



## BRIDGING TRADITION AND SCIENCE: AN ETHNOPHARMACOLOGICAL AND CULTURAL STUDY OF *FICUS RELIGIOSA*

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### ABSTRACT

The Sacred Fig (*Ficus religiosa*), popularly known as the Peepal or Bodhi tree, holds a unique position at the intersection of botany, culture, and medicine. This study presents a comprehensive ethnobotanical analysis, tracing its taxonomy, morphology, and ecological niche, while situating its spiritual role within Hinduism, Buddhism, and Jainism. Archaeological and textual evidence confirm its veneration from the Indus Valley period to present-day rituals, highlighting its enduring role in fertility, prosperity, and protection practices. Ethnomedicinally, the tree is used to treat over fifty ailments, with each plant part—leaves, bark, roots, fruit, and latex—providing therapeutic benefits. Modern pharmacological validation has confirmed its antidiabetic, antimicrobial, anti-inflammatory, and wound-healing properties, demonstrating a convergence of traditional wisdom and contemporary science. Particularly significant is its role in women's health, where cultural beliefs about fertility and maternal well-being align with empirically observed therapeutic effects. The Sacred Fig thus emerges as both a cultural monument and a biological keystone, offering insights into human–plant symbiosis that remain highly relevant for ecological conservation and integrative medicine.

**KEYWORDS:** Ethno botany, Sacred tree traditions, Phytochemistry and pharmacology, Women's health.

### 1. INTRODUCTION

The Sacred Fig (*Ficus religiosa*), known widely as the Peepal or Bodhi Tree, represents a profound intersection of science and culture, serving not just as a biological specimen for botanical and pharmacological study but also as a living monument deeply woven into the religious and historical fabric of India for millennia (Mohanapriya, & Suriya, 2025). Revered across diverse faiths and with its therapeutic uses codified in ancient medical systems, this species continues to inspire both spiritual devotion and modern scientific inquiry. Through a comprehensive ethnobotanical analysis, we can move beyond simply listing facts to truly appreciate the

intricate relationship between this remarkable tree and human civilization.

This paper provides botanical descriptions, ancient religious scriptures, ethnographic accounts, and modern scientific studies. The chapter systematically describes the tree's identity, from its precise taxonomic classification to its symbolic resonance in major Indic religions, its specific ritualistic roles across India, and the pharmacological validation of its traditional medicinal uses. This approach demonstrates how the tree's biological traits are inextricably linked to its cultural and spiritual functions, revealing a sophisticated human–plant symbiosis that has persisted through centuries.

## 2. METHODOLOGY

The present review is based entirely on secondary data collected from published literature, historical records, and traditional knowledge sources. Information on taxonomy, morphology, ecology, and cultural significance of *Ficus religiosa* was gathered from classical texts such as the Rig Veda, Upanishads, Puranas, and Ayurvedic scriptures, along with ethnographic accounts describing rituals, folklore, and community practices. Additional data were compiled from books, theses, and peer-reviewed journal articles accessed through databases including PubMed, Scopus, and Google Scholar, ensuring coverage of both cultural and scientific perspectives.

For the pharmacological and ethnomedicinal aspects, only previously reported studies were considered. Published research on phytochemical constituents, bioactive compounds, and therapeutic applications of different plant parts was systematically reviewed and synthesized to highlight validated medicinal properties. The collected information was then thematically organized into sections covering taxonomy, cultural significance, traditional uses, pharmacological validation, and women's health. This integrative methodology provides a comprehensive understanding of the role of *Ficus religiosa* at the intersection of tradition and science.

## 3. RESULTS AND DISCUSSION

### 3.1. Botanical and Morphological Description

The plant is formally known as *Ficus religiosa* L. and belongs to the Moraceae family, which also includes mulberries and other figs. It is widely recognized by a multitude of common names that reflect its cultural significance, including Bodhi Tree, Sacred Fig, Peepal, Pipul, Bo Tree, and Ashvattha.

*Ficus religiosa* is a large, often semi-deciduous or deciduous tree, capable of reaching heights of 25 to 35 meters with a trunk diameter of up to 3 meters in its native habitats. Its most distinctive and universally recognized feature is its broadly ovate, heart-shaped leaves with a characteristic narrow, elongated drip tip, which can measure about 2 to 5 cm long. The bark is pale gray, smooth, and exfoliates in irregular, rounded flakes. The figs, or fruits, are small and globular, growing up to 1.5 cm in diameter, and ripen from green to purple.

### 3.2. Geographic Origins and Ecological Niche

The tree is native to a broad region spanning the Indian subcontinent and parts of Indochina, including Bangladesh, Bhutan, Nepal, Pakistan, Thailand, and Myanmar. Today, it is cultivated and naturalized in various tropical climates around the world.

The *Ficus religiosa* exhibits a unique hemiepiphytic and strangler growth form. Seeds, often deposited by birds in the crevices of other trees, germinate there. The seedling

is not parasitic, but relies on its host for anchorage. It then sends down aerial roots that grow to the ground, root in the soil, and thicken to form supportive trunks. Over time, these roots can encircle and eventually split the host tree, leading to its demise. This aggressive, yet self-sufficient, growth is a key ecological characteristic. The tree's survival is tied to a complex symbiotic relationship; its pollination is entirely dependent on a single, highly specialized species of wasp, *Blastophaga quadraticeps*. This obligate mutualism is a defining feature of the fig genus and a testament to co-evolution (Wiebes, 1979).

### 3.3. The Tree as a Living Symbol

The botanical characteristics of *Ficus religiosa* provide a direct, tangible foundation for its spiritual and cultural veneration. Its unique biological traits are not incidental to its sacredness but are, in fact, the very source of its symbolic power. The tree's exceptional longevity, with some specimens reportedly living for over 3,000 years, naturally links it to concepts of eternity, immortality, and ancient wisdom (Shanahan, 2016). This longevity makes it a living monument and a powerful symbol of continuity across generations. Its strangler growth habit, where a new life form emerges from and eventually replaces an old one, serves as a powerful metaphor for the cycle of life, death, and spiritual rebirth (Sahoo & Bhoi, 2024). This non-parasitic but dominant growth embodies resilience and a self-sustained existence. The co-dependent relationship with the fig wasp, a hidden and unseen process, adds an element of mystery and divine order. In pre-scientific societies, this would have been perceived as a miraculous or spiritual act, reinforcing the tree's sacred status.

### 3.4 Earliest References in Ancient Texts

The veneration of the tree dates back to the Indus Valley Civilization, where motifs of its leaves were found on pottery at sites like Mundigak and in religious art (Manglik, 2023). During the Vedic period, its wood was used for producing sacred fire in rituals. The term Ashvattha is the Sanskrit name for *Ficus religiosa*. It is referenced as peepul in the Rig Veda (Mantra I. 164.20) and is described in the Katha Upanishad as the eternal tree with roots above and branches below, symbolizing Brahman and the interconnectedness of all worlds (Sharma & Biswas, 2024). The Bhagavad Gita also refers to an inexhaustible Ashvattha tree with its roots above and branches below, with leaves represented by the Chandas, metaphorically signifying the connection between the material and spiritual realms (Shukla & Tiwari, 2023).

### 3.5 Sacredness across major religions

The widespread and multi-religious veneration of *Ficus religiosa* suggests its symbolism transcends any single faith, acting as a universal archetype of spiritual power and cosmic order. This points to a deeper, shared reverence for nature in Indic traditions that predates sectarian divisions. The symbolic continuity of the tree

across Hinduism, Buddhism, and Jainism—as a place of spiritual attainment and a representation of ultimate reality—is not accidental. This shared mythology suggests a common, foundational cultural belief system where the tree's physical attributes, such as its lifespan and life cycle, likely served as a powerful and accessible metaphor for the abstract concepts of eternity, rebirth, and divine immanence.

- **Hinduism:** The tree is revered as a living temple, believed to house the Trimurti: Brahma at the roots, Vishnu in the trunk, and Shiva in the leaves (Bhusal, 2024). The Bhagavad Gita elevates its status to the pinnacle of creation, with Krishna proclaiming, "I am the Peepal tree among the trees". It is also associated with deities like Lakshmi and Shashthi and is a site for rituals, meditation, and offerings to honor deities.

- **Buddhism:** It is the sacred site of Gautama Buddha's enlightenment (*bodhi*) in Bodh Gaya, Bihar. A branch of the original tree was planted in Sri Lanka in 288 BCE, becoming the Jaya Sri Maha Bodhi, recognized as the oldest living human-planted flowering plant in the world (Donovan et al., 2024). The tree thus represents wisdom, awakening, and the path to spiritual liberation.

- **Jainism:** The tree holds reverence as the site where the 24th Tirthankara, Mahavira meditated (Wani et al., 2020). It is often a site for meditation and worship for Hindu and Jain ascetics.

### 3. 6 Rituals and Beliefs

The sacred fig or Bodhi tree, holds profound cultural and religious significance across various regions of India, influencing rituals and beliefs related to fertility, prosperity, and protection.

A prominent practice involves women circumambulating the Bodhi tree (Fig 1), a ritual performed with the intention of being blessed with children or achieving other desired outcomes (Sahoo & Bhoi, 2024). This tree is frequently found planted in the precincts of temples dedicated to Shani and Hanuman. Saturdays, particularly during the month of Shravana, are designated for its worship, as it is believed that Goddess Lakshmi resides beneath the tree on this specific day. Watering the Bodhi tree is considered a meritorious act, thought to bestow blessings upon one's progeny, alleviate sorrows, and cure diseases. Furthermore, the tree is venerated as a safeguard against contagious illnesses and adversarial forces (Sahoo & Bhoi, 2024).

Among tribal communities in Bengal, the Bodhi tree is referred to as Vasudev. These communities water the plant during the month of Vaishakh and in times of adversity. A distinctive tradition in Bengal involves the ceremonial marriage of the Bodhi tree with the banyan tree (Pokharel & Pokharel, 2021). When planted, a Bodhi tree is typically positioned to the east of a house or temple. After a period of eight, eleven, or twelve years,

an 'upanayan' ceremony is performed for the tree, involving the construction of a circular platform around its base. During this ceremony, deities such as Narayan, Vasudev, Rukmini, and Satyabhama are invoked and worshipped. Following the completion of all 'upanayan' rituals, the tree is ritually married to a basil plant (Pradhan & Sharma, 2024).



**Fig. 1: The women circumambulating the Bodhi tree.**

In Tamil Nadu, Telangana and Andhra Pradesh the Bodhi and Neem trees are often planted in close proximity, allowing their branches to intertwine as they grow (Venkatesan, 2021). An idol of a Naga (snake deity) is placed beneath these conjoined trees and worshipped, a practice believed to confer wealth upon the devotees. Women perform early morning ablutions before circumambulating these trees.

In Awadh, a unique custom addresses astrological predictions of widowhood for girls. In such cases, the girl is first ceremonially married to a Bodhi tree on Chaitra Krishna or Ashwin Krishna Tritiya. Historically, during periods when remarriage was forbidden for women, young widows were similarly married to the Bodhi tree, a symbolic act that then permitted them to remarry (Manasi & Raju, 2015). The Dhantale caste, present in Maharashtra, Karnataka, and Madhya Pradesh, incorporates a branch of the Bodhi tree into their marriage ceremonies, placing it along with a pot of water between the bride and groom.

The Bodhi tree often serves as a central point in village life, with local deities installed beneath its shade. It also provides a customary setting for 'panchayat' (village council) meetings. On Amavasya (new moon day), villagers engage in a symbolic marriage between the neem and Bodhi trees, which are typically grown near each other (Venkatesan, 2021). While this practice lacks scriptural endorsement, various beliefs underpin its significance. One interpretation posits that the neem fruit symbolizes the Shivalinga (representing the male principle), while the Bodhi leaf embodies the 'yoni' (representing the female principle) (Manasi & Raju, 2015).

### 3.7 Regional Variations in Worship and Folklore

The tree serves as a focal point for a profound intersection of Indian mythological beliefs and specific, localized folk traditions. These regional rituals demonstrate how a universal symbol is adapted to address the specific anxieties and aspirations of local communities. The core belief that the tree brings good fortune and longevity is universal across India, but its expression is intensely regional.

- **Northern India (e.g., Uttar Pradesh, Rajasthan):** Married women worship the tree on *Vat Savitri Vrat* for the long life of their husbands (Mishra, 2018). A unique local practice is the "marriage" of the Peepal tree to the Basil (*Tulsi*) plant, where all the rituals of a traditional wedding ceremony are performed. In Rajputana, women worship the tree to avert widowhood.

- **Eastern India (e.g., Bengal):** The *Asvattha Pata Broto* fast is a local ritual observed on the last day of the Bengali calendar to increase family happiness and prosperity (Faruque, et al., 2005).

- **Western/Central India (e.g., Maharashtra, Chhattisgarh):** In Maharashtra, a branch of the tree, along with a pot of water, is used in marriage ceremonies by the Dhantale caste (Manasi & Raju, 2015). A prevalent folk custom is the symbolic marriage of the Peepal and Neem trees, which are often grown near each other.

- **Pan-Indian Folklore:** The tree is a subject of numerous folk tales and legends. In a tale from the Puranas, Lord Vishnu is said to have taken rest in the Peepal tree when Gods defeated by demons, leading to its worship as a direct representation of the deity (Rao, et al., 2022). Another legend suggests that the great Trimurtis hold their councils under the tree, reinforcing its association with spiritual understanding.

### 3.8 Ethnobotanical and medicinal applications

The tree is a cornerstone of traditional Indian medicine, revered as a panacea and used to treat variety of ailments (Gaur et al., 2025). Its therapeutic applications are deeply rooted in traditional systems like Ayurveda, Siddha, and Unani. The meticulous, part-specific application of the tree in traditional medicine points to a long-standing, empirically derived system of knowledge. This is a far cry from random folk remedies; it is a sophisticated proto-pharmacology developed through centuries of careful observation and practice.

- **Leaves:** Used to treat a wide range of ailments, including asthma, diabetes, skin diseases, and gastrointestinal issues like diarrhea and constipation. The fresh leaf juice is traditionally used to control nasal bleeding. A paste from crushed leaves is also applied topically for skin issues and wound healing (Devanesan et al., 2018).

- **Bark:** Described as cooling and astringent in Ayurveda, the bark is used for skin diseases, ulcers,

gonorrhea, and hemorrhoids. A decoction of the bark with honey is a well-known remedy for skin issues. The bark is also used to treat dysentery and other gastrointestinal problems (Chandrasekar, 2010).

- **Fruit:** The ripe fruit is consumed as a laxative and digestive aid. The dried fruit is traditionally used for respiratory problems like asthma and urinary discharge. Eating the fruits is also believed to improve appetite and aid blood purification (Kapile et al., 2022).

- **Latex (Milky Sap):** The milky juice from the fresh leaves is used topically to destroy warts. The latex itself is used for its cooling and healing properties, applied topically to sores, ulcers, bruises, and rheumatism (Sasidharan, 2023).

- **Roots:** The roots are used to treat gout and as a "herbal toothbrush" for oral health, as their astringent properties are believed to cleanse and strengthen teeth and gums. The tender ends of the aerial roots of the Banyan, a related fig, are used to treat female sterility and stop vomiting (Sasidharan, 2023).

### 3.9 Phytochemical Profile

Modern scientific analysis has revealed that *Ficus religiosa* possesses a rich phytochemical profile, providing a scientific basis for its traditional uses. The plant's various parts contain a wide range of bioactive compounds, including flavonoids, tannins, phenolic components, alkaloids, saponins, and steroids. Specific compounds identified include quercetin, myricetin,  $\beta$ -sitosterol, lanosterol, and vitamin K. The leaves also contain various amino acids, while the latex contains a serine protease enzyme called religiosin (Rajeev, 2014).

### 3.10 Scientific Validation of Therapeutic Effects

Modern pharmacology is a powerful tool for validating and understanding the mechanisms behind this ancient traditional knowledge. The tree is a perfect case study for this convergence. While traditional texts document the use of bark and leaves for diabetes, modern studies have confirmed that extracts from these same parts have a hypoglycemic effect in experimental animal models.

- **Antidiabetic Activity:** Research on streptozotocin-induced diabetic rats has scientifically validated the tree's traditional use for diabetes. Aqueous and methanolic extracts from the bark and leaves significantly reduce blood glucose levels, increase serum insulin, and help restore pancreatic beta-cell function. The compound sitosterol-D-glycoside, isolated from its root bark, is particularly noted for this per oral activity (Devanesan et al., 2018).

- **Antimicrobial and Anti-inflammatory:** Extracts, particularly from the leaves and bark, exhibit broad-spectrum antimicrobial properties against bacteria such as *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*. The presence of flavonoids (e.g., quercetin) and alkaloids contributes to significant



anti-inflammatory and analgesic activities, providing a scientific basis for its use in treating inflammatory disorders and pain (Murugesu et al., 2021).

- **Other Confirmed Activities:** *Ficus religiosa* has shown antioxidant, anti-ulcer, wound-healing, and hepatoprotective effects. The presence of proteolytic enzymes, flavonoids, and terpenoids in its latex and bark are key factors in its wound-healing properties (Raisagar et al., 2019).

### 3.11 SPECIFIC APPLICATIONS IN WOMEN'S HEALTH

#### Cultural and Spiritual Significance for Women

The tree's role as a symbol of fertility and motherhood is deeply ingrained in Indian culture. Women, particularly in rural villages, worship it to be blessed with children, a practice mentioned in ancient texts like the Atharva Veda, which considers it a benefactor for barren women. Married women perform rituals like *Vat Savitri Vrat* to pray for their husbands' longevity and to avert widowhood, reinforcing the tree's role in the stability and wellbeing of the family unit (Krishna, 2017). The tree's symbolic role as a source of fertility provides the cultural framework for a set of traditional remedies that are plausibly linked to its pharmacological properties.

#### Ethnomedicinal Uses for Gynecological Ailments

The convergence of cultural belief and medicinal practice is most pronounced in the realm of women's health. The ethnomedicinal use of the bark for menorrhagia (heavy menstrual bleeding) and leucorrhoea (excessive vaginal discharge) directly correlates with its scientifically confirmed astringent properties (Jayabal et al., 2023). Astringents work by constricting tissues, which would help in reducing both excessive bleeding and discharge. This correlation suggests that the "sacredness" for women's health is a cultural layer built upon generations of empirical observation of its therapeutic effects.

- **Fertility and Conception:** The tender ends of the aerial roots are traditionally used to treat female sterility. A specific ritual involves drinking water infused with a Peepal leaf to aid in conception. The milky sap from the bark and root, when mixed with honey and ghee, is also used to improve fertility rates.
- **Menstrual and Reproductive Health:** The bark is a traditional remedy for menorrhagia. A decoction of the bark is used as a douche for leucorrhoea and other urogenital disorders. The laxative seeds are also taken by women during menstruation (Devanesan et al., 2018).
- **Pregnancy and Childbirth:** A bark decoction is traditionally used in pregnant women for strengthening uterine walls to help retain the fetus until term (Anand, 2024).

### 4. CONCLUSION

The Sacred Fig is not merely a tree; it is a living monument, a historical document, and a source of healing that continues to inspire and sustain a civilization. Its taxonomy and ecological habits provide a biological basis for its timeless symbolism of eternity and resilience. Its mention as the Ashvattha tree in ancient texts anchors it in the spiritual foundations of Indian civilization, while its multi-religious sacredness attests to its universal appeal as a symbol of enlightenment and peace. The nuanced distinction between Ashvattha and Plaksa in ancient literature further illustrates how a sophisticated symbolic framework was built upon and around a core reverence for the tree's life-giving power.

Its medicinal properties, now validated by modern science, underscore the immense value of traditional knowledge systems and demonstrate that ancient wisdom was often rooted in practical, empirical observation. The tree's specific and powerful role in women's health rituals and remedies exemplifies this most clearly, as cultural beliefs about fertility are interwoven with the plant's confirmed astringent and tonic properties. Its veneration is not a matter of superstition but a deeply integrated cultural practice that respects the tree for its life-sustaining properties, its spiritual symbolism, and its therapeutic value. Preserving this tree is thus not just an act of ecological conservation but a commitment to nurturing a legacy of ancient wisdom that continues to offer healing and insight in the modern world.

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