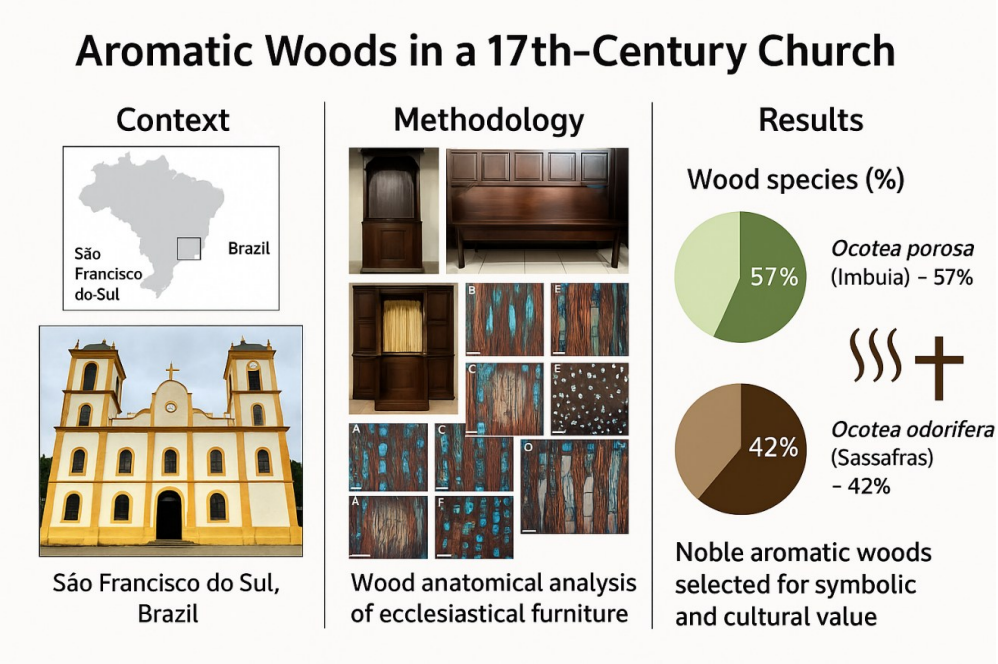
# Historical Records of the Cultural Use of Aromatic Wood in a 17th-Century Church in Brazil

Roberta Fernandes Buriti [a], and João Carlos Ferreira de Melo Júnior [b]

* Corresponding author: robertafernandesburiti@sed.sc.gov.br

DOI: 10.15376/biores.20.4.10959-10973

## GRAPHICAL ABSTRACT



# Historical Records of the Cultural Use of Aromatic Wood in a 17th-Century Church in Brazil

Roberta Fernandes Buriti [a], and João Carlos Ferreira de Melo Júnior [b]

The mapping of historical records can reveal connections between past and present in the cultural relationship between humans and nature, especially in the use of aromatic woods in religious rituals, where fragrances from wood conveyed sacred symbols and meanings. This study examined the historical use of wood in the Igreja Matriz Nossa Senhora da Graça, São Francisco do Sul, Brazil, to evaluate its symbolic meanings and cultural significance. Built in the seventeenth century, this church contains ecclesiastical furniture carved with Christian symbols, reflecting religious tradition and craftsmanship. Test samples were collected and analyzed for structural characterization and botanical identification, providing insights into the cultural value of the materials. Two native species of the Lauraceae family, both from the Atlantic Forest, were identified: *Ocotea porosa* (imbuia) and *Ocotea odorifera* (sassafras). These wood samples are aromatic, with fragrances derived from natural oils and resins. Imbuia was found in 57% of the furniture, sassafras in 42%. These noble woods were selected for organoleptic qualities and durability, highlighting a tradition of crafting "furniture of honor" in Christian practices, where material choices reflected symbolic and spiritual meaning.

*DOI: 10.15376/biores.20.4.10959-10973*

*Keywords: Cultural heritage; Historical anatomy; Imbuia; Sassafras; Ecclesiastical furniture*

*Contact information: a: Post Graduate Program in Cultural Heritage and Society, University of the Region of Joinville (Univille), Rua Paulo Malschitzki, 10 – Zona Industrial Norte, Joinville, SC 89219-501, Brazil; b: Post Graduate Program in Cultural Heritage and Society, University of the Region of Joinville (Univille), Joinville, SC, Brazil; *Corresponding author: robertafernandesburiti@sed.sc.gov.br*

## INTRODUCTION

In the religious context of Christianity, the church is recognized as a sacred space where religious practice involves the establishment of a symbolic system of beliefs, including sacraments, celebrations, and rituals. The place of worship is considered by the faithful to be a consecrated environment that serves as a refuge, offers eschatological hope, and fosters communal gathering, facilitating the encounter between humanity and God (White 1997). The liturgical architecture of the temple, particularly evident in its interior environment, features arrangements that embody the symbolic meanings of the Hebrew worldview. In this detailed sacred setting, the historical and cultural use of wood contributes to creating a welcoming sacred environment. Wood is likely chosen for its physical and organoleptic properties, as well as its association with Christian beliefs and values (Norgaard 1981).

Ecclesiastical furniture assumes symbolic elements within the religious setting, granting meanings associated with the sacred and religious idiosyncrasies. For instance, the communion table symbolizes God's fellowship with humankind, while the aromatic

fragrance of certain woods signifies God's presence, intensifying the perception of divine proximity. According to Berger, "the sacred is understood as a quality of mysterious and awe-inspiring power, distinct from humanity yet related to it, believed to reside in certain objects of experience" (Berger 1985, p.38). Thus, the cultural use of wood in temples transcends materiality, becoming a form of expression through aromas, colors, and textures that reveal sacredness and the presence of the divine (Eliade 1992).

The ecclesiastical territory has deep cultural and social roots manifested in practices, symbols, and traditions passed down over time. The use of essential oils from aromatic plants in religious ceremonies — whether through incense burning or sacred perfumes — creates an atmosphere of reverence and sanctity (Pybus and Sell 2007). As Mircea reflects on this sacralization of nature: "[...] For the religious man, nature is never exclusively natural; it is always imbued with a religious value" (Eliade 1992, p.99).

Aromatic plants of the Lauraceae family, such as Chinese cinnamon, rosewood, and sassafras, among others (Craveiro 1980), produce oils found in their leaves and wood, and these are widely used in traditional communities with symbolic connotations (Marques 2001). The first records of the use of aromatic species date back to 2800 BC in documents from Ancient Greece. These records attribute spiritual meanings symbolizing purification and connection with the divine, revealing the intersection between the sacred and aromatic plants and the roots of ancestral practices (Barroso 1978; Coe-Teixeira 1980). Considering this context, the cultural use of wood in ancient traditions is intrinsically linked to symbolic meanings, and the selection of species is far from arbitrary.

In historical constructions from Brazil's colonial period, Baroque churches highlight the use of wood as a noble material capable of expressing the sacredness, symbolism, and meanings that artists sought to convey, forming geosymbols that compose the sacred territory (Bonnemaison 2002). Architectural elements, Christian iconography, and ecclesiastical furniture are strategically organized to serve ecclesiastical liturgy. The arrangement of elements within the church follows a liturgical and symbolic logic, with each component chosen and placed to create an environment conducive to devotion and worship (White 1997). In many cases, wood is the primary component, present in altars, pulpits, communion tables, sacristies, confessionals, wall coverings, clergy chairs, pews, cabinets, and liturgical objects (Bardi 1982).

Historiographical inventories of religious furniture, described as "credências" (Brandão 1985) in ecclesiastical archives, indicate that woods were chosen based on the symbolic value attributed to each type of furniture, with "honor furniture" crafted from woods considered noble (Canti 1980). Thus, the raw materials, manufacturing techniques, and functional aspects of the furniture reveal not only the object's history (Meneses 1998) but also aspects of the human cultures that produced and left them as cultural legacies (Cardoso Denis 1998). Before crafting honor furniture, master artisans had to demonstrate their sculptural skills by making miniature wooden furniture. In the Museum of Miniature Furniture at the Château de Vendeuvre in France, religious honor furniture is represented in miniature by master artisans, depicting religious rituals and liturgical knowledge according to their honorary functions (Vendeuvre 2010).

The study of ecclesiastical furniture from a historical-artistic perspective (Rodrigues 1968) as revealed in documents and inventories of ecclesiastical archives (Campos 2007), indicates that ecclesiastical furniture with honorary functions was artistically crafted from high-quality materials, with characteristics adhering to the Catholic calendar and liturgical dogmas (Oliveira 2003). Canon law, which governs the

organization of parish archives, instructs the sacristan or treasurer to record religiously significant items in temple inventories (Campos 2005). This cataloging process includes information such as identification, dating, origin, intended use, symbolic significance, and description of the piece and materials used, including the type and color of wood (Canti 1999).

Given the above, it is evident that the cultural use of wood is part of the historical memory of the liturgical environment, involving complex and multifaceted relationships that connect the natural world with human cultural, social, and spiritual constructions (Cosgrove 2003). Despite wood's prominent role in the Christian sacred landscape during the colonial period, gaps remain not only regarding the origin or identity of the trees used, but also concerning the potential symbolic meanings of its cultural use, linking humans and faith. Thus, the present study aims to investigate the historical woods used in the ecclesiastical heritage of the Igreja Matriz Nossa Senhora da Graça, São Francisco do Sul, Santa Catarina.

## MATERIALS AND METHODS

São Francisco do Sul is recognized as the fourth oldest city in Brazil, founded in 1658 by Portuguese settlers. Alcídio Mafra de Souza, in his work Guia dos Bens Tombados de Santa Catarina (Guide of Heritage Sites in Santa Catarina), refers to São Francisco Island in 1519, located in Babitonga Bay. Binot Paulmier de Gonneville visited the island in 1504 (Santos *et al*. 2004), marking one of the earliest documented contacts between Europeans and indigenous peoples of the region, specifically the Carijós. Gonneville and his crew spent several months in the region, coexisting with the natives before returning to France. However, effective Portuguese colonization only consolidated in the 17$^{th}$ century. Manoel Lourenço de Andrade is credited with the city's official foundation in 1658, marking the beginning of colonization (Souza 1992).

During the 18$^{th}$ century, São Francisco do Sul's economy was predominantly agricultural, complemented by a developing port activity. Local agriculture focused on products such as manioc flour, a staple for both local consumption and external trade. Timber extraction also played a crucial role in the regional economy, with the material exported to other parts of Brazil and possibly abroad. Additionally, dried fish and ropes made from Imbé (Philodendrum) plants were significant trade items (Pereira 1984).

In São Francisco do Sul, heritage preservation focused not on individual monuments but on maintaining the integrity of the city's Historic Center, preserving the historical and architectural characteristics of four hundred properties (IPHAN 1986). This heritage preservation process began in the late 1970s, according to documents from the National Institute of Historical and Artistic Heritage (IPHAN) (IPHAN 1986).

The Shrine of Nossa Senhora da Graça, located in the Historic Center, is one of the municipality's central historical landmarks (Fig. 1). The first chapel dedicated to Nossa Senhora da Graça was built in 1665. With the village's growth and population increase, a larger church became necessary (IPHAN 1986). In the 18$^{th}$ century, the original chapel was expanded and renovated, culminating in the construction of the current church. The structure, featuring elements of Portuguese colonial style, was completed in the early 19$^{th}$ century (IPHAN 1986). Its interior environment includes richly ornate furniture entirely made of wood (Table 1, Figs. 2 and 3), representing a

cultural use of wood that may provide significant insights into the symbolic religious context of the region.

The collection of wood samples from historical furniture used in the church was authorized by the Archdiocese, the Santa Catarina Cultural Foundation, and IPHAN, under license process No. 01510.000622/2023-45.


**Fig. 1.** Geographic location and frontal view of the Church *Nossa Senhora da Graça*, Municipality of São Francisco do Sul, Santa Catarina State, Southern Brazil

To achieve this, conceptual assumptions and protocols of historical anatomy were employed (Melo Júnior 2024a). Historical Anatomy is an interdisciplinary field dedicated to studying the cultural use of wood in historical societies, integrating scientific knowledge from various fields and cultural systems (Melo Júnior 2024a). It highlights the role of wood not only as a functional material but also concerning the traditions, knowledge, and symbolisms surrounding the cultural and historical use of trees, endowing them with patrimonial symbolic value (Melo Júnior 2024b).

The method for identifying the woods used in the ecclesiastical furniture of the Shrine of Nossa Senhora da Graça adhered to standard techniques in wood anatomy (Johansen 1940; Sass, 1951). Sample gathering from the ecclesiastical furniture was performed using an increment borer (Pressler probe) or hand saw, in accordance with historical wood protocols (Melo Júnior 2024a). Simple cylindrical samples with a maximum dimension of 1.0 $cm^3$ were obtained by probing, while simple cubic samples ranging from 1.0 to 2.0 cm were extracted using a saw, ensuring the physical integrity of the furniture.

All samples were collected from inconspicuous locations to avoid compromising the furniture's static function. The collected samples underwent a cooking process in glycerin water to soften them. The histological sections were made on a sliding microtome with a C-type blade, in the transverse, tangential-longitudinal, and radial-longitudinal planes (Kraus and Ardurin 1997). Subsequently, samples were clarified with sodium hypochlorite (NaClO), washed with distilled water, stained with safrablau (safranin and astral blue), dehydrated using a series of increasing ethanol solutions, and fixed with butyl acetate in a fume hood (Kraus and Ardurin 1997). Mounting was performed using a synthetic resin such as stained glass varnish (Paiva *et al*. 2006). The drying of the slides was completed on a heated plate. Dissociated material was obtained *via* a modified Franklin method (Kraus and Ardurin 1997).

The anatomical descriptions followed standard techniques and terminology in wood anatomy (IAWA). Botanical identification of the species was conducted using structural comparison methods based on anatomical descriptions and histological slides created from a scientific reference collection from the JOIhw wood library, supported by transmitted light microscopy, consulting reference works (Record and Hess 1943; Metcalfe and Chalk 1950; Détienne and Jacquet 1983; Mainieri and Chimelo 1989), and utilizing the Insidewood database (Wheeler 2011). Photomicrographs were captured using the OPTICAM O600RT photomicroscope. The samples were cataloged in the historical wood reference collection of the JOIhw wood library at the Laboratory of Wood Anatomy at the University of the Region of Joinville (Table 1). Data regarding the geographical distribution of the taxa identified in the historical wood samples were obtained from the Brazilian Flora database (The Brazil Flora Group 2018).


**Fig. 2.** Ecclesiastical furniture made of sassafras from the Church *Nossa Senhora da Graça*, Municipality of São Francisco do Sul, Santa Catarina State, Southern Brazil. Legend entries: A – pulpit; B – confessional; C - presbytery bench; D – candlestick; E – temple pews; and F – offering table


**Fig. 3.** Ecclesiastical furniture made of imbuia from Church *Nossa Senhora da Graça*, Municipality of São Francisco do Sul, Santa Catarina State, Southern Brazil. Legend entries: A - sacristy cabinet; B - altar of the sacristy; C - confessional; D – chair; E – kneeler; F - communion table; G - offering table; and H - kneeler.

## RESULTS AND DISCUSSION

Wood samples were collected from fourteen pieces of ecclesiastical furniture belonging to the sacristy, temple, altar, and museum of the Shrine of Nossa Senhora da Graça, dating back to the 17$^{th}$ century. Table 1 provides further details about the studied furniture. Two species of trees were identified as sources for the woods utilized in the manufacture of the examined furniture: *Ocotea odorifera* (Vell.) Rohwer and *Ocotea porosa* (Nees & Mart. Barroso), both of which belong to the Lauraceae family. The species *O. odorifera*, known as sassafras, constitutes 42% of the furniture, while *O. porosa*, known as imbuia, accounts for 57% of the furnishings. Both species naturally occur in the phytogeographic formations of the Atlantic Forest in southern Brazil,

particularly within the Dense Ombrophilous Forest and Araucaria Forest in the states of Paraná and Santa Catarina (The Brazil Flora Group 2018).

**Table 1.** Ecclesiastical Furniture of the Church *Nossa Senhora da Graça*, Municipality of São Francisco do Sul, Santa Catarina State, Southern Brazil

| Botanical Family | Wood Species and (Popular Name) | Furniture | Location | Wood Collection (JOlhw) |
|---|---|---|---|---|
| Lauraceae | *Ocotea odorifera* (Sassafras) | Pulpit | Main Altar | 281 |
| | | Candlestick | Temple | 282 |
| | | Pew | Presbytery | 287 |
| | | Candlestick | Main Altar | 288 |
| | | Pew | Temple | 289 |
| | | Offering Table | Temple | 290 |
| | *Ocotea porosa* (Imbuia) | Sacristy Chest | Sacristy | 279 |
| | | Altar Da Sacristy | Sacristy | 280 |
| | | Confessional | Temple | 283 |
| | | Chair | Museum | 284 |
| | | Kneeler | Museum | 285 |
| | | Communion Table | Main Altar | 286 |
| | | Offering Table | Temple | 291 |
| | | Kneeler | Museum | 292 |

A structural description of the wood used in the identification of species and their forest origins is provided below.

*Ocotea odorifera* (Fig. 4) - distinct growth rings, all marked by radial thickening of fiber walls; diffuse porosity and arrangement, mostly multiples of 2-3, solitary, rare multiples of 4-5 and racemiform; average tangential diameter of 131 µm (91-131-210); average frequency of 36 vessels/mm² (28-36-44); average length of 453 µm (246-453-776); simple and scalariform perforation plates with few bars (<10); areolated, alternate intervascular pitting, large with 11.5 µm (10.25-11.5-12.9); simple ray-vessel pitting with reduced margins, rounded to angular or horizontal. Common tyloses: Fibers with simple pitting or with diminutive aureole; septate fibers present, with thin to thick walls; average fiber length of 1052 µm (622-1052-1365). Scarce paratracheal axial parenchyma; fusiform series of axial parenchyma with 3-5 cells. Rays 1-3 seriate, mostly biseriate, with 4-37 cells in height, heterogeneous, formed by a body of procumbent cells and a row of upright or square marginal cells, with 7.6 rays/mm (4-7.6-10). Oil cells are present, associated with radial parenchyma, axial parenchyma, and fibers.

*Ocotea porosa* (Fig. 4) - distinct growth rings marked by radial thickening of fiber walls in the late wood; diffuse porosity and arrangement, multiples of 2-3, solitary and racemiform; vessel elements with an average tangential diameter of 55 µm (32-55-86); average frequency of 12 vessels/mm² (8-12-15); average length of 206 µm (128-206-278); simple perforation plates; areolated, alternate intervascular pitting, small with 5.5 µm (5.2-5.5-7); simple ray-vessel pitting with reduced margins, rounded to angular or horizontal. Common tyloses: Fibers with simple pitting or with diminutive aureole; septate fibers, with thin to thick walls; average fiber length of 467 µm (356-467-628). Scarce paratracheal axial parenchyma; fusiform series of axial parenchyma with 3-4 cells. Rays 3-4 seriate, from 5-38 cells in height, heterogeneous, formed by a body of procumbent cells and a row of upright or square marginal cells, with 7 rays per mm (6-7-9). Oil cells are present, associated with radial parenchyma.

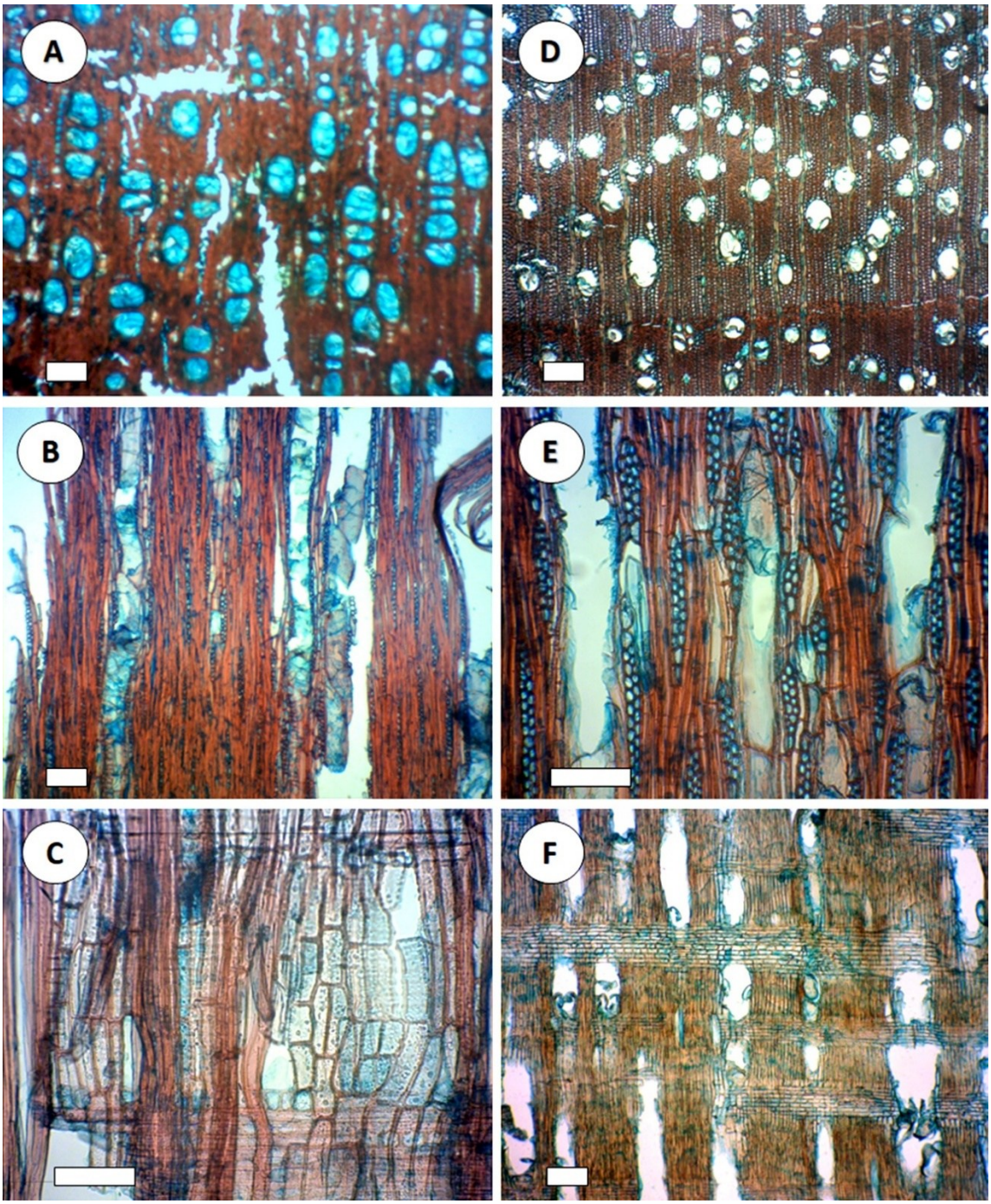



**Fig. 4.** Anatomy of the woods of *Ocotea porosa* (A – C) and *Ocotea odorifera* (D – F) (Lauraceae) recorded in the ecclesiastical furniture of the Shrine of Nossa Senhora da Graça, São Francisco do Sul, Santa Catarina. A and D – transverse section; B and E – tangential longitudinal section; and C and F – radial longitudinal section. Scale bar = 200 µm

The anatomical identification of these historical woods contributes to the preservation of the historical significance of the artifacts and the appropriate replacement of pieces to maintain the characteristics of the heritage. The structural, chemical, and physical characteristics of the historical wood chosen for the construction of a historical-cultural heritage indicate the natural resources available in the region at a particular

historical moment, the methods and techniques used in wood carving, and the traditional knowledge involved in the wood selection process (Melo Júnior 2024b).

Aromatic woods from the Brazilian flora are strongly associated with the Lauraceae family, as evidenced here. The woods of *Ocotea porosa* and *Ocotea odorifera* possess organoleptic properties that contribute to the symbolism associated with the species' fragrance, with their essence utilized in religious rituals (French 1995). Furthermore, due to the high mechanical resistance of these woods (Manieri and Chimelo 1989), it is suggested that this attribute also influenced their use in furniture pieces. Symbolic anthropology depicts the use of aromatic plant fragrances in religious rituals worldwide, evoking sensations and feelings among participants (Pybus and Sell 2007).

The use of aromatic woods is an ancient practice. Archaeobotanical studies have shown that species of the genus *Ocotea* were utilized in burial rituals by ancient populations along the southern coast of Brazil associated with sambaquis, likely due to the wood's aroma (Bianchini *et al*. 2007). Cremation rituals in ancient Egypt (circa 3000 B.C.) recorded the use of aromatic plants incorporated into religious ceremonies at altars dedicated to deities and in the composition of sacred spaces. In Egyptian culture, aromatic plants were used for purifying spaces and for communicating with the divine; the fragrant smoke facilitated the ascent of the souls of the deceased, symbolizing the connection between worlds (Schultes *et al*. 2001). In the ancient world, aromatic plants were often seen as divine gifts, revealing divinity and associated them with spiritual and symbolic meanings (Pietro Meloni 1979).

Fragrant woods from sandalwood trees (*Santalum album* L. - Santalaceae) and agarwood (*Aquilaria malaccensis* Lam. - Thymelaeaceae) were culturally used in four ancient civilizations (India, Ancient Egypt, Babylon, and China) for crafting incense, figurines, images of deities, luxury items, and liturgical furniture, such as sutra boxes and cases. The aroma of agarwood is also employed in religious rituals, symbolizing purification, and harmonization with the spirit. Hindus, Arabs, and Japanese utilize agarwood oil in transitionary funeral rituals (Voytishek 2023).

Botanical records from the Royal Temple of Famen, dating from the 9$^{th}$ century in China, revealed wooden artifacts made of agarwood within a silver container that held the sacred sarira (finger bone) of Sakyamuni, the founder of Buddhism, revered by emperors during the Tang dynasty (618 to 907 A.D.) (Ren *et al*. 2022). In historical records concerning Buddhism, aromatic woods such as agarwood and frankincense (Boswellia sacra Flückiger - Burseraceae) were deemed extremely important for Buddhist rituals (Yang 2011), as they provided a sacred atmosphere for spiritual experience (Yan 2008; Shen *et al*. 2014). Historical evidence indicates that in the Korean peninsula, pieces of aromatic woods were discovered in burial sites. According to epigraphic records, after a few years, fragments of the wood were unearthed and burned during Buddhist ceremonies (Shmakova *et al*. 2016). Within the Korean peninsula's geographical and cultural context, during the Goryeo period (918 to 1392 A.D.), the use of aromatic plants in Buddhist rituals was associated with symbolism of liberation, spiritual enlightenment, protection, healing, gratitude, and respect (Shmakova and Yoytishek 2023).

More broadly, aromatic plants, particularly perennial species, have been utilized in the production of incenses, oils, and ointments for spiritual and healing rituals. The release of resin vapors from the woods during incense burning is observed in various cultures to symbolize interaction among mind, body, and spirit (Ross 2010). The sacred-ideological function of pleasant-smelling aromatic plants was employed in rituals and ceremonies dedicated to deities, symbolizing purity, blessing, and devotion. Conversely,

aromatic plants with unpleasant odors were employed as spiritual barriers to ward off malevolent deities and protect sacred spaces (Schultes *et al*. 2001).

The stylistic variations of ecclesiastical furniture and the species of woods chosen for crafting these pieces depended on the geographical, historical, and social context as well as artistic influences (Canti 1980). In Jewish tradition, the Tree of Life, situated in the center of Paradise (Genesis 2:9), holds symbolism tied to life and immortality. It is believed that a fragrant oil flowed from the Tree of Life and that all its plants were aromatic (Pietro Meloni 1979). This fragrant oil represented not only the essence of life but was also associated with incorruptibility and connection with the divine, thus reflecting the significance of aroma as a sacred element transcending earthly existence. This vision emphasizes how the fragrance of plants was long considered a vehicle of spirituality and vitality within Jewish culture (Pietro Meloni 1979). Other biblical records, such as those in the Book of Exodus, depict specific rules for the construction of the temple, furniture, and objects, signaling items shaped like a growing tree as symbols of divine power to grant life (Carson *et al*. 2009).

Continuing in the biblical context, the spiritual significance of using cinnamon fragrance (*Ocotea* sp.), as noted in the Book of Exodus, is tied to the symbolic language of holiness and the presence of God (Exodus 30:23-29). The aroma of cinnamon is utilized to evoke sensations in the faithful and to invoke memories of love and devotion (Song of Songs 4:14), allowing the faithful to perceive divine revelation. Cinnamon oil is an ingredient in sacred anointing oil, used for the consecration of priests, ecclesiastical environments, and objects (Song of Songs 4:14). According to the Bible, the Lord said to Moses: "You shall anoint the tent of meeting and the ark of the covenant, the table and its utensils, the lampstand and its utensils, the altar of incense, the altar of burnt offering and all its utensils, and the basin with its stand. After you have consecrated them, they will be the most holy objects, and anyone who touches them will be consecrated" (Exodus 30, 26). The anointing oil is also employed for healing and protection, "Is anyone among you sick? Let them call the elders of the church to pray over them and anoint them with oil in the name of the Lord" (James 5:14).

The historical and cultural use of wood is also associated with local ecosystems and the appropriation process of species that belong to the same geographical context (Marx and Engels 2004). *Ocotea odorifera* and *O. porosa* are endemic species of Brazil, with distinct geographical distributions, but overlapping in certain regions. *Ocotea odorifera* is present in the Northeast (Bahia), Southeast (Minas Gerais, Rio de Janeiro, São Paulo), and South (Paraná, Santa Catarina, Rio Grande do Sul), inhabiting phytogeographical domains of the Cerrado and the Atlantic Forest, in vegetation types such as Seasonal Deciduous Forest and Ombrophilous (Pluvial) Forest. *Ocotea porosa* is recorded in the Southeast (Minas Gerais, São Paulo) and South (Paraná, Santa Catarina), primarily in the Atlantic Forest and the Pampa, residing in Seasonal Deciduous Forest, Ombrophilous (Pluvial) Forest, and Mixed Ombrophilous Forest (The Brazil Flora Group 2018). Thus, the symbolic aspects tied to the aromatic characteristics of woods and their historical abundance in natural environments fostered this complex web of spiritual and functional meanings associated with the cultural use of wood within the church context that dates to the colonization of São Francisco do Sul.

The cultural use of noble and native woods from the Atlantic Forest, known for their high resistance to biodeterioration, exuberant coloration, and good workability, has also been recorded within the religious context of other ancient churches in Brazil. Bahia rosewood, *Dalbergia nigra* (Vell.) (Fabaceae), was widely utilized in the internal

structure, artifacts, and ecclesiastical furniture of a 16th-century monastery (Siston *et al*. 2024), indicating the relationship between the geographical distribution of species and their use in religious artifacts. This finding adds further variables to the selection process of woods for high-honorific pieces beyond their aromatic attributes, while not diminishing their significant symbolic value.

The identification of species selected for their spiritual and symbolic meanings enables the mapping of environmental history across different historical and geographical contexts, providing insight into the social, political, and cultural choices that inform these practices. In the context of historical heritage management, the development of botanical inventories contributes to the recognition and conservation of biodiversity, as well as to the safeguarding of the cultural memory associated with species of cultural use (Toledo; Barrera-Bassols, 2015).

## CONCLUSION

1. This study identified the wood species used in the crafting of ecclesiastical furniture dating from the 17th century in southern Brazil. The exclusive use of aromatic species from the Lauraceae family was verified, with greater prevalence of *imbuia*, followed by *sassafras*. Despite centuries of exposure, the woods remain naturally fragrant and exude their odor when chipped. Both species yield aromatic woods with intense and pleasant odors, creating a strong symbolism with the divine presence within the sacred environment, reflecting an ancestral cultural practice found across various cultures globally.
2. Future investigations may expand comparative analyses to other temples in Latin America or elsewhere, reflecting on the symbolic use of aromatic species, even when the associated cultures hold distinct perspectives on the appropriation and management of biodiversity. The results may also support strategies for conserving cultural heritage, fostering interdisciplinary dialogue on biocultural collections.
3. The results acknowledge traditional craftsmanship and living memory linked to sacred woodworking, offering concrete benefits to heritage managers, conservator-restorers, the religious community, visitors, and scholars in economic botany, art history, and conservation.

## ACKNOWLEDGEMENTS

The authors thank National Council for Scientific and Technological Development (CNPQ 308777/2025-5), Research Support Fund of Univille (FAP 1282) and, Santa Catarina State Research and Innovation Support Foundation (FAPESC 2023TR000901) for financial support for the research. To AI ChatGPT for translating the original content into English and to Grammarly for spelling and grammar review of the translated text into English.

## REFERENCES CITED

Bardi, P. M. (1982). *Sodalício com Assis Chateaubrand* (*Sodality with Assis Chateaubrand*), MASP, São Paulo.

Barroso, G. M. (1978). *Sistemática das Angiospermas do Brasil (Systematics of Angiosperms of Brazil),* EDUSP, São Paulo.

Berger, P. L. (1985). *O Dossel Sagrado*, *Elementos para uma Teoria Sociológica da Religião* (*The Sacred Canopy, Elements for a Sociological Theory of Religion*), Paulinas, São Paulo.

Bianchini, G. F., Scheel-Ybert, R., and Gaspar, M. D. (2007). "Estaca de Lauraceae em contexto funerário (Lauraceae cutting in a funerary context). Jaboticabeira II site, Santa Catarina, Brazil," *Revista Do Museu De Arqueologia E Etnologia* 17, 223-229.

Bíblia (2001). *Bíblia Sagrada Ave-Maria (Holy Bible Hail Mary)*, 141ª Ed. Ave Maria, São Paulo.

Bonnemaison, J. (2002). "Viagem em torno do território (Travel around the territory)," in: *Geografia cultural: um século*, R. L. Corrêa and C. Rosendahl (eds.), EDUERJ, Rio de Janeiro.

Brandão, D. P. (1985). *Obra de Talha Dourada, Ensamblagem e Pintura na Cidade e na Diocese do Porto (Gilded Carving, Assembly and Painting Work in the City and Diocese of Porto)*, 2ª Ed. Porto.

Campos, A. A. (2007). "Mecenato leigo e diocesano na Minas setecentista (Lay and diocesan patronage in eighteenth-century Minas Gerais)," in: *História de Minas Gerais. As Minas Setecentistas*, E. L. Resende and L. C. Villalta (eds.), Autêntica/Companhia do Tempo, Belo Horizonte.

Campos, A. A. (2005). "Aspectos da Semana Santa através do estudo das Irmandades do Santíssimo Sacramento: Cultura artística e solenidades (Aspects of Holy Week through the study of the Brotherhoods of the Blessed Sacrament: Artistic culture and solemnities)," *Revista Barroco* 19, 71-88.

Canti, T. (1980). *O móvel no Brasil: Origens, evolução e características (Furniture in Brazil: Origins, evolution and characteristics)*, Cândido Guinle de Paula Machado, Rio de Janeiro.

Canti, T. (1999). *O móvel no Brasil: Origens, evolução e características (Furniture in Brazil: Origins, evolution and characteristics)*, Cândido Guinle de Paula Machado, Rio de Janeiro.

Coe-Teixeira, B. (1980). "Lauráceas do gênero Ocotea, do estado de São Paulo (Lauraceae of the genus *Ocotea*, from the state of São Paulo)," *Rodriguésia* 32(52), 55-190. DOI: 10.1590/2175-78601980325206.

Cosgrove, D. (2003). "Em direção a uma geografia cultural radical: Problemas da teoria (Towards a radical cultural geography: Problems of theory)," in: *Introdução à geografia cultural*, R. L. Corrêa and Z. Rosendahl (eds.), Bertrand Brasil, Rio de Janeiro.

Craveiro, A. A. (ed.). (1981). *Óleos Essenciais de Plantas do Nordeste (Essential oils from plants from the Northeast)*, Edições UFC, Fortaleza.

Carson, D. A., France, R. T., Motyer, J. A., and Wenham, G. J. (Orgs.). (2009). *Comentário Bíblico: Vida Nova (Bible Commentary: New Life)*, Vida Nova, São Paulo.

Denis, R. C. (1998). "Design, cultura material e o fetichismo dos objetos (Design, material culture and the fetishism of objects)," *Arcos Design* 1(único), 14-39.

Détienne, P., and Jacquet, P. (1983). *Atlas d'Identification des Bois de l'Amazonie et des Régions Voisines*, Centre Technique Forestier Tropical, Nogent-sur-Marne.

Eliade, M. (1992). *O Sagrado e o Profano (The sacred and the profane)*, Martins Fontes, São Paulo.

French, L. G. (1995). "The sassafras tree and designer drugs: From herbal tea to ecstasy," *Journal of Chemical Education* 72(6), article e484. DOI: 10.1021/ed072p484.

IPHAN (1986). "Informação número 109/86. Pedido de tombamento de São Francisco do Sul (Request for listing of São Francisco do Sul)."

IAWA Committee (1989). *IAWA List of Microscopic Features for Hardwood Identification*.

Johansen, D. A. (1940). *Plant Microtechnique*, McGraw-Hill, New York.

Kraus, J. E., and Ardurin, M. (1997). *Manual básico de métodos em morfologia vegetal Seropédica (Basic manual of methods in plant morphology Seropédica)*, EDUR, Seropédica.

Manieri, C., and Chimelo, J. P. (1989). *Fichas de Características das Madeiras Brasileiras (Brazilian Wood Characteristics Sheets)*, 2nd Ed., IPT, São Paulo.

Marques, C. A. (2001). "Importância econômica da família Lauraceae (Economic importance of the Lauraceae family)," *Floresta e Ambiente* 8(1), 195-206.

Marx, K., and Engels, F. (2004). *The German Ideology*, International Publishers, New York.

Melo-Júnior, J. C. F. de. (2024a). "Historical anatomy: Concept and approaches," *Rodriguésia* 75. DOI: 10.1590/2175-7860202475046.

Melo-Júnior, J. C. F. de. (2024b). *Anatomia histórica (Historical anatomy)*, Bagai/Editora da Univille, Joinville.

Menezes, U. T. B. (1998). "Memória e cultura material: Documentos pessoais no espaço público (Memory and material culture: Personal documents in public space)," *Revista Estudos Históricos* 11(21), 89-103.

Metcalfe, C. R., and Chalk, L. (1950). *Anatomy of Dicotyledons, Vol. I*, Clarendon Press, Oxford.

Norgaard, R. B. (1981). "Sociosystem and ecosystem coevolution in the Amazon," *Journal of Environmental Economics and Management* 8(3), 238-254. DOI: 10.1016/0095-0696(81)90039-5.

Oliveira, M. A. R. (2003). *O Rococó Religioso no Brasil e seus Antecedentes Europeus (Religious Rococo in Brazil and its European Antecedents)*, Cosac and Naify, São Paulo.

Paiva, J. G. A. de, Fank-de-Carvalho, S. M., Magalhães, M. P., and Graciano-Ribeiro, D. (2006). "Verniz vitral incolor 500®: Uma alternativa de meio de montagem economicamente viável (Colorless stained glass varnish 500®: An economically viable alternative mounting medium)," *Acta Botanica Brasilica* 20(2), 257-264. DOI: 10.1590/s0102-33062006000200002.

Pereira, C. C. (1984). *História de São Francisco do Sul (History of São Francisco do Sul)*, Editora da UFSC, Florianópolis.

Pietro Meloni, M. C. (1979). "Il profumo dell'immortalità. L'interpretazione patristica di Cantico 1, S., 1975," *Revue des Sciences Religieuses* 53(3-4).

Pogue, R. (1992). *Florestas: A sombra da civilização (Forests: The shadow of civilization)*, Universidade de Chicago, Chicago.

Pybus, D. H., and Sell, C. S. (1999). *The Chemistry of Fragrances*, Royal Society of Chemistry, Cambridge.

Pybus, D. H., and Sell, C. S. (2007). *The Chemistry of Fragrances*, 2nd Ed., Royal Society of Chemistry, Cambridge.

Record, R. W., and Hess, S. J. (1943). *Timbers of the New World*, Yale University Press, New Haven.

Ren, M., Ren, X., Wang, X., and Yang, Y. (2022). "Characterization of the incense sacrificed to the sarira of Sakyamuni from Famen Royal Temple during the ninth century in China," *Proceedings of the National Academy of Sciences of the United States of America* 119(21). DOI: 10.1073/pnas.2112724119.

Rodrigues, J. W. (1968). *Mobiliário (Furniture)*, Ediouro, Rio de Janeiro (As artes plásticas no Brasil).

Ross, S. M. (2010). "Plantas aromáticas, espiritualidade e tradições sagradas II (Aromatic plants, spirituality and sacred traditions II)," *Prática Holística de Enfermagem* 24(6), 355-357. DOI: 10.1097/hnp.0b013e3181fbb8b3.

Santos, S. C., Nacke, A., and Reis, M. J. (Orgs.). (2004). *São Francisco do Sul: Muito além da viagem de Gonneville (São Francisco do Sul: Much more than Gonneville's Journey)*, Ed. da UFSC, Florianópolis.

Sass, J. E. (1951). *Botanical Microtechnique*, 2nd Ed., Iowa State College Press, Iowa.

Schultes, R. E., Hofmann, A., and Rätsch, C. (2001). *Plants of the Gods: Their Sacred, Healing, and Hallucinogenic Powers*, 2nd Ed., Healing Arts Press, Rochester, Vermont.

Shmakova, A. S., Bae, K., and Voytishek, E. E. (2016). "Incense burial ritual 埋香 Maehyang in the southern part of the Korean Peninsula: Problems of reconstruction," *Novosibirsk State Pedagogical University Bulletin* 6(6), 32-52. DOI: 10.15293/2226-3365.1606.03.

Shmakova, A. S., and Voytishek, E. E. (2023). "The written sources of the Goryeo period about incense and Buddhist olfactory practices on the Korean Peninsula," *Vestnik NSU Series History and Philology* 22(10), 56-66. DOI: 10.25205/1818-7919-2023-22-10-56-66.

Shen, D., Wang, Y., and Ma, Q. (2014). "Research on aromatics in ancient ritual and aromatic samples unearthed from the underground palace of Dabaoen Temple in Nanjing," in: Zhang, Z., Song, Y., and Ma, Q. (Eds.), *Preservation Technology of Ancient Gilt and Silverware, Glassware and Spices—Research on the Preservation Technology of Nanjing Ashoka Pagoda and the Unearthed Cultural Relics*, Science Press, Beijing, pp. 113-165.

Siston, T. F., Fragoso, D. M. M., Brandes, A. F. das N., and Barros, C. F. (2024). "Historical records for a 16th-century monastery: The use of jacarandá-da-bahia," *Rodriguésia* 75. DOI: 10.1590/2175-7860202475037.

Souza, A. M. (1992). *Guia dos bens tombados de Santa Catarina (Guide to Listed Properties in Santa Catarina)*, Expressão e Cultural, Rio de Janeiro.

The Brazil Flora Group. (2018). "Brazilian Flora 2020: Innovation and collaboration to meet Target 1 of the Global Strategy for Plant Conservation (GSPC)," *Rodriguésia* 69(4), 1513-1527. DOI: 10.1590/2175-7860201869402.

Toledo, V., and Barrera-Bassols, N. (2015). *A Memória Biocultural: A Importância Ecológica das Sabedorias Tradicionais (Biocultural Memory: The Ecological Importance of Traditional Knowledge)*, Expressão Popular, São Paulo.

Vendeuvre, E. (2010). *Le Mobilier Miniature: Les Essenciels du Patrimoine Objets et Collection*, Charles Massin, Paris.

Voytishek, E. E. (2023). "Fragrant sandalwood and Aquilaria (agar tree) in Buddhist medical practices of East Asia," in: *IV Международный научный форум "Наследие"*, SB RAS, pp. 29-38. DOI: 10.25205/978-5-6049863-1-8-29-38.

Wheeler, E. A. (2011). "Inside Wood – Um recurso da Web para anatomia de madeira dura (Inside Wood – A web resource for hardwood anatomy)," *Revista da IAWA* 32(2), 199-211. DOI: 10.1163/22941932-90000051.

White, J. F. (1997). *Introdução ao Culto Cristão (Introduction to Christian Worship)*, Sinodal, São Leopoldo.

Yang, Z. (2011). *The Knowledge of Incense*, Guangxi Normal University Press, Guilin.

Yan, X. (2008). "Buddhism and incense burning," *China Religion* 5, 45-47.

Article submitted: August 28, 2025; Peer review completed: September 28, 2025;
Revised version received and accepted: October 20, 2025; Published: October 30, 2025.
DOI: 10.15376/biores.20.4.10959-10973