

CHAPTER 01

Ficus religiosa L.: A sacred tree with medicinal and cultural significance

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ABSTRACT

Ficus religiosa, commonly known as Peepal tree or Sacred Fig, is a deciduous tree highly regarded for its significant religious, cultural, ecological, and medicinal values. It is native to the Indian subcontinent. It is sacred in Hinduism, Buddhism, and Jainism. It plays an essential role in traditional medicinal systems, such as Ayurveda, Siddha, and Unani, where various parts of the tree are utilized to treat ailments including asthma, diabetes, skin diseases, ulcers, and inflammation. Scientifically, the tree is known for its extensive range of pharmacological activities, including antimicrobial, anti-ulcer, antioxidant, and antidiabetic, which are attributed to its rich phytochemical profile. The Peepal tree also functions as a keystone species in tropical ecosystems, providing habitat and nourishment to birds, insects, and other wildlife. This review highlights the botany, morphology, traditional knowledge, and religious significance of *F. religiosa*.

KEYWORDS: Sacred fig, Peepal, traditional medicine, pharmacology, religious uses

INTRODUCTION

Plants have played a critical role in the evolution of human societies, not just as sources of food and shelter but also as spiritual symbols and medicinal remedies (Dwivedi 2017; Davis and Choisy 2024). One such species that exemplifies the confluence of ecology, medicine, and spirituality is *Ficus religiosa*, commonly known as the Peepal tree or the Sacred Fig (Rutuja et al. 2015). This tree, belonging to the family Moraceae, is native to the Indian subcontinent and is widely distributed in countries such as India, Nepal, Sri Lanka, and Bangladesh (Sandeep et al. 2018; Sharma et al. 2019). It is one of the oldest known trees documented in religious texts, myths, and folklore, and it continues to play a role in daily rituals and community life in India. The Peepal tree is a large, long-lived, deciduous tree that reaches an impressive height and develops a wide canopy (Sharma et al. 2019; Dangaria et al. 2024). It is easily identified by its heart-shaped leaves with long tapering tips and its distinctive bark. The tree is commonly found near temples, village centers, and courtyards, and it is often worshipped, particularly by women, for blessings, fertility, and prosperity (Devanesan et al. 2018). Its spiritual significance is highlighted in all three major Indian religions: Hinduism, Buddhism, and Jainism. In Hindu mythology, the tree is regarded as the abode of Lord Vishnu, and in Buddhism, it is famously known as the Bodhi tree, under which Siddhartha Gautama attained enlightenment (Devanesan et al. 2018; Shukla and Tiwari 2023). Beyond its spiritual significance, *Ficus religiosa* has been extensively used in traditional medicine for thousands of years (Sood et al. 2024). Classical Ayurvedic texts refer to the tree as 'Ashvattha' and describe its usefulness in managing diseases like asthma, wounds, diarrhea, diabetes, and epilepsy (Kapile et al. 2022). The bark is often powdered and used in decoctions, while the leaves and fruits are used in poultices or as infusions (Shukla and Tiwari 2023; Sood et al. 2024). Pharmacological studies have validated many of these traditional uses, identifying active constituents like flavonoids, tannins, alkaloids, and phenolic compounds responsible for various therapeutic actions (Babu et al. 2010; Gul et al. 2023). As a keystone species, it supports numerous birds, bats, and insects, particularly fig wasps that aid in its unique pollination process. Its presence promotes biodiversity and maintains ecological balance, making it a cornerstone of tropical forest ecosystems (Shukla and Kansal 2024). In urban areas, it offers shade, improves air quality, and provides shelter to various species. Despite its importance, the Peepal tree is under threat from urbanization, pollution, and habitat loss. Conservation of this species requires a multidimensional

approach involving traditional ecological knowledge, community awareness, and scientific conservation practices (Kapile et al. 2022; Kumar and Kumar 2023). This review provides a comprehensive overview of the morphology, traditional uses, religious context, and modern pharmacological findings related to *Ficus religiosa*, aiming to highlight its irreplaceable role in both cultural and scientific domains.

MORPHOLOGY

It is a large, fast-growing deciduous tree that can reach a height of 25–30 meters with a trunk diameter of over 2 meters. The bark is greyish brown and exfoliates in irregular patches, revealing lighter inner layers. The leaves are alternate, simple, and cordate at the base with a long tapering apex. They measure approximately 10–17 cm in length and 8–12 cm in width. One of the most distinctive features is the long petiole, which causes the leaves to tremble in the wind. The tree bears minute, unisexual flowers hidden inside a receptacle called a syconium, which later develops into a fig. The syconia are pear-shaped and measure around 1–1.5 cm in diameter, green when unripe and purplish-black when mature. The root system is deep and extensive, including aerial roots in older trees. The tree is long-lived, with some individuals surviving for hundreds of years under favourable conditions (Rutuja et al. 2015; Kumar et al. 2022; Figures 1 & 2).

TRADITIONAL MEDICINAL USES

In traditional Indian medicine, *Ficus religiosa* is considered a panacea for a variety of ailments. In Ayurveda, the bark is described as cooling and astringent and is used in the treatment of ulcers, skin diseases, and diarrhea (Gupta et al. 2021; Kapile et al. 2022). Decoctions of the bark are used to treat diabetes, and powdered bark with honey is applied to wounds and skin infections for its antiseptic properties (Panchawat 2012). The latex of the tree is used as a topical agent for boils and abscesses. In Unani medicine, the leaves are used to treat haemorrhages and reproductive disorders. The powdered bark is mixed with honey and taken orally to relieve asthma symptoms (Singh and Panda 2005; Singh et al. 2011). Fruits of the tree have laxative properties and are used to treat constipation and digestive disorders (Satapathy and Kumar 2017; Kumar et al. 2022). In rural areas, the leaves are often heated and applied to the chest to relieve chest pain or used in steam inhalation for colds and

coughs. The roots are used in decoctions to treat gout and inflammation (Gupta et al. 2021).

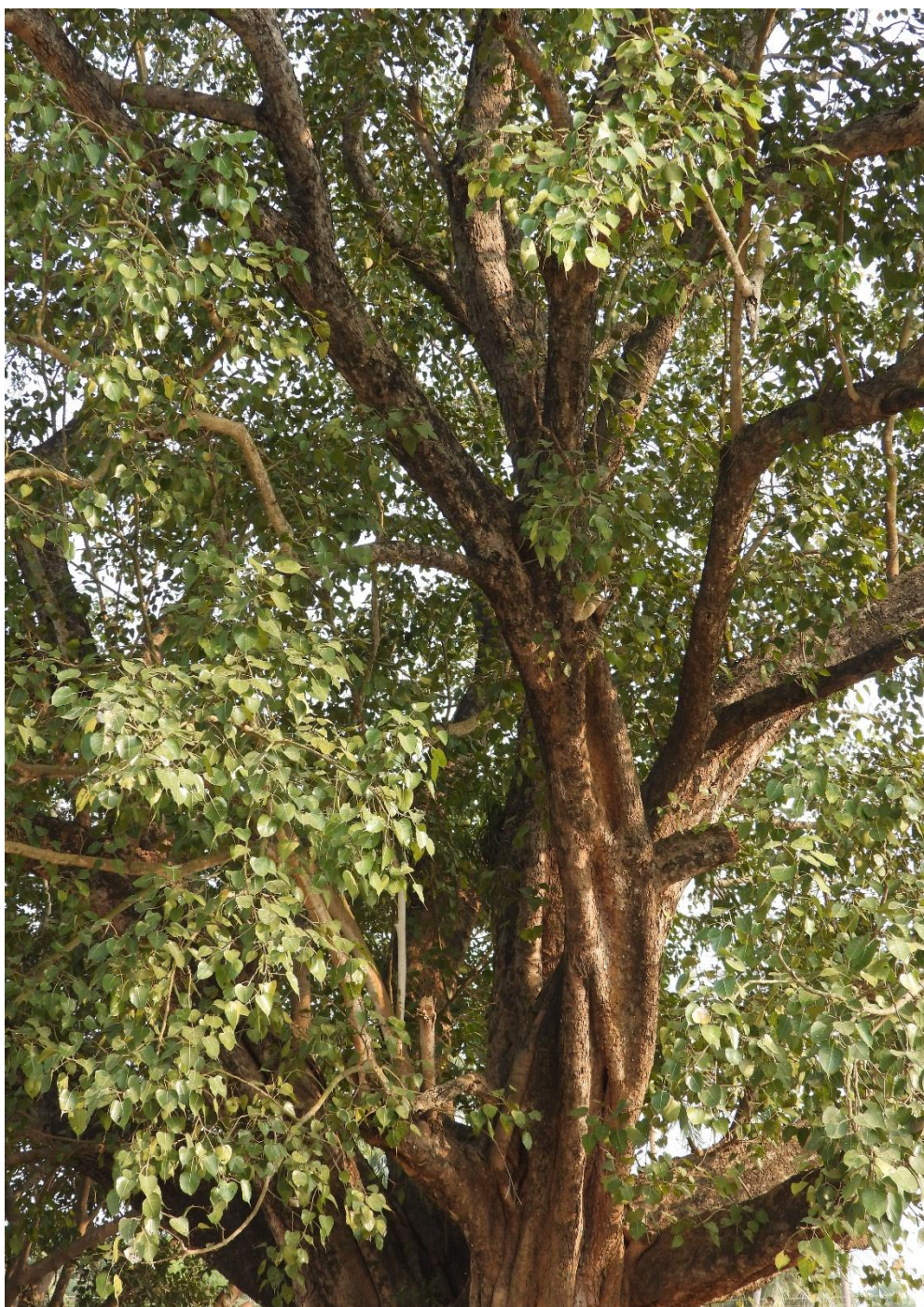


Figure 1: Whole plant of *F. religiosa*



Figure 2: Vegetative parts of *F. religiosa*, A) Leaves, B) Bark, C) Fruits (syconia), D) Leaves with fruits

RELIGIOUS USES

The Peepal tree is among the most sacred trees in India. In Hinduism, it is considered the earthly embodiment of Lord Vishnu and is associated with the Trimurti Brahma at the roots, Vishnu in the trunk, and Shiva in the leaves (Bhalerao and Sharma 2014). Women circumambulate the tree and tie red or yellow threads around its trunk during rituals like Vat Savitri and Peepal Puja to seek blessings for family longevity and fertility (Shastri et al. 1978). In

Buddhism, the tree is known as the Bodhi tree *F. religiosa*, under which Siddhartha Gautama attained enlightenment at Bodh Gaya. It is a site of pilgrimage, and Bodhi trees are planted near monasteries across Buddhist nations. In Jainism, the tree is revered for its association with the 24th Tirthankara, Mahavira, who meditated under it. Offerings of water, milk, or flowers are made to the tree, especially on auspicious days like Amavasya (new moon) or Thursdays. Scriptures like the Bhagavad Gita, Rigveda, and Puranas mention the Peepal as a tree of cosmic importance, representing life, knowledge, and continuity. Thus, its spiritual resonance spans across diverse faiths and continues to be an integral part of religious and cultural practices.

PHARMACOLOGICAL USES

Antidiabetic activity

Modern studies have supported its hypoglycemic properties, especially those derived from the bark and leaves. Aqueous and methanolic extracts *F. religiosa* have been found to reduce blood glucose levels significantly in experimental diabetic rats. The action is believed to be due to improved glucose utilization, enhanced insulin secretion, and restoration of pancreatic beta-cell function (Sharma et al. 2023).

Antioxidant properties

Rich content of flavonoids, tannins, and phenolic compounds acts as free radical scavengers. Studies using DPPH and FRAP assays have confirmed strong antioxidant activity in both bark and leaf extracts. The aqueous extract demonstrated a higher oxygen radical absorbance capacity than the ethanolic extract (Choudhari et al. 2011; Al-Snafi 2017).

Antimicrobial activity

Extracts from different parts of *F. religiosa*, especially the bark and leaves, show considerable antimicrobial activity. The ethanolic extract exhibits broad-spectrum antibacterial properties against *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, etc (Rutuja et al. 2015).

Wound healing

The latex and bark of *F. religiosa* have proven effective in wound healing. The latex contains proteolytic enzymes, flavonoids, terpenoids, sterols, alkaloids, and saponin β -sitosteryl-D-glucoside, which are responsible for wound healing

activity, accelerating tissue regeneration, and reducing microbial infection at the wound site (Makhija et al. 2010; Sultana et al. 2024).

Anti-asthmatic effects

Aqueous extract of *F. religiosa* leaves acts as a bronchodilator, reducing airway resistance and promoting easier breathing. Laboratory tests on animal models have confirmed these effects, showing that the leaf extract relaxes tracheal muscles and lowers histamine-induced bronchoconstriction (Al-Snafi 2017).

Anti-ulcer activity

The bark and leaves of *F. religiosa* contain flavonoids, terpenoids, tannins, phenols, sterols, steroids, alkaloids, phenol content, glycosides, and saponins, which exhibit anti-ulcer activity. They help reduce gastric acid secretion and enhance mucosal defence, making them effective in treating peptic ulcers (Sultana et al. 2024).

Hepatoprotective activity

The presence of alkaloids, glycosides, amino acids, flavonoids, and tannins show hepatoprotective activity. The hepatoprotective potential of *F. religiosa* is well-documented in animal studies. When administered to rats exposed to liver-damaging toxins like carbon tetrachloride, the extracts were found to restore liver enzyme levels, reduce lipid peroxidation, and regenerate hepatocytes (Yadav 2015; Sultana et al. 2024).

Proteolytic activity

The latex of *F. religiosa* showed significant proteolytic activity. It was determined by electrophoretic and chromatographic properties of the protein components (Rutuja et al. 2015).

CONCLUSION

F. religiosa represents a unique convergence of spirituality, tradition, ecology, and pharmacology. Its status as a sacred tree in Indian religions reflects its deep cultural roots, while its extensive use in traditional medicine systems attests to its therapeutic versatility. Scientific research continues to unveil its pharmacological potential, affirming traditional knowledge with empirical evidence. As urbanization threatens its natural habitat and cultural relevance, there is an urgent need to integrate its conservation into landscape planning,

public awareness campaigns, and biodiversity policies. Promoting the plantation of Peepal trees in urban and rural areas can yield ecological benefits, improve health, and preserve cultural identity. By appreciating both its ancient heritage and modern medicinal promise, *F. religiosa* can continue to thrive as a symbol of balance between nature, science, and spirituality.

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