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WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE. XV. SANDWITHIODOXA.(U)
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WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE

XV. SANDWITHIODOXA

RESEARCH PAPER FPL 359

FOREST PRODUCTS LABORATORY
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
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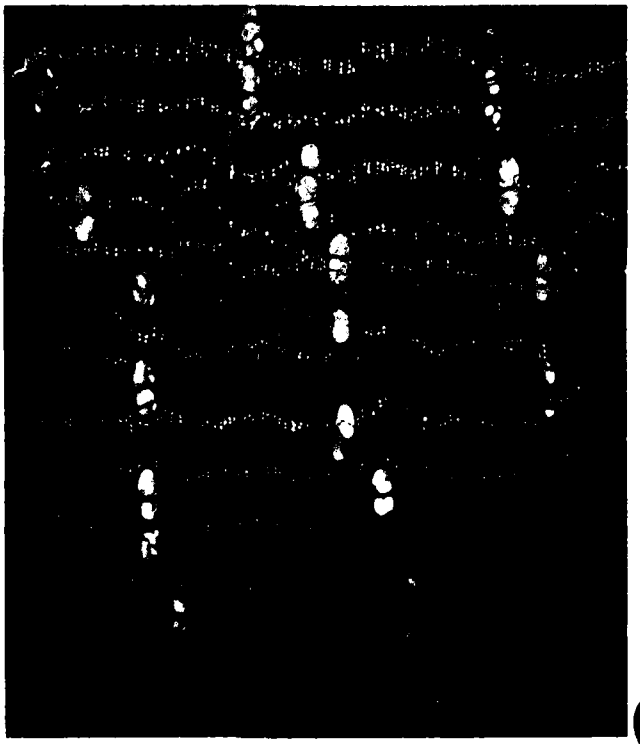

Abstract

Sandwithiodoxa is a monotypic genus established by Aubréville and Pellegrin based on Pouteria egregia Sandwith, making the new combination Sandwithiodoxa egregia (Sandw.) Aubr. and Pellegr. The wood is light brown, very hard and heavy with an average specific gravity of 1.09. Individual specimens attain a specific gravity of 1.21. Floristically it is said to have affinities with Sarcaulus and Pseudocladia, but anatomically it differs from these genera in several details.

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 synonomy. 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 Sandwithiodoxa is the fifteenth 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
XI. Prieurella--Research Paper FPL 352
XII. Neoxythece--Research Paper FPL 353
XIII. Podoluma--Research Paper FPL 354
XIV. Elaeoluma--Research Paper FPL 358

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 NEOTROPICAL SAPOTACEAE

XV. SANDWITHIODOXA

By

B. F. Kukachka, Botanist[1/]

Forest Products Laboratory,[2/] Forest Service
U.S. Department of Agriculture

Introduction

Sandwithiodoxa was established as a monotypic genus by Aubréville and Pellegrin in 1961 based on Pouteria egregia Sandwith, resulting in the new combination Sandwithiodoxa egregia (Sandw.) Aubr. and Pellegr.[3/] When Sandwith described his species he noted the affinity with Sarcaulus based on the sharing of a valvate corolla, an uncommon feature in the Sapotaceae. Other floral characteristics suggested an affinity with Pseudocladia and Sandwithiodoxa egregia subsequently became a part of the "catch all" genus Pouteria in the section Pseudocladia. Anatomically its affinities are with Pseudocladia rather than Sarcaulus.

Originally described from Guyana, the range of this species has been extended to French Guiana, Surinam, and, more recently, to Venezuela. On the basis of wood specimen N. T. Silva 3916 the range would be extended into Brazil since this wood is practically identical with Wurdack and Monachino 39693 from Venezuela.

Description

Based on seven specimens from Guyana, Surinam, Venezuela, and Brazil, including wood from the type tree (Sandwith 573: Forest Dept. 1278) (table 1).

1/ Pioneer Research Unit, Forest Products Laboratory.

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

3/ A. Aubréville, Notes sur des Poutériées Americaines, Adansonia 1(2):163-164, 1961.

General: Wood light brown, rather dull and lusterless; heartwood brown and distinct from the sapwood in the type specimen (Sandwith 573); apparently the heartwood is late in formation. Growth rings not apparent. Wood very heavy with a specific gravity range of 1.03 to 1.21. Parenchyma bands distinct on tangential surfaces.

Anatomical:

Pores in echelon arrangement (figs. 1 and 3); solitary and commonly in radial multiples of 2-4, very occasionally to 5 to 6. Maximum pore diameter in individual specimens ranges from 118 μm to 173 μm with an average of 145 μm. The smallest maximum was found in a relatively young specimen (Lindeman 5850) and the largest in the mature wood of Stahel 122.

Vessel member length averages 750 μm with a range of individual averages from 710 μm to 800 μm. Tyloses, when present, thick walled or sclerotic. Perforations simple. Intervessel pit diameter 6(8)μm. Vessel-tracheid pitting usually smaller.

Axial parenchyma banded (figs. 1-4), the individual bands irregularly (1) 2-3 (4 and 5) seriate. Cells thick walled and especially so in the denser specimens. Brown contents frequent. Silica occasional and then limited to cells with brown contents.

Wood rays 1-2 (3) seriate; heterocellular. Vertical fusions common. Maximum body height of the 2 (3) seriate portion ranging from 71 μm in the young wood of Lindeman 5850 to the more normal range of 315 μm to 710 μm in the other specimens. Brown contents common. Some ray cells thick walled and devoid of contents as viewed from tangential sections. Silica present and generally found in the ray cells with other contents; sparse to abundant and in the latter instance most frequent in the vicinity of the axial parenchyma. Silica particles 10 μm to 20 μm maximum in most specimens and largest, to 35 μm, in Wurdack and Monachino 39693 (table 1).

Wood fibers very thick walled; the fiber length averages for the different specimens range from 1.40 mm to 1.72 mm with an overall average of 1.61 mm. Vascular tracheids abundant.

Diagnostic features: Wood light brown (brown in heartwood); very heavy with an average specific gravity of 1.09. Pores in echelon arrangement; intervessel pits mostly 6 μm in diameter; seriation of individual parenchyma bands irregular; rays 1-2 seriate; silica present and frequently sparse; tracheids common.

Table 1.--Specimens of *Sandwithiodoxa egregia* examined in this study

Collector and No.	Source	Wood collection No	Specific gravity	Silica content[1/]
				Pct
Breteler 5004	Venezuela	SJR-55663	1.05	0.06
Forest Dept. s.n.	Guyana	SJR-32847	1.08	.09
Lindeman 5850	Surinam	MAD-32936	1.06	.05
Sandwith 573 (type)	Guyana	SJR-32924	1.20	.04
Silva 3916	Brazil	MG-3916	1.00	[2/]--
Stahel 122	Surinam	SJR-41188	1.21	.26
Wurdack-Monachino 39693	Venezuela	SJR-50080	1.03	1.24

1/ The author is indebted to Martin F. Wesolowski, Chemist FPL, for the silica analysis.

2/ Not obtained.

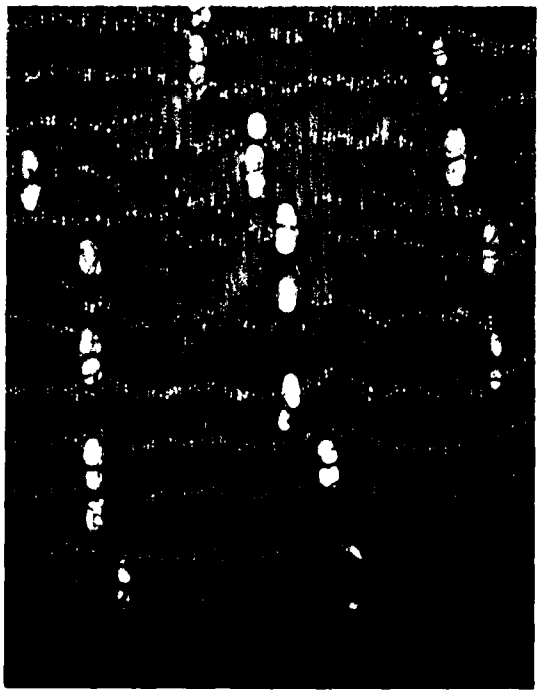

Figure 1.--Sandwithiodoxa egregia, pore and parenchyma arrangement (from type tree Sandwith 573) X 30 (Guyana).

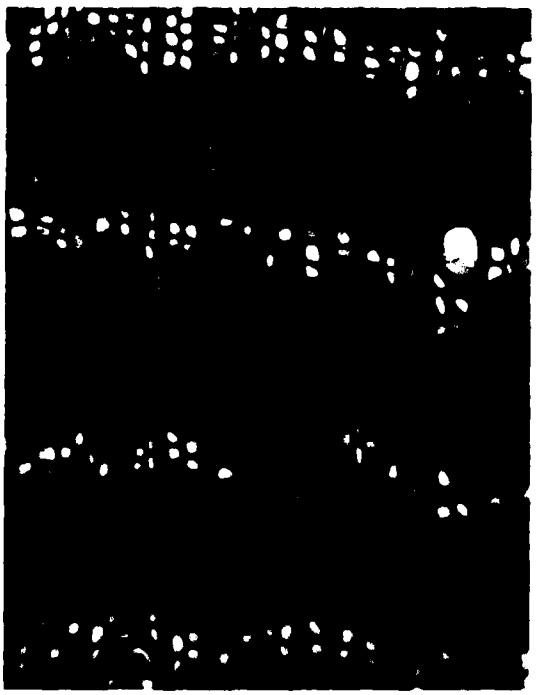

Figure 2.--Same as figure 1, X 110.

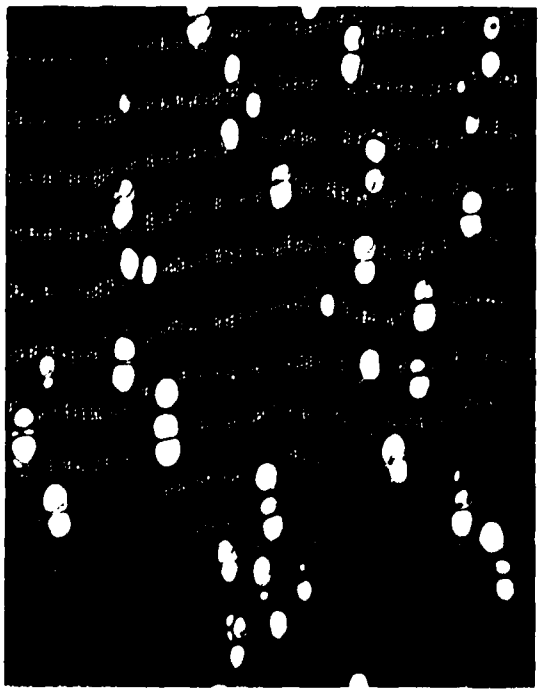

Figure 3.-- S. egregia (Breteler 5004) X 30 (Venezuela).

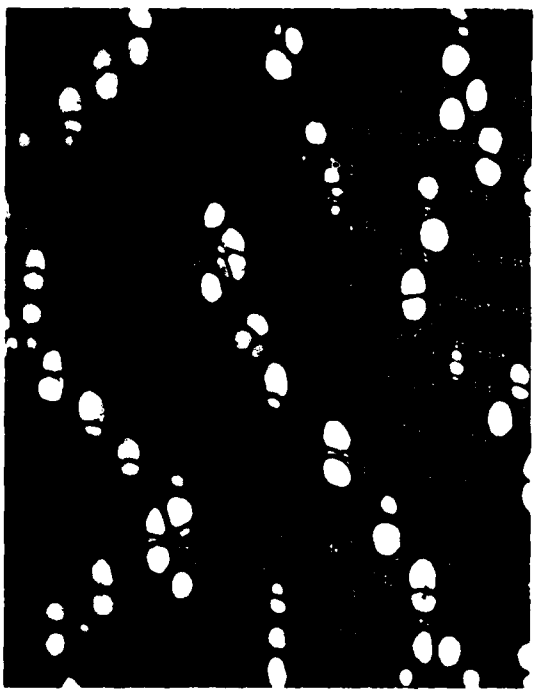

Figure 4.--S. egregia (N. T. Silva 3916) X 30 (Brazil).

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