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WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE. XI. PRIEURELLA. (U)
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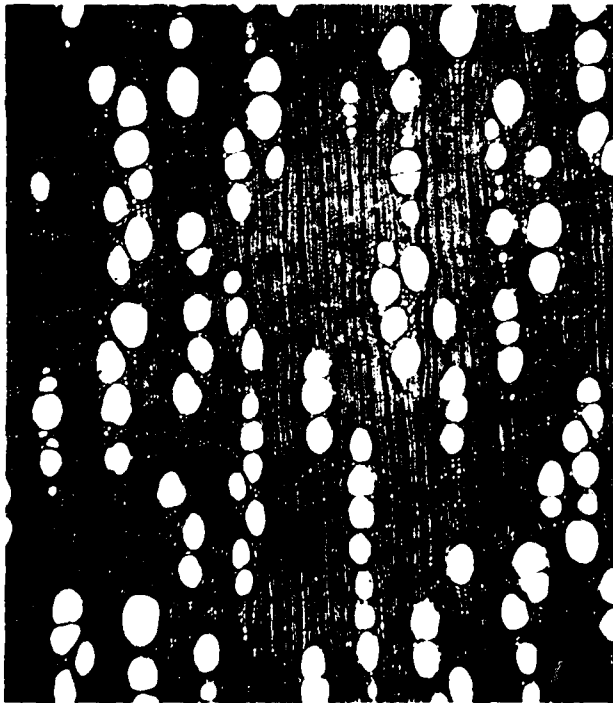
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**Wood Anatomy
of the
Neotropical Sapotaceae.
XI. Priourella.**

Research Paper FPL 352

U. S. Department of Agriculture
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Abstract

Priourella currently consists of seven South American species. The best known, and most abundantly collected species are *P. cuneifolia* (Rudge) Pierre and *P. priourii* (A. DC.) Aubr. Since 1964 five additional species have been described by Aubreville: *colombiana*, *lanceolata*, *maguirei*, *manaosensis*, and *wurdackii*. For many decades the original species were maintained under *Chrysophyllum* until Pierre established the genus *Priourella* in 1891. The wood anatomy substantiates the separation from *Chrysophyllum*.

Preface

The Sapotaceae form an important part of the ecosystem in the neotropics; for example, limited inventories made in the Amazon Basin indicate that this family makes up about 25 percent of the standing timber volume there. This would represent an astronomical volume of timber but at present only a very small fraction is being utilized. Obviously, better information would help utilization--especially if that information can result in clear identification of species.

The Sapotaceae represent a well-marked and natural family but the homogeneous nature of their floral characters makes generic identification extremely difficult. This in turn is responsible for the extensive synonymy. Unfortunately, species continue to be named on the basis of flowering or fruiting material alone and this continues to add to the already confused state of affairs.

This paper on *Priourella* is the eleventh in a series describing the anatomy of the secondary xylem of the neotropical Sapotaceae. The earlier papers, all by the same author and under the same general heading, include:

- I. *Bumelia*--Research Paper FPL 325
- II. *Mastichodendron*--Research Paper FPL 326
- III. *Dipholis*--Research Paper FPL 327
- IV. *Achrouteria*--Research Paper FPL 328
- V. *Calocarpum*--Research Paper FPL 329
- VI. *Chloroluma*--Research Paper FPL 330
- VII. *Chrysophyllum*--Research Paper FPL 331
- VIII. *Diploon*--Research Paper FPL 349
- IX. *Pseudoxythece*--Research Paper FPL 350
- X. *Micropholis*--Research Paper FPL 351

Publication in this manner will afford interested anatomists and taxonomists the time to make known their opinions and all such information is hereby solicited. At the termination of this series the data will be assembled into a single comprehensive unit.

WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE

XI. PRIEURELLA

B. F. Kukachka,^{1/} Botanist

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U.S. Department of Agriculture

Introduction

Prieurella, established by Pierre in 1891, is a small South American genus consisting of seven species. The best known species are *P. cuneifolia* (Rudge) Pierre, the type of the genus, and *P. pricurii* (A. DC.) Aubr. The nomenclatural history of these species is as follows:

Prieurella cuneifolia (Rudge) Pierre

- Bumelia cuneifolia* Rudge (1805)
- Chrysophyllum cuneifolium* (Rudge) A. DC. (1844)
- Prieurella cuneifolia* (Rudge) Pierre (1891)
- Ecclinusa cuneifolia* (Rudge) Aubr. (1961)

Prieurella pricurii (A. DC.) Aubr.

- Chrysophyllum pricurei* A. DC. (1844)
- Ecclinusa pricurii* (A. DC.) Aubr. (1961)
- Prieurella pricurii* (A. DC.) Aubr. (1964)
- Chrysophyllum cyanogenum* Ducke (1942) (8)

Bachni (5) maintained *pricurii* in *Chrysophyllum* and *cuneifolia* as the sole member of *Prieurella*, but later (6), he placed *pricurii* in *Prieurella*.

Cronquist (7) maintained both species under *Chrysophyllum*. In 1961 Aubreville (1) transferred both species to *Ecclinusa* but later (2) reinstated them in *Prieurella*. Since 1964 Aubreville has described five additional species: *wurdackii* from Peru; *manaosensis* (2) from Brazil; *lanceolata* and *maguirei* (4) from Venezuela; *colombiana* (3) from Colombia. These five species are known from a very small number of herbarium collections and only one wood specimen, from a small branch of *wurdackii*.

1/ Pioneer Research Unit, Forest Products Laboratory.

2/ Maintained at Madison, Wis., in cooperation with the University of Wisconsin, Madison.

From the anatomical viewpoint Prieurella is very distinct from Chrysophyllum and these genera can be separated by hand lens examination of the cross-section. Prieurella's nearest affinity appears to be with certain species of Neoxythece.

Description

Based on seven mature specimens of cuneifolia and 14 mature specimens of prieurii. The single specimen of wurdackii was represented by a branch section 2.5 cm. in diameter (table 1).

General: Sapwood yellow-brown; 3-4 (6) cm thick and distinct from the brown heartwood. Sapwood color commonly obscured by the presence of bluestain fungi. Growth rings indistinct or lacking. Wood hard and heavy with a specific gravity range of 0.85 to 1.12. Bark 3-6 mm thick in prieurii and 1-3 mm thick in cuneifolia.

Anatomical:

Pores solitary and in radial multiples of 2-3(4) which are in radial-echelon arrangement. Maximum tangential pore diameter of cuneifolia specimens ranges from 118 to 150 μm ; in prieurii from 158 to 205 μm ; 197 μm in wurdackii.

Parenchyma banded; the individual bands irregularly 1-3 seriate and sometimes discontinuous (figs. 1-4). Silica present in cells with dark contents.

Vessel members averaging 760 μm in prieurii and slightly longer, 820 μm in cuneifolia. Intervessel pitting 4-6 μm in diameter. Tyloses, when present, may be thin-walled, thick-walled, or commonly sclerotic in the heaviest specimens. Perforations simple.

Wood rays essentially uniseriate; heterocellular. Vessel-ray pitting irregular in shape and size. Spheroidal silica particles common and generally confined to the ray cells with other contents; up to 25 μm in diameter (Fig. 5). Ray cell contents in prieurii generally granular in appearance in contrast with the large brown globules of cuneifolia. (figs 5-6).

Wood fibers thick-walled; averaging 1.48 mm in prieurii and 1.51 mm in cuneifolia. Vascular tracheids common.

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U.S. Forest Products Laboratory.

Wood anatomy of neotropical Sapotaceae:
XI. Prieurella, by B. F. Kukachka, Res. Pap.
FPL 352, FPL, For. Serv., USDA. 9 p.
Madison, Wis.

Prieurella currently consists of seven South American species. The best known and most abundantly collected are P. cuneifolia (Rudge) Pierre and P. prieurii (A. DC.) Aubr. Since 1964 five additional species have been described by Aubreville. The original species were maintained under Chrysophyllum until Pierre established the genus Prieurella in 1891. The wood anatomy substantiates the separation from Chrysophyllum.

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Table 1.--Specimens of *Priourella* examined

Species	Collector and number	Origin	Wood specimens	
<i>cuneifolia</i> (Rudge) Pierre	BAFOG 186 M	French Guiana	MAD-32958	
	Lanjouw & Lindeman 2977	Surinam	MAD-32924	
	Lindeman 3658	Surinam	MAD-32932	
	Maguire 24687	Surinam	MAD-12071	
	Schulz 7413	Surinam	MAD-32945	
	Schulz 7450	Surinam	MAD 32949	
	Stahel 177	Surinam	SJR-42458	
	<i>Priourii</i> (A. DC.) Rubr.	BAFOG 86 M	French Guiana	MAD 32956
		BAFOG 233 M	French Guiana	MAD 50850
		BAFOG 1210 M	French Guiana	MAD-32963
		Ducke 813	Brazil	SJR-44304
		Froes 12	Brazil	A-27462
		Gutierrez 60 & 114	Peru	MAD-22360
Lanjouw & Lindeman 396		Surinam	MAD-32853	
Oliveira 5785 A		Brazil	MG-5785 A	
Oliveira 5785 B		Brazil	MG-5785 B	
Oliveira 5801 D		Brazil	MG-5801 D	
Pires 51794		Brazil	MAD-21487	
Rodrigues & Chagas 2927		Brazil	INPA-1030	
Rosa 1398		Brazil	MG-1398	
Williams 14550	Venezuela	SJR-41625		
<i>wurdackii</i> Aubr.	Schunke 2592	Peru	MAD-35644	

Table 2.--Silica content¹ of *Pitheurella*

Species	Specimen analyzed	Origin	Percent silica
<i>cuneifolia</i>	Lindeman 3658	Surinam	0.28
	Stabel 177	Surinam	.47
	Schulz 7413	Surinam	.89
	Schulz 7450	Surinam	.14
<i>prieuri</i>	BAFOG 86 M	French Guiana	0.37
	BAFOG 233 M	French Guiana	.58
	Ducke 813	Brazil	.68
	Pires et al. 51794	Brazil	.61
	Williams 14550	Venezuela	.79

1: The author is indebted to Martin F. Wesolowski for the chemical analysis.

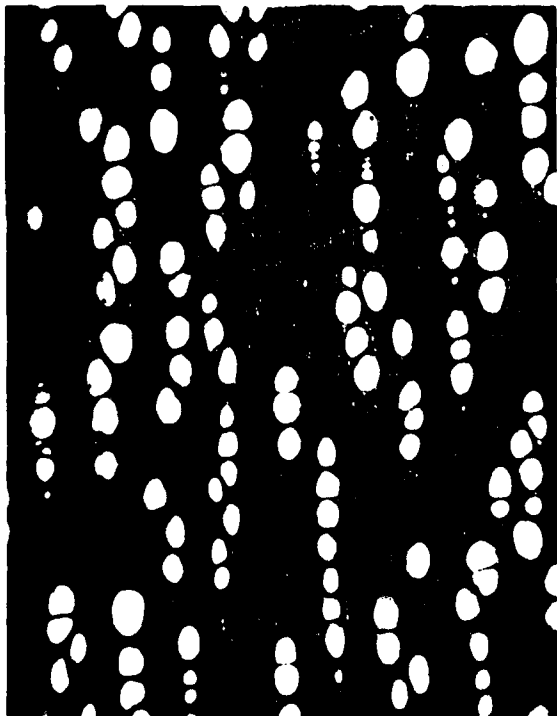


Figure 1.--*Prieurella prieurii*, typical arrangement of pores and parenchyma (Ducke 813) X 30.

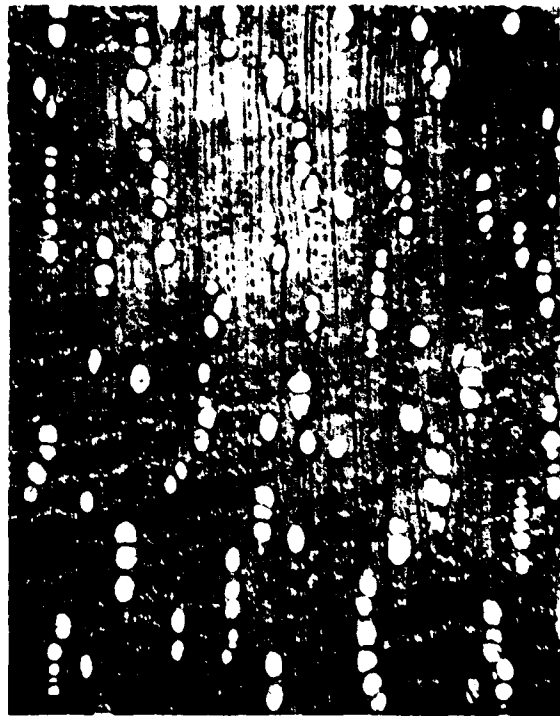


Figure 2.--*P. cuneifolia*, typical arrangement of pores and parenchyma (Stahel 177).

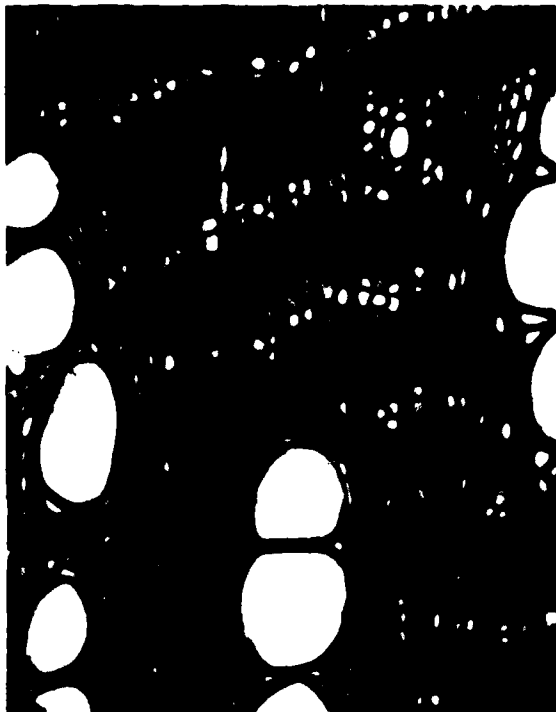


Figure 3.--*P. prieurii*, parenchyma detail (Ducke 813) X 110.

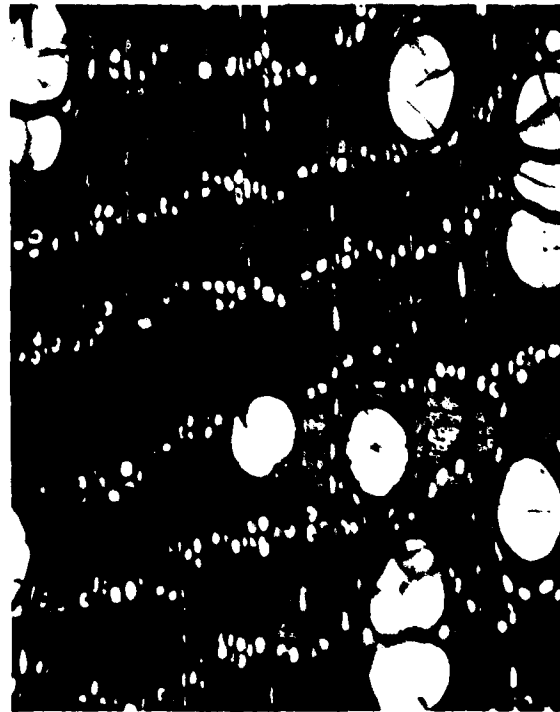


Figure 4.--*P. cuneifolia*, parenchyma detail (Stahel 177) X 110.

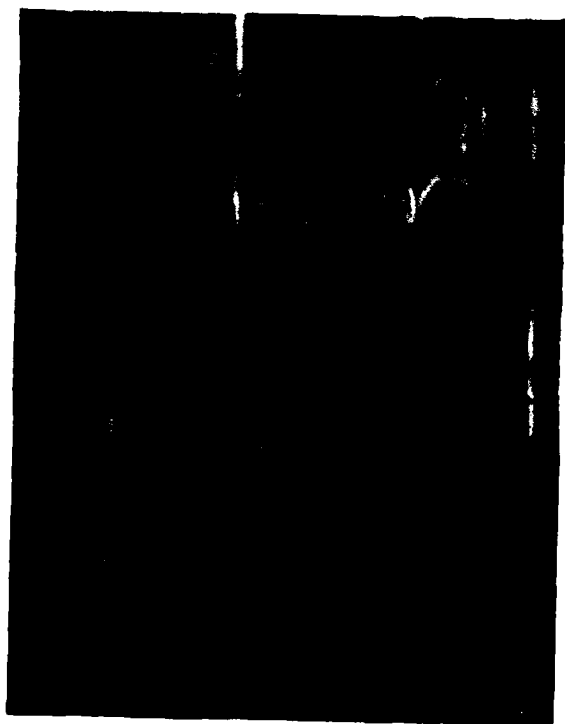


Figure 5.--*P. priurii*, wood rays with granular appearing contents and large spheroidal particles of silica (BAFOG 86M) X 440.



Figure 6.--*P. cuneifolia*, wood rays with distinctive brown, organic spheroids. Silica particles smaller (Schulz 7450) X 440.

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