Physical and chemical characterization of three hardwood species with potential for commercial use

Saly TAKESHITA[(1)]; Ariel de ANDRADE[(2)]; Ivaldo Pontes JANKOWSKY[(3)]

(1): Doctorate Student, Department of Forestry Sciences, University of São Paulo, ESALQ, saly@usp.br
(2): PhD in Forest Products Technology, Executive Manager, ANPM - National Hardwood Flooring Association – Brazil, ariel@anpm.org.br
(3): Associated Professor, Department of Forestry Sciences, University of São Paulo, ESALQ, jankowsky@usp.br

INTRODUCTION

Nowadays many studies focus on search for sustainable source of raw material. Among several alternatives, the wood stands out because it is a natural resource, renewable, reusable and recyclable. However, the only commercially known species are used on a large scale.

OBJECTIVE

The purpose of this research is to carry out physical and chemical characterization of three potential species for commercial use, becoming an alternative to avoid more intensive exploration only in some species.

MATERIAL and METHODS

The selected species was *Erisma uncinatum Warm.*, *Tachigali myrmecophyla* (Ducke) Ducke and *Lecythis usitata* Miers. The characterization of specific gravity and shrinkage was conducted according to Brazilian Standard NBR 7190. Chemical analysis determined glucose, xylose, arabinose and galactose using HPLC (High Performance Liquid Chromatography), extractive and lignin content were also determined according TAPPI T204 cm97 and TAPPI T222 om02, respectively.

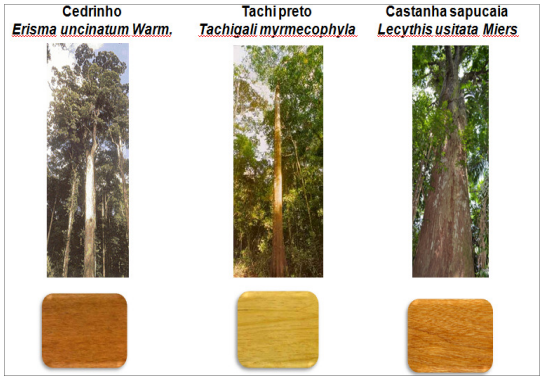

Figure 01. Selected species

RESULTS and DISCUSSION

As a result, the specific gravity of *Erisma uncinatum, Tachigali myrmecophyla* and *Lecythis usitata were* 0.56, 0.62 and 0.88 g/cm³. The lowest dimensional changes was presented by *Lecythis usitata,* however it should be observe cracks during drying. Results of the chemical composition are presented in Table 1 and 2.

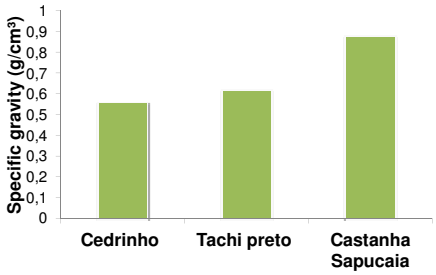

Figure 02. Specific gravity of species

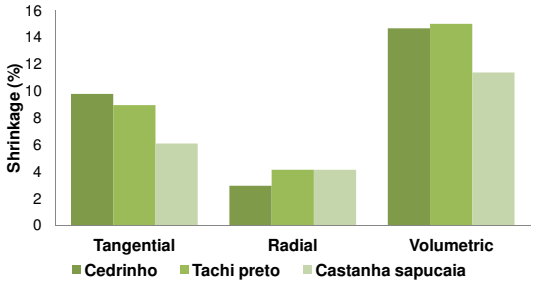

Figure 03. Results of shrinkage of species

Table 1. Extractive and Klason lignin of species

Samples	Extractives Content (%)	Klason Lignin(%)	Holocelluloce (%)
Cedrinho	2.31 (0.59)	34.36 (1.04)	63.33 (0.73)
Taxi preto	4.11 (0.28)	33.41 (0.63)	62.48 (0.45)
Castanha Sapucaia	11.07 (1.04)	33.21 (1.63)	55.42 (0.36)

Table 2. Sugar content of species

Samples	Arabinose (%)	Galactose (%)	Glucose (%)	Xylose (%)
Cedrinho (in natura)	0.35 (0.10)	1.02 (0.01)	51.61 (0.07)	10.35 (0.02)
Tachi preto (in natura)	3.71 (0.04)	1.95 (0.08)	38.17 (0.29)	18.65 (0.41)
Cast. Sapucaia (in natura)	0.59 (0.04)	1.87 (0.03)	29.87 (1.10)	23.09 (1.11)

CONCLUSIONS

In general, these species present potential for commercial uses like construction and furniture. Castanha sapucaia presented the highest specific gravity, lower shrinkage and largest extractive content than others. Cedrinho e Tachi preto showed similar characteristics.

ACKNOWLEDGMENT

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