

# CATEGORY 20

## Epidermal Non-Quadrilateral Discrete Cells (not fragments) of Leaf Origin

### 20I. smooth surface

#### 20IA. Sinuous edge; anticlinal cells

- not elongated, smooth to grainy in appearance (dicots)
- elongated

#### 20IB. polyhedral cells

- smooth to grainy surface (dicots)
- with rounded projections (bases) (dicots)
- with perforations (Humiriaceae, *Humiriastrum procerum*, family level diagnostic)

### 20II. Honeycombed surface

#### 20IIA. Thin, almost transparent edges; sinuous edges on interlocked cells

#### 20IIC. Comprising many irregular honeycombed bodies [sic: no B]

#### 20IID. rounded bodies with honeycombed surfaces

### 20V. surface projections [sic: no III or IV]

#### 20VA. Tend to be quadrilateral in top view; single conical projection ("hat") (Cyperaceae leaf)

#### 20VB. Conical projection; carbon concluded

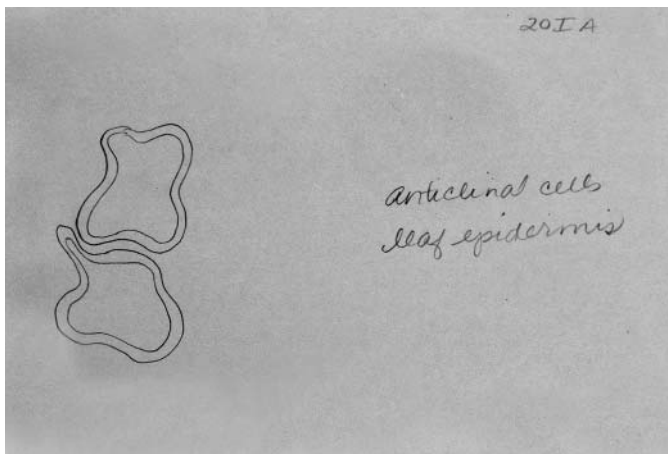
#### 20VC. Sinuous double outline; one side smooth; one side bumpy

- occurring singly; hat-like; rounded in rotation  
(Ulmaceae, *Celtis schippii*, species level diagnostic)
- 2 conical or triangular cells joined symmetrically at bases  
(Ulmaceae, *Celtis schippii*, species level diagnostic)
- masses of hat-like bodies (Ulmaceae, *Celtis schippii*, species level diagnostic)
- conical; oval in rotation (Boraginaceae, *Cordia lutea*, species level diagnostic)
- conical with rounded bottom; round in rotation.

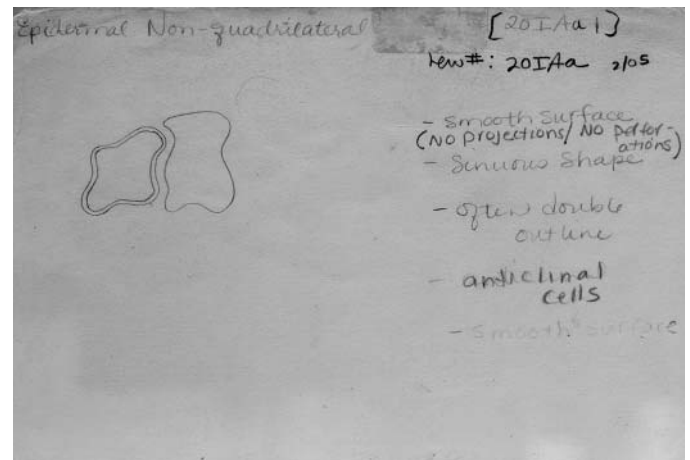
#### 20VD. Round or triangular in top view, edges rounded; round edges faint, cup-like triangular edges heavily silicified (Bombacaceae, *Pachira quatic*, genus level diagnostic)

#### 20VE. Single rounded projection on "hat;" rounded in top view (Lauraceae, *Caryodaphnosis fosteri*)

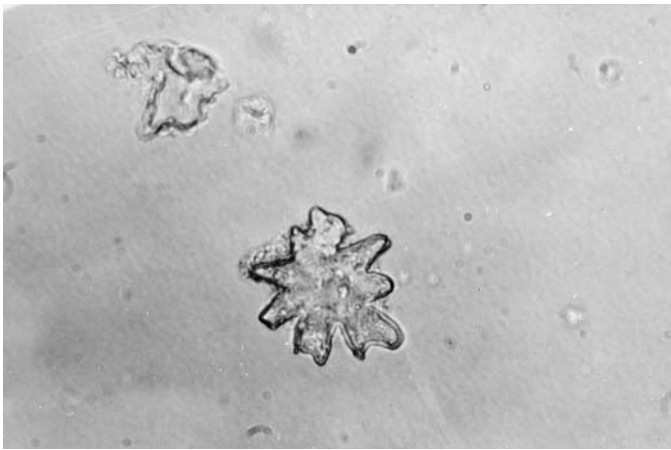
\*No card in MU card file



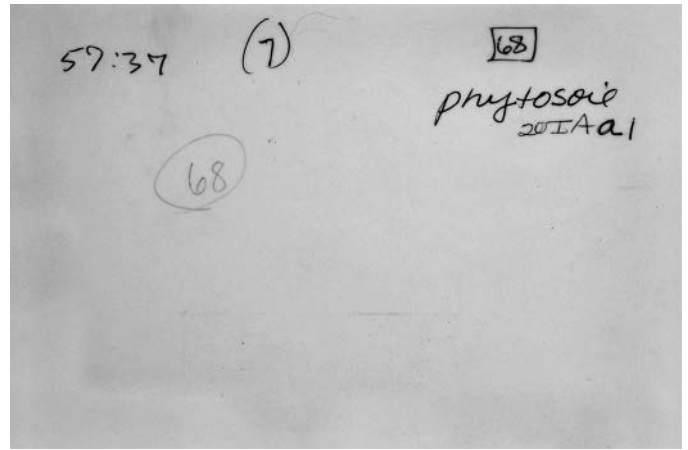
20IA card1.jpg



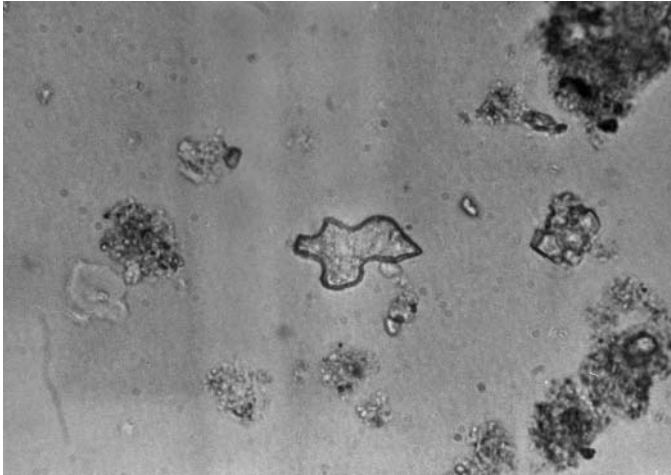
20IAa card1.jpg



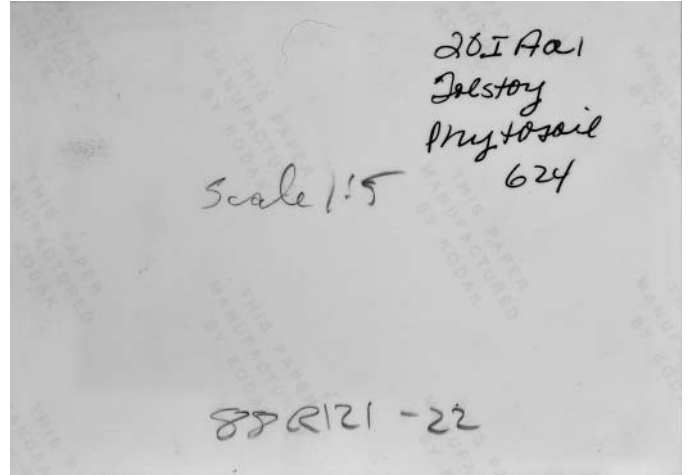
20IAa photo1f.jpg



20IAa photo1b.jpg



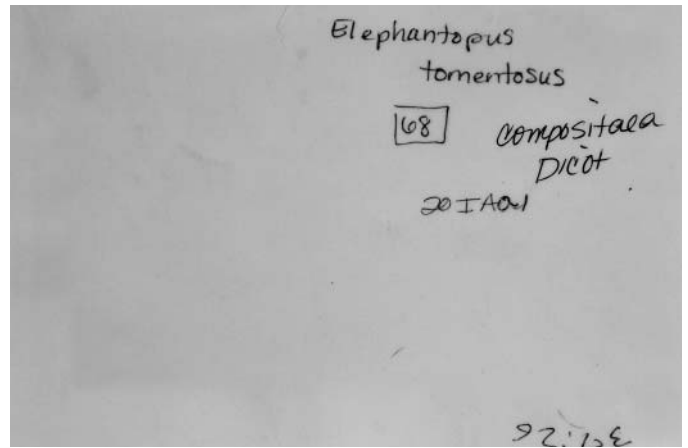
20IAa photo2f.jpg



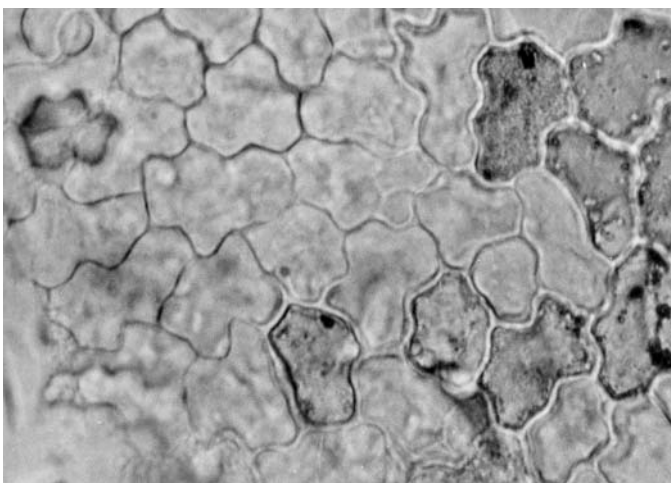
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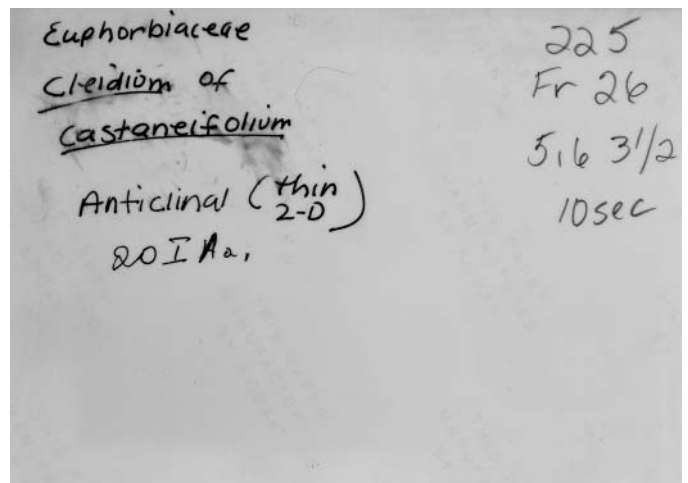
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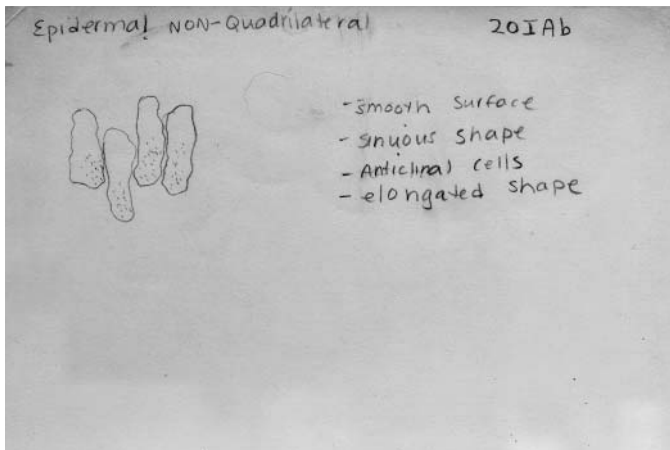
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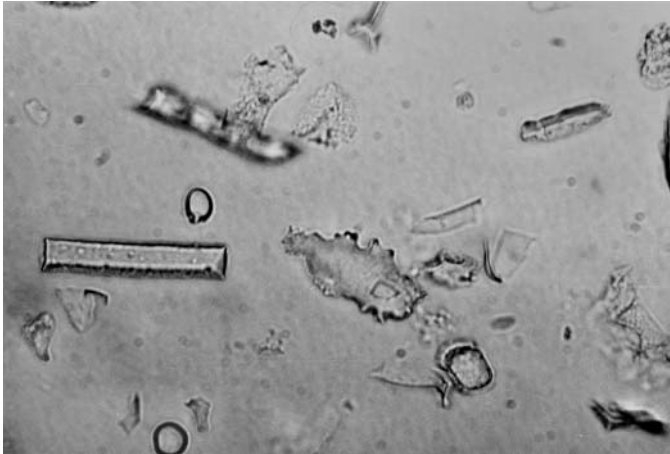
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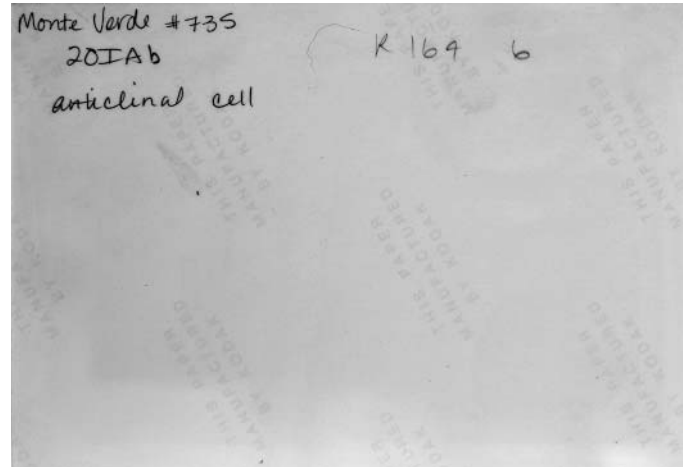
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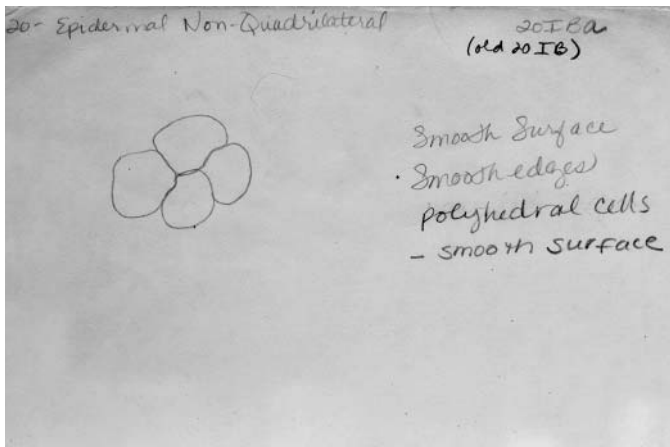
20IAb card1.jpg



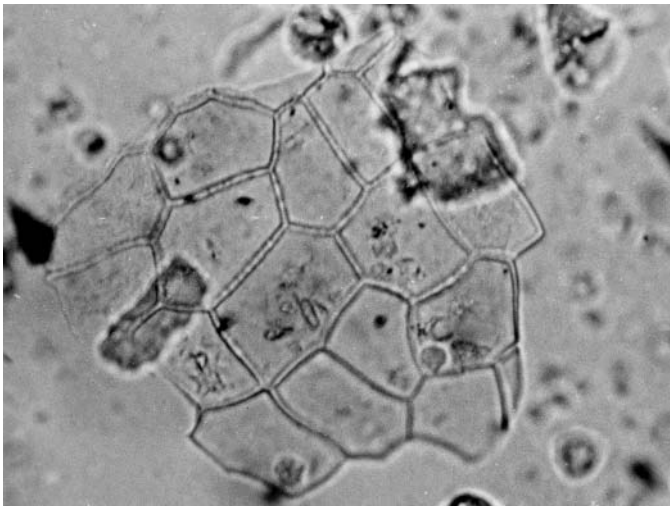
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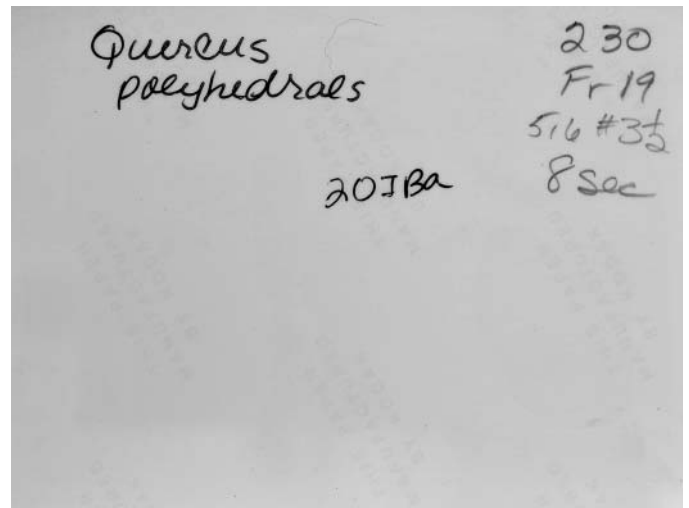
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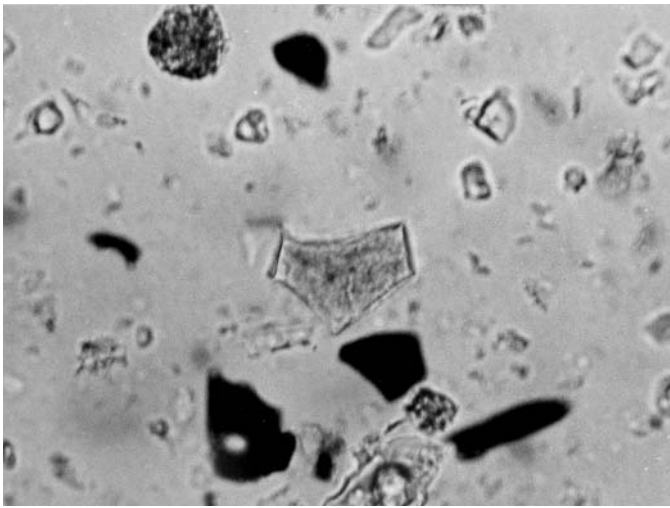
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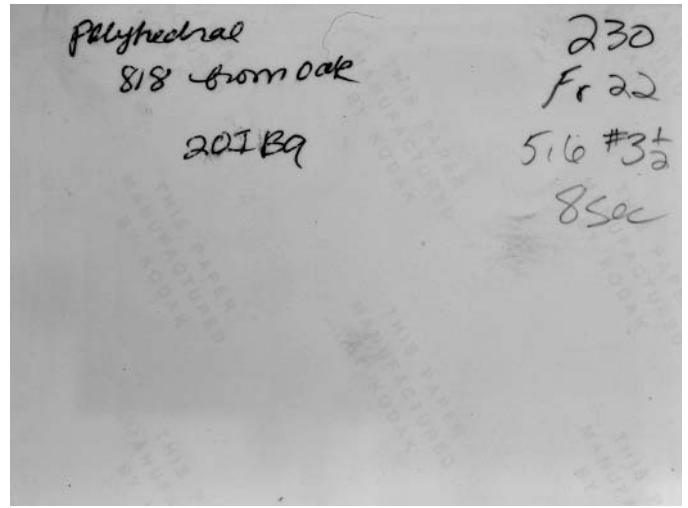
20IBa photo1f.jpg



20IBa photo1b.jpg



20IBa photo2f.jpg



20IBa photo2b.jpg

MU# 20IBa Image N230

Family Chrysobalanaceae  
 Genus Licania  
 Species longistyla

Comments  
 darkened cells in center of image

Description  
 Epidermal non-quadrilateral cells.  
 Smooth surface  
 Polyhedral cells with smooth surface. Granular decoration to surface.

Entered by Karol Chandler-Ezell  
 Date 5/8/2002

20IBa photo3f.jpg

20 Epidermal Non-Quadrilateral 20IBb

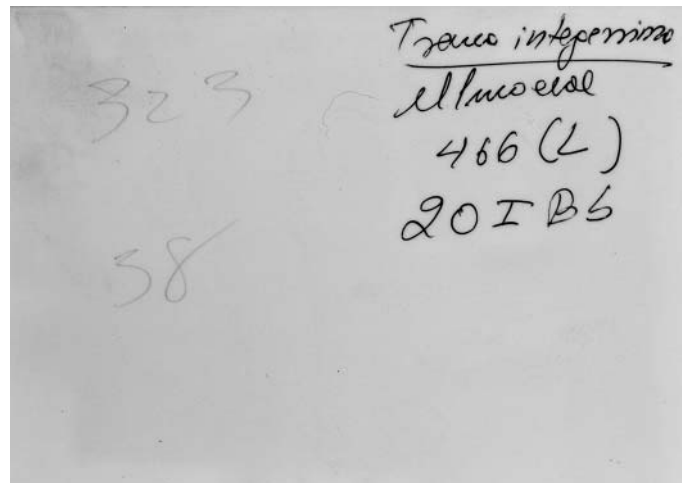
- Smooth surface
- Polyhedral cells with rounded projections (may be bases)

Occurs in Euphorbiaceae, Ulmaceae  
 May, 24/1991  
 CIVB

20IBb card1.jpg



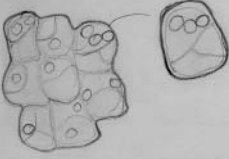
20IBb photo1f.jpg



20IBb photo1b.jpg

20 Epidermal Non-Quadrilateral 20IBc

- Polyhedral cells
- Smooth surface
- Surface with perforations and slender divisions
- May occur alone or in groups.



Occurs in Humiriaceae: Humiristrum procerum Leaf (A)

June, 5/1991  
CIVB

20IBc card1.jpg

MUno 20IBc Image N1289

Reco

Family Humiriaceae

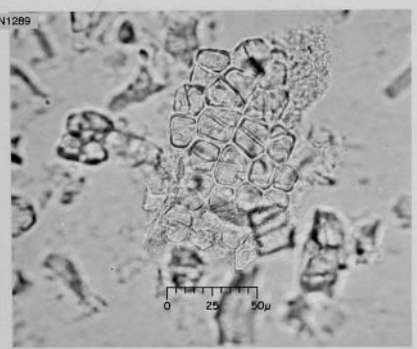
Genus Humiristrum

Species procerum

Authority

Comments

Occurs in leaf. Type defined by Cesar Vientimilla 05/1991. Diagnostic level: family



Description

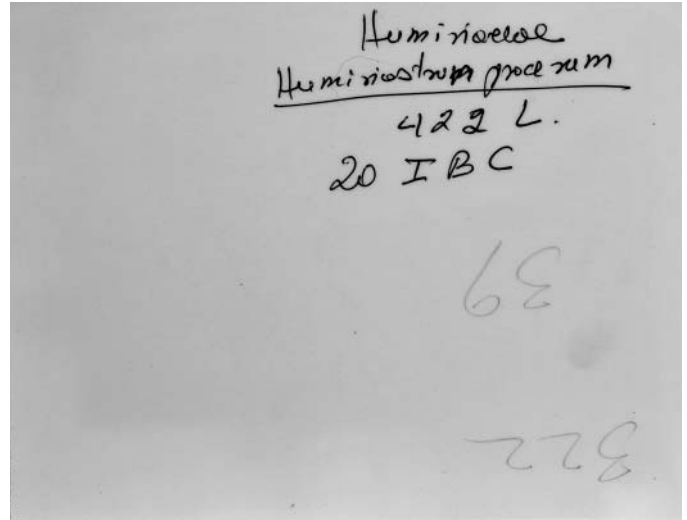
Epidermal non-quadrilateral; Polyhedral cells; Smooth surface; Surface with perforations and slender divisions; May occur alone or in groups.

Entered by Meghann O'Brien  
Updated 2/22/2005

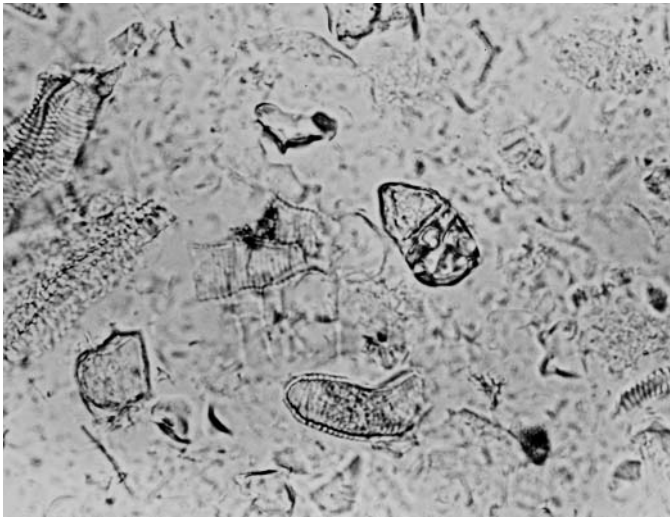
20IBc photo1f.jpg



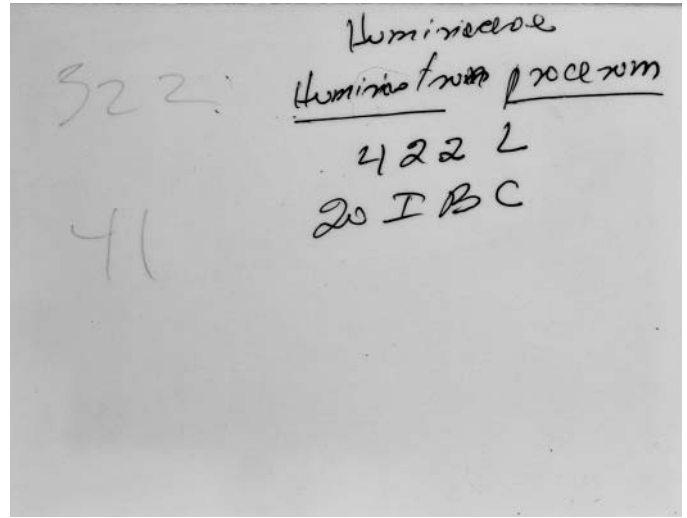
20IBc photo2f.jpg



20IBc photo2b.jpg




20IBc photo3f.jpg



20IBc photo3b.jpg

20 Epidermal Quadrilateral




variably shaped parenchyma tissue of mesophyll

- loose structure
- irregularly shaped to rounded cells

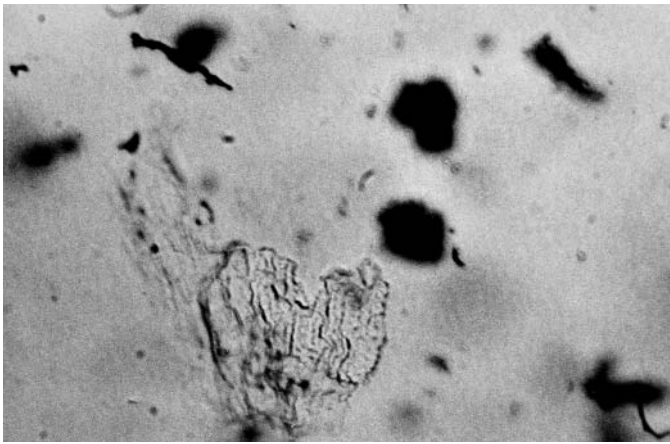
20 card1.jpg

20 Epidermal Non-Quadrilateral 20IIA

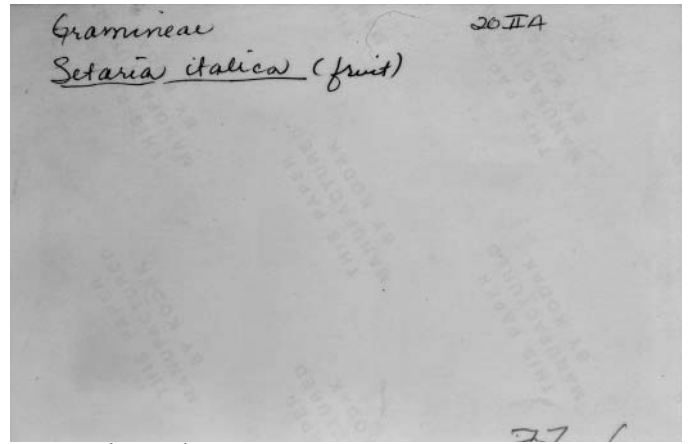


- honeycombed surface
- thin, almost transparent
- sinuous edges on interlocked cells

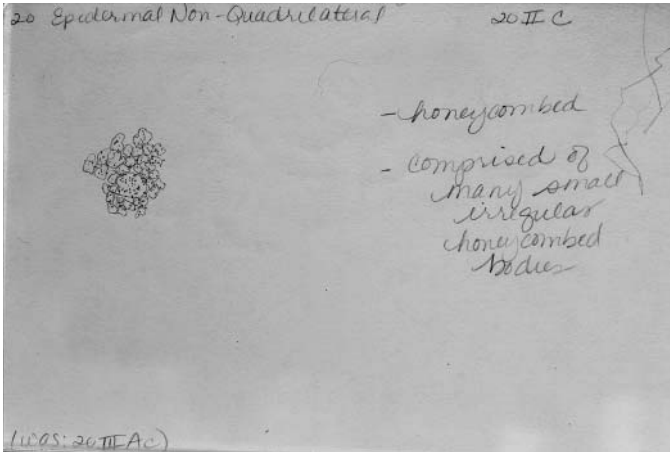
20IIA card1.jpg



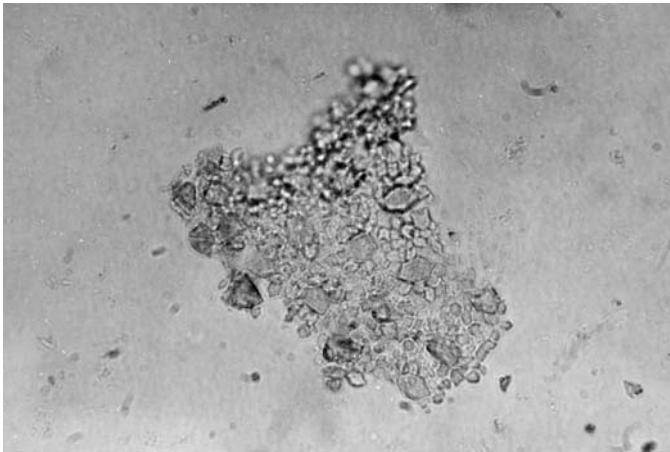
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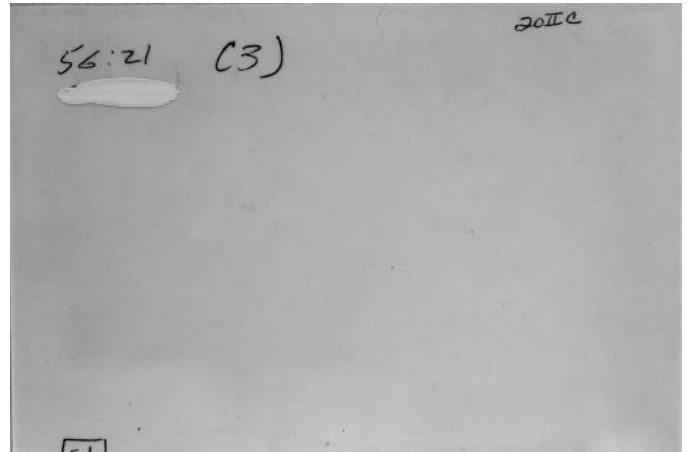
20IIA photo1b.jpg



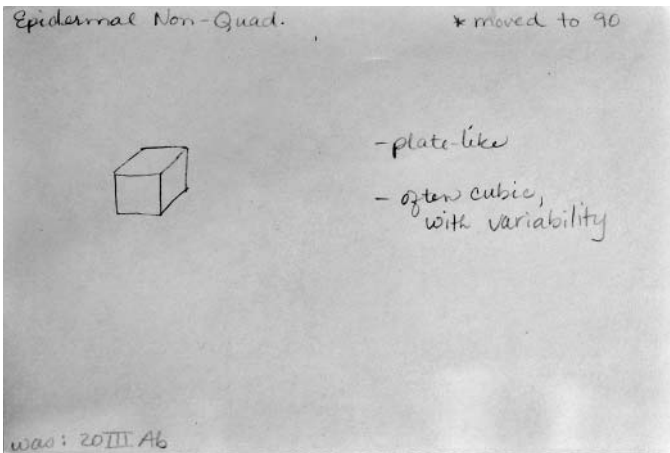
20IIC card1.jpg



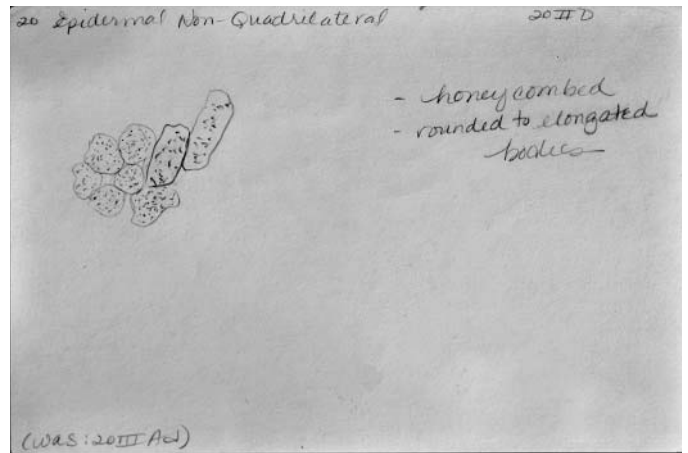
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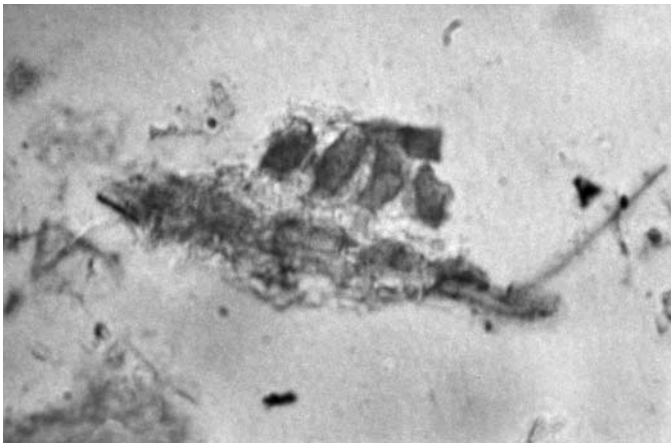
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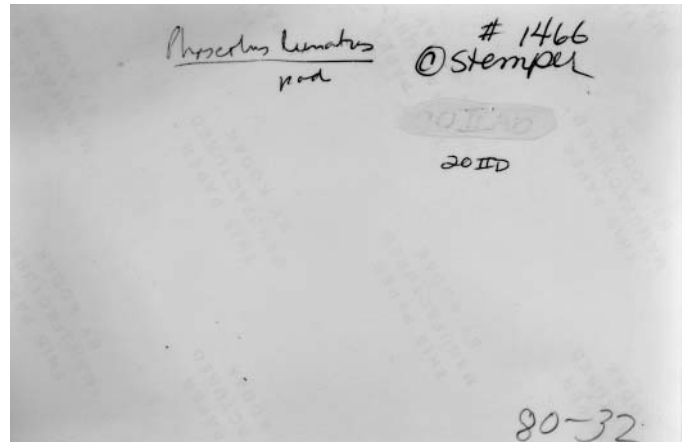
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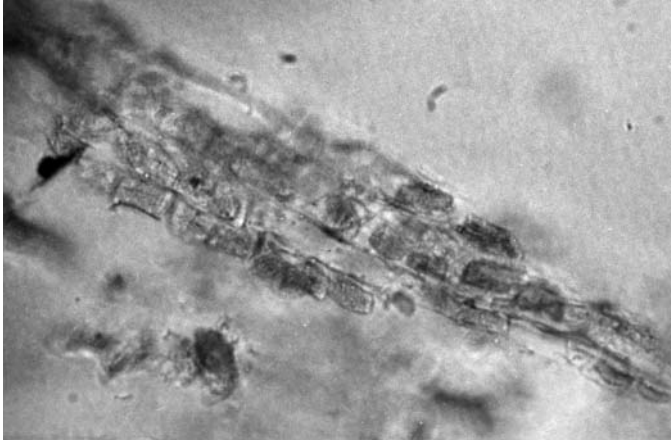
20IID.jpg



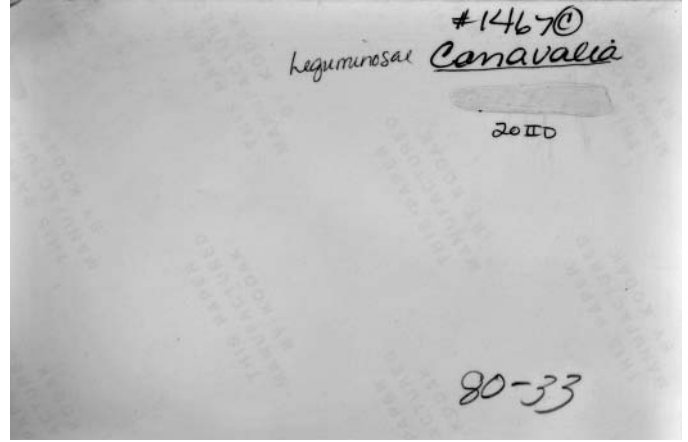
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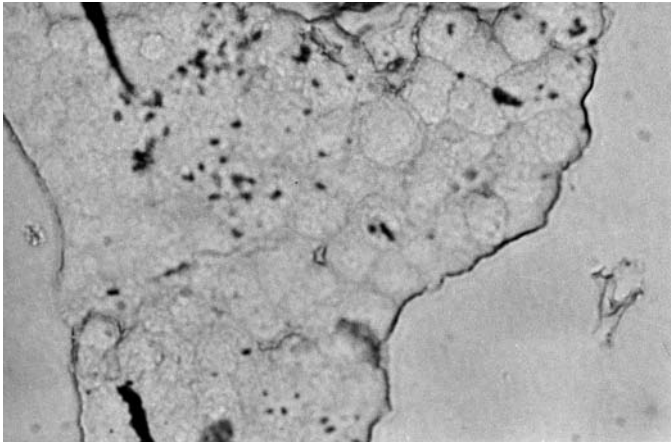
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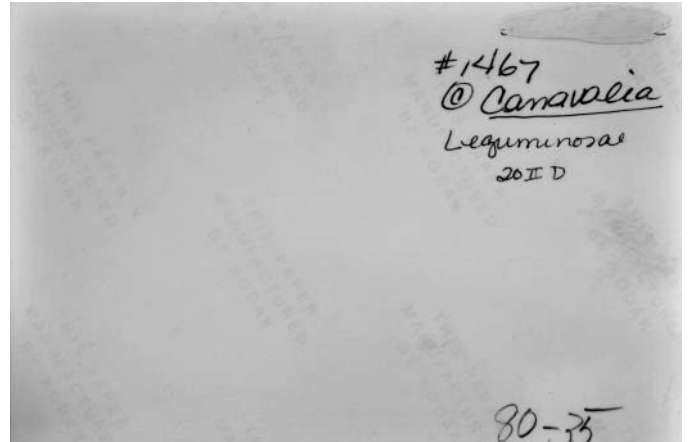
20IID photo2f.jpg



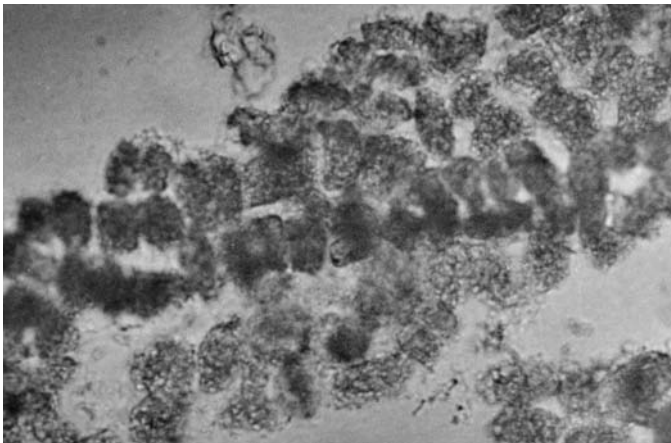
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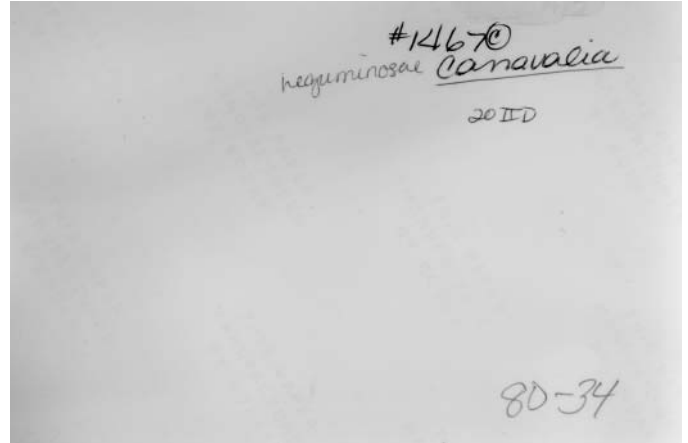
20IID photo3f.jpg



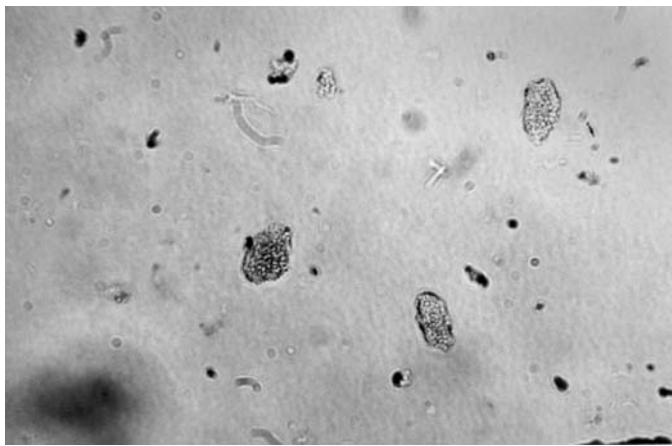
20IID photo3b.jpg



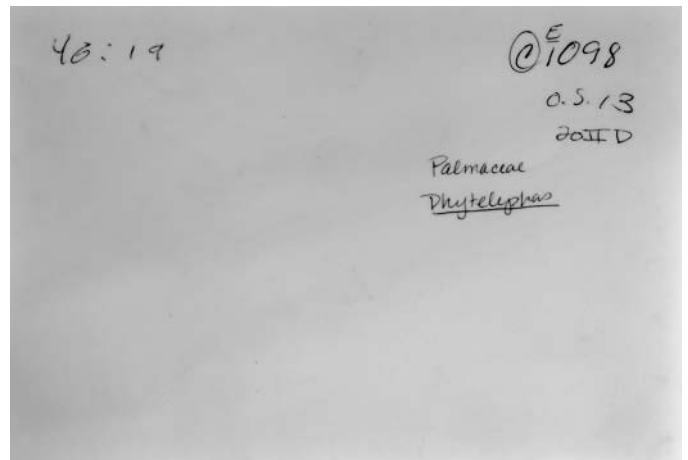
20IID photo4f.jpg



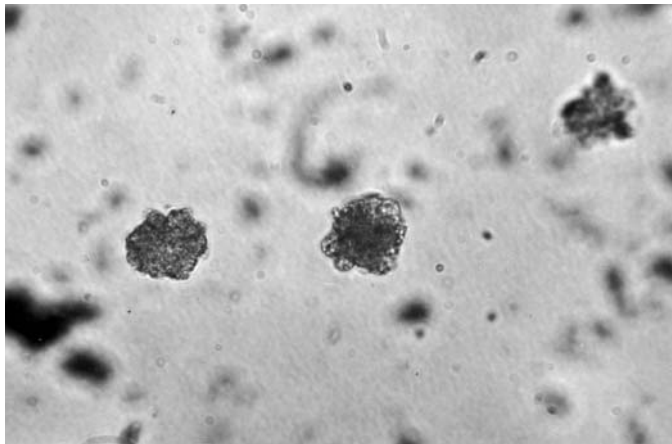
20IID photo4b.jpg



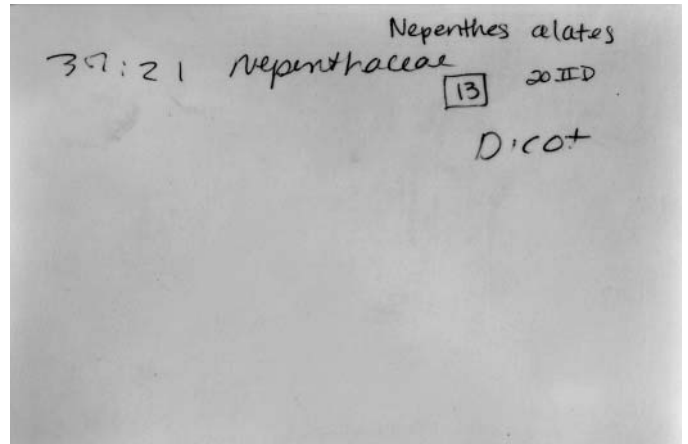
20IID photo5f.jpg



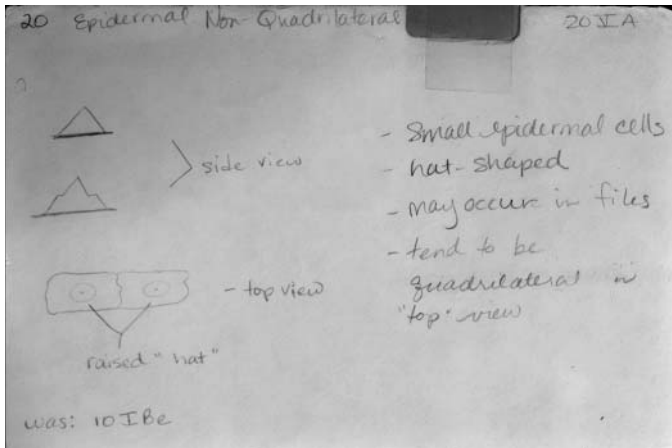
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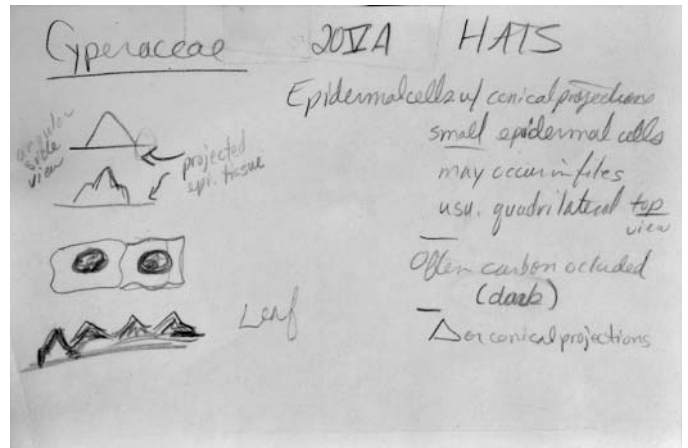
20IID photo6f.jpg



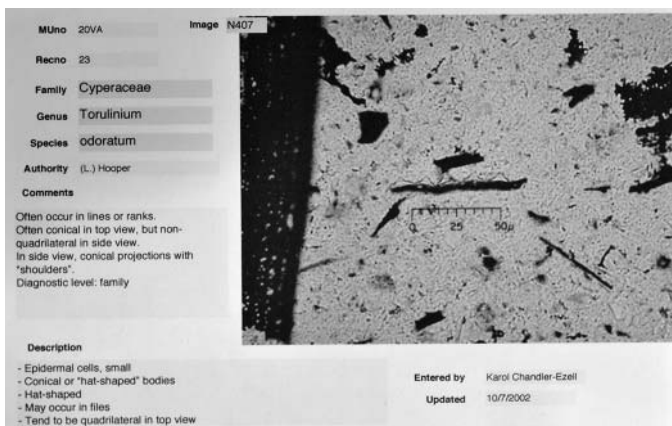
20IID photo6b.jpg



20VA card1.jpg

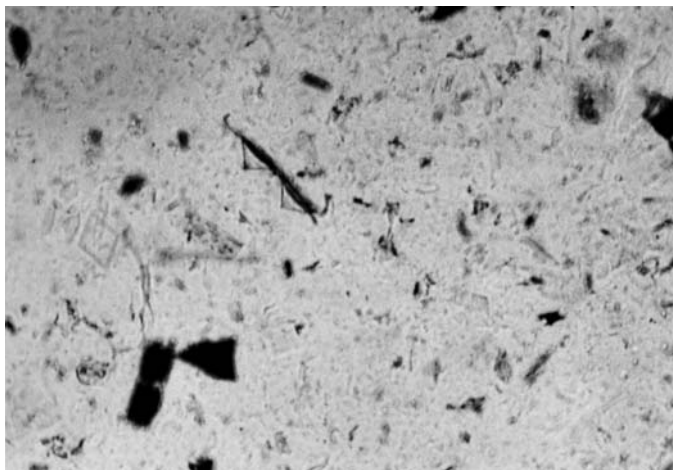


20VA card2.jpg

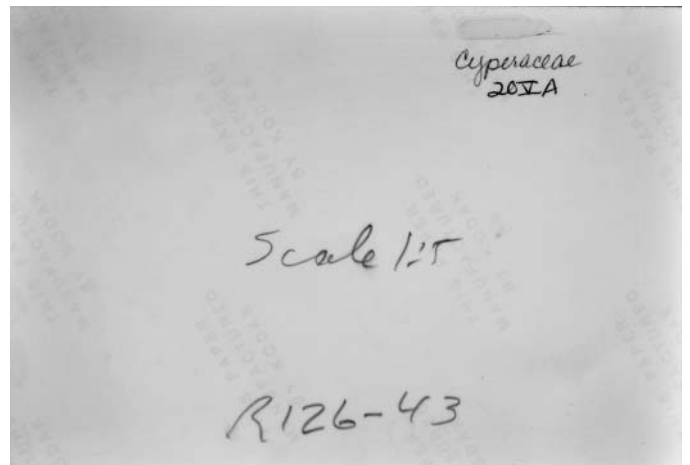


20VA photo1f.jpg

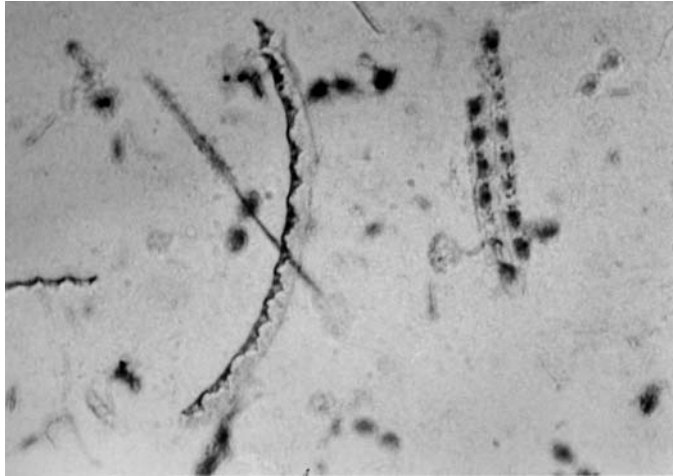




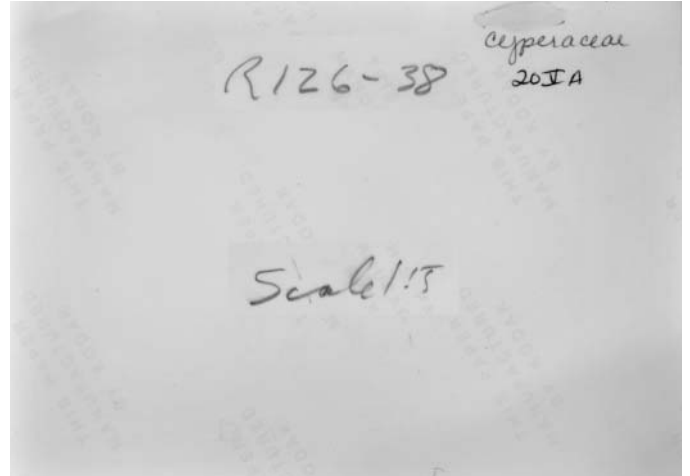
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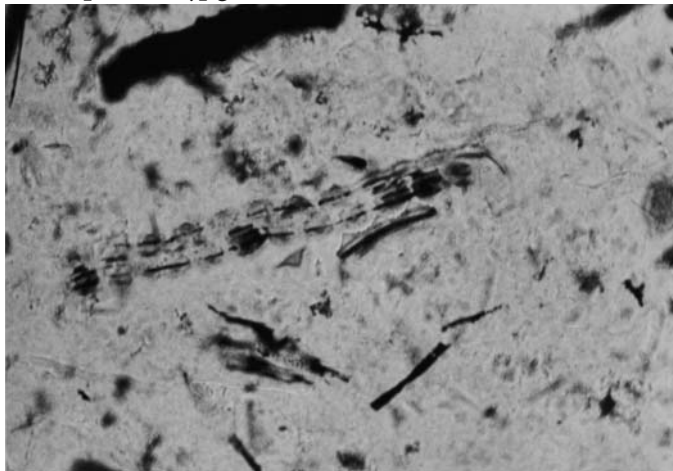
20VA photo2b.jpg



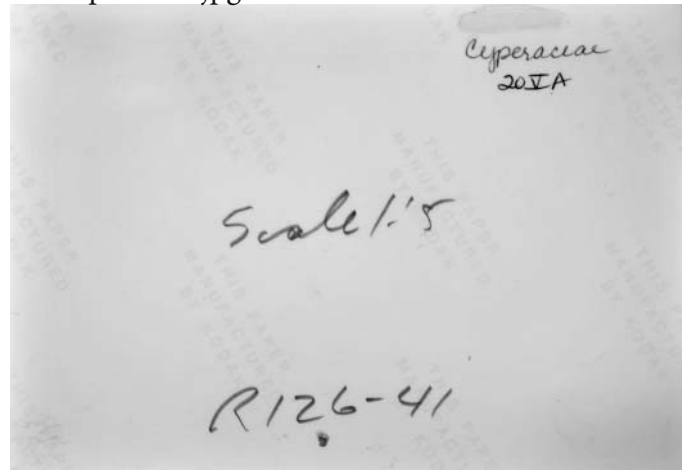
20VA photo3f.jpg



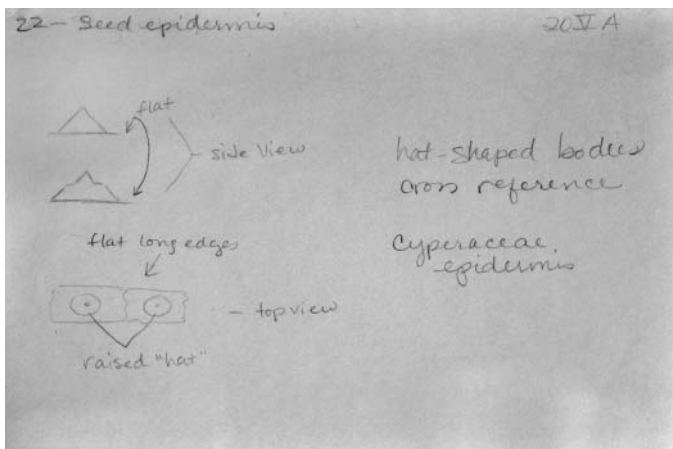
20VA photo3b.jpg



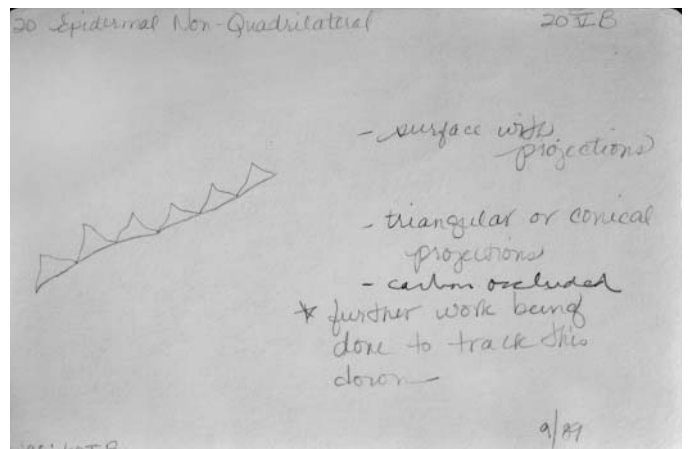
20VA photo4f.jpg



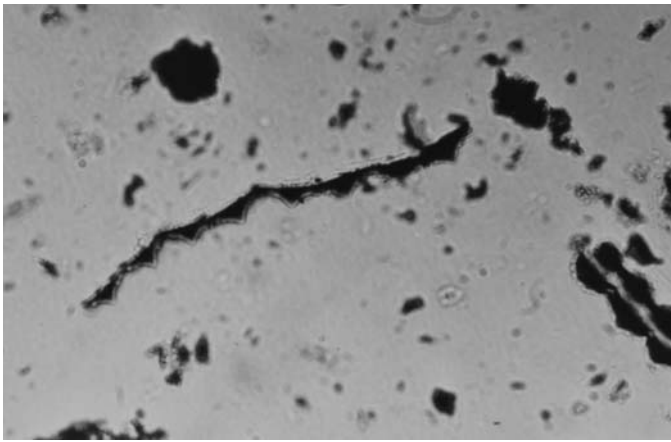
20VA photo4b.jpg



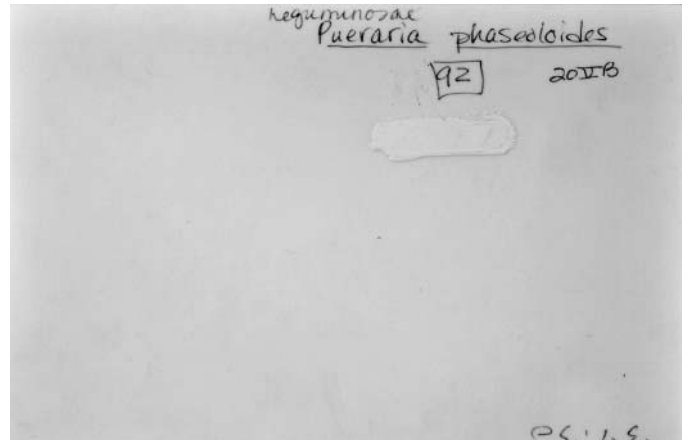
20VA card3.jpg



20VB card1.jpg



20VB photo1f.jpg



20VB photo1b.jpg

20 Epidermal Non-Quadrilateral 20VCa

C I V B

- Small epidermal cells
- Hat-shaped, conical or triangle in appearance
- Bottom flat and elongated
- Rounded in rotation, with a smaller and darker circle in the center.

Occurs in Ulmaceae, Celtis schippii; Leaf (VA)  
Fruit (A)

May 24/91

20VCa card1.jpg

MUno 20VCa Image N539

Recno 61

Family Ulmaceae

Genus Celtis

Species schippii

Authority Standl.

Comments

20 V a, b, and c separated only by arrangement of conical bodies.  
20 V Ca describes when these conical bodies occur singly.  
Diagnostic level: species

Description

- Masses of hat-shaped bodies
- Rounded and conical, bottom flattened and elongated

Entered by Karol Chandler-Ezell  
Updated 10/7/2002

20VCa photo1f.jpg

MUno 20VCa Image N541

Recno 210

Family Ulmaceae

Genus Celtis

Species schippii

Authority Standl.

Comments

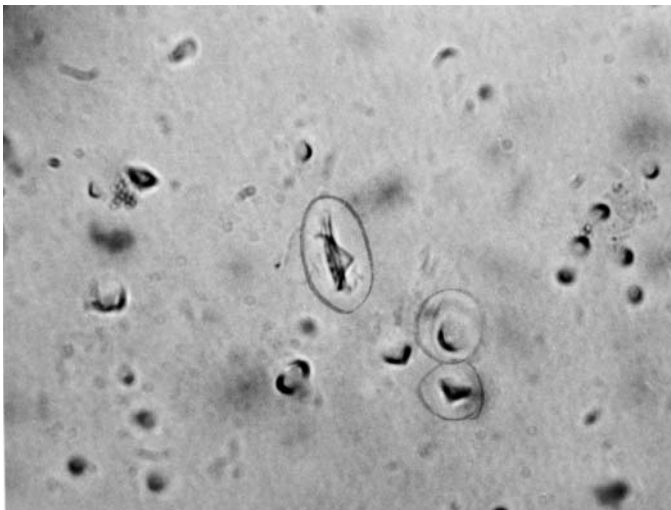
See Record #63 for another view.  
20 V a, b, and c separated only by arrangement of conical bodies.  
20 V Cc describes when these conical bodies occur in fused masses.  
Diagnostic level: species

Description

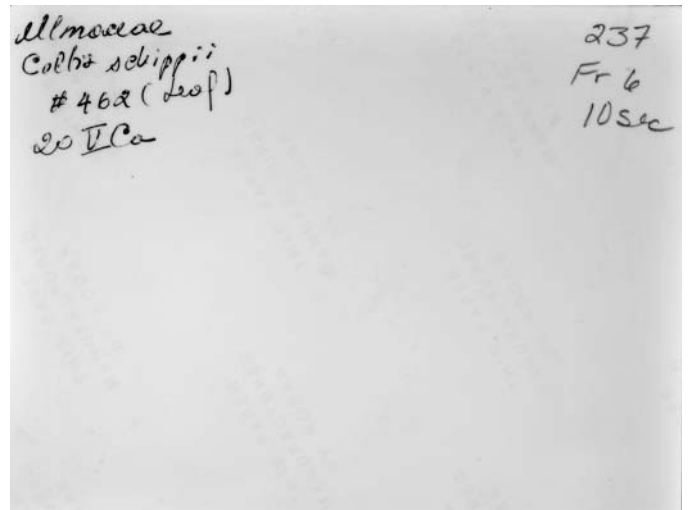
- Masses of hat-shaped bodies
- Rounded and conical, bottom flattened and elongated

Entered by Karol Chandler-Ezell  
Updated 10/15/2002

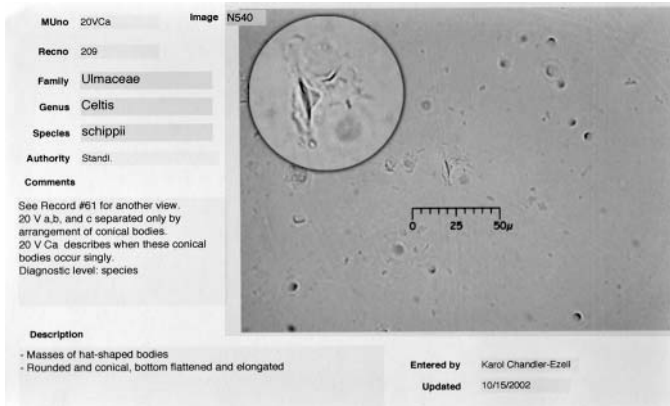
20VCa photo2f.jpg



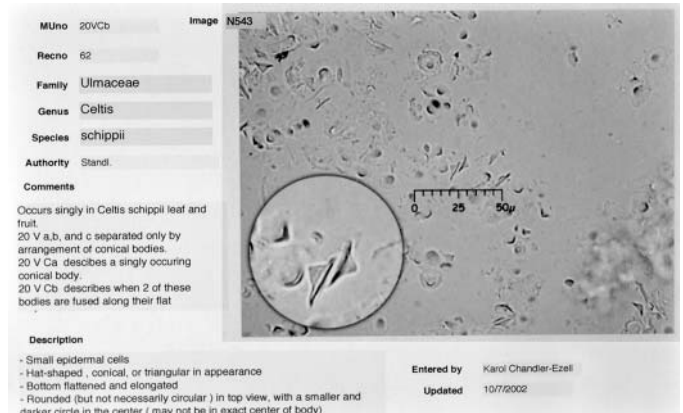
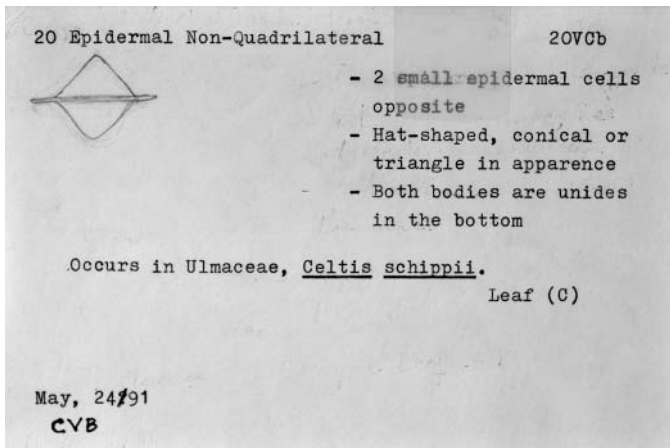
20VCa photo3f.jpg



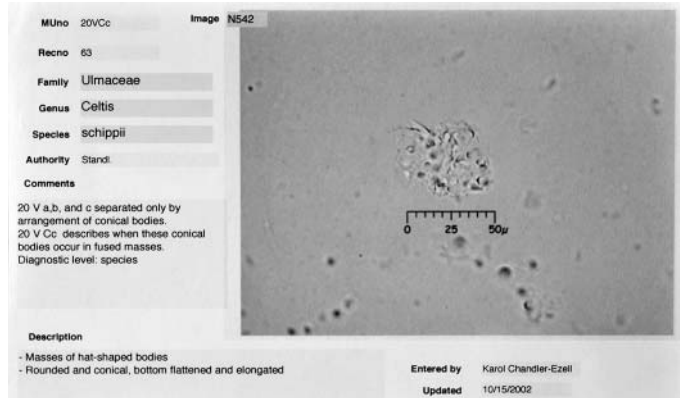
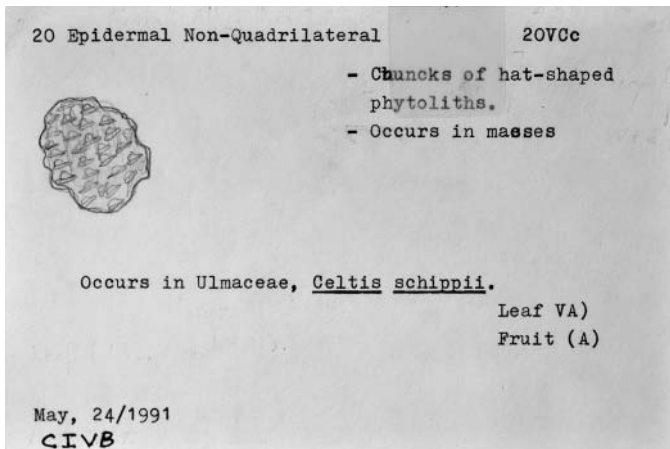
20VCa photo3b.jpg



20VCa photo4f.jpg

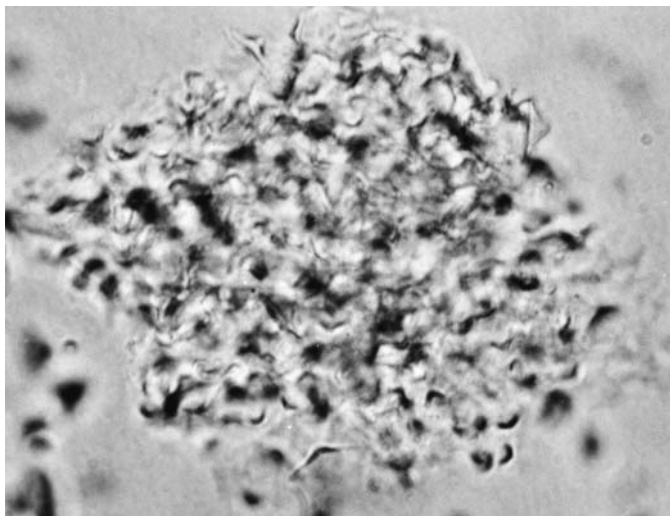


20VCb photo1f.jpg

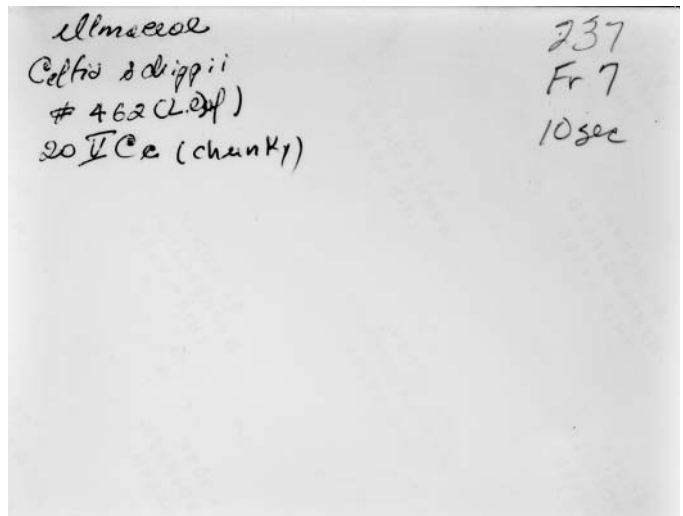


20VCc photo1f.jpg

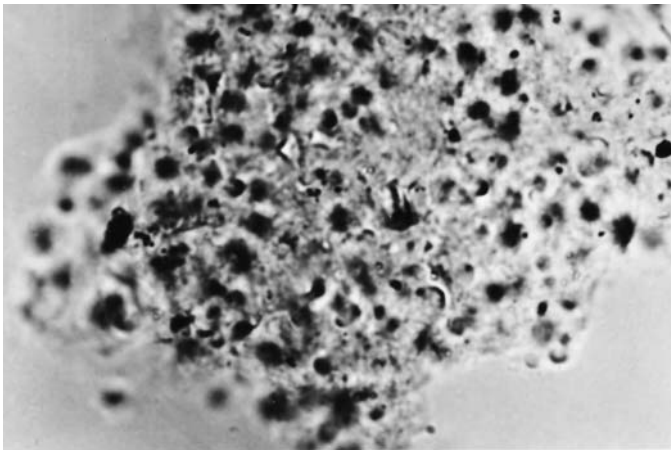
20VCc card1.jpg



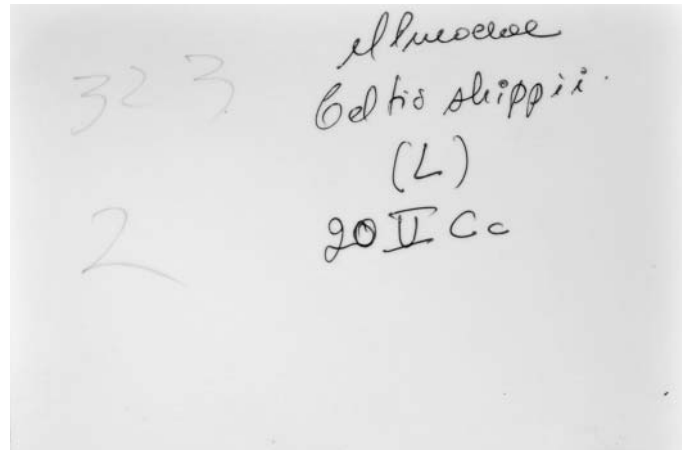
20VCc photo2f.jpg



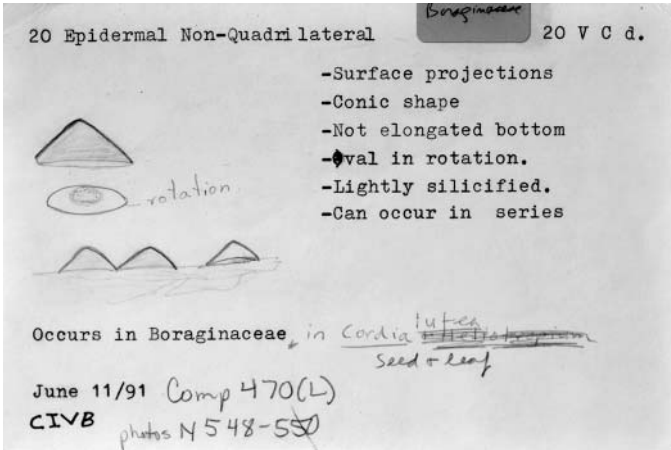
20VCc photo2b.jpg



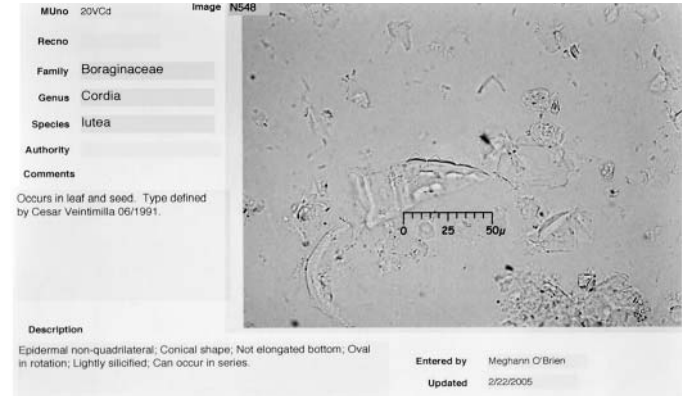
20VCc photo3f.jpg



20VCc photo3b.jpg



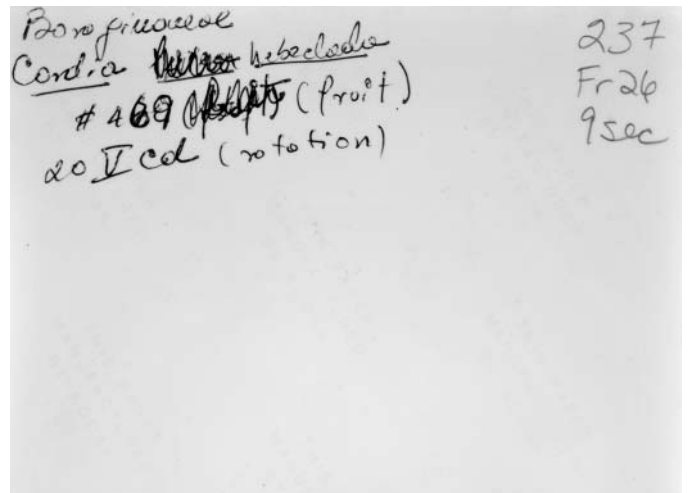
20VCd card1.jpg



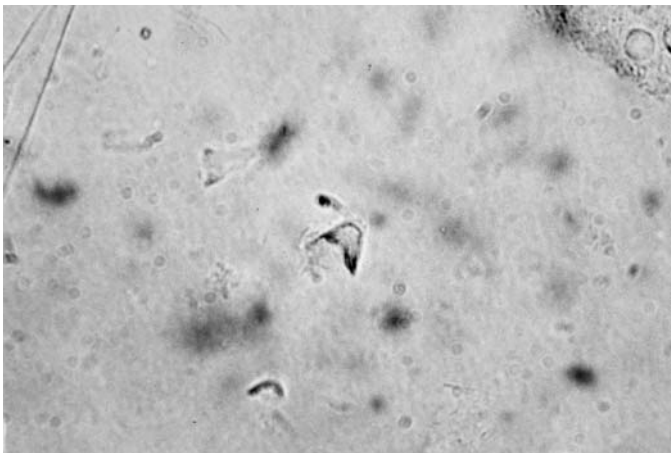
20VCd photo1f.jpg



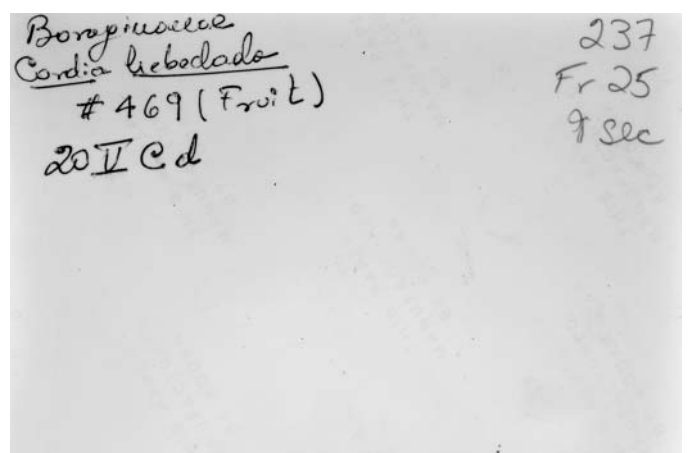
20VCd photo2f.jpg



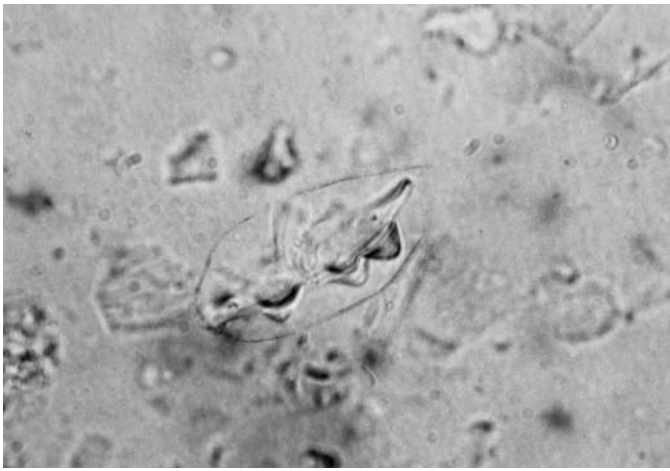
20VCd photo2b.jpg



20VCd photo3f.jpg



20VCd photo3b.jpg



20VCd photo4f.jpg

Boraginaceae  
Cordia lutea # 470 (Leaf).  
 20 V C d.

238  
 Fr 4  
 9sec

20VCd photo4b.jpg

20 Epidermal Non-Quadrilateral 20V Ce

- Surface projections (advent on 10 IDal)
- Conic shape
- rounded bottom
- round in rotation
- lightly silicified
- Can occur in series

(occurs in Setaria)  
 01/15/92

20V Ce card1.jpg

Epidermal Non-Quad. 20V D 20V D

Triangular-cupped epidermal bodies

Round or triangular in top view, edges rounded. Round edges faint, cuplike triangular edges heavily silicified.

17.5µ

Bombacaceae Pachira aquatica (Leaf) 1367c

20V Ce card2.jpg

20 V D.

- Epidermal non-quadrilateral
- One surface projection from <sup>triangular part</sup>
- Round or triangular in top view - edges rounded.
- Round edges faint. Cuplike
- triangular edges heavily silicified

17.5µ

Bombacaceae  
Pachira aquatica (leaf) #1367c Common 96x48.5

20V Ce card3.jpg

Bombacaceae Pachira aquatica  
 Comp. 1367b. 95/50

0 25 50µ

20V D  
 actually broken  
 segment of stomata

20V Ce photo1f.jpg

Bombacaceae Pachira aquatica  
 Comp. 1367b 90/42 20V D  
 N 265

0 25 50µ

20V Ce photo2f.jpg

Bombacaceae Pachira aquatica  
 Comp 1367b 90/40 N 264  
 20V D

0 25 50µ

20V Ce photo3f.jpg

MUno 20VD Image N264

Recno 150

Family Bombacaceae

Genus Pachira

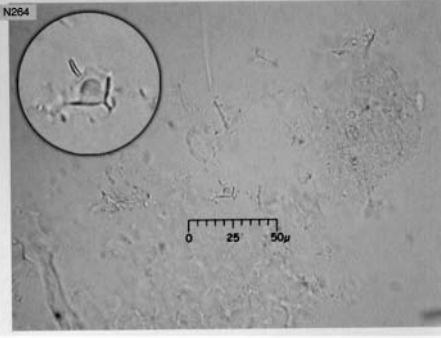
Species aquatica

Authority Aubl.

Comments

Body is very faint. Notice y-shaped triangular cup around interior rounded part of body.

Diagnostic level: family



Entered by Karol Chandler-Ezell

Updated 10/7/2002

**Description**

Triangular-cupped epidermal body, non-quadrilateral; Round or triangular, depending on view. Round edges are faint, cuplike triangular edges more heavily silicified. Originates as part of 120IIAa Stomata.

20VCe photo4f.jpg

MUno 20VE Image N305

Recno 192

Family Lauraceae

Genus Caryodaphnopsis

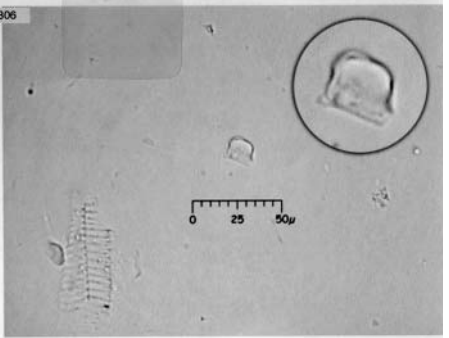
Species fosteri

Authority H van der Werff

Comments

Side view (see Record #193 for top view)

Diagnostic level: family



Entered by Karol Chandler-Ezell

Updated 10/7/2002

**Description**

- Epidermal non-quadrilaterals
- Discrete cells (not fragments)
- Surface projections
- Single rounded projection or "hat" on one side
- Rounded in top view

20VCe photo5f.jpg

MUno 20VE Image N307

Recno 193

Family Lauraceae

Genus Caryodaphnopsis

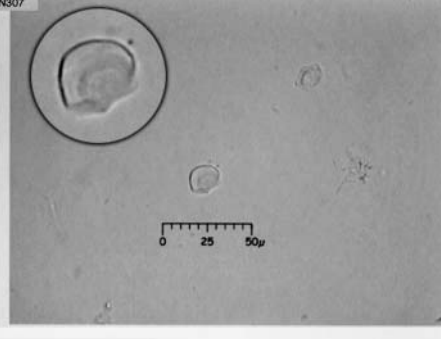
Species fosteri

Authority H van der Werff

Comments

Top view (see Record #192 for side view)

Diagnostic level: family



Entered by Karol Chandler-Ezell

Updated 10/7/2002

**Description**

- Epidermal non-quadrilaterals
- Discrete cells (not fragments)
- Surface projections
- Single rounded projection or "hat" on one side
- Rounded in top view

20VCe photo6f.jpg