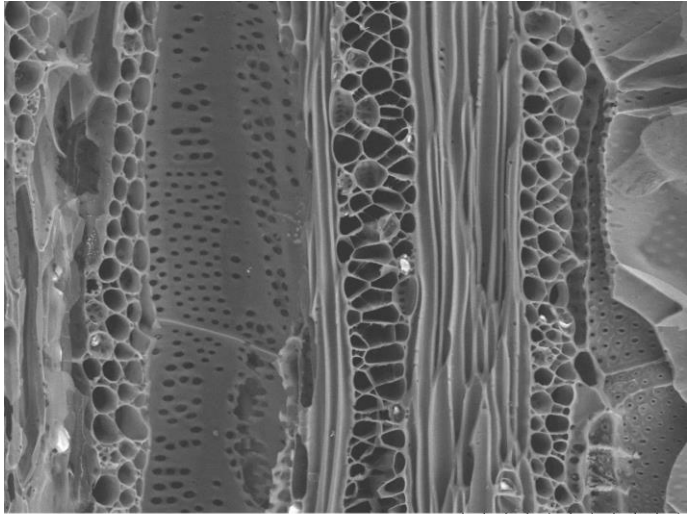
EWC 1624 2022/07/27 22:32 L D4.5 x50 2 mm

Transverse 100x



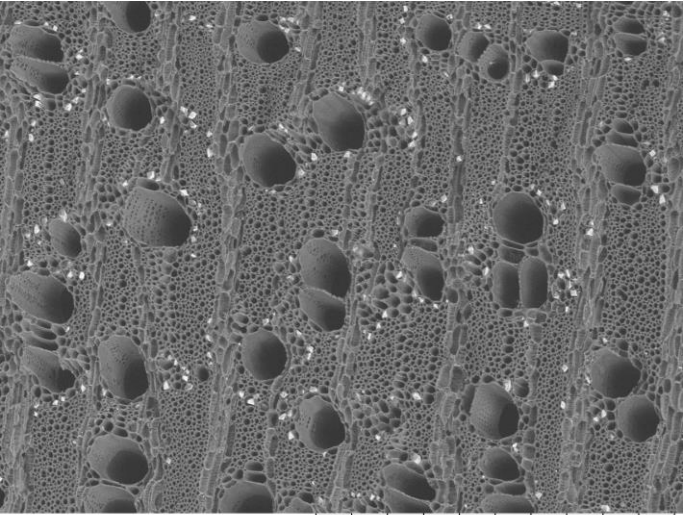
EWC 1624 2022/07/27 22:34 L D4.5 x100 1 mm

Vessel Wall



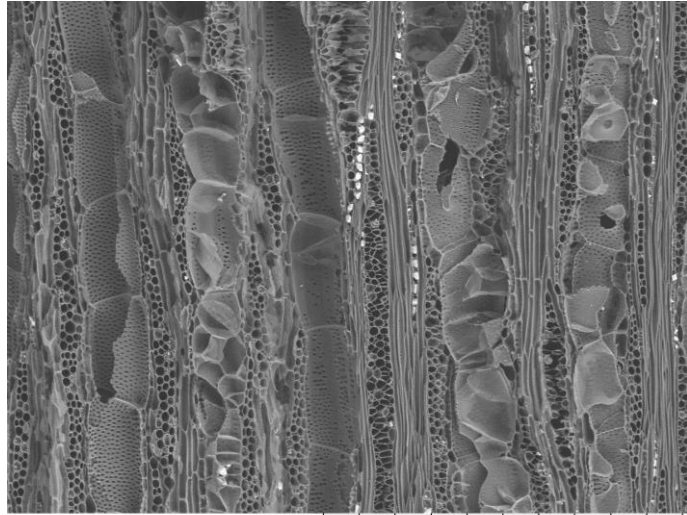
EWC 1624 2022/07/27 22:42 L D3.3 x600 100 um

Transverse 200x



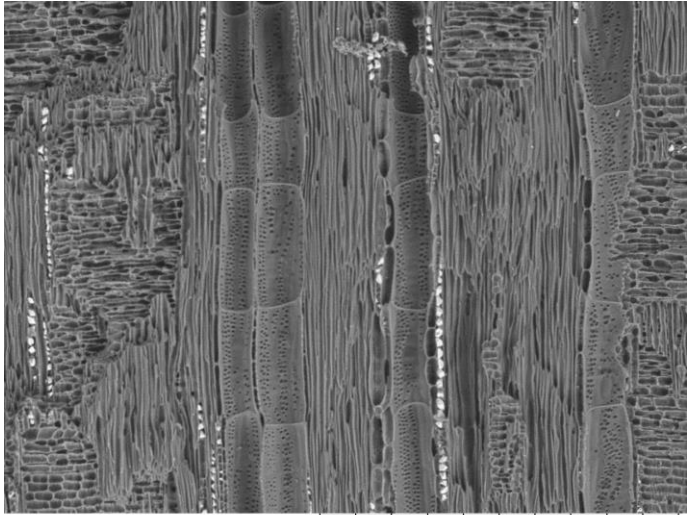
EWC 1624 2022/07/27 22:36 L D4.5 x200 500 um

Tangential



EWC 1624 2022/07/27 22:40 L D3.3 x200 500 um

Radial



EWC 1624 2022/07/27 22:45 L D3.8 x200 500 um

# EWC 1625 Unknown Identification

## Vessels

Size: <50µm

Freq.: 40 to 100, 100+

Arrangement: solitary, pairs, chains

Tyloses: absent

## Rays:

# per mm: 4-12, 12+

Thickness (cells): uniseriate, 1 to 3

Parenchyma Type: Diffuse, Diffuse-in-aggregates, Absent

Porosity: diffuse, semi-ring porous

Common Name: "clavo blanco"

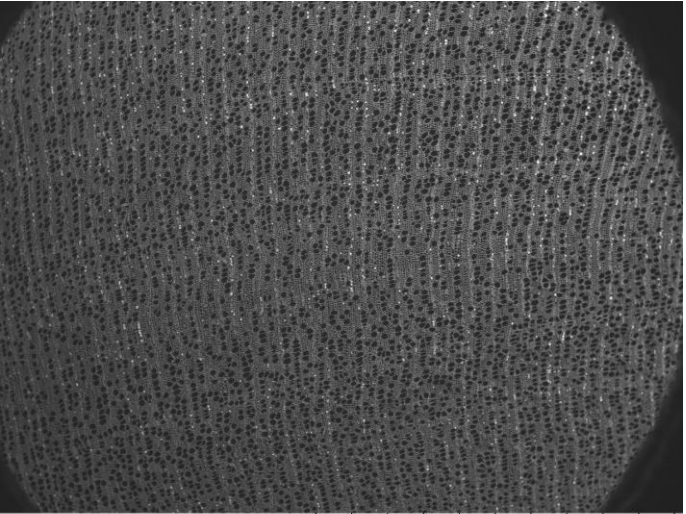
Elevation: 30 m

Description: Upperstory tree. Locally known as "Clavo Blanco". In a wooded area with closed canopy and few remnant trees.

Location: Ecuador, Manabí, Jama

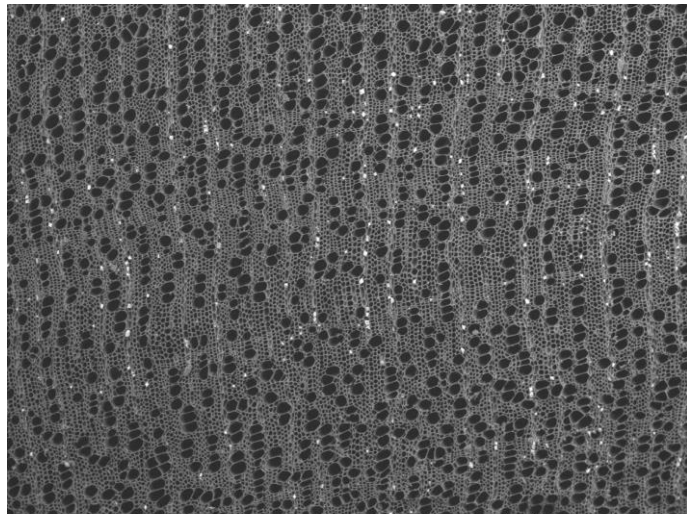
Locality: Jama River Valley. Jama, Area 1: Approximately 1 km directly South of Jama, and West of the Jama River. Jama topo map 1:50,000, cuadrícula (block) N77 E81. Collected on NW facing slope.

Transverse 50x



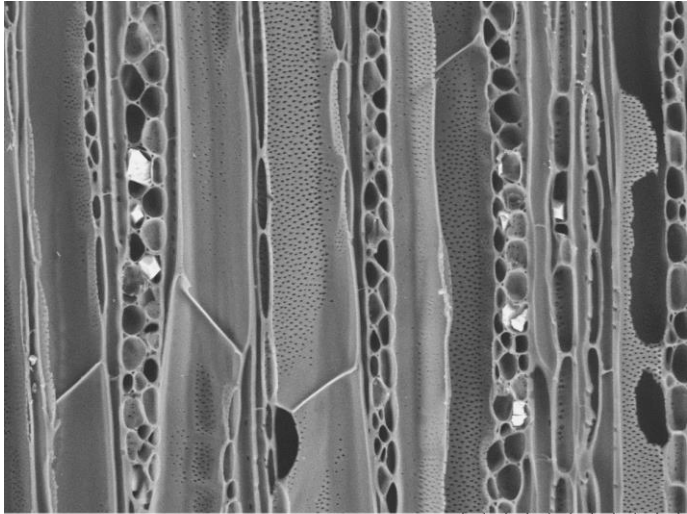
EWC 1625 2022/07/26 04:46 L D2.9 x50 2 mm

Transverse 100x



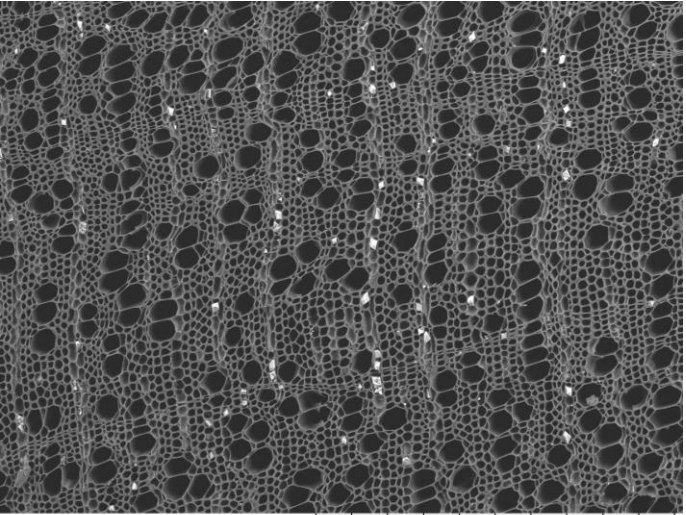
EWC 1625 2022/07/26 04:47 L D2.9 x100 1 mm

Vessel Wall



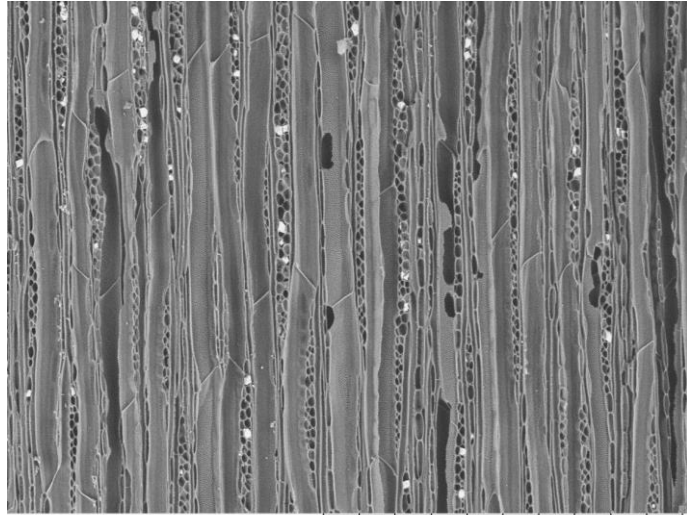
EWC 1625 2022/07/27 22:25 L D3.7 x600 100 µm

Transverse 200x



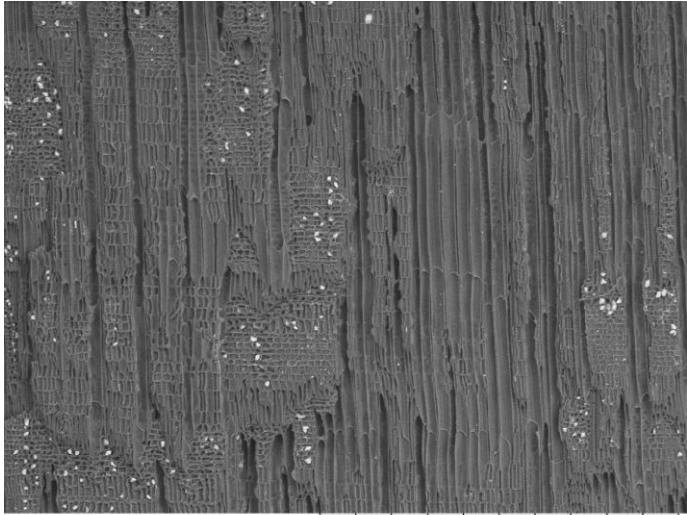
EWC 1625 2022/07/26 04:48 L D2.9 x200 500 µm

Tangential



EWC 1625 2022/07/27 22:24 L D3.7 x200 500 µm

Radial



EWC 1625 2022/07/27 22:28 L D5.2 x100 1 mm

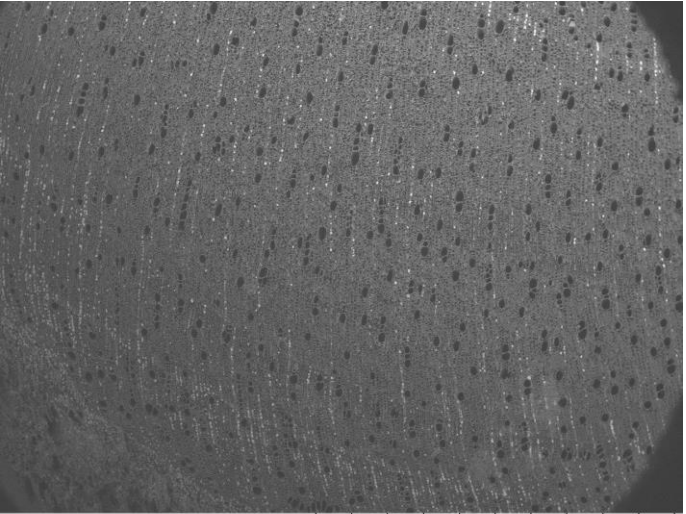
# EWC 1626 Unknown Identification

**Vessels**  
Size: <50µm  
Freq.: 40 to 100  
Arrangement: solitary, pairs, chains, clusters  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): mostly uniseriate  
**Parenchyma Type:** Diffuse-in-aggregates  
**Porosity:** diffuse

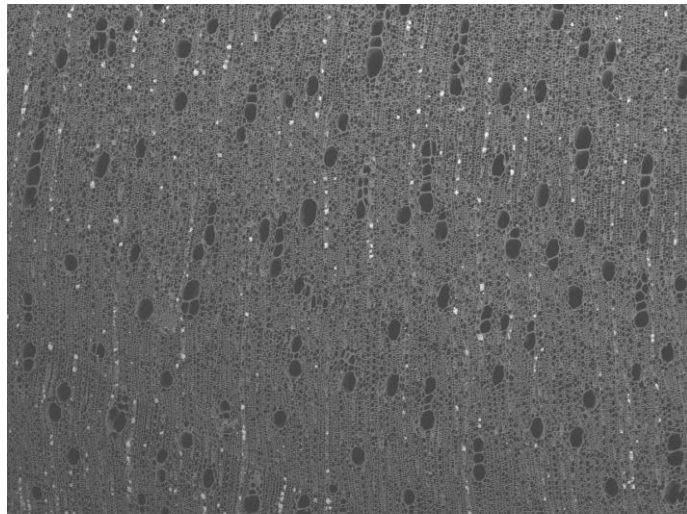
**Common Name:** "chala"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



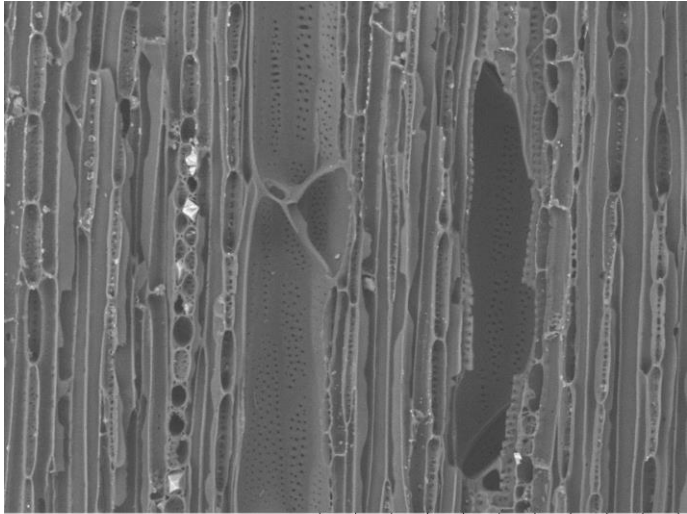
EWC 1626 2022/09/09 05:45 L D3.7 x50 2 mm

**Transverse 100x**



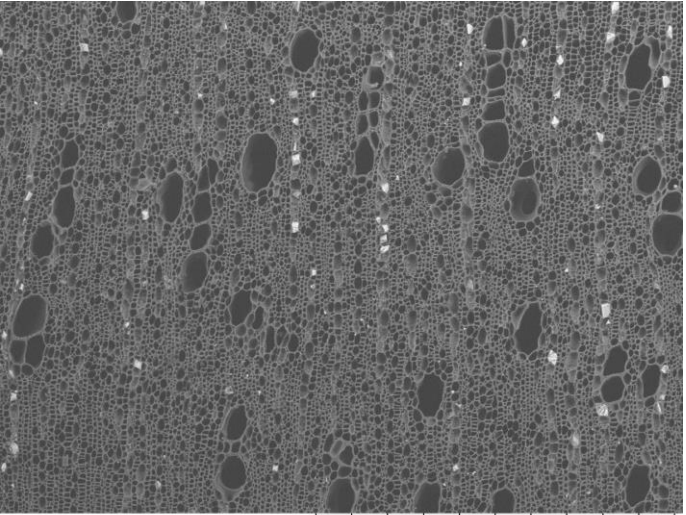
EWC 1626 2022/09/09 05:46 L D3.7 x100 1 mm

**Vessel Wall**



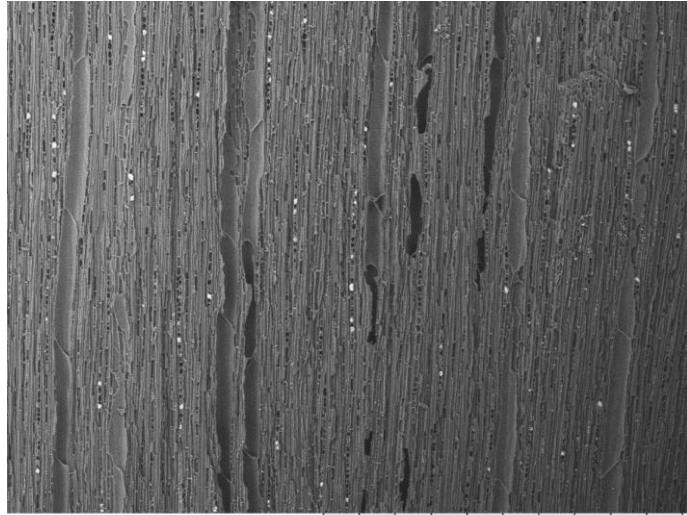
EWC 1626 2022/09/09 06:01 L D4.8 x500 200 um

**Transverse 200x**



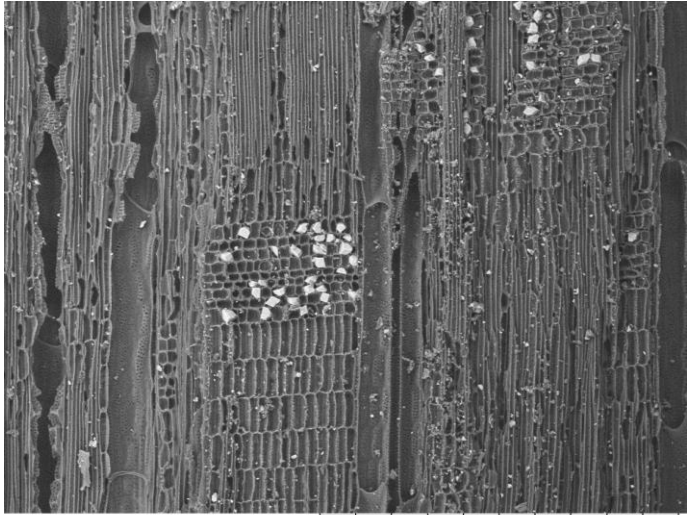
EWC 1626 2022/09/09 05:48 L D3.7 x200 500 um

**Tangential**



EWC 1626 2022/09/09 05:57 L D4.8 x100 1 mm

**Radial**



EWC 1626 2022/09/09 06:05 L D3.9 x200 500 um

# EWC 1627 FABACEAE

## Vessels

Size: <50-100, 100-200 μm

Freq.: 20 to 40

Arrangement: solitary and clusters

Tyloses: absent

## Rays:

# per mm: 12+

Thickness (cells): 1 to 3

Parenchyma Type: Vascentric  
(lozenge and winged)

Porosity: diffuse

Common Name: "pela caballo"

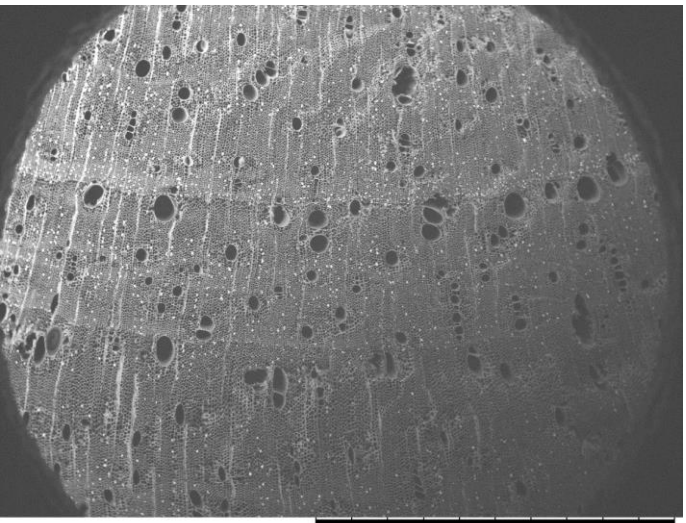
Elevation:

Description:

Location: Ecuador

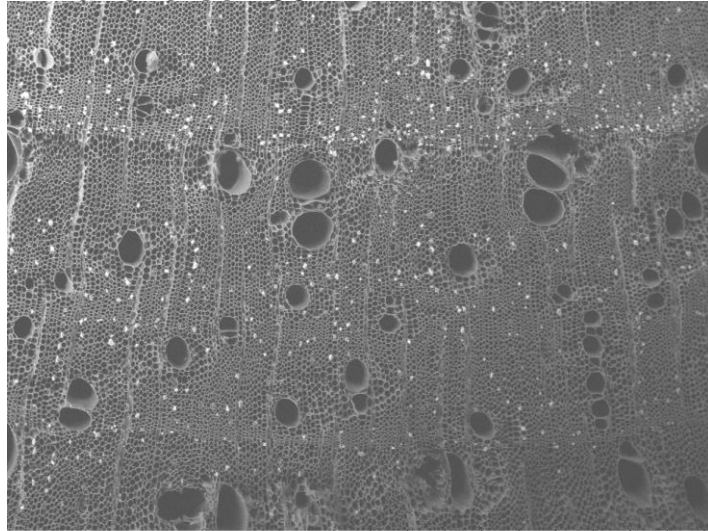
Locality:

Transverse 50x



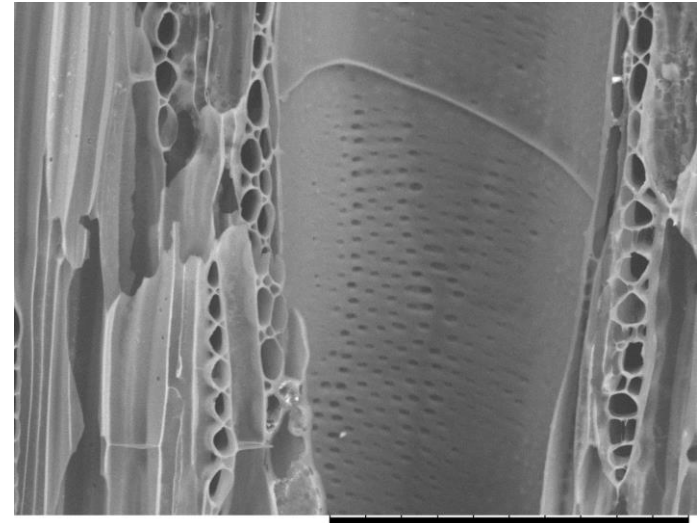
EWC 1627 2022/09/15 04:35 L D2.0 x50 2 mm

Transverse 100x



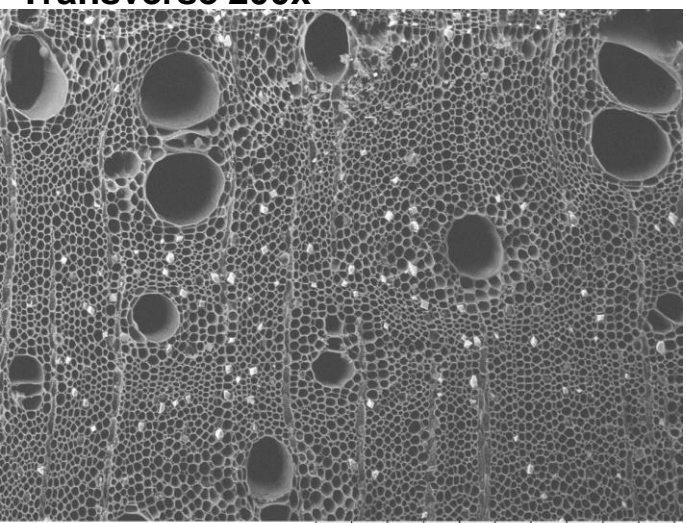
EWC 1627 2022/09/15 04:36 L D2.0 x100 1 mm

Vessel Wall



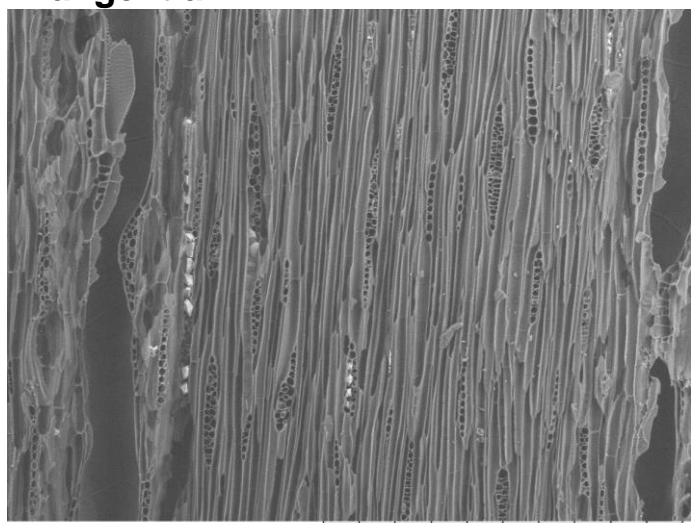
EWC 1627 2022/10/14 16:56 D5.4 x1.0k 100 μm

Transverse 200x



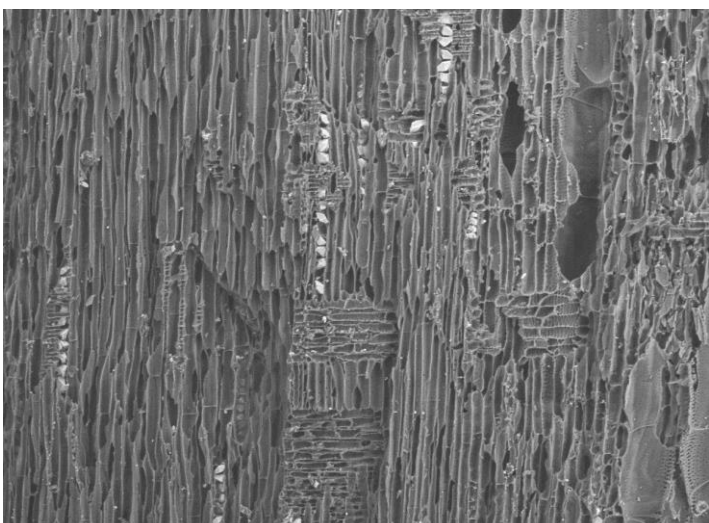
EWC 1627 2022/09/15 04:37 L D2.0 x200 500 μm

Tangential



EWC 1627 2022/09/15 04:42 L D2.8 x200 500 μm

Radial



EWC 1627 2022/09/15 04:50 L D3.0 x200 500 μm

# EWC 1628 PRIMULACEAE *Jacquinia* L.

## Vessels

Size: <50µm

Freq.: 40 to 100

Arrangement: solitary, pairs, chains

Tyloses: absent

## Rays:

# per mm: <4

Thickness (cells): 4+

Parenchyma Type: Absent, diffuse

Porosity: diffuse

Common Name: "Barbasco"

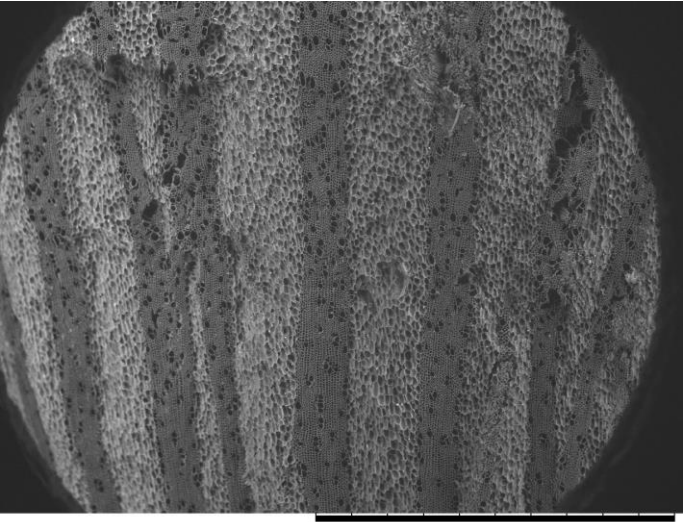
Elevation: 30 m

Description: Upperstory tree with leathery leaves. In a wooded area with closed canopy and few remnant trees.

Location: Ecuador, Manabí

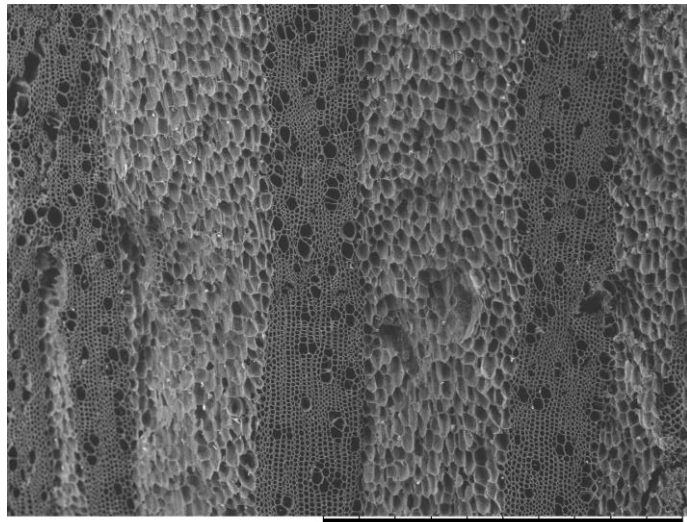
Locality: Jama River Valley. Jama, Area 1: Approximately 1 km directly South of Jama, and West of the Jama River. Collected on NW facing slope. Jama topo map 1:50,000, cuadrícula (block) N77 E81.

Transverse 50x



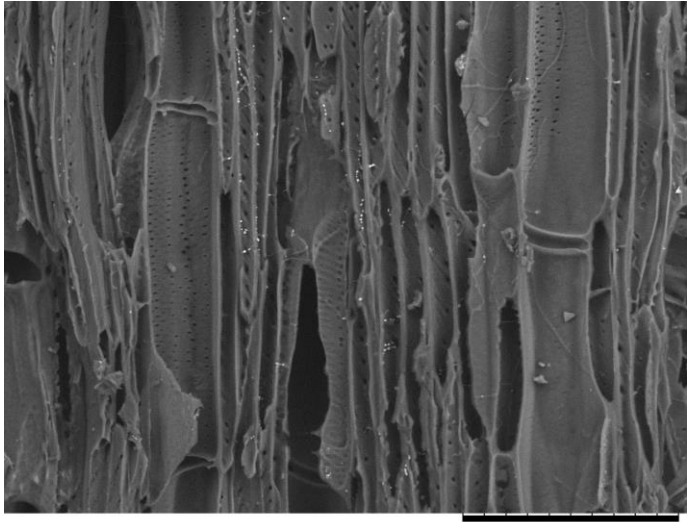
EWC 1628 2022/08/11 00:51 L D2.0 x50 2 mm

Transverse 100x



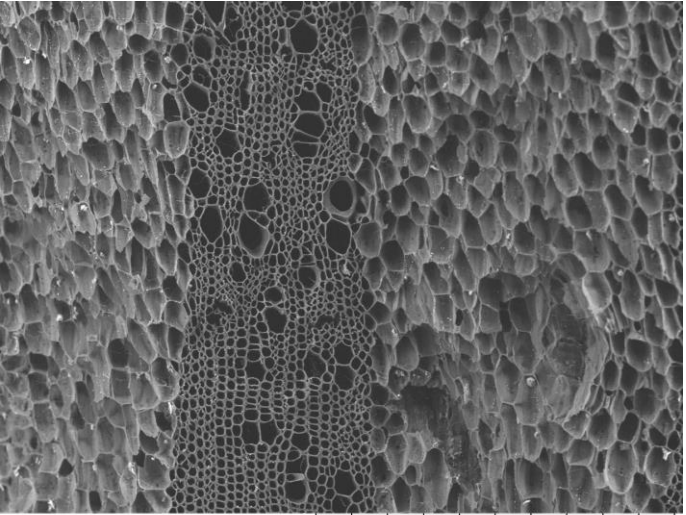
EWC 1628 2022/08/11 00:53 L D2.0 x100 1 mm

Vessel Wall



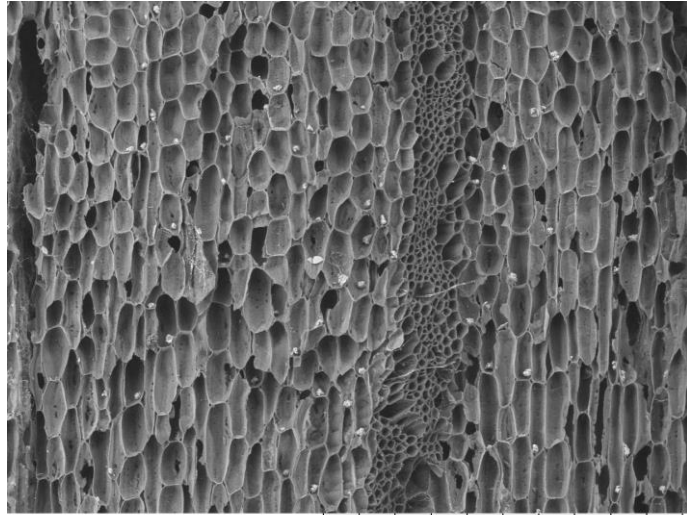
EWC 1628 2022/09/21 01:35 L D4.0 x600 100 µm

Transverse 200x



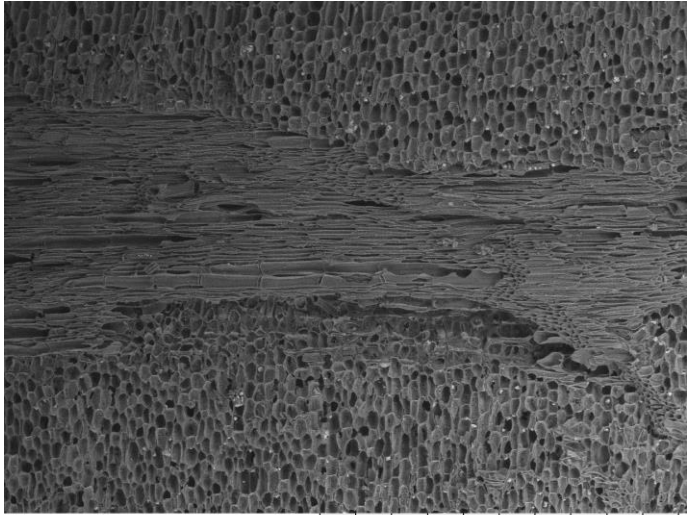
EWC 1628 2022/08/11 00:54 L D2.0 x200 500 µm

Tangential



EWC 1628 2022/08/11 00:58 L D3.6 x200 500 µm

Radial



EWC 1628 2022/09/21 01:32 L D4.0 x100 1 mm

# EWC 1629 FABACEAE *Acacia*

## Vessels

Size: 100-200µm

Freq.: 5 to 20

Arrangement: solitary, pairs, chains

Tyloses: absent

## Rays:

# per mm: 4-12

Thickness (cells): 4+

Parenchyma Type Vasicentric aliform

Porosity: diffuse

## Common Name:

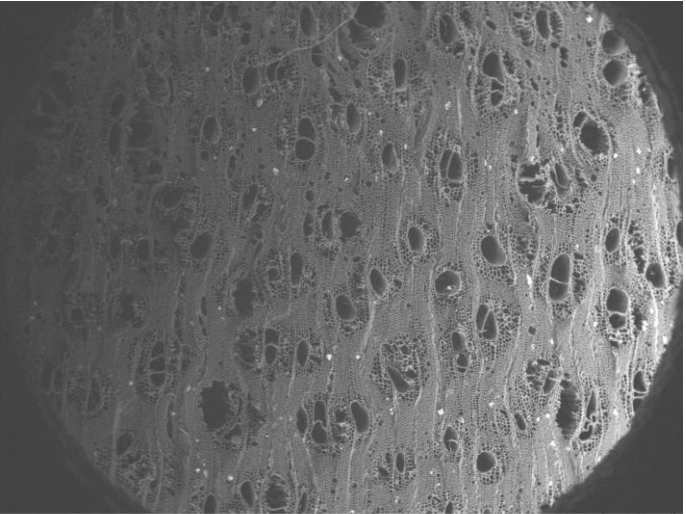
Elevation:

Description:

Location: Ecuador

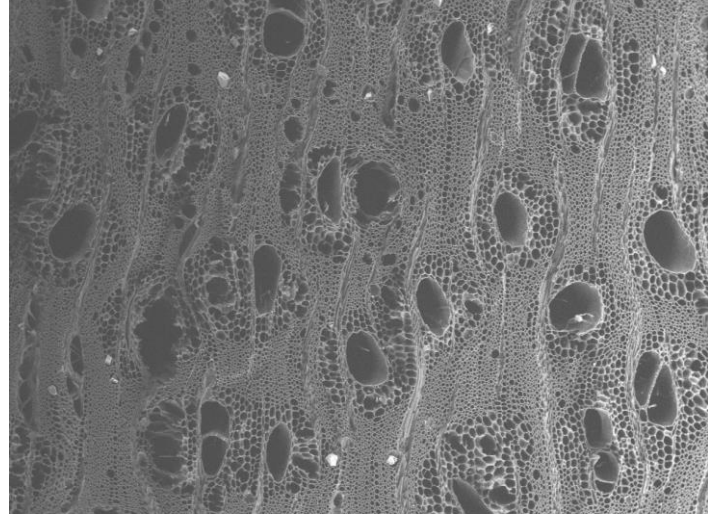
Locality:

Transverse 50x



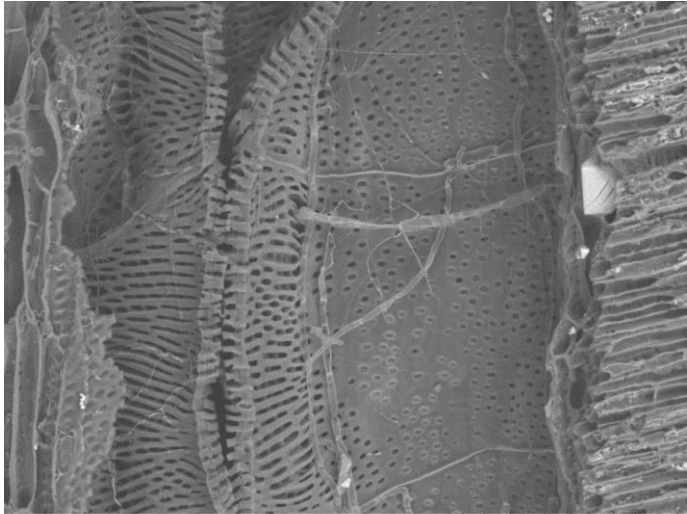
EWC 1629 2022/09/15 05:05 L D1.9 x50 2 mm

Transverse 100x



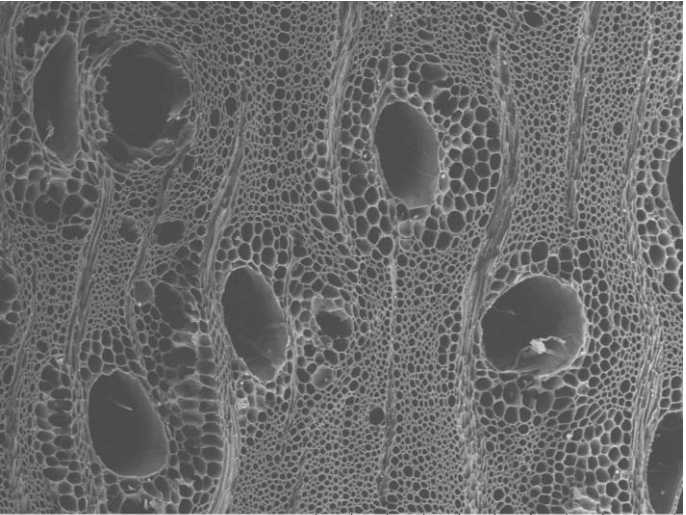
EWC 1629 2022/09/15 05:06 L D1.9 x100 1 mm

Vessel Wall



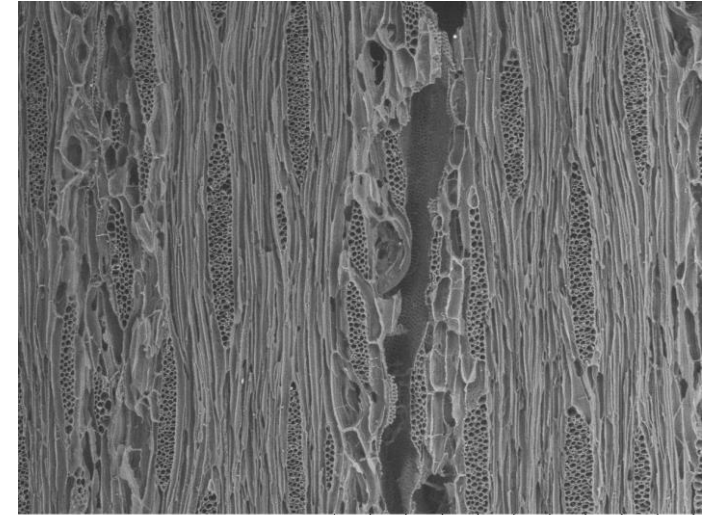
EWC 1629 2022/09/22 05:13 L D5.1 x600 100 um

Transverse 200x



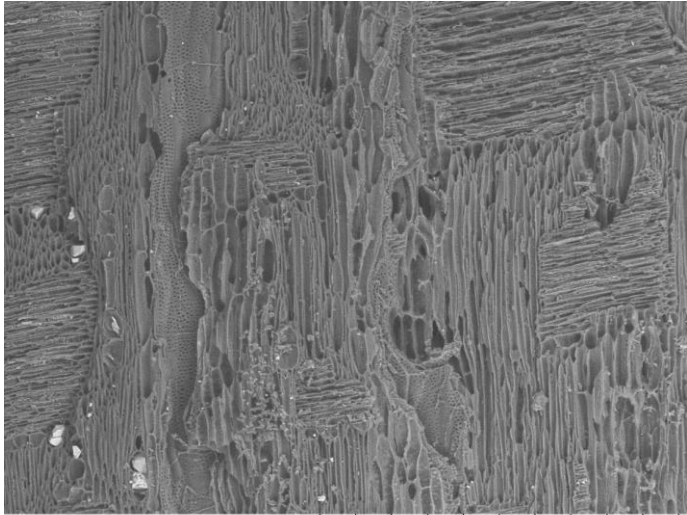
EWC 1629 2022/09/15 05:08 L D1.9 x200 500 um

Tangential



EWC 1629 2022/09/22 05:06 L D4.4 x200 500 um

Radial



EWC 1629 2022/09/22 05:12 L D5.1 x200 500 um



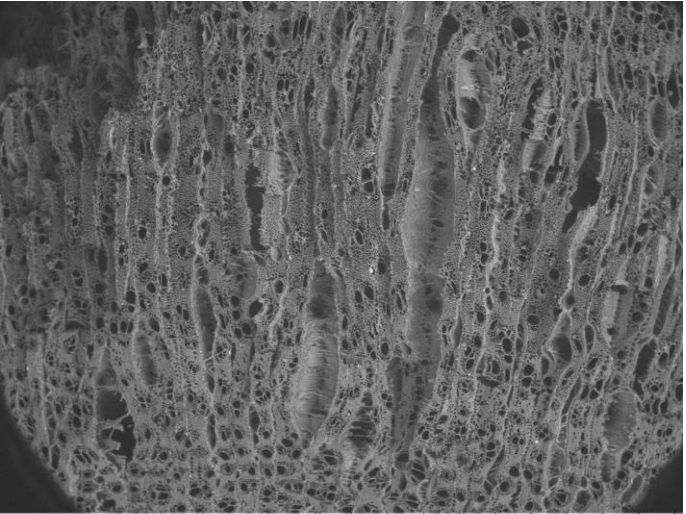
# EWC 1630 MALVACEAE

**Vessels**  
Size: <50µm, 50-100µm  
Freq.: 5 to 20, 20 to 40  
Arrangement: solitary, pairs  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): uniseriate  
**Parenchyma Type:** Vascentric  
(unilateral, winged, confluent), Diffuse  
**Porosity:** semi-ring porous

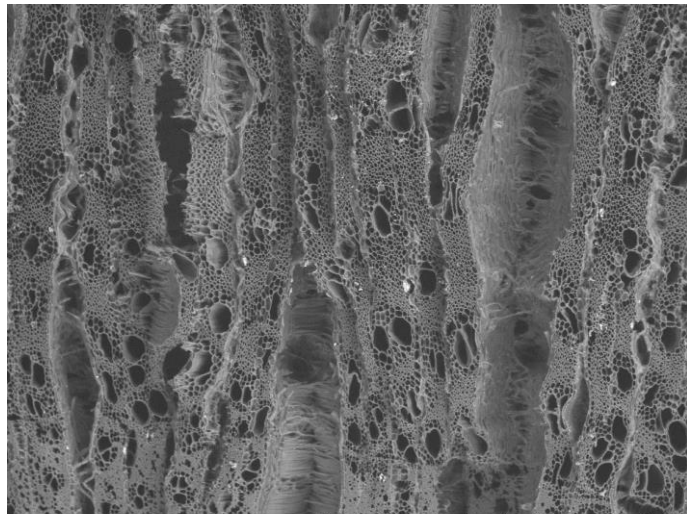
**Common Name:** "pata de galinazo"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



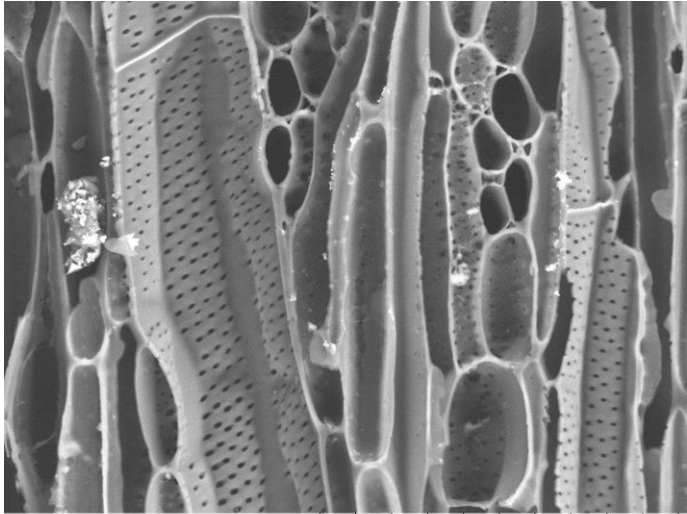
EWC 1630 2022/08/09 01:27 L D3.3 x50 2 mm

**Transverse 100x**



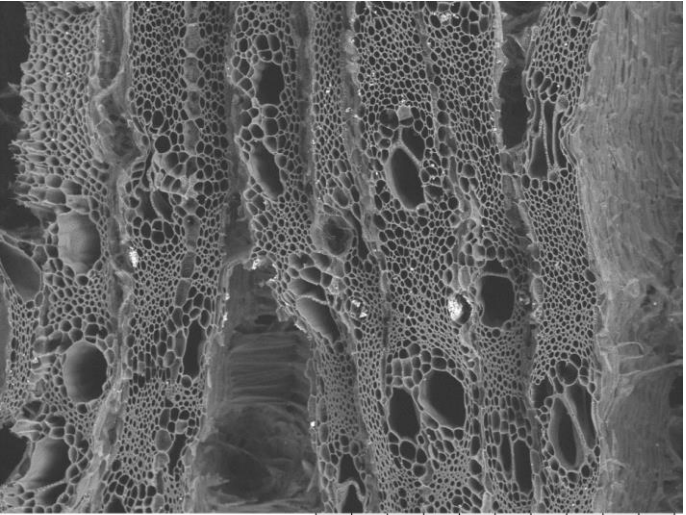
EWC 1630 2022/08/09 01:28 L D3.3 x100 1 mm

**Vessel Wall**



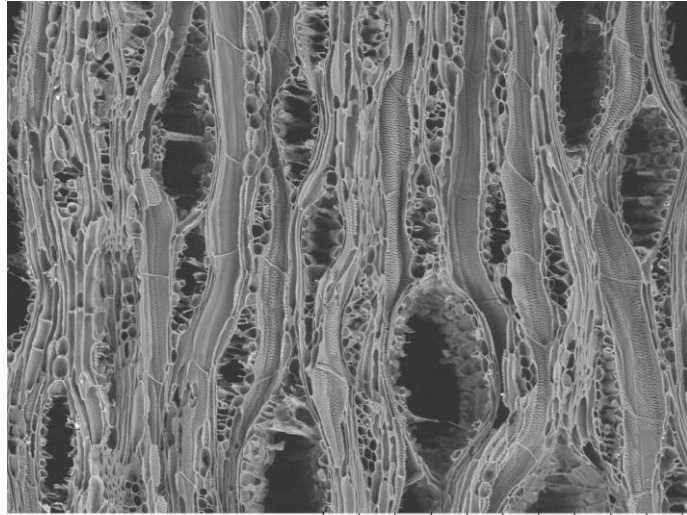
EWC 1630 2022/10/08 14:01 D2.1 x1.0k 100 um

**Transverse 200x**



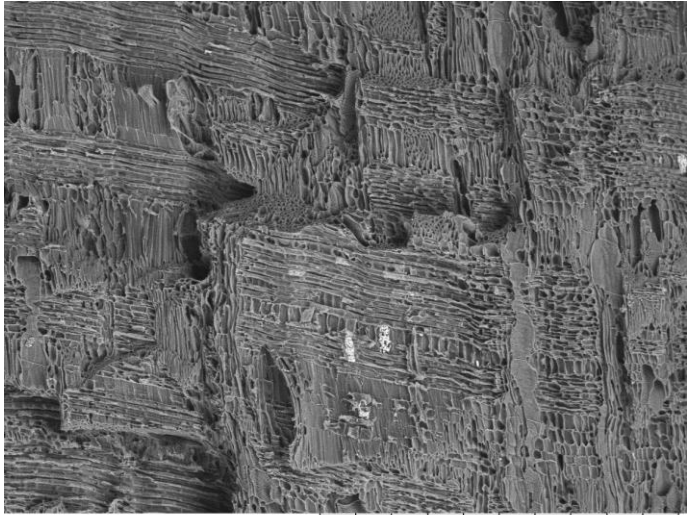
EWC 1630 2022/08/09 01:29 L D3.3 x200 500 um

**Tangential**



EWC 1630 2022/08/09 01:39 L D4.7 x200 500 um

**Radial**



EWC 1630 2022/08/09 01:33 L D3.9 x100 1 mm

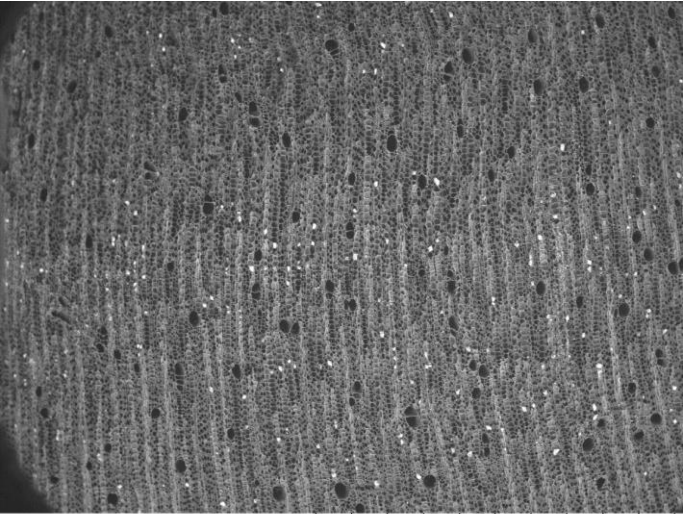
# EWC 1631 RHAMNACEAE *Ziziphus thyrsoiflora* Benth.

**Vessels**  
Size: <50µm  
Freq.: 5 to 20  
Arrangement: solitary, pairs  
**Tyloses:** absent

**Rays:**  
# per mm: 12+  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Thin bands,  
Diffuse-in-Aggregates  
**Porosity:** diffuse

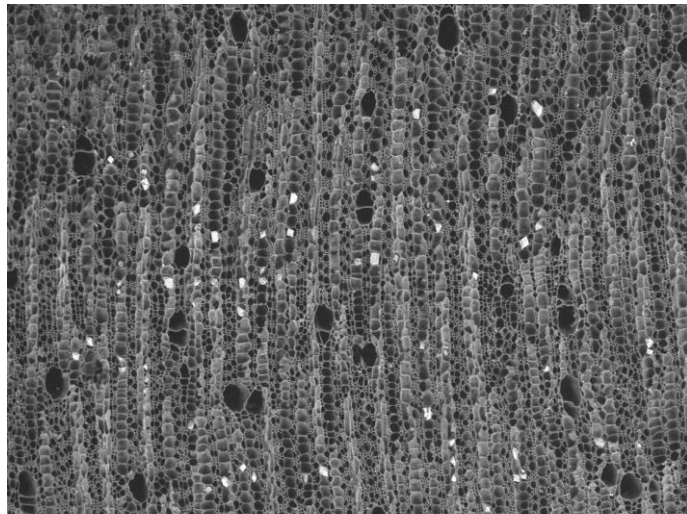
**Common Name:** "Ébano"  
**Elevation:** 20 m  
**Description:** Understory tree with paired spines on trunk.  
**Location:** Ecuador, Manabí, Jama  
**Locality:** Jama, Area 2: Approximately 1 km directly south of Jama, and west of the Jama River. Collected from the floor of the Jama River Valley. Jama topo map 1:50,000. cuadrícula (block) N77 E81.

**Transverse 50x**



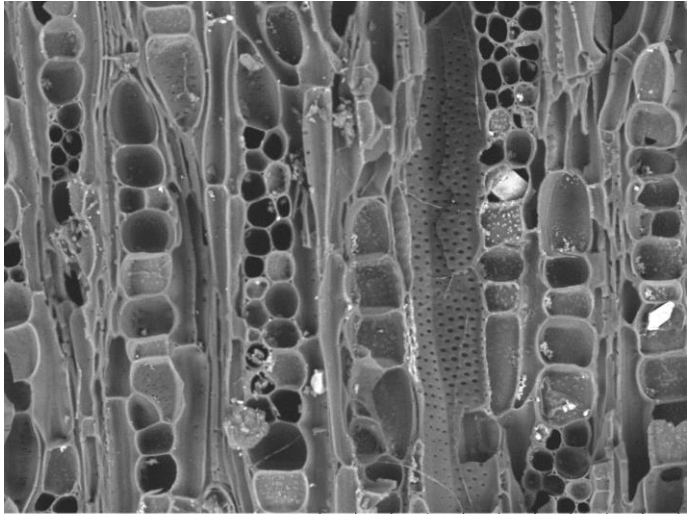
EWC 1631 2022/08/09 01:45 L D4.1 x50 2 mm

**Transverse 100x**



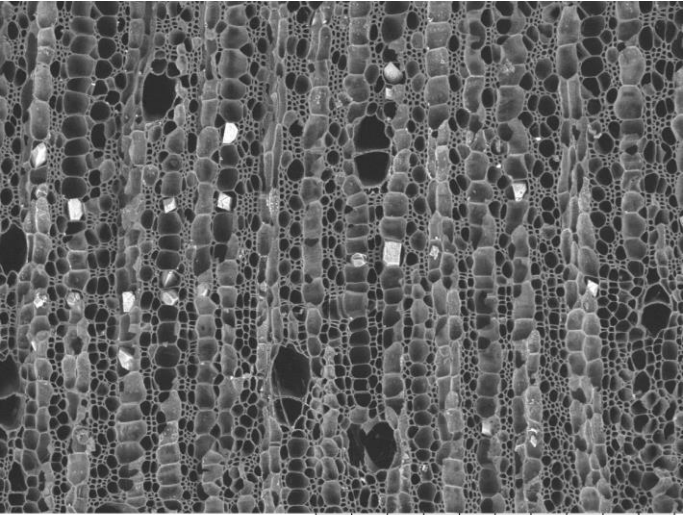
EWC 1631 2022/08/09 01:45 L D4.1 x100 1 mm

**Vessel Wall**



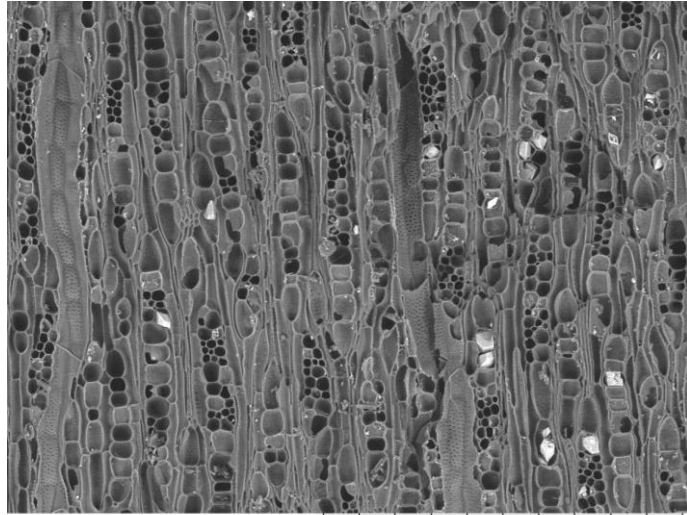
EWC 1631 2022/08/09 01:19 L D4.7 x500 200 µm

**Transverse 200x**



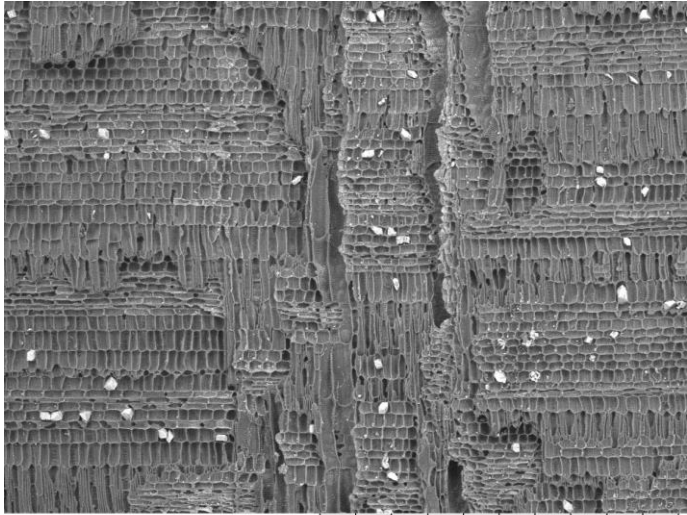
EWC 1631 2022/08/09 01:46 L D4.1 x200 500 µm

**Tangential**



EWC 1631 2022/08/09 01:17 L D4.7 x200 500 µm

**Radial**



EWC 1631 2022/08/09 01:22 L D5.1 x100 1 mm

# EWC 1632 FABACEAE

## Vessels

Size: 50-100µm, 100-200µm

Freq.: 5 to 20, 20 to 40

Arrangement: solitary, pairs, chains

Tyloses: absent

## Rays:

# per mm: 4-12

Thickness (cells): 1 to 3

**Parenchyma Type:** Vasicentric,  
Unilateral, Diffuse

**Porosity:** diffuse

**Common Name:** "pela caballo"

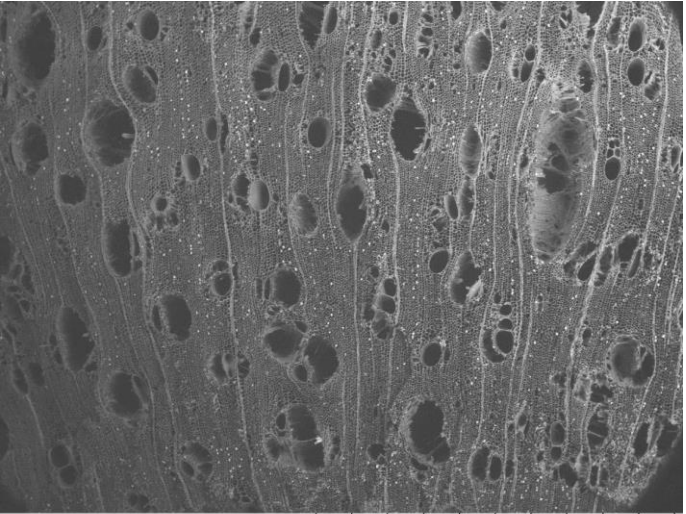
**Elevation:**

**Description:**

**Location:** Ecuador

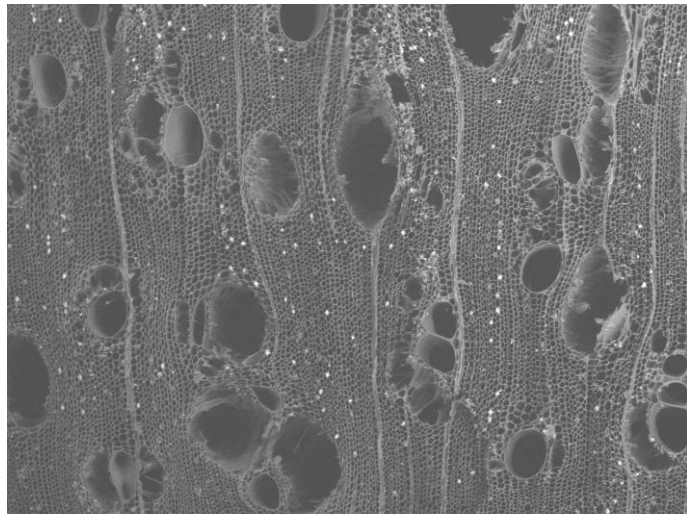
**Locality:**

Transverse 50x



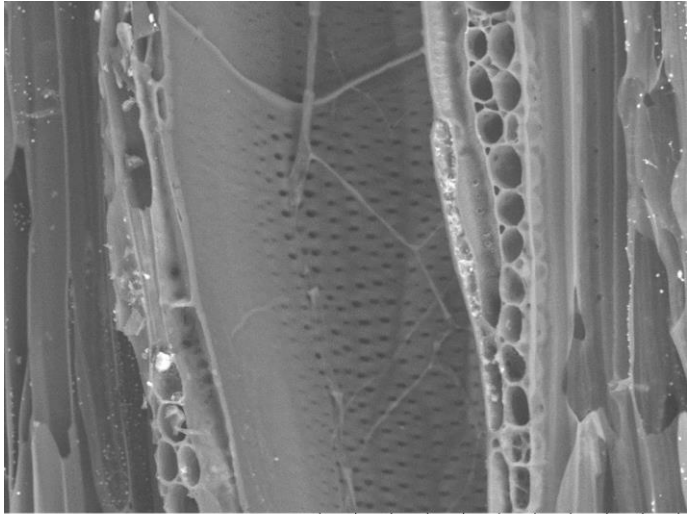
EWC 1632 2022/09/22 23:09 L D4.0 x50 2 mm

Transverse 100x



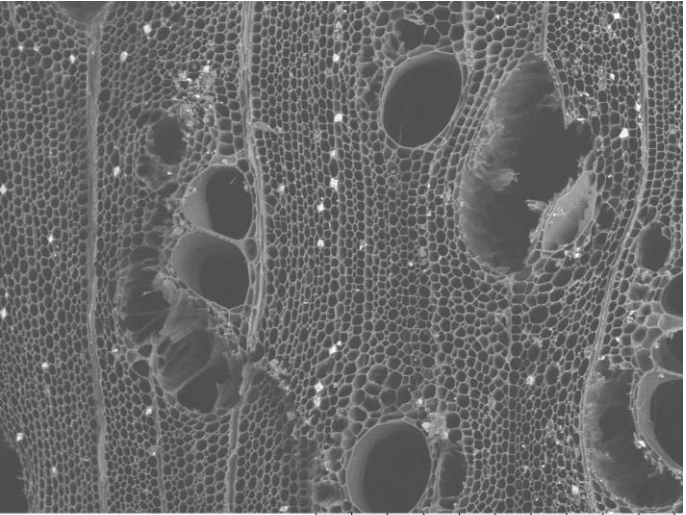
EWC 1632 2022/09/22 23:10 L D4.0 x100 1 mm

Vessel Wall



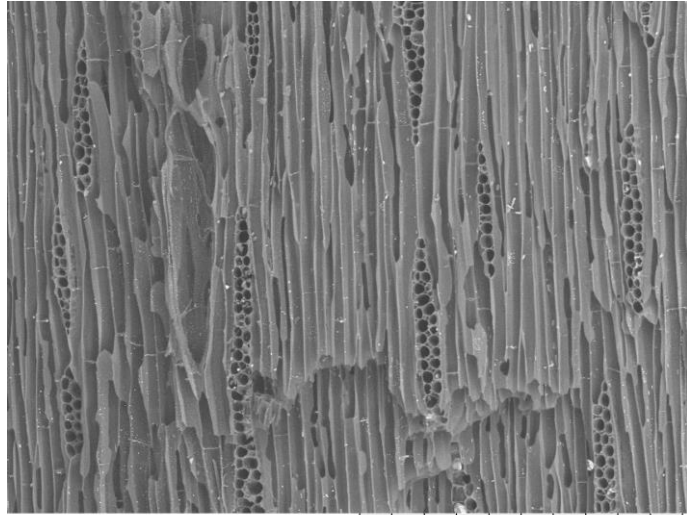
EWC 1632 2022/09/22 23:06 L D4.5 x1.0k 100 um

Transverse 200x



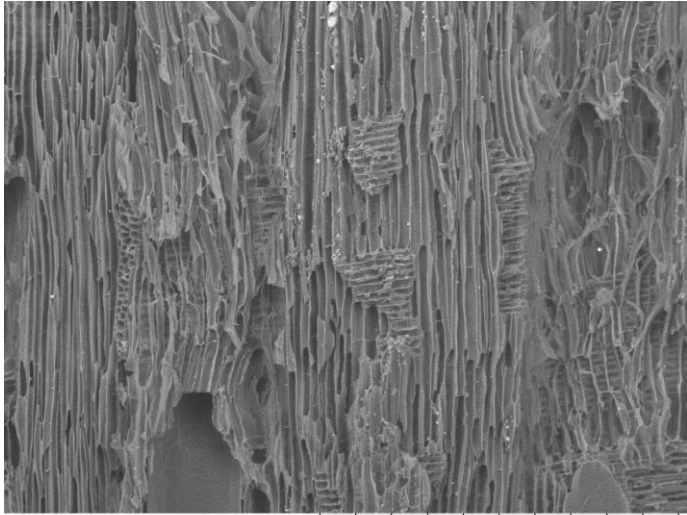
EWC 1632 2022/09/22 23:11 L D4.0 x200 500 um

Tangential



EWC 1632 2022/09/22 23:03 L D4.5 x300 300 um

Radial



EWC 1632 2022/09/22 22:56 L D5.4 x200 500 um

# EWC 1633 FABACEAE

## Vessels

Size: 100-200µm

Freq.: 5 to 20

Arrangement: solitary, chains, clusters

Tyloses: absent

## Rays:

# per mm: 4-12

Thickness (cells): uniseriate, 1 to 3, of two distinct sizes

Parenchyma Type: Scanty, vasicentric

Porosity: semi-ring porous

**Common Name:** "pela caballo"

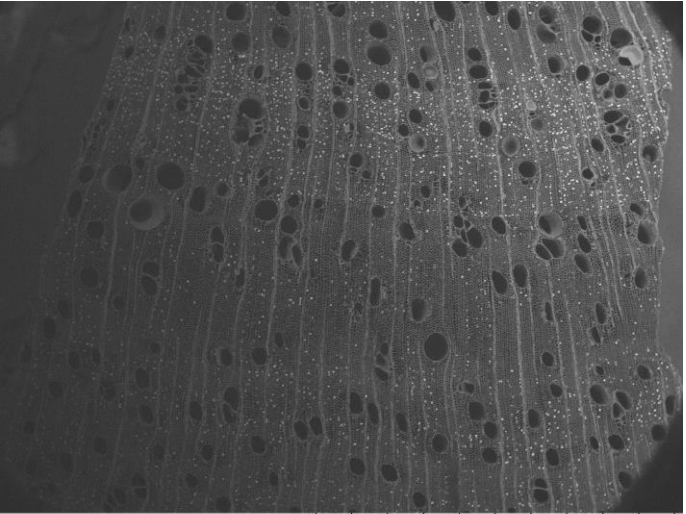
**Elevation:**

**Description:**

**Location:** Ecuador

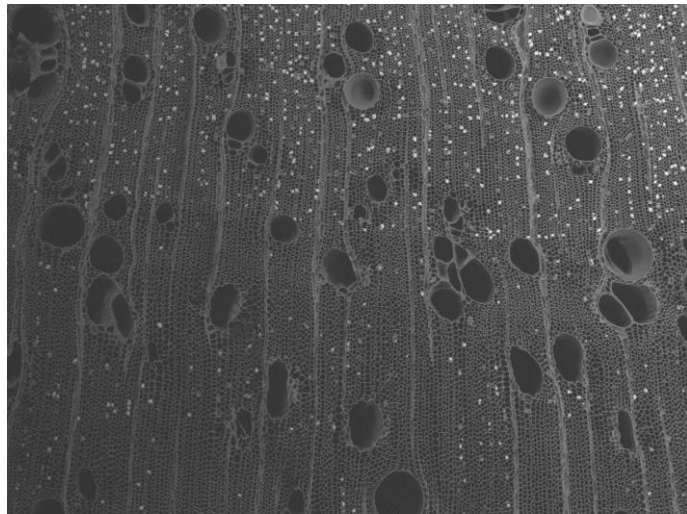
**Locality:**

**Transverse 50x**



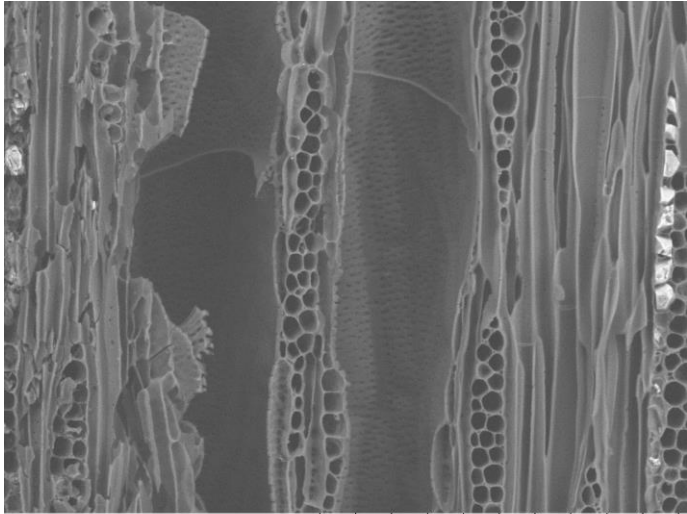
EWC 1633 2022/09/23 02:39 L D3.6 x50 2 mm

**Transverse 100x**



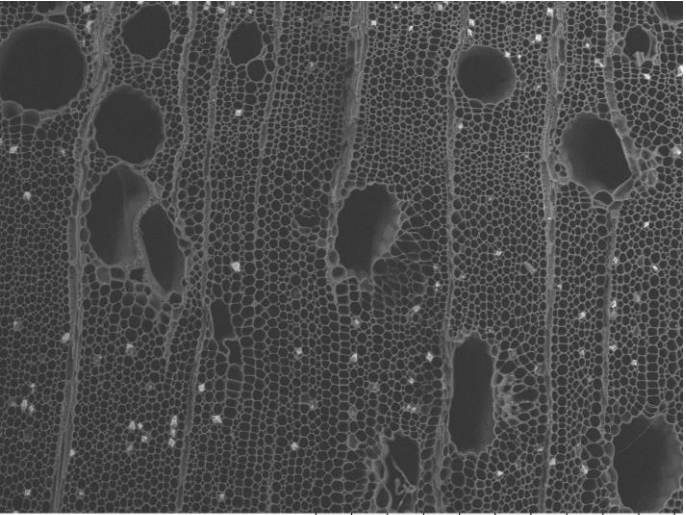
EWC 1632 2022/09/23 02:36 L D3.6 x100 1 mm

**Vessel Wall**



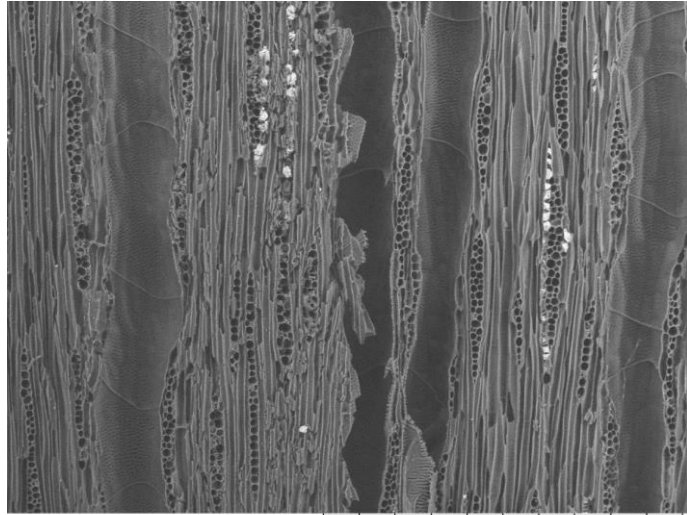
EWC 1633 2022/09/23 02:50 L D3.5 x500 200 um

**Transverse 200x**



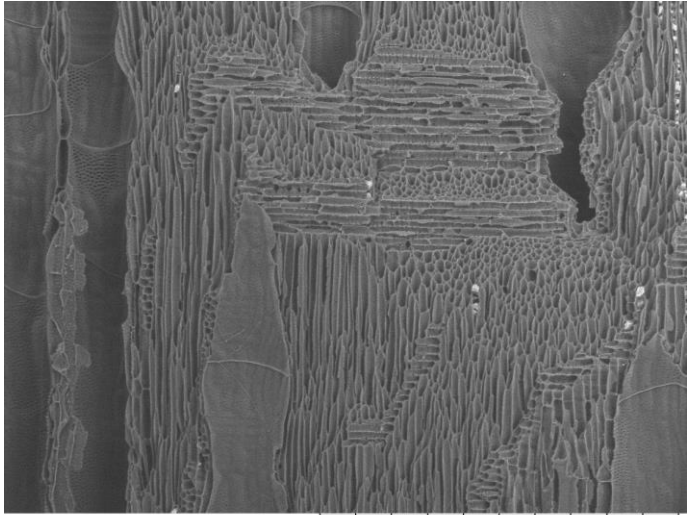
EWC 1633 2022/09/23 02:40 L D3.6 x200 500 um

**Tangential**



EWC 1633 2022/09/23 02:49 L D3.5 x200 500 um

**Radial**



EWC 1633 2022/09/23 02:44 L D4.2 x200 500 um

# EWC 1634 CORDIACEAE *Cordia lutea* Lam

**Common Name:** "Muyuyu"

**Elevation:** 20 m

**Description:** Tree or shrub with racemose yellow flrs.

**Location:** Ecuador, Manabí, Jama

**Locality:** Jama, Area 2: Approximately 1 km directly south of Jama, and west of the Jama River. Collected from the floor of the Jama River Valley. Jama topo map 1:50,000. cuadrícula (blck) N77 E81.

## Vessels

**Size:** 50-100µm

**Freq.:** 20 to 40, 40 to 100

**Arrangement:** solitary, pairs, clusters

**Tyloses:** common

## Rays:

**# per mm:** 4-12

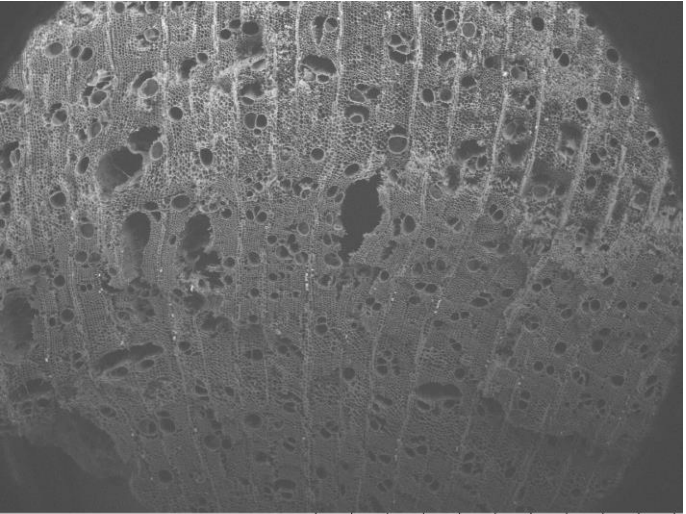
**Thickness (cells):** 1 to 3

**Parenchyma Type:** Banded (thick), Vasicentric (winged, confluent)

**Porosity:** semi-ring porous

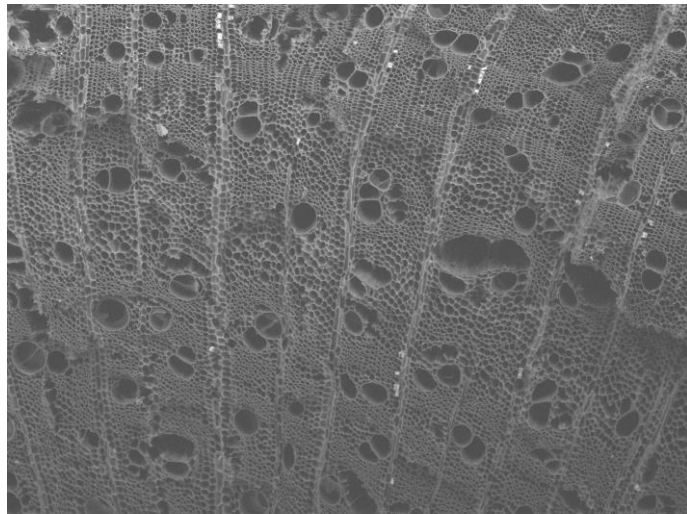
## Vessel Wall

## Transverse 50x

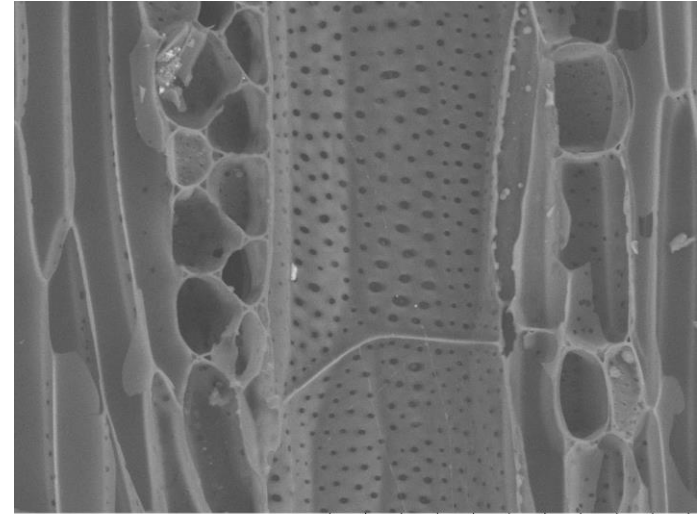


EWC 1634 2022/09/23 02:54 L D2.8 x50 2 mm

## Transverse 100x

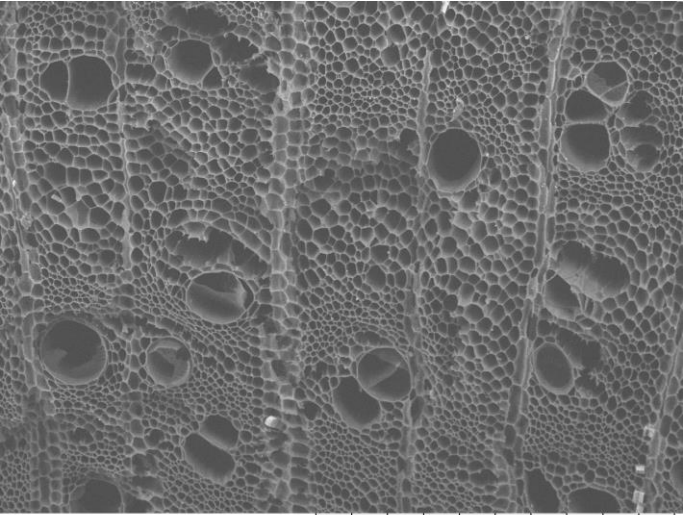


EWC 1634 2022/09/23 02:56 L D2.8 x100 1 mm



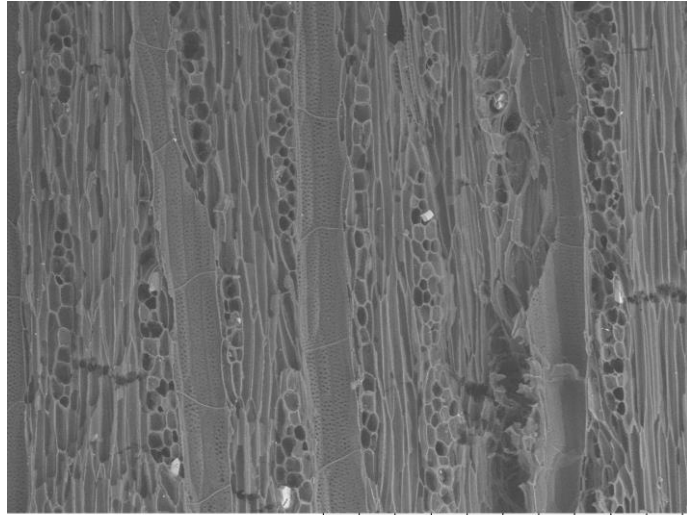
EWC 1634 2022/09/23 03:07 L D4.1 x1.0k 100 um

## Transverse 200x



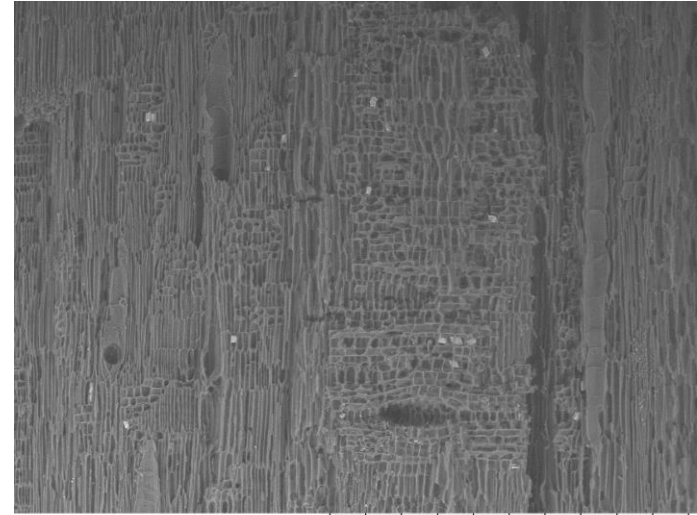
EWC 1634 2022/09/23 02:57 L D2.8 x200 500 um

## Tangential



EWC 1634 2022/09/23 03:04 L D4.1 x200 500 um

## Radial



EWC 1634 2022/09/23 02:59 L D4.5 x100 1 mm

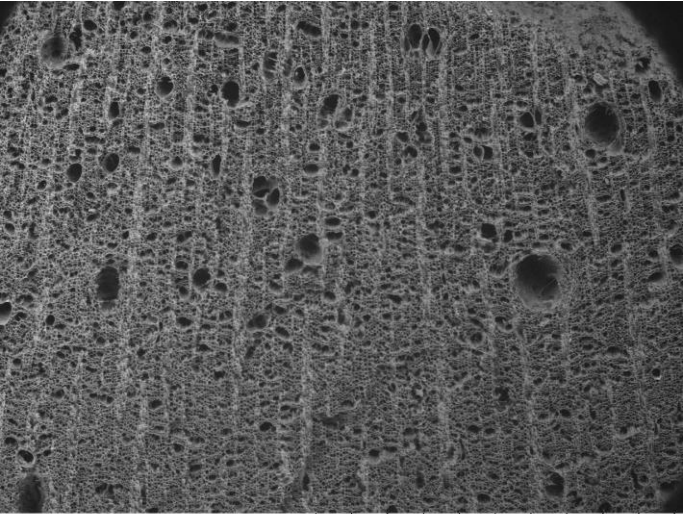
# EWC 1635 MALVACEAE *Guazuma ulmifolia* Lam.

**Common Name:** "guasmo"  
**Elevation:** 20 m  
**Description:** Understory tree with dark brown bark.  
**Location:** Ecuador, Manabí, Jama  
**Locality:** Jama, Area 2: Approximately 1 km directly south of Jama, and west of the Jama River. Collected from the floor of the Jama River Valley. Jama topo map 1:50,000, cuadrícula (block) N77 E81.

**Vessels**  
**Size:** 50-100µm, 100-200µm  
**Freq.:** 5-20  
**Arrangement:** solitary, pairs, clusters  
**Tyloses:** absent

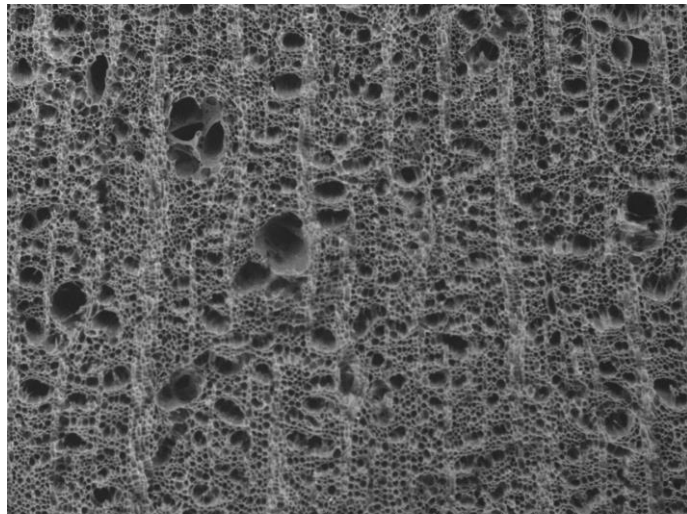
**Rays:**  
**# per mm:** 4-12  
**Thickness (cells):** 1-3, 4+  
**Parenchyma Type:** Diffuse-in-aggregates, thin bands  
**Porosity:** diffuse

**Transverse 50x**



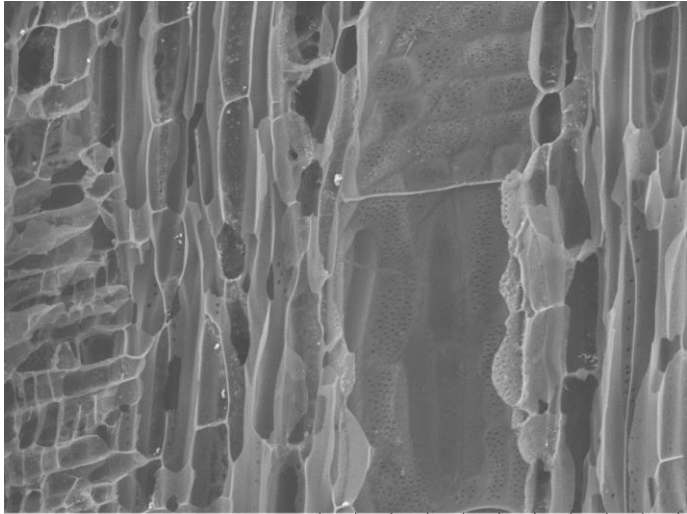
EWC 1635 2022/09/23 18:03 L D4.0 x50 2 mm

**Transverse 100x**



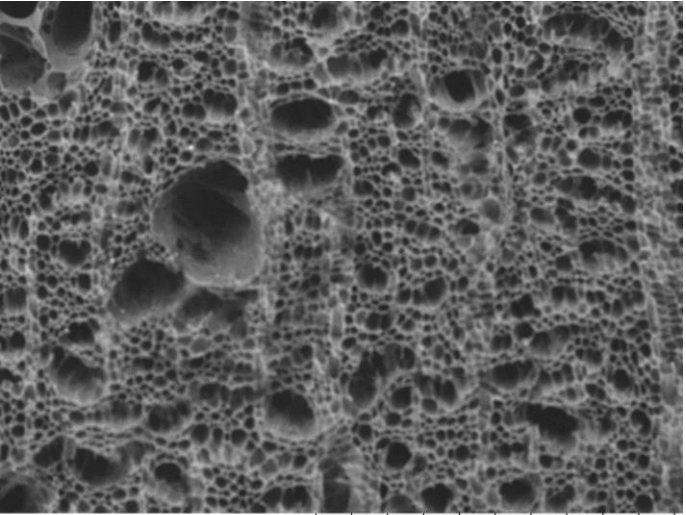
EWC 1635 2022/09/23 18:04 L D4.0 x100 1 mm

**Vessel Wall 500x**



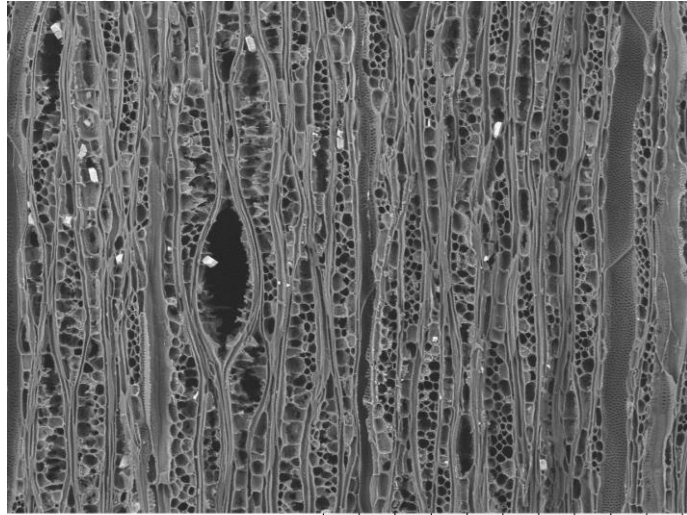
EWC 1635 2022/10/07 17:29 D2.9 x500 200 µm

**Transverse 200x**



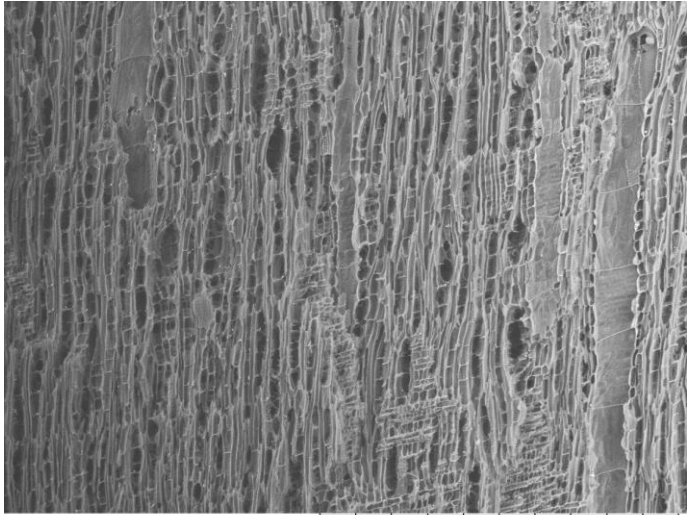
EWC 1635 2022/09/23 18:05 L D4.0 x200 500 µm

**Tangential 200x**



EWC 1635 2022/09/23 17:38 L D4.0 x200 500 µm

**Radial 100x**



EWC 1635 2022/10/07 17:23 D2.9 x100 1 mm

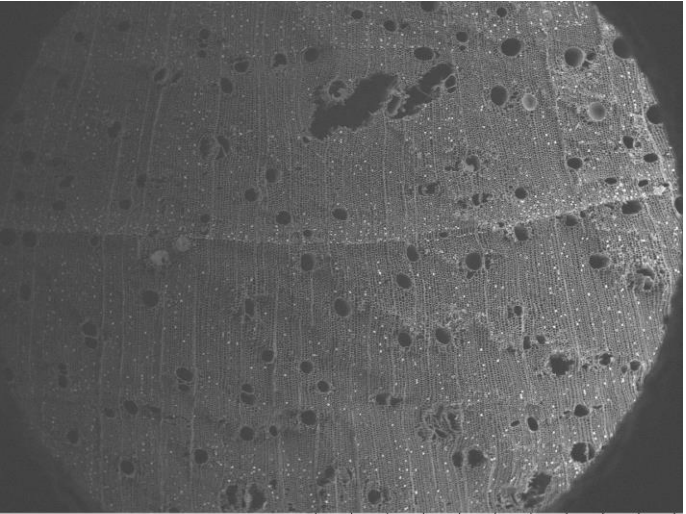
# EWC 1637 Unknown Identification

**Vessels**  
Size: 50-100µm  
Freq.: 5 to 20  
Arrangement: solitary, pairs  
**Tyloses:** absent

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Absent  
**Porosity:** diffuse

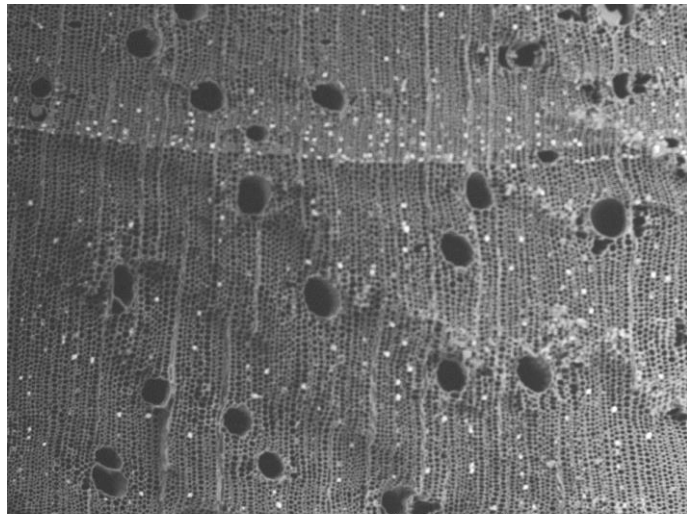
**Common Name:** "pate de paloma"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



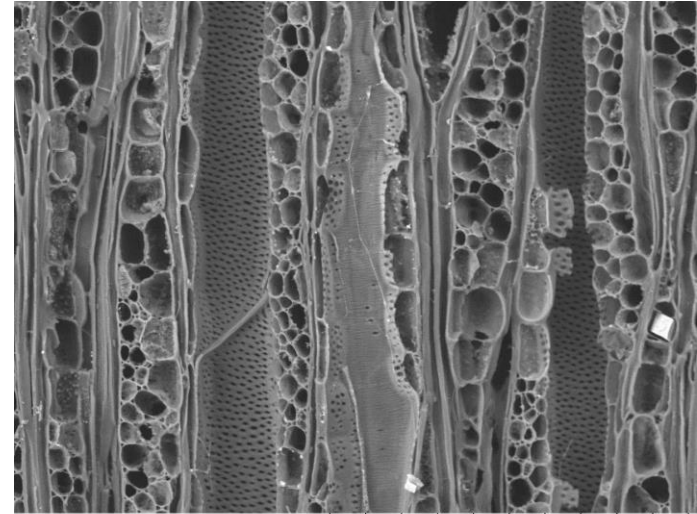
EWC 1637 2022/10/07 17:44 D2.2 x50 2 mm

**Transverse 100x**



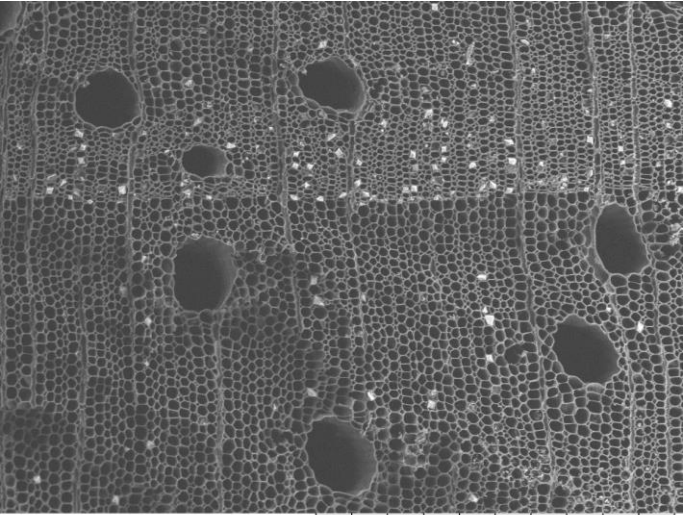
EWC 1637 2022/10/07 17:41 D2.9 x100 1 mm

**Vessel Wall 500x**



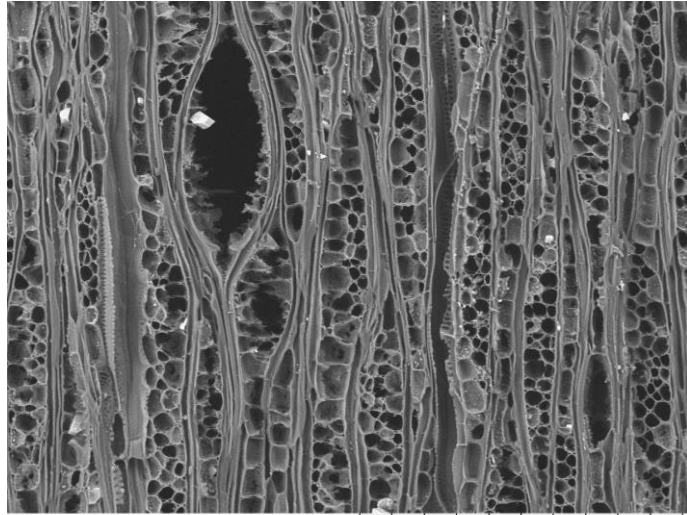
EWC 1637 2022/09/23 17:55 L D4.0 x500 200 µm

**Transverse 200x**



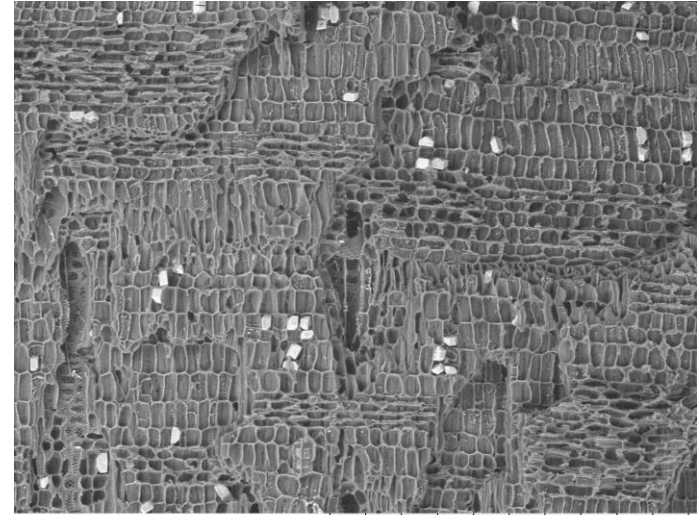
EWC 1637 2022/10/07 17:45 D2.2 x200 500 µm

**Tangential 200x**



EWC 1637 2022/09/23 17:53 L D4.0 x300 300 µm

**Radial 200x**



EWC 1637 2022/09/23 17:51 L D4.0 x200 500 µm

# EWC 1641 FABACEAE

## Vessels

Size: <50-100µm

Freq.: 40 to 100

Arrangement: solitary, pairs, chains

Tyloses: absent

## Rays:

# per mm: 12+

Thickness (cells): 1 to 3, of two distinct sizes

Parenchyma Type: Diffuse, Diffuse-in-aggregates, Scanty

Porosity: diffuse

Common Name: "pela caballo"

Elevation:

Description:

Location: Ecuador

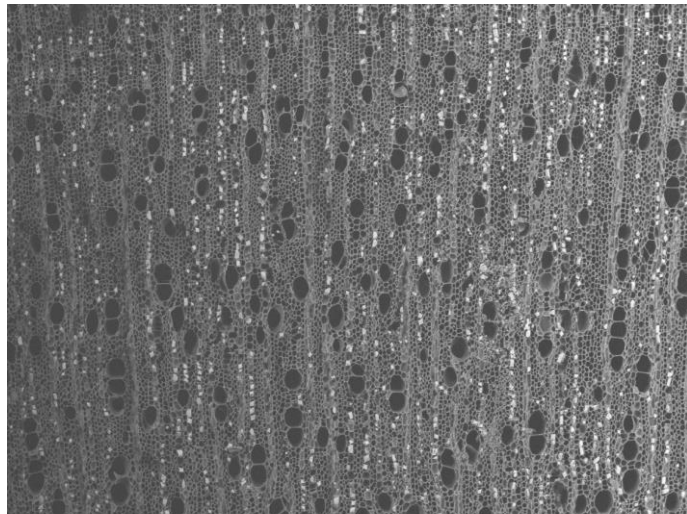
Locality:

Transverse 50x



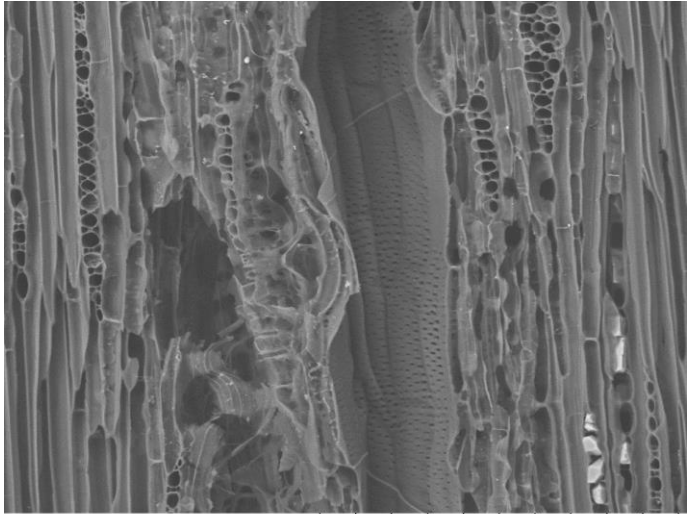
EWC 1641 2022/10/07 17:48 D2.2 x50 2 mm

Transverse 100x



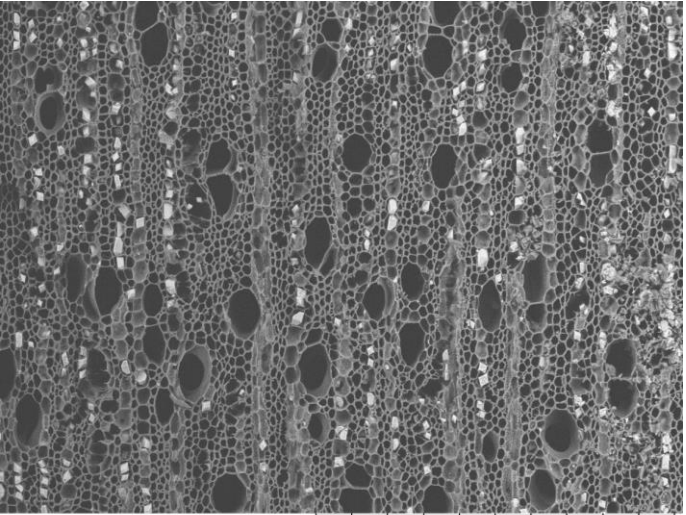
EWC 1641 2022/10/07 17:50 D3.3 x100 1 mm

Vessel Wall 500x



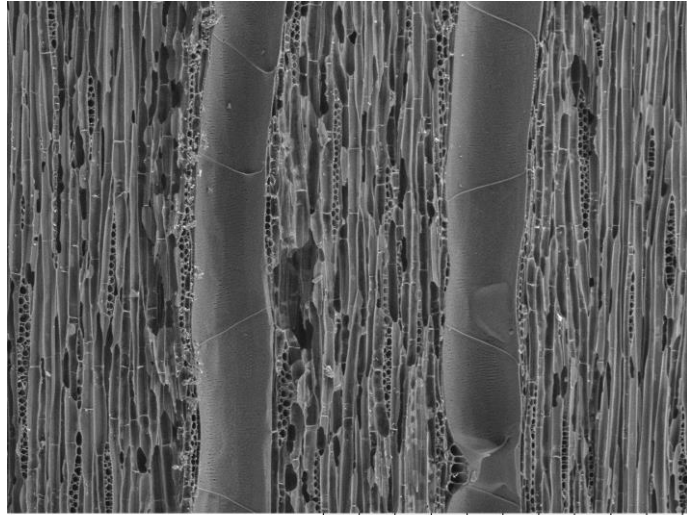
EWC 1641 2022/10/07 17:59 D3.5 x500 200 um

Transverse 200x



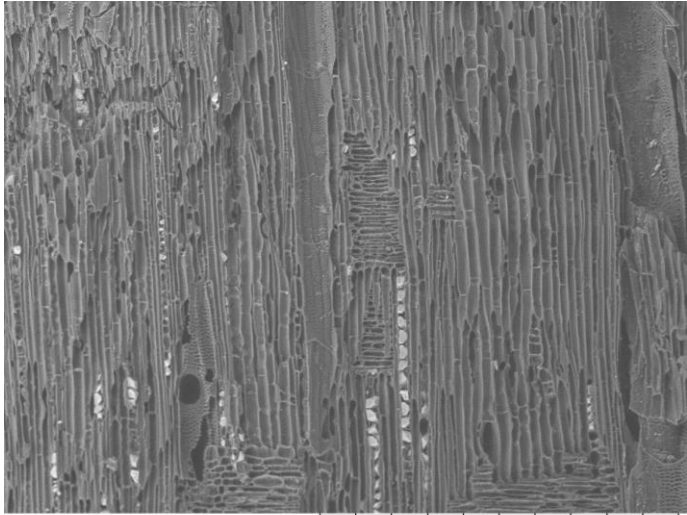
EWC 1641 2022/10/07 17:51 D3.3 x200 500 um

Tangential 200x



EWC 1641 2022/10/27 09:37 D2.6 x200 500 um

Radial 200x



EWC 1641 2022/10/07 18:03 D3.2 x200 500 um



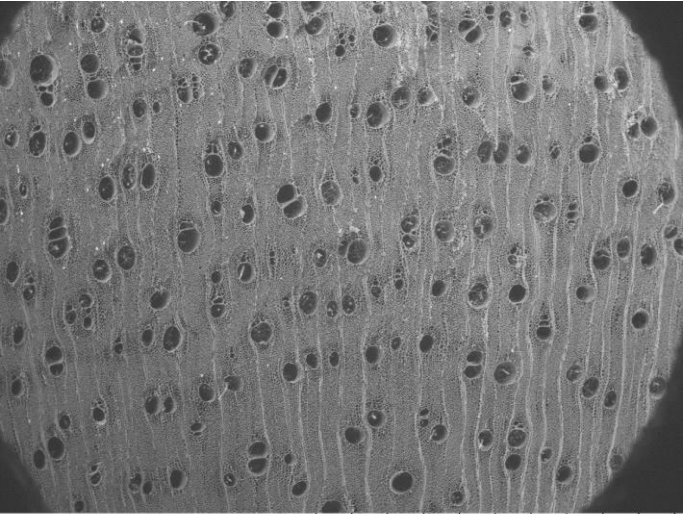
# EWC 1642 FABACEAE *Prosopis juliflora* (Sw.) DC.

**Vessels**  
Size: <50µm, 50-100µm, 100-200µm  
Freq.: 20 to 40, 40 to 100  
Arrangement: solitary, pairs, chains  
Tyloses: absent

**Rays:**  
# per mm: <4, 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Vasicentric (unilateral), Confluent  
**Porosity:** semi ring porous

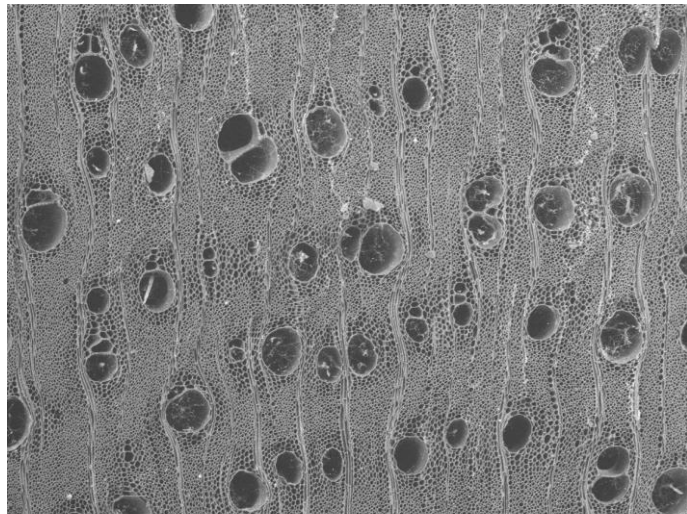
**Common Name:** "Algarrobo"  
**Elevation:** 20 m  
**Description:** Small tree with paired thorns on stem.  
**Location:** Ecuador, Manabí, Jama  
**Locality:**

**Transverse 50x**



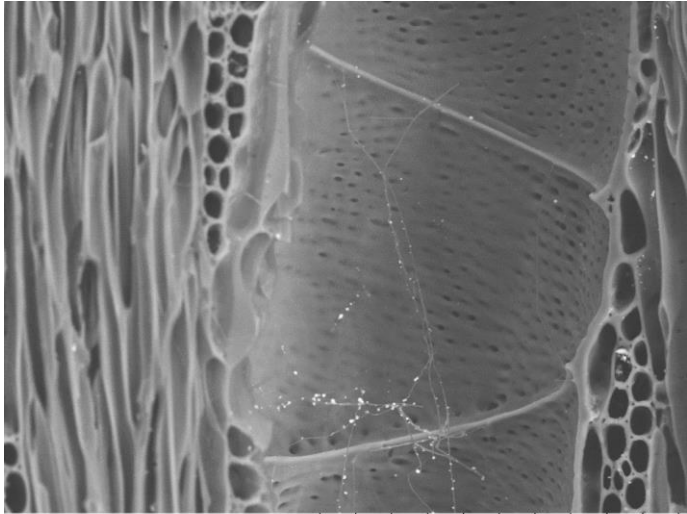
EWC 1642 2022/10/07 10:11 D3.1 x50 2 mm

**Transverse 100x**



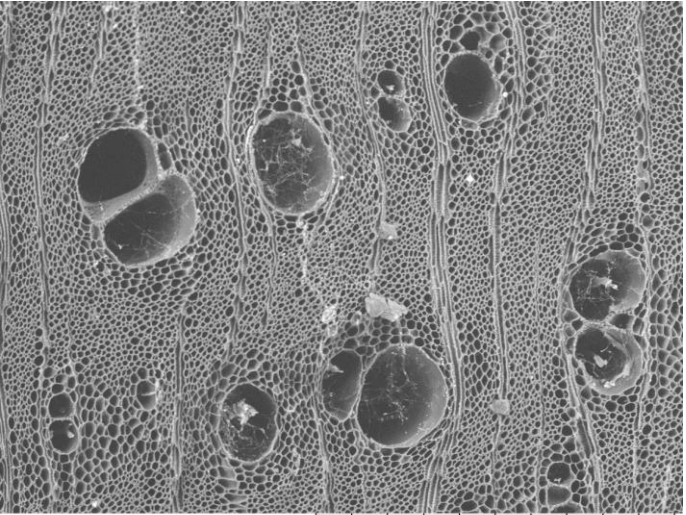
EWC 1642 2022/10/07 10:12 D3.1 x100 1 mm

**Vessel Wall**



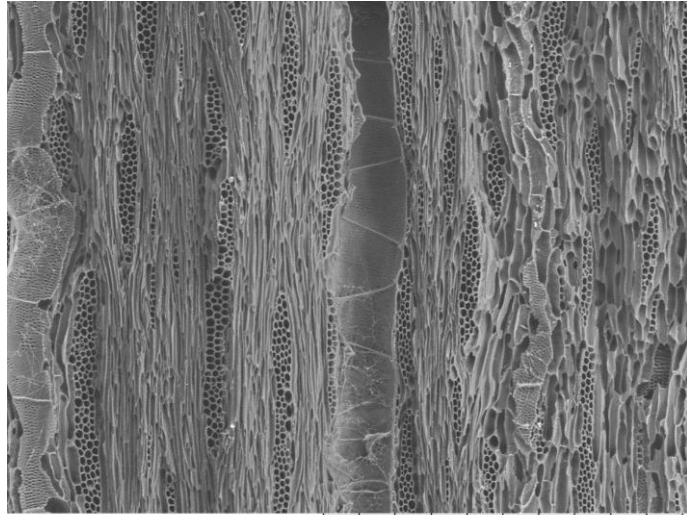
EWC 1642 2022/10/07 10:23 D2.6 x1.0k 100 µm

**Transverse 200x**



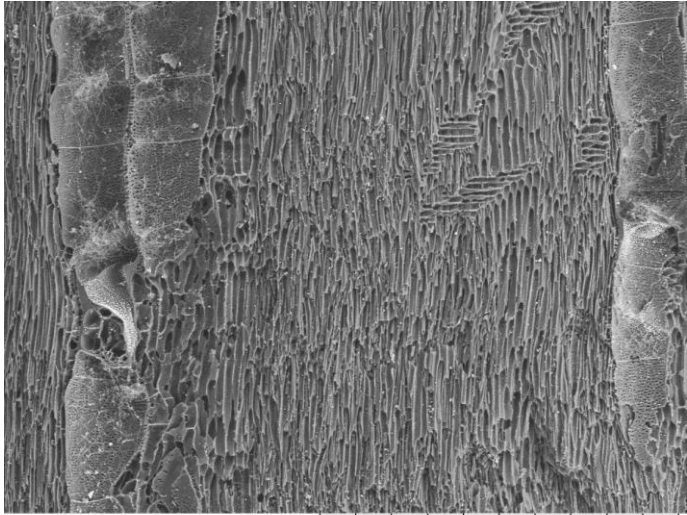
EWC 1642 2022/10/07 10:13 D3.1 x200 500 µm

**Tangential**



EWC 1642 2022/10/07 10:20 D2.6 x200 500 µm

**Radial**



EWC 1642 2022/10/07 10:27 D2.7 x200 500 µm

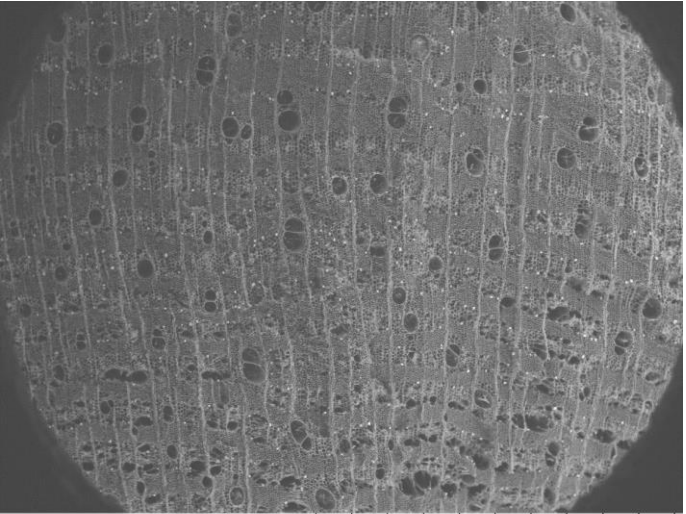
# EWC 1643 SAPINDACEAE *Sapindus saponaria* L.

**Vessels**  
Size: <50µm, 50-100µm  
Freq.: 5 to 20, 20 to 40  
Arrangement: solitary, pairs  
**Tyloses:** common

**Rays:**  
# per mm: 4-1  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Vascentric (confluent), Banded (thick)  
**Porosity:** semi-ring porous

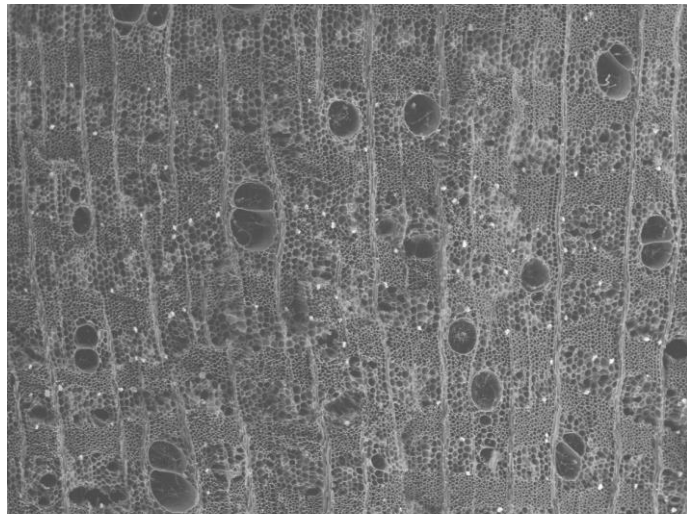
**Common Name:** "Jaboncillo"  
**Elevation:** 20 m  
**Description:** Understory tree with enlarged, bulbous area on leaf axis.  
**Location:** Ecuador, Manabí, Jama  
**Locality:** Jama, Area 2: Approximately 1 km SW of Jama. Collected from a farm in the Jama River Valley. Jama topo map 1:50,000, cuadrícula (block) N77 E81.  
**Vessel Wall**

**Transverse 50x**

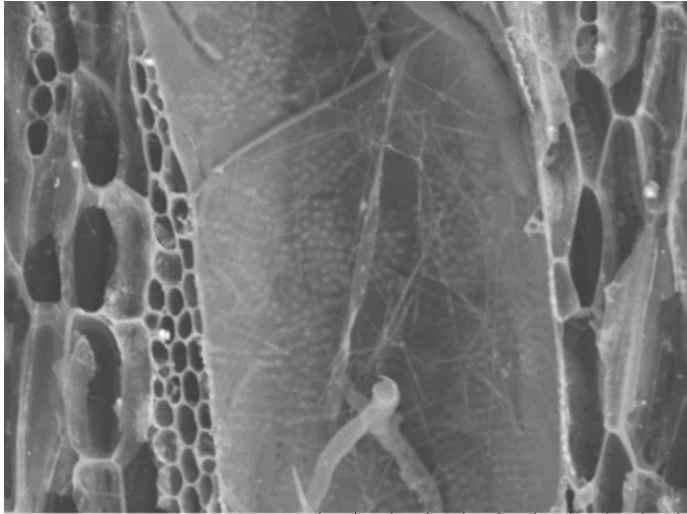


EWC 1643 2022/10/07 10:38 D2.4 x50 2 mm

**Transverse 100x**

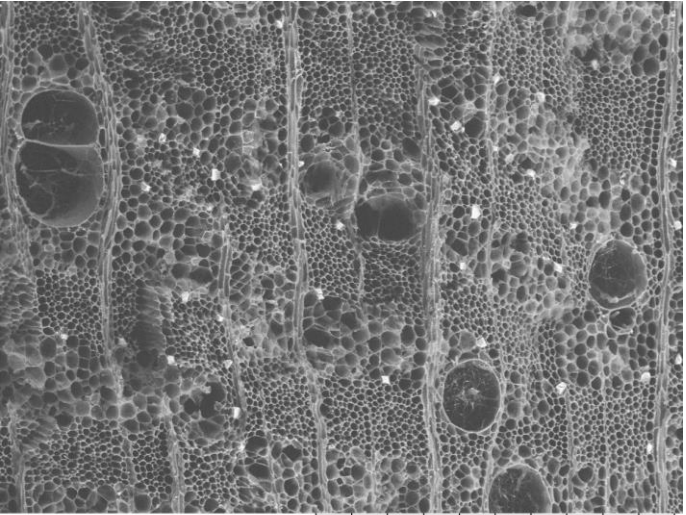


EWC 1643 2022/10/07 10:39 D2.4 x100 1 mm



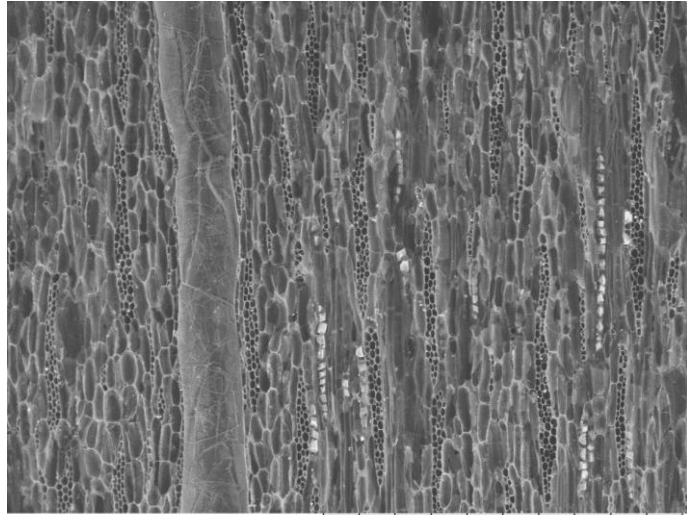
EWC 1643 2022/10/07 10:46 D2.7 x1.0k 100 um

**Transverse 200x**



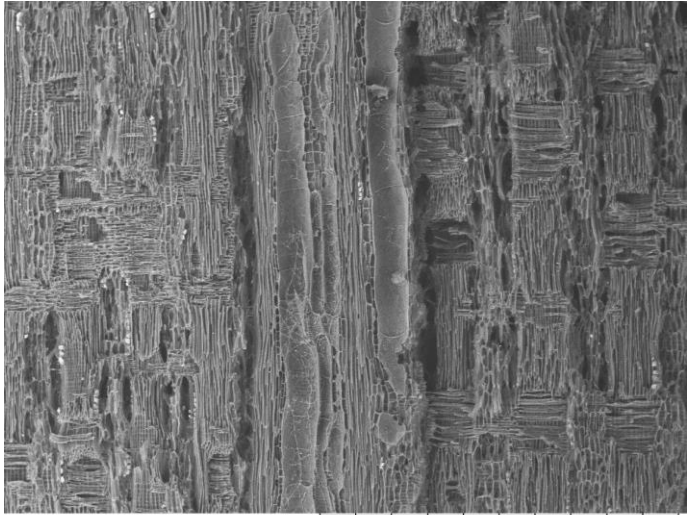
EWC 1643 2022/10/07 10:40 D2.4 x200 500 um

**Tangential**



EWC 1643 2022/10/07 10:44 D2.7 x200 500 um

**Radial**



EWC 1643 2022/10/07 10:47 D2.8 x100 1 mm

# EWC 1646 ANACARDIACEAE *Spondias mombin* L.

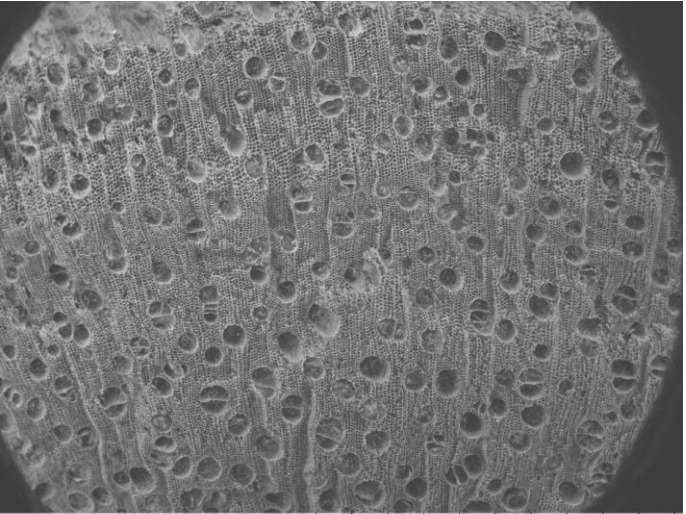
**Vessels**  
Size: 100-200µm, 200+µm  
Freq.: 20 to 40  
Arrangement: solitary, pairs, chains  
Tyloses: common

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** absent, scanty  
**Porosity:** diffuse

**Common Name:** "Jobo (ovo) de Monte"  
**Elevation:** 20 m  
**Description:** Large tree with edible orange-ish yellow fruits.  
**Location:** Ecuador, Manabí, Jama

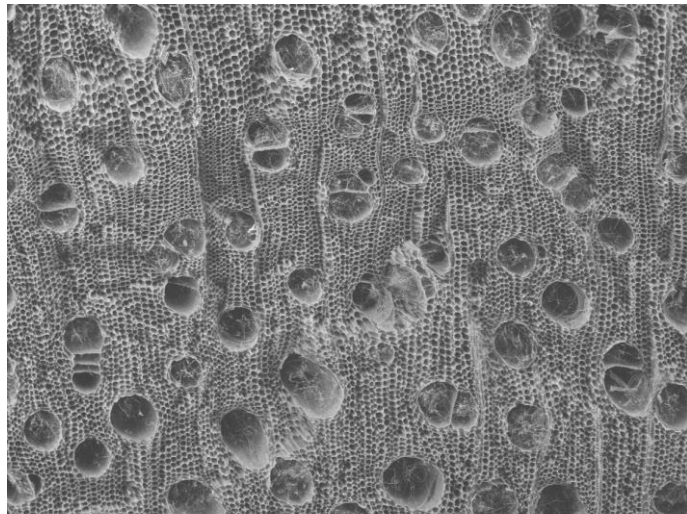
**Locality:** Jama, Area 2: Approximately 1 km SW of Jama. Collected from a farm in the Jama River Valley. Jama to Loja, 100, cuadrícula (block) N77 E81.

**Transverse 50x**



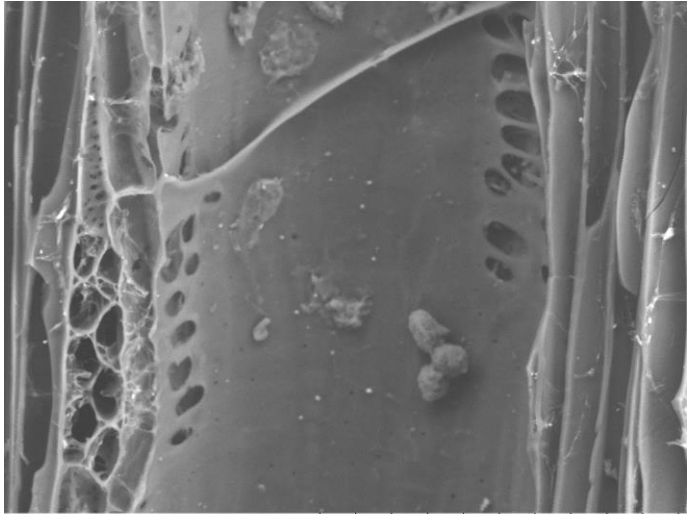
EWC 1646 2022/10/07 14:20 D2.7 x50 2 mm

**Transverse 100x**



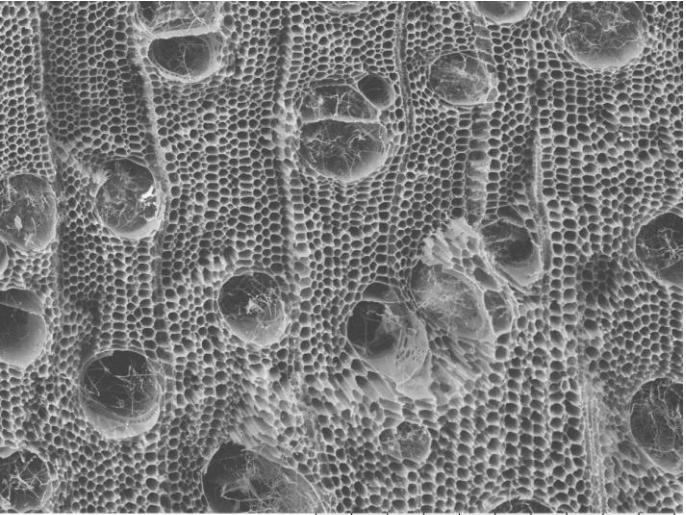
EWC 1646 2022/10/07 14:22 D2.7 x100 1 mm

**Vessel Wall**



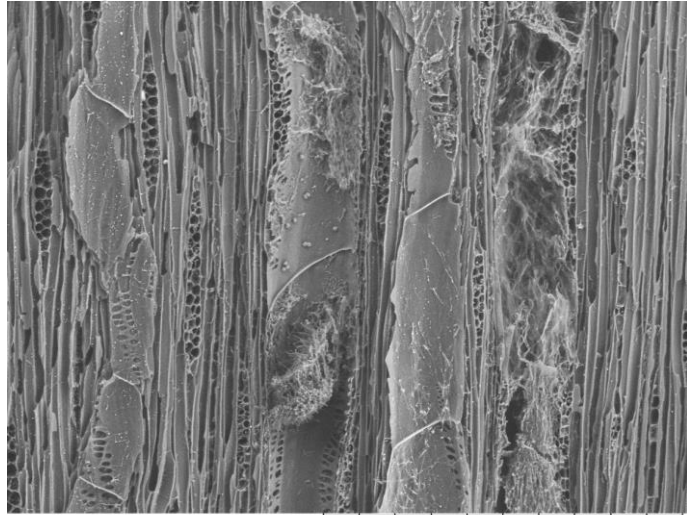
EWC 1646 2022/10/07 14:58 D2.3 x1.0k 100 µm

**Transverse 200x**



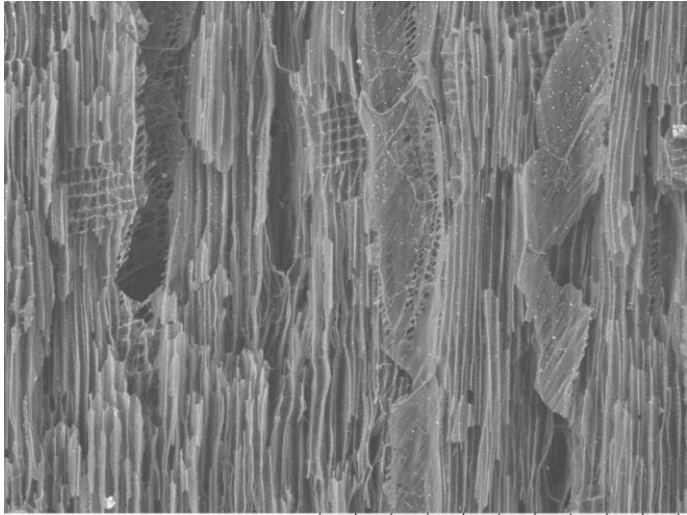
EWC 1646 2022/10/07 14:23 D2.7 x200 500 µm

**Tangential**



EWC 1646 2022/10/07 14:55 D2.3 x200 500 µm

**Radial**



EWC 1646 2022/10/07 14:28 D3.1 x200 500 µm

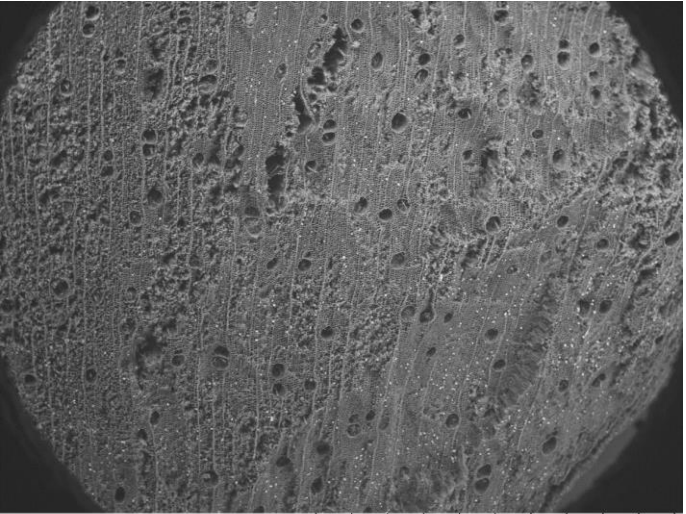
# EWC 1647 Unknown Identification

**Vessels**  
Size: 50-100µm  
Freq.: 5 to 20  
Arrangement: solitary, pairs  
**Tyloses:** common

**Rays:**  
# per mm: 4-12  
Thickness (cells): 1 to 3  
**Parenchyma Type:** Vascentric  
(unilateral), Diffuse, scanty  
**Porosity:** diffuse

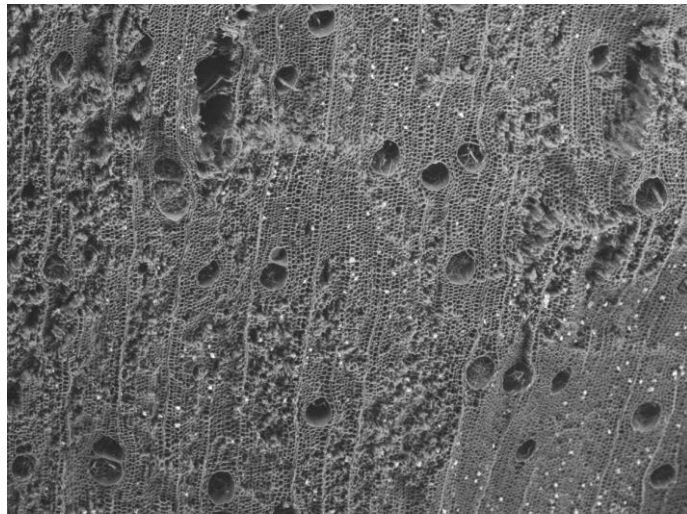
**Common Name:** "muchina"  
**Elevation:**  
**Description:**  
**Location:** Ecuador  
**Locality:**

**Transverse 50x**



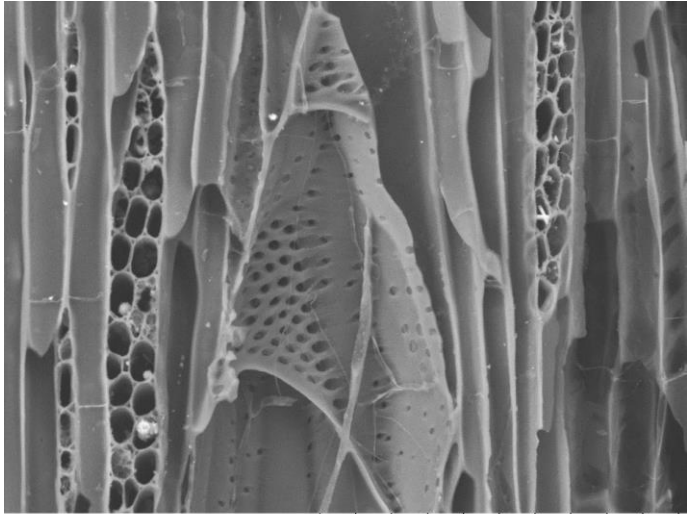
EWC 1647 2022/10/07 14:33 D2.5 x50 2 mm

**Transverse 100x**



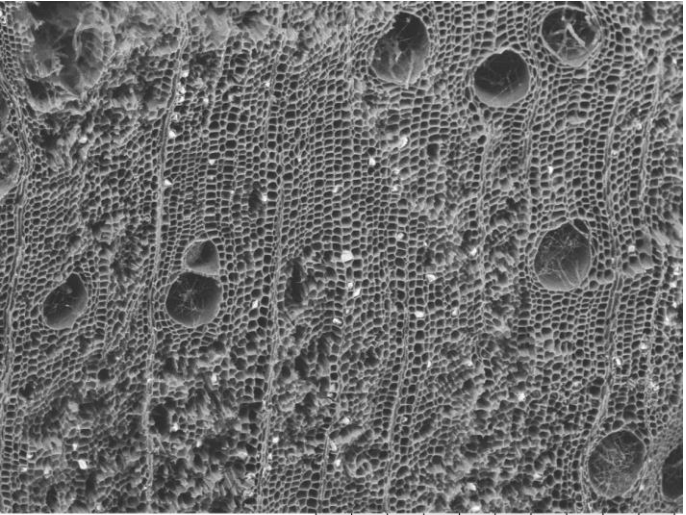
EWC 1647 2022/10/07 14:34 D2.5 x100 1 mm

**Vessel Wall**



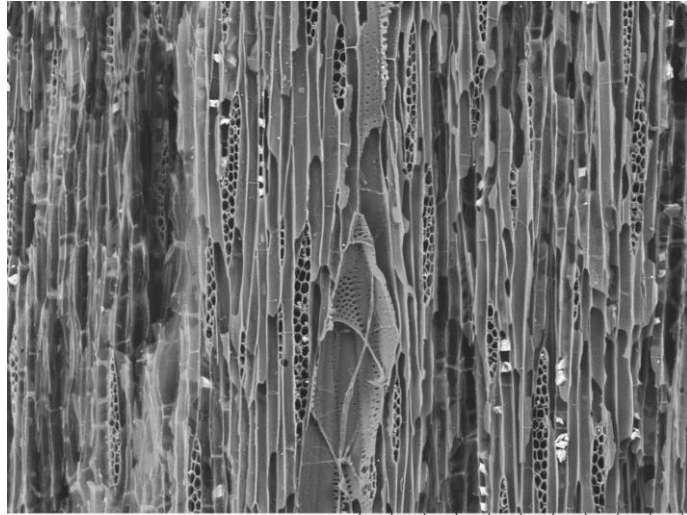
EWC 1647 2022/10/07 14:41 D3.6 x1.0k 100 um

**Transverse 200x**



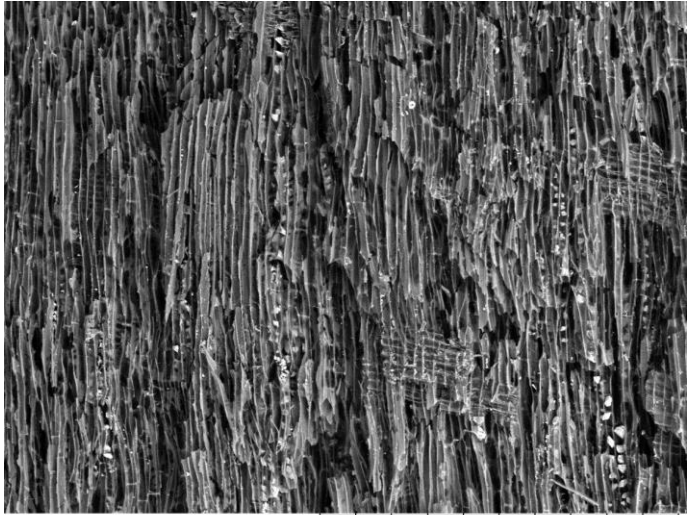
EWC 1647 2022/10/07 14:35 D2.5 x200 500 um

**Tangential**



EWC 1647 2022/10/07 14:40 D3.6 x300 300 um

**Radial**



EWC 1647 2022/10/13 17:33 D3.8 x200 500 um