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Research Article

A Systematic Review of Phytochemistry and Pharmacology Study of *Ficus religiosa* (Pipal)

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Abstract:

Ficus religiosa (Pipal) is a deciduous tree, tall and irregularly-shaped, with wide-spreading branches and without aerial roots from the branches. The leaves are glossy, slim, and have 5–7 veins. The leaves are dark green, alternate, leathery, pink when young, stipulate and with unusual tail-like tips. The Ficus genus has about 800 species and 2000 variants, the majority of which are unique to the old-world tropics. *Ficus benghalensis* (Banyan tree), *Ficus religiosa* (Pipal tree), and *Ficus carica* (Anjir tree) are three of the most prevalent trees of the genus Ficus, which belongs to the Moraceae family. Fundamental phytochemical screening of *F. religiosa* barks showed the presence of tannins, amino acids, saponins, flavonoids, steroids, terpenoids and glycosides. All parts of this tree are rich in phytochemicals and are used to cure diseases like asthma, digestive disorders, diabetes, skin disease, vomiting etc. Previous pharmacological studies revealed that *F. religiosa* possessed Anti-inflammatory and analgesic activity, Antioxidant activity, Antimicrobial activity, Anti-larvicidal activity, Anti Cancer activity, Antidiabetic activity, Anti-acetylcholinesterase activity and Wound Healing activity. This review study covers *F. religiosa* phytochemistry, pharmacology activities and knowledge about *F. religiosa*.

Keywords: *Ficus religiosa* (Pipal), Phytochemistry, Pharmacology activities, Medicinal Plants, Traditional medicine.

Introduction

For millennia, nature has provided therapeutic medicines, with numerous beneficial active compounds created from plant sources. The discovery of penicillin in the twentieth century marked the beginning of microbial drug development. The bulk of medicines have been created from lead structures derived from bacteria-produced natural compounds. Secondary metabolites drugs produced from bacteria. Drugs derived

from bacterial secondary metabolites are in manifold use, for example in diagnosis, mitigation, or in the treatment, or prevention of a disease or relief of discomfort[1].

Herbal medicine has such a long history dating back to the dawn of society. The Ficus genus has about 800 species and 2000 variants, the majority of which are unique to the old-world tropics. *Ficus benghalensis* (Banyan tree), *Ficus religiosa* (Pipal tree), and *Ficus carica* (Anjir tree) are three of the most prevalent trees of the genus Ficus, which belongs to the Moraceae family[2]. The documentation for the tree may be found in Hindu sacred texts such as the Arthasastra, Purana, Upanishads, Ramayana, Mahabharata, Bhagavad Geeta, and Buddhistic literature. It belongs to the Moraceae family and the genus Ficus. Its botanical name is derived from two words: 'Ficus,' a Latin term for 'fig,' and 'Religiosa,' which means 'religion,' emphasising its significance[3].

Herbal remedies are always thought to be safe, which has resulted in a rise in demand. *Ficus religiosa* L. (Moraceae) has been widely used for a variety of illnesses affecting the central nervous system, endocrine system, gastrointestinal tract, reproductive system, respiratory system, and infectious disorders in traditional medicine [4]. All pieces of this tree are wealthy in phytochemicals and are utilized in different food and therapeutic arrangements. The ready products of *F. religiosa* are a consumable and rich wellspring of proteins and minerals [5]. Natural products are wealthy in phytochemicals like flavonoids, terpenoids, and glycosides, and so on which are known to fix infections like asthma and stomach related issues [6]. The leaves contain phytochemicals like flavonoids, terpenoids, tannins and so forth, which are powerful in relieving diseases like hiccups, regurgitating, gonorrhea and so on [6]. The bark contains phytochemicals like tannins, saponins, flavonoids and so on which show gainful impacts in ailments like the runs, looseness of the bowels, irritation, bacterial contaminations, draining and loss of motion[7].

Classification

Botanical classification [8]

Domain: Eukaryota
Kingdom: Plantae
Phylum: Tracheophyta
Class: Magnoliopsida
Subclass: Dilleniidae
Order: Urticales
Family: Moraceae
Genus: Ficus Linnaeus
Botanical name: *Ficus religiosa*
Species: *F. religiosa*

1. Vernacular names:

Table 1: Vernacular Names of F. religiosa[7]

Language	Vernacular Name
Assamese	Ahant
Bengali	Asvattha, Ashud, Ashvattha
English	Pipal tree, bo tree, bodhi, bo tree fig, peepul tree, sacred fig, the sacred tree
Guajarati	Piplo, Jari Piparo, Pipalo, Pipers
Hindi	Pipali, bodhi tree, peepul tree Pipala, Pipal
Kanarese	Arani, Ashwatha mara, Pippala, Ragi
Kannada	Ranji,, Basri, Ashvatthanara, Ashwatha, Aralimara, Aralegida, Ashvathamara
Kashmiri	Bad

Malayalam	Arayal
Marathi	Pipal, Pimpal, Pippal, Pimpala
Tamil	Ashwarthan, Arasamaram, Arasan, Arasu, Arara
Telugu	Ravichettu
Punjabi	Pipal, Pippal
Sanskrit	Ashvattha, Bodhidruma, Pippala, Shuchidruma, Vrikshraj, yajnika
Oriya	Aswath Punjabi: Pipal, Pippal

Botanical Description

F. religiosa is a lasting or deciduous tree, 20 m tall and 1.5-2 mdbh (mean width at bosom stature), unpredictably molded, with wide-spreading branches and without flying roots from the branches. The leaves are gleaming, thin, and have 5–7 veins. The divided bark tone is white or brown. The organic products are little, about ½ crawls in measurement, and it resembles the student of the eye. It is compacted and round fit. The green shading organic product becomes dark when it matures. The natural products are created in summer and get matured by the stormy season. The leaves are dull green leaves, reflexive, substitute, coriaceous (weathered), extensively applaud and spirally organized by 7.5-10 cm, base - chordate, pink when youthful, specify and with uncommon tail-like tips. The leaves have injuries on them. Blossoms are axillary sessile, unisexual. Figs are two by two, adjusted, level beat green to 1.5 cm across, smooth, sessile, axillary, basal bracts, and aging to purple with red spots. Petioles are slim and 7.5-10 cm long [9].

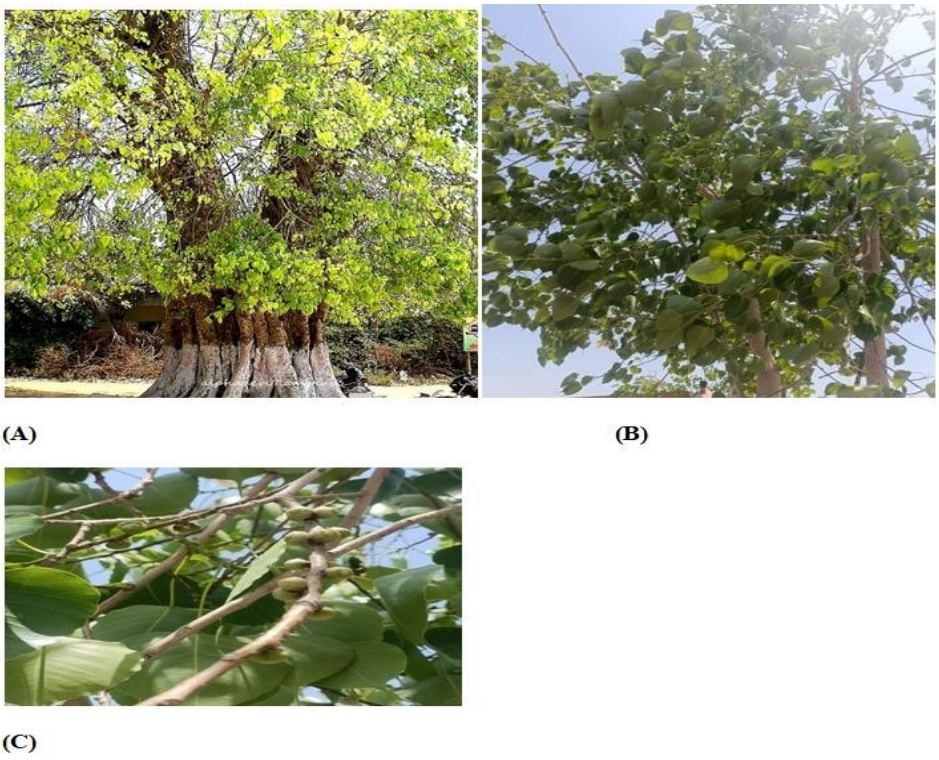


Figure 1: F. religiosa (A) Tree (B) leaves (C) Ripe and Unripe Fig

Mythology

Many historical cultural scriptures, including the Bhagavad-Gita, Mahabharata, Puranas, Ramayana, Upanishads, Arthasastra and Buddhist literature, point out *F. religiosa*. The *F. religiosa* is an illustration of Lord Vishnu, according to Vedic writings defined with inside the Brahma Purana, Skanda Purana and Padma Purana. This tree is likewise stated to be the birthplace of all Trimurti. The Bodhi Puja is also carried on plant *F. religiosa*, which, meaning "the veneration of the Bodhi-tree", is the ritual to worship the Bodhi tree and the almighty (Devta) living on it (Pali: rukkhadevata; Sanskrit: vrikshadevata). It actually is completed through making special gifts, like as meals, water, milk, candles, perfume, and so on, as well as making a song the Pali poems about the Bodhi tree's glory. "Ime ete mahabodhi lokanathena pujita ahampi te namassami bodhi raja namatthu te," has been the most common verse [10 , 11, 12.]

Phytochemistry

Phytochemistry can be characterized as the science of those normal items which can be utilized as medications or plant leaves behind an accentuation on natural chemistry. Fundamental phytochemical screening of *F. religiosa* barks showed the presence of tannins, amino acids, saponins, flavonoids, steroids, terpenoids and heart glycosides[13, 14].

Phytochemicals of seeds

The leaves of *F. religiosa* seeds contain fatty matter, albuminoids, coloring matter, phytosterolin, carbohydrate, glycoside and β-sitosterol [9]. Alanine, threonine, tyrosine have been reported in seeds of *F. religiosa*

Phytochemicals of barks

The barks of *F. religiosa* showed the presence of bergapten, bergaptol, lanosterol, β-sitosterol, stigmasterol, lupen-3-one, β-sitosterol-d-glucoside (phytosterolin), vitamin k1 [15-17].Wax, leucoanthocyanidin, leucoanthocyanin, leucocyanidin-3-0-β-D-glucopyrancoside, leucopelargonidin- 3-0-β-D-glucopyranoside, leucopelargonidin-3-0-α-L- rhamnopyranoside, lupeol, ceryl behenate, lupeol acetate and α-amyrin acetate[6, 16, 36].

Phytochemicals of leaves

The leaves of F. religiosa contain a high measure of l-cystine, lysine, l-arginine, dl-serine, dl-aspartic corrosive, glycine, dl-threonine, dl-∞-alanine, l-proline, tryptophan, l-tyrosine, dl-methionine, dl-valine, dl-isoleucine and l-leucine [19]. Leaves additionally contain campestrol, stigmasterol, isofucosterol, amyrin, lupeol, tannic corrosive, n - nonacosane, n-hentricontanen, hexa-cosanol and n-octacosan[17, 18, 20, 21, 22, 23.]

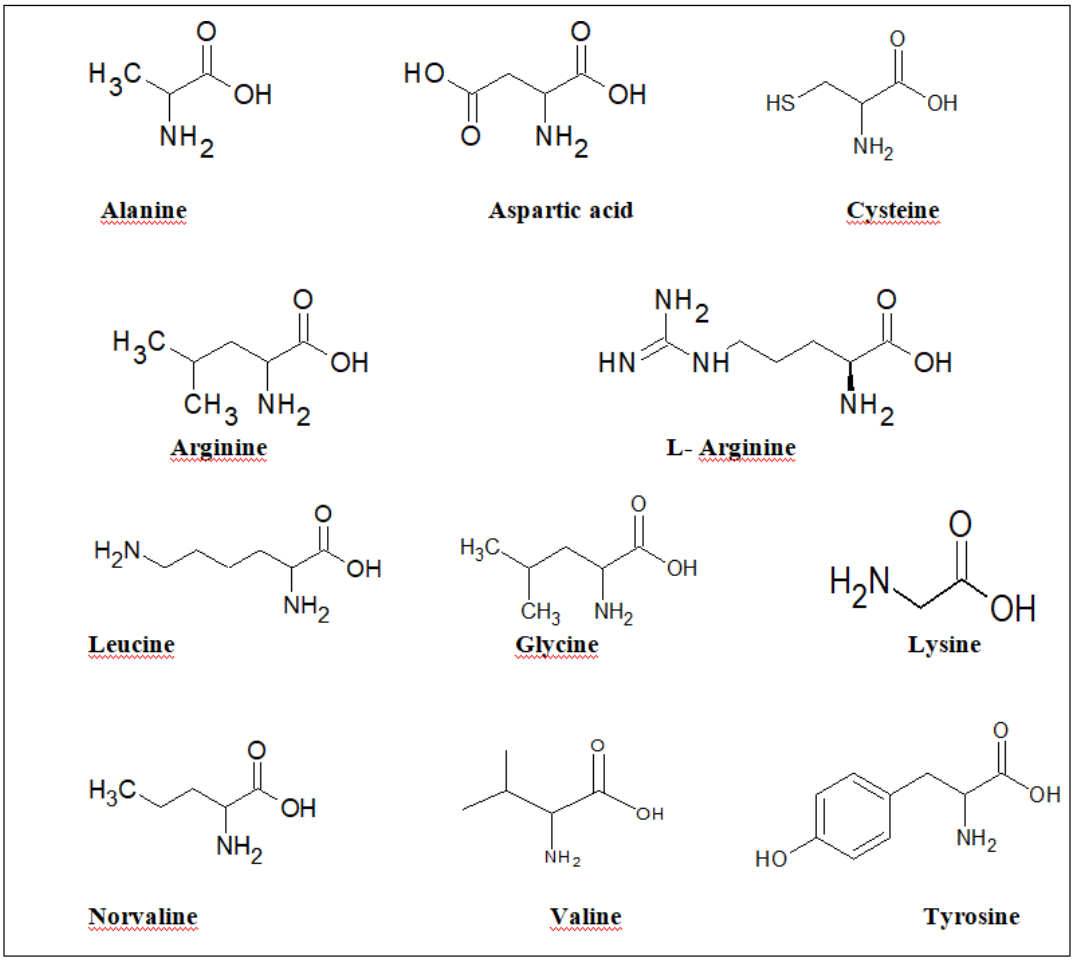
Phytochemicals of fruit

F. religiosa natural product contained protein 4.9%, amino acids, asgaragine, tyrosine, flavonols (kaempeferol, quercetin, and myricetin),undecane, tridecane, tetradecane, (e)- β-ocimene, α-thujene, α-pinene, β-pinene, α-terpinene, limonene, dendrolasine, dendrolasine α-ylangene, α-copaene, β-bourbonene, β-caryophyllene, α-trans bergamotene, aromadendrene, α-humulene, alloaromadendrene, germacrene, bicyclogermacrene, γ-cadinene and δ-cadinene [17, 18, 20, 21, 22, 23].

The natural product mash likewise contains alanine, aspartic corrosive, glycine, threonine, norleucine and norvaline, these amino acids are available in free structure. The protein hydrolysate of the natural product is wealthy in serine, cysteine, phenylalanine and isoleucine. Asparagine and tyrosine are the most bountiful amino acids of the organic product mash of *F. religiosa* [24].

Table 2: Phytochemical constituents of different plant parts of F. religiosa

Plant Parts	Constituents	References
Seeds	Alanine, threonine, tyrosine, glycoside, β-sitosterol, albuminoids, coloring matter, phytosterolin and carbohydrate.	9
Barks	bergapten, bergaptol, lanosterol, β-sitosterol, stigmasterol, lupen-3-one, β-sitosterol-d-glucoside (phytosterolin), vitamin k1, lupeol acetate and α-amyrin acetate.	6, 15, 16, 17
Leaves	L -cystine, lysine, l-arginine, dl-serine, dl-aspartic acid, glycine, tryptophan, l-tyrosine,campestrol, stigmasterol, isofucosterol, amyrin, lupeol, tannic acid, arginine, serine, n -nonacosane, n-hentricontanen, hexa-cosanol and n-octacosan.	17,18, 19,25
Fruit	Amino acids, asgaragine, tyrosine, flavonols (kaempeferol, quercetin, and myricetin),undecane, tridecane, tetradecane, (e)-β-ocimene, α-thujene, α- pinene, β-pinene, α-terpinene, limonene, dendrolasine.	11, 26
Fruit pulp	Asparagine and tyrosine are the most abundant amino acids of the fruit pulp of *F. religiosa.* Alanine, aspartic acid, glycine, threonine, norleucine and norvaline, cysteine, phenylalanine and isoleucine.	24



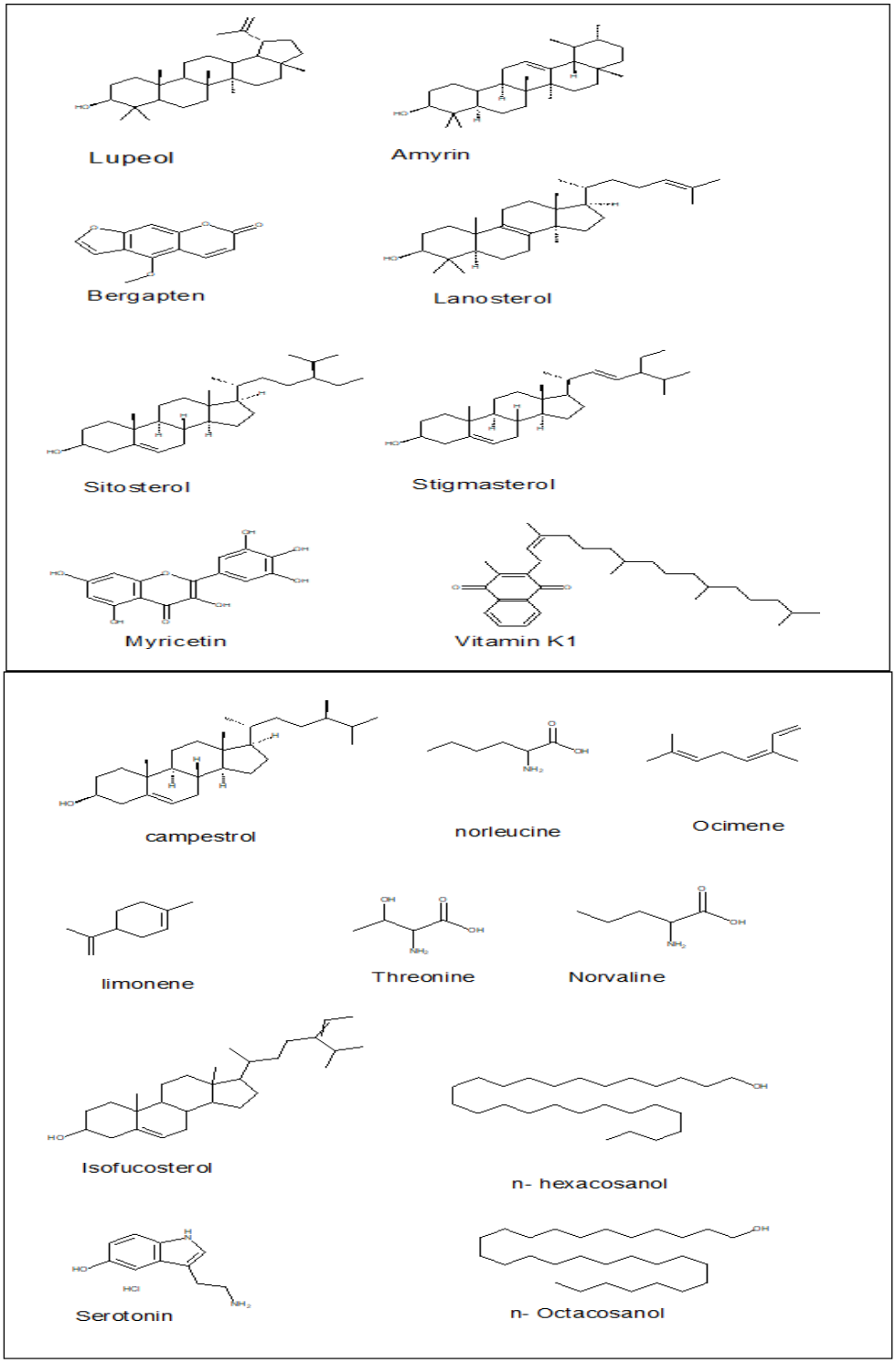


Table 3: IUPAC name of some selected phytochemical constituents in F. religiosa

Chemical Constituents	IUPAC Name	Chemical Formula
Alanine	2-aminopropanoic acid	$C_3H_7NO_2$
Aspartic acid	2-Aminobutanedioic acid	$C_4H_7NO_4$
Cysteine	2-Amino-3-sulfhydrylpropanoic acid	$C_3H_7NO_2S$

Arginine	2-amino-5-(diaminomethylideneamino) pentanoic acid	$C_6H_{14}N_4O_2$
Lysine	2,6-diaminohexanoic acid	$C_6H_{14}N_2O_2$
Leucine	2-amino-4-methylpentanoic acid	$C_6H_{13}NO_2$
Glycine	2-aminoacetic acid	$C_2H_5NO_2$
Norvaline	2-Aminopentanoic acid	$C_5H_{11}NO_2$
L- Valine	2-amino-3-methylbutanoic acid	$C_5H_{11}NO_2$
Tyrosine	2-amino-3-(4-hydroxyphenyl)propanoic acid	$C_9H_{11}NO_3$
Lupeol	Lup-20(29)-en-3-ol	$C_{30}H_{50}O$
Amyrin	(3β)-Urs-12-en-3-ol	$C_{30}H_{50}O$
Bergapten	4-Methoxy-7H-furo[3,2 g][1] benzopyran-7-one	$C_{12}H_8O_4$
Lanosterol	Lanosta-8,24-dien-3β-ol	$C_{30}H_{50}O$
Beta- Sitosterol	Stigmast-5-en-3β-ol	$C_{29}H_{50}O$
Stigmasterol	Stigmasta-5,22-dien-3β-ol	$C_{29}H_{48}O$
Myricetin	3,3′,4′,5,5′,7-Hexahydroxyflavone	$C_{15}H_{10}O_8$
Phytonadione(Vit.K1)	2-methyl-3-[(E,7R,11R)-3,7,11,15-tetramethylhexadec-2-enyl]naphthalene-1,4-dione	$C_{31}H_{46}O_2$
Campestrol	Campest-5-en-3β-ol; (24R)-Ergost-5-en-3β-ol	$C_{28}H_{48}O$
Norleucine	2-Aminohexanoic acid	$C_6H_{13}NO_2$
Ocimene	3,7-Dimethylocta-1,3,7-triene	$C_{10}H_{16}$
Limonene	1-methyl-4-prop-1-en-2-ylcyclohexene	$C_{10}H_{16}$
Threonine	2-amino-3-hydroxybutanoic acid	$C_4H_9NO_3$
Isofucosterol	Stigmasta-5,24(28)-dien-3β-ol	$C_{29}H_{48}O$
Serotonin	3-(2-aminoethyl)-1H-indol-5-ol	$C_{10}H_{12}N_2O$
n- hexacosanol	Hexacosan-1-ol	$C_{26}H_{54}O$
n- octacosanol	Octacosan-1-ol	$C_{28}H_{58}O$

Medicinal uses

Pipal is broadly utilized in hereditary frameworks of medication like Ayurveda, Unani and Siddha as different definitions. Customarily, *F. religiosa* is utilizing as people medication to treat asthma, hack, sexual issues, the runs, haematuria, ear infection and toothache, headache, eye inconveniences, gastric issues and scabies. Leaf decoction has a pain relieving trait for toothache [27]. All parts- root, bark, leaf and product of these trees have broad applications in medication. Among the numerous Ficus species, the most significant are the four trees with smooth latex, specifically *Ficus racemosa L., Ficus microcarpa, Ficus religiosa L., and Ficus benghalensis L.* that establish the gathering "Nalpamara" in Ayurveda. The bark of these species shapes a fundamental fixing in numerous Ayurvedic plans, as Nalpamaradi choorna, Nalpamaradi tailam, Chandanasavam, Saribadyasavam, and so forth [28]

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Table 4 : Medicinal uses of the different part of F. religiosa [11, 29]

Plant Part	Medicinal Uses		
Bark	Diarrhea, dysentery, anti-inflammatory, antibacterial against *Staphylococcus aureus* and *Escherichia coli*, cooling, astringent, burns.		
Fruits	Asthma,digestive, laxative		
Leaves	Purgative, wounds, skin diseases, vomiting, cooling, gonorrhea		
Leaf Juice	Asthma, cough, sexual disorders, diarrhea, haematuria, toothache, migraine, eye troubles		
Seeds	Refrigerant, laxative		

Table 5: Traditional uses of F. religiosa [30]

S. NO.	Traditional Uses	Plant parts of *F. religiosa*
1	Anti-cancer	Powdered bark & liquid extract.
2	Anti -epileptic	Mixture of root powder & honey.
3	Anti –diabetic	Bark extract
4	Anti –diarrhoeal	Leaf liquid + honey
5	Anti –emetic	Leaf soaked in water
6	Anti – helmintic	Leaf as feedstuff
7	Anti –inflammatory	Latex
8	Anti –spectic	Steam & bark
9	Astringent	Root & bark
10	Asthma	Fruit powder
11	Burns	Paste of bark powder
12	Cardiac diseases	Ripe fruits
13	Chicken pox	Root powder + sugar with Water
14	Toothache	Leaves juice with honey
15	Fever	Dry fruits of *F. religiosa*
16	Fistula	Powdered bark
17	Gastric problems	Leaf juice with honey
18	Gonorrhea and scabies	Bark extract
19	Gouty arthritis	Bark extract with honey
20	Hemorrhage	Latex
21	Hiccup	Burnt bark
22	Menorrhagia	Bark extract
23	Laxative	Leaves
24	Leprosy	Root juice
25	Liver diseases	Bark juice
26	Malarial fever	Root with jagggery
27	Migraine	Leaf juice +honey
28	Paralysis	Steam & bark
29	Skin diseases	Dried fruits.
30	Skin allergies	Bark with *C.longa*
31	Snake bite	Paste of bark
32	Bone fracture	Steam & bark +clove + animal fat
33	Tuberculosis	New bark +dry fruits
34	Wound healing	Leaves & tender shoot

Pharmacology Activities

Anti-inflammatory and analgesic activity

F. religiosa has observed to be potential calming and pain relieving property. The component basic the impact is the hindrance of PG's amalgamation. It was tracked down that the leaf concentrate of *F. religiosa* has possible calming movement against carrageenan-actuated paw oedema. The inhibitory movement was found because of restraint of arrival of histamine, serotonin (5HT), Kinins and PG's[29] . The calming and pole cell proliferative impact of fluid concentrate of bark of *F. religiosa*. The calming impact was considered in contrast to intense (carrageenan-incited rear paw oedema) and persistent (cotton pellet implantation) models of aggravation. As of now talked about pole cell degranulation causes irritation and *F. religiosa* separate altogether decreased the level of degranulation actuated by either propranolol or carbachol. They came about calming and pole cell defensive impact might be answerable for the advantageous impact of *F. religiosa* in kumkum dermatitis and other provocative conditions [31].

Antioxidant activity

Cancer prevention agents are substances that safeguard living cells from the damage brought about by unsteady atoms known as free revolutionaries. Cell reinforcements are eminent to act and balance out free revolutionaries, accordingly forestalling hurt. The free extreme harm may bring about the improvement of malignancy [32]. We utilized the 2, 2-diphenyl-2-picrylhydrazyl (DPPH) examine to decide the cancer prevention agent action of cocoa plant methanolic separates, i.e., their capacity to rummage free revolutionaries; centralizations of the concentrate and control empowering the searching of half of 300 µM DPPH was distinguished the middle powerful fixations (EC50) of the leaf, bark, root and Cherelle extricates were 433.3 ± 22.2, 396.3 ± 0.9, 358.0 ± 7.0, and 390.0 ± 7.0 µg/mL, individually. The root separate had the most elevated cancer prevention agent movement among every one of the concentrates (EC50 = 358.0 ± 7.0 µg/mL), which was huge ($p < 0.05$) among the root, leaf, and cherelle extricates, yet no huge ($p > 0.05$) with bark remove. A higher DPPH extremist searching action is related with a lower EC50, and it was apparent that the concentrates could give hydrogen to go about as cancer prevention agents [33].

Melinda et al.[20] concentrate on the 4 plants is locally accessible to treat different sickness identified with oxidative harm so in our examination we assessed the antioxidative properties of the methanolic leaf extricate. Quantitative phytochemical investigation of absolute phenolic content showed that *C. odorata* had the most noteworthy substance of phenolic compound fundamentally (455.55±4.59 µ g/mg GAE) trailed by *F. religiosa* (235.00 ±4.41 µ g/mg GAE) *T. procumbens* (147.78 ± 2.09 µ g/mg GAE) and *C. dactylon* (137.50± 3.82 µ g/mg GAE). The quantity of flavonoids in the plant concentrates can straightforwardly associate with its cell reinforcement movement. In our information *F. religiosa* showed most elevated substance of complete flavonoids (93.67± 0.60 mg/mL. CE) trailed by *C. odorata* (62.82± 0.30 mg/mL. CE), *T. procumbens* (41.30 ± 0.30 mg/mL. CE) and *C. dactylon* (35.80 ± 0.30 mg/mL. CE).

Antimicrobial activity

It has been discovered that *F. religiosa* is utilized as a public treatment against different irresistible problems [41]. The antibacterial capability of *F. religiosa* was researched by Hemaiswarya et al. As indicated by this examination the chloroform concentrate of the leaves of *F. religiosa* restrained the development of different Salmonella species, *P. vulgaris, E. coli, B.*

Subtilis and *K. Pneumonia* and so forth which uncovered the antibacterial capability of the plant [35].

Ramakrishnaiah and Hariprasad [54] examined the antimicrobial movement of *F. religiosa* by estimating the zone of restraint delivered by two kinds of dissolvable concentrates specifically methanol and diethyl ether concentrates of bark and leaves, on three microorganisms (two Gram-negative microbes (*E. coli* and *Pseudomonas aeruginosa*), one Gram-positive microscopic organisms (*Staphylococcus aureus*) and one growth (*Aspergillus niger*). The various groupings of methanol and diethyl ether extractions (100, 200, 300 and 400 mg/ml) of both bark and leaves of *F. religiosa* were utilized for the examiner. Disc diffusion method was utilized to complete the examiner. The methanol concentrates of leaves and bark showed antimicrobial action against three microbes. At lower focuses methanol removes showed less antimicrobial action and showed higher action at 400 mg/ml fixation against the three tried microorganisms. Both leaf and bark methanol separates gave zone of hindrance 2.8 and 2.2mm individually in *S. aureus* and 2.4 and 1.8mm individually in *E. coli*., *P. aeroginosa* gave a little zone of restraint (2.2 and 1.1mm) in methanol concentrates of leaves and bark. In any case, at lower focuses, no action was noticed while at higher fixations (40mg/ml) very little action was seen against growths (*A. niger*). The diethyl ether concentrates of leaves and bark showed shifted antimicrobial action against tried three microbes and no movement against *A. niger* in all focuses [36].

Supriya and Harshita study show concentrates of dried powdered leaves of *F. religiosa* in oil ether, chloroform, methanol and water were made. These concentrates continue for in vivo antimicrobial movement against *E. coli* and *S. aureus* by cup plate dissemination strategy. The plates were hatched and the antimicrobial action was recorded by estimating the width of the unmistakable restraint zone around the circle utilizing a zone per user (Zone Size Interpretative Scale). It was discovered that chloroform extricate showed great action giving a zone of 16 mm with *E. coli* and 16 mm with *S. aureus* which is more contrasted with methanol and water separates. The oil ether separate didn't show any action[37].

Anti-larvicidal activity

Soni and Dhiman came about because of the larvicidal movement against the hatchlings of *Anopheles stephensi*. In this examination showed the zinc oxide nanoparticles (ZnO NPs) and titanium dioxide nanoparticles (TiO2 NPs) were blended utilizing the watery leaf concentrate of *F. religiosa*. The larvae of *An. Stephensi* were observed to be exceptionally powerless against the ZnO NPs than the TiO2 NPs and watery leaves separate. The most noteworthy mortality was seen in blended ZnO NPs against first to third instars of (LC50 50, 75, and 5 ppm) and 100% mortality in fourth instars of An. stephensi. The higher zone of hindrance happened against the *E. coli*. This report of the current examination uncovered that the quick natural union of ZnO NPs and TiO2 NPs utilizing watery leaf concentrate of *F. religiosa* would be viable possible larvicides for mosquito control just as antimicrobial specialists with an eco-accommodating methodology [38].

Anti-amnesic activity

Memory is one of the mind boggling elements of the cerebrum including encoding, putting away and reviewing data. Amnesia, an intellectual issue is liable for the impedance in learning and memory [39]. It was accounted for that serotonergic framework assumes a critical part in learning and memory, specifically by associating with the cholinergic, glutamatergic, dopaminergic or GABAergic frameworks [40]. It was

accounted for that regulation of serotonergic synapse assumes pivotal part in the pathogenesis of amnesia [41]. It was discovered that figs of the plant contain a high serotonergic content [42].

The methanol concentrate of figs of *F. religiosa* was explored for its enemy of amnesic action against scopolamine-incited anterograde and retrograde amnesia. As indicated by study, it was explored that ethanol concentrate of leaves of *F. religiosa* have memory improving action. The fundamental phytochemical screening and TLC examination of the leaf concentrate of *F. religiosa* showed the presence of sterols, glycosides, tannins and amino acids. The memory improving impact was thought about in contrast to Elevated in addition to labyrinth, Step through evasion, Sodium nitrite inebriation, Hebb-William labyrinth and Radial arm labyrinth exploratory models. Scopolamine was used as prompting specialist besides in sodium nitrite inebriation; in this model sodium nitrite was go about as instigating specialist. The concentrate showed worked on in memory and switched the amnesia incited by scopolamine and hypoxia prompted by sodium nitrite. The impact of ethanol concentrate of *F. religiosa* (100 mg/kg) was tantamount to that of piracetam and mentat (100 mg/kg). The outcome presumed that amino acids present in the concentrate might be answerable for the antiamnesic and memory upgrading exercises of the plant [39] .

Anti Cancer activity

Malignant (uncontrollable) growth is a developing medical condition all throughout the planet. Normal items have for some time been utilized to forestall and treat numerous illnesses, including malignant growth and in this manner they are acceptable possibility for the improvement of against disease drugs. The negligible parts of concentrates got from Tephrosia purpurea and *F. religiosa* have great cytotoxic movement against human bosom disease cell line for example MCF-7 which might be ascribed to the flavonoids and phenolic constituents of the portions [43].

The extract of *F. religiosa* leaves utilizing HPLC-DAD, and assess the cytotoxic impact of the concentrate on human malignancy cell lines (prostate disease cell lines delicate to docetaxel (PC3), and protection from docetaxel (PC3-TxR), leukemic malignant growth cell lines touchy to daunorubicin (K562) and protection from daunorubicin (K562Dox) and bosom disease cell lines (MCF7)) utilizing Sulforhodamine-B (SRB) measure. Serotonin and tannic corrosive or their isomers were recognized as dynamic mixtures in chloroform concentrate of *F. religiosa* plant which showed cytotoxicity on cancer cells. The aftereffects of this examination are *F. religiosa* extricate has anticancer movement against malignancy cell lines. *F. religiosa* extricate show critical cytotoxic action on cervical malignant growth cell lines and human bosom disease cell lines (MCF7) [44].

The counter proliferative impact of *F. benghalensis* and *F. religiosa* dissolvable concentrates on MCF-7 was seen with MTT (3-[4, 5-dimethylthiazol-2-yl]-2,5-diphenyl tetrazolium bromide) measure. The rate development restraint of the malignant growth cells was seen in a portion subordinate way where 90% hindrance was found at the most elevated fixation, 200 µg/ml. The IC50 esteem is the half restraint of cell expansion. The ethanolic separate has shown intense cytotoxic action against MCF-7 with IC50 (101.55 ± 0.94 µg/ml) and IC50 (72.06 ± 3.9 µg/ml) on account of *F. benghalensis* and *F. religiosa* individually. The positive control, Doxorubicin has shown its strength against the cell lines. The Ficus extricate has shown the best power against bosom disease cell lines [45].

The past study revealed that the unrefined concentrate of plants has more cytotoxic movement than their disengage compounds in view of the synergistic impact of the relative multitude of phytochemicals present in the plant [46].

Antidiabetic activity

Watery concentrate of *F. religiosa* in dosages of 50 and 100 mg/kg showed an articulated decrease in blood glucose levels. This nature of impact was identified with the hypoglycaemic medication glybenclamide. The hypoglycemic impact of watery concentrate of *F. religiosa* bark at the dosages of 25, 50 and 100mg/kg was concentrated in ordinary, glucose-stacked and STZ-diabetic rodents. The three portions caused a critical decrease in blood glucose levels in the two models. The impact was more articulated in 50 and 100mg/kg than 25mg/kg. The watery concentrate of *F. religiosa* bark additionally showed a critical expansion in serum insulin, body weight and glycogen content in liver and skeletal muscle of STZ-incited diabetic rodents, with a huge decrease in the degrees of serum fatty substance and complete cholesterol. The watery concentrate of *F. religiosa* bark additionally showed a critical enemy of lipid peroxidative impact in the pancreas of STZ-incited diabetic rodents. The outcomes show that the watery concentrate of F. religiosa bark has critical antidiabetic action [47].

Anti-acetyl cholinesterase activity

Methanolic concentrate of the stem bark of *F. religiosa* was found to hinder the acetyl cholinesterase chemical, along these lines drawing out the half-existence of acetylcholine. It was accounted for that the most acknowledged technique in Alzheimer's illness treatment is the utilization of cholinesterase inhibitors. The determined half inhibitory portion (ID50) esteem was 73.69 µg/ml individually. The outcomes affirm and legitimize the well known conventional utilization of this plant for the treatment of Alzheimer's illnesses [48].

Anti-Parkinson's activity

The counter Parkinson's action of oil ether concentrate of *F. religiosa* leaves was examined in rodents. The impacts of *F. religiosa* (100, 200, and 400 mg/kg, PO) were contemplated utilizing in vivo conduct boundaries like catalepsy, muscle unbending nature, and locomotor action and their impacts on neurochemical boundaries (MDA, CAT, SOD, and GSH) in rodents. Haloperidol was utilized to initiate catalepsy and 6 hydroxydopamine (6-OHDA) to prompt Parkinson's sickness like side effects. The expanded cataleptic scores (instigated by haloperidol) were fundamentally ($p < 0.001$) diminished by oil ether concentrate of *F. religiosa* at a portion of 200 and 400 mg/kg (PO). 6-OHDA fundamentally instigated engine brokenness (muscle inflexibility and hypolocomotion) and altogether expanded lipid peroxidation level and exhausted superoxide dismutase, catalase, and diminished glutathione level. Day by day organization of petrol ether concentrate of *F. religiosa* (400 mg/kg) altogether worked on engine execution and essentially weakened oxidative harm. The investigation demonstrated that *F. religiosa* treatment fundamentally weakened the engine deserts and furthermore shielded the mind from oxidative pressure [49].

Wound Healing activity

The stem-bark of *F. religiosa* has been assessed for its injury recuperating movement in mix with different spices as a polyherbal plan [50]. Wound mending action of the hydro-alcoholic leaf concentrate of *F. religiosa* has been explored by Roy et al. (2009) in rats [51]. The leaf powder was removed with 70% hydro-alcoholic dissolvable, dried under diminished strain to get a semisolid concentrate (yield 32.5%, w/w). Phytochemical screening showed the

presence of glycosides and tannins in the concentrate. The action of the still up in the air utilizing extraction and entry point rodent wound models. Treatment with 5 and 10% concentrate balm advanced the mending of the injury in a portion subordinate way, shown by the expanded pace of wound constriction, decline in the period for epithelialization and high skin breaking strength. A comparable report demonstrating the injury mending impact of the hydro-alcoholic leaf remove has likewise been accounted for [52].

Antiulcer Activity

The antiulcer capability of the ethanol concentrate of stem bark of *F. religiosa* against in vivo indomethacin, cold controlled pressure initiated gastric ulcer and pylorus ligation tests was approved. The concentrate (100, 200, and 400 mg/kg) fundamentally ($P<0.05$) decreased the ulcer file in all examines utilized. The concentrate likewise fundamentally expanded the pH of gastric corrosive while simultaneously diminished the volume of gastric squeeze, free and all out degrees of corrosiveness. The investigation gives primer information on the antiulcer capability of *F. religiosa* stem bark and supports the conventional employments of the plant for the treatment of gastric ulcer [11] .

What makes *F. religiosa* different from other plant?

The *F. religiosa* releases oxygen all of the time which makes it unique from different plant. Most plants in large part uptake Carbon dioxide (CO_2) and release oxygen for the duration of the day (photosynthesis) and uptake oxygen and release CO_2 for the duration of the night time (respiration). Some plants including *F. religiosa* (Peepal) can uptake CO_2 for the duration of the night time additionally like day due to their capacity to carry out a kind of photosynthesis referred to as Crassulacean Acid Metabolism (CAM). However, it isn't actual that they release huge amounts of oxygen for the duration of the night time. *F. religiosa* (Peepal) is a hemiepiphyte in its local habitat i.e. the seeds germinate and develop as an epiphyte on different timber after which while the host-tree dies, they set up at the soil. It has been advised that once they live as epiphyte, they use CAM pathway to supply carbohydrates and once they live on soil, they transfer to C_3 type photosynthesis.

So, *F. religiosa* could either release or not release CO_2 withinside the night time depending on if they're epiphytic or not. For different CAM plants, it might depend upon if they have good enough water or not, or different environmental factors. Recently one extra speculation has expected that leaves of *F. religiosa* are capable of charge the battery of mobile. With scientific techniques in future, this hypothesis can reduce using charger and may be appropriate supply of renewable energy[53].

Conclusion

India is sitting on an ancient mine of extensively documented and commonly utilized herbal medicinal knowledge. This Country is well-known to be the botanical paradise of the world and is probably the biggest supplier of medicinal plants. Pharmacology, history, the source, physical and chemical nature, mode of action, traditional, medicinal, and therapeutic uses of medicines are all included in the study of herbal medicine. The plant Ficus religiosa is revered and utilized in Ayurvedic therapy. It is one of the most versatile plants, capable of a variety of therapeutic effects. This audit article studies reason that the *F. religiosa* seeds, steam, bark and organic product are wealthy in restorative properties. The current survey portrays the *F. religiosa* pharmacology and a phytochemical study is a help for future exploration. *F. religiosa* is

an entire significant therapeutic plant since old occasions and utilized in different illnesses e.g., asthma, headache, diabetes, looseness of the bowels, spewing, skin infection, fever, wound recuperating and so forth Past examinations have been centered around look at different pharmacological exercises like cell reinforcement, subterranean insect diabetic, antimicrobial, anticancer, calming, wound recuperating, against larvicidal movement and hostile to ulcer action. The vast majority of the pharmacological examinations were pointed on affirm *F. religiosa* customary employments. This review exposes that the *F. religiosa* has various phytochemicals like β-sitosteryl- D-glucoside, vitamin K, n-octacosanol, kaempeferol, quercetin, and myricetin.

Author's Contribution

The review article conceptualized by BK was written by RM and DM under the supervision of AJ and BK and combined editing by AJ and BK.

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