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A REVIEW ON WONDER PLANT *FICIUS RACEMOSA*

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ABSTRACT: The genus *Ficus*, including *Ficus racemosa*, represents a significant group of trees renowned for their medicinal properties across various traditional healing systems. Widely known as Goolar in India, this medium-sized tree from the Moraceae family is abundant throughout the country, distributed from Himalayan ranges to south India. The different parts of plant *Ficus racemosa* like root, bark, stem, fruit, latex and leaves are rich in numerous phytochemical compounds such as alkaloids, tannins, saponins, β -sitosterol, and lupeol, contributing to its diverse therapeutic capabilities. Referenced in ancient Ayurvedic, Siddha, Unani, and Homeopathic traditions, this plant exhibits a wide array of medicinal activities, including hypoglycemic, antioxidant, hepatoprotective, antiulcer, gastroprotective, antitussive, anthelmintics, antipyretics, wound healing, anticholinesterase and anticarcinogenic properties, among others. This comprehensive review delves into taxonomy, synonyms, vernacular names, ethnobotanical uses, phytochemicals, and pharmacological evaluations of various extracts from its leaves, fruits, stems, bark, and latex, employing solvents such as ethanol, methanol, acetone, petroleum ether, ethyl acetate, and water.

INTRODUCTION: As awareness grows about the effectiveness and holistic benefits of traditional herbal remedies, an increasing number of individuals are opting for plant-based alternatives over conventional allopathic medicines, emphasizing India's rich heritage of traditional medicinal systems renowned for their health-promoting properties¹. The *Ficus* genus stands as a pivotal group of trees across diverse geographical regions, boasting significant medicinal properties and historical significance in ritual practices.

Divided into four distinct species groups including *Ficus rasamosa*, *Ficus microcarpa*, *Ficus benghalensis*, and *Ficus religiosa*, each holds unique therapeutic value and cultural importance. Among these, *Ficus racemosa*, commonly known as 'Umbro' in Gujarati, 'Gular' in Hindi, and 'Udumbar' in Sanskrit, is prevalent in numerous parts of India, particularly flourishing around water bodies and also under cultivation.

Widely dispersed across Asia, Africa, America, and Australia, these trees grace landscapes from the Himalayan ranges to the Deccan plateau, playing integral roles in traditional medicine and local ecosystems alike³. All parts of the *Ficus racemosa* tree, including its stem, root bark, leaves, fruit, and galls, are harnessed for their medicinal prowess. Traditionally, the leaves are administered to alleviate ailments such as diarrhea, dysmenorrhea,

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ulcers, and hemorrhoids. The bark serves multiple purposes, addressing conditions like ulcerative colitis, diarrhea, dysentery, and diabetes. The fruit, known for its astringent properties, is utilized in treating conditions like haematuria, menorrhagia, and hemoptysis.

Additionally, the latex extracted from the tree is applied externally to wounds due to its anti-inflammatory properties. When the fruit is combined with sugar, it offers remarkable cooling effects. The sap from the tree is effective in treating mumps, inflammatory glandular enlargements, and gonorrhea. Furthermore, the roots are employed in managing tonsillitis. Key phytochemicals found in *Ficus racemosa* include gluanoacetate, beta-sitosterol, leucocyanidin, beta-amyrin, and tannins, with the fruit containing lupeol-OAc, glucose, sterols, and gluano-OAc. The isolation of key components from various parts of the *Ficus racemosa* plant, including its roots, stems, leaves,

barks, flowers, and fruits, allows for the formulation of remedies targeting a range of ailments. For instance, extracts from the roots can be utilized to address hydrophobia, while barks serve as galactagogues. Fruits offer therapeutic benefits for blood disorders, dry cough, burning sensation, leprosy, and menorrhagia, while leaves possess astringent properties beneficial for bronchitis.

In recent years, there has been a notable surge in the utilization of medicinal plants within the industrial sector, particularly in the extraction and development of drugs with both disease-curing and biological properties. This review aims to delve into the comprehensive utilization, phytochemical constituents, traditional uses, and pharmacological activities of *Ficus racemosa*, intending to engage readers, researchers, and industrialists alike, fostering effective utilization of this valuable botanical resource.



FIG. 1: *FICUS RACEMOSA* TREE



FIG. 2: *FICUS RACEMOSA* LEAVES



FIG. 3: *FICUS RACEMOSA* FRUIT



FIG. 4: *FICUS RACEMOSA* BARK

TABLE 1: TAXONOMIC CLASSIFICATION OF *FICUS RACEMOSA* LIN⁶

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Utricales
Family	Moraceae
Genus	<i>Ficus</i>
Species	<i>racemosa</i>

TABLE 2: VERNACULAR NAMES OF *FICUS RACEMOSA* LIN⁵

Sl. no.	Language	Names
1	Sanskrit	Yajnayoga, Sadaphalah, Brahanvrkisha, Shitavalkah, Sutah, Udumbara, Gular, Mashakin, Jantukaphalah, Jantuphalah, Krmiphalah, Vasudrumah, Saumya, Hemadugdhaka, Jantumati, Yagniyah, Audumbara
2	Hindi	Pushp-hina, Pani Bhuj, Dumar, Goolar, Umari, Yajnyadumbur, Udumbara, Jantu Phal, Dharma Patra, Goola
3	English	Gular fig, Cluster Fig, Country Fig
4	Bengali	Udumbara
5	Telugu	Brahmamamidi
6	Gujarathi	Goolar, Umbaro
7	Manipuri	Heibong
8	Malayalam	Atthi, Atthi Al, Aththi, Atthi-al, Udumbaram, Jantuphalam
9	Marathi	Umbar, Udumbar
10	Urdu	Dumar

TABLE 3: PHYTOCONSTITUENTS OF *FICUS RACEMOSA* LIN^{6,1}

Plant part	Phytochemicals	Pharmacological Action
Leaves	Sterols, tannins and flavonoids, triterpenoids (Lanosterol) and alkaloids. Phenolic compound Glycoside Racemoic acid. A new tetracyclic triterpene glauanol acetate which is characterized as 13 α , 14 β , 17 β H, 20 α Hlanosta-8, 22-diene-3 β -acetate	anti-fungal, anti-bacterial, anti-inflammatory and wound healing properties Hypotensive activity
Stem	Tannin, wax, saponin gluanol acetate β -sitosterol, leucocyanidin- 3 – O – β – D – glucopyranoside leucopelargonidin – 3 – O – β – glucopyranoside leucopelargonidin – 3 – O – α rhannopyranoside, lupeol, ceryl behenate lupeol acetate α -amyrin acetate Leucoanthocyanidin leucoanthocyanin lauanol acetate lupeol, β -sitosterol and stigmasterol were isolated from stem bark. Trunk-Bark Upenol, β -sistosterol and stigmasterol	antiinflammatory, hypoglycemic anti-diarrheal, anti-ulcerative, antiasthmatic, antipyretic and wound healing piles astringent, menorrhoea, hemoptysis, abortions, uropathy
Root	Cycloartenol, euphorbol and its hexacosanoate, taraxerone, tinyatoxin; bark euphorboland its hexacosanate, ingenol and its triacetate, taraxerone.	anti-analgesic, antidiuretic anti-hydrophobic, antiMicrobial, anti-oxidant activity. It also possesses wound healing propret
Fruit	Glauanol, glauanol acetate, hentriacontane, β sitosterol, glauanolacetate, glucose, tiglic acid, esters of taraxasterol, lupeolacetate, friedelin, higher hydrocarbons and other phytosterol.	hypolipidemic, anti-diabetic, anticarcinogenic and anti-leucohorric effect
Latex	a-amyrin, β -sitosterol cycloartenol, cyclo euphordenol, 4-deoxyphorbol and its esters, euphol, euphorbinol, isoeuphorbol, palmitic acid, taraxerol, tinyatoxin, tirucallol, trimethyl ellagic acid.	antipyretic, anti-inflammatory, anti-microbial

TABLE 4: CHEMICAL COMPONENT ACCORDING TO THEIR CLASS

Sl. no.	Chemical class	Chemical component
1	Alcoholic	Glauanol, Euphobinol, Upenol
2	Ester	Glauanol acetate, Ceryl behenate, Lueol acetate
3	Steroidal	Lanosterol, Sitosterol, stigmasterol
4	Acidic	Pamitic acid, tiglic acid

Traditional Uses^{3, 5, 6}: Over time, people have turned to different components of the *Ficus racemosa* plant to address various health concerns, drawing on its traditional healing properties.

Bark: The versatile *Ficus racemosa* serves multiple purposes, including as a galactagogue and for treating gynecological disorders. Its bark decoction finds application in addressing piles,

ulcerative colitis, diarrhea, and dysentery, as well as managing diabetes. Additionally, it is utilized as an astringent, for menorrhagia, hemoptysis, wound cleansing, abortions, uropathy, asthma, urinary issues, and various skin conditions.

Sap of Bark: Diabetes, burns, swelling, leucorrhea, dysentery and diarrhea, mumps, smallpox, haematuria, menorrhagia and anti-inflammatory.

Roots: Hydrophobia, dysentery, pectoral, complications, diabetes and mumps.

Fruits: This remarkable plant demonstrates efficacy against a spectrum of conditions including leprosy, menorrhagia, leucorrhoea, burns, and intestinal worms. Its properties as an astringent and stomachic make it valuable for addressing menorrhagia, hemoptysis, visceral obstruction, diarrhea, and constipation. It's also beneficial for managing dry cough, urinary tract infections, and blood disorders, with particular potency in treating diabetes.

Leaves: *Ficus racemosa* offers relief from bronchitis, irritable bowel syndrome, piles, and bilious infections. Additionally, its application as a douche aids in alleviating dysmenorrhea, while the decoction of its leaves serves as an effective wash for wounds and aids in healing cervical adenitis. Moreover, the leaf juice is utilized to prevent hair splitting.

Latex: Externally applied on wounds so that it shows anti-inflammatory activities, aphrodisiac, diarrhea, dysentery, hemorrhoids, stomachache, cholera, mumps pain, edema, boils, blisters, measles, promote healing and most important is adhesive, toothache.

Sap of Root: Gonorrhoea, diabetes, mumps, heat stroke, chronic wounds and malaria in child.

Pharmacological Actions:

1. Hypoglycemia activity
2. Antioxidant activity
3. Hepatoprotective activity
4. Antitussive activity
5. Antiulcer activity

6. Wound healing
7. Anthelmintic activity
8. Antidiuretic activity
9. Antidiarrheal activity
10. Chemo-preventive activity
11. Anticancer activity
12. Antibacterial activity
13. Anti-inflammatory activity
14. Memory enhancing activity
15. Hypolipidemic activity
16. Renal & testicular protective action
17. Analgesic activity
18. Antifungal activity
19. Angiotensin converting enzyme inhibitor activity
20. Cardioprotective activity
21. Gastroprotective activity
22. Antifilarial activity
23. Antifertility activity
24. Larvicidal activity
25. Antipyretic activity

Antibacterial Activity: The petroleum ether extract derived from *Ficus racemosa* Lin. leaves, containing alkaloids, terpenoids, coumarins, and fatty acids, exhibits significant antibacterial activity against various bacterial strains including *E. coli*, *Bacillus pumilis*, *Bacillus subtilis*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*, comparable to the standard antibiotic Chloramphenicol. These findings confirm the potential of the ether extract to effectively combat infections, attributed to its terpenoid and alkaloid content. Consequently, integrating this extract into ointments holds promise for addressing infectious conditions⁷.

Multiple studies have underscored the potent antibacterial properties of *Ficus racemosa* across various bacterial strains. Ethanol extracts from the stem bark have shown remarkable efficacy against *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Staphylococcus aureus*, *Bacillus cereus*, *Alcaligenes faecalis*, and *Salmonella typhimurium*, hinting at their potential as sources for novel pharmaceutical leads. Furthermore, separate investigations revealed the stem bark's ethanol extract's effectiveness against *Pseudomonas aeruginosa*, *Proteus mirabilis*, and *Bacillus cereus*, with the aqueous extract exhibiting significant inhibition against *Streptococcus faecalis*, and the methanol extract displaying notable antibacterial activity against *Bacillus subtilis*.

Moreover, research on *Ficus racemosa* leaf extracts showcased promising antibacterial potential against *Escherichia coli*, *Bacillus pumilus*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*. The petroleum ether extract emerged as particularly effective, demonstrating significant effects comparable to the antibiotic chloramphenicol, supporting its traditional use in treating dysentery and diarrhea. Additionally, the 50% methylene chloride in hexane flash column fraction of *Ficus racemosa* leaf extract exhibited inhibition against the growth of various fungal species, including *Curvularia* sp., *Colletotrichum gloeosporioides*, *Alternaria* sp., *Corynespora cassiicola*, and *Fusarium* sp., further expanding the plant's potential therapeutic applications.

Analgesic Activity: The analgesic potential of ethanol extracts from *Ficus racemosa* Lin. bark and leaves was assessed using hot-plate and tail immersion methods. Administration of the leaf and bark extracts at 300 mg/kg intraperitoneally (i.p.) notably increased latency time, offering approximately 40.1% and 35% protection respectively. This analgesic effect was attributed to the presence of compounds such as friedelin, behenate, bergenin, lupeol, and lupeol acetate. The hot-plate test corroborated these findings, demonstrating significant analgesic activity persisting for up to 3 hours post-administration of the leaf extract in mice⁸.

Anti-Inflammatory Activity: The anti-inflammatory potential of *Ficus racemosa* Lin. leaf

extract was investigated using various rat hind paw oedema models induced by carrageenin, serotonin, histamine, and dextran. Significant anti-inflammatory activity was observed at doses of 200 and 400 mg/kg, with the extract displaying maximum efficacy at 400 mg/kg, resulting in reductions of 30.4%, 32.2%, 33.9%, and 32.0% in paw oedema induced by carrageenin, serotonin, histamine, and dextran, respectively, after 3 hours. Moreover, in a chronic test, the extract at 400 mg/kg demonstrated a 41.5% reduction in granuloma weight, comparable to the effects of phenylbutazone, a nonsteroidal anti-inflammatory drug prototype⁹.

Antipyretic Activity: In albino rats, the methanol extract of *Ficus racemosa* Lin. bark, administered at doses of 200 and 300 mg/kg bw, elicited a substantial dose-dependent decrease in body temperature during both normal and yeast-induced pyrexia. This antipyretic effect was comparable to that of paracetamol (150 mg/kg bw), a standard antipyretic drug. Furthermore, the decoction and petroleum ether extract of the leaves exhibited significant antipyretic effects, akin to indomethacin, against yeast-induced pyrexia in rats¹².

Anti-Tussive Activity: The methanol extract derived from the stem bark of *Ficus racemosa* Lin. was evaluated for its antitussive properties using a cough-induced model induced by sulphur dioxide gas in mice. At a dose of 200 mg/kg, the extract exhibited a minimum inhibition of 56.9% after 90 minutes post-administration¹³.

Hypotensive Activity: Extracts from the leaves of *Ficus racemosa* Lin. obtained using different solvents, particularly the fraction enriched with glycosides, demonstrated notable hypotensive and vasodilator effects in anesthetized dogs, along with direct cardiac depressant action on isolated hearts of frog and rabbit. Additionally, the extract exhibited no observable alterations in behavior and showed no signs of acute toxicity in rats¹⁴.

Anti-Filarial Activity: Both alcoholic and aqueous extracts derived from the fruits of *Ficus racemosa* Lin. were evaluated for their anti-filarial activity. These extracts exhibited inhibition of spontaneous motility in whole worms and nerve muscle

preparations of *Setaria cervi*, leading to an increase in contraction tone. The concentrations required to inhibit movement in both whole worm and nerve muscle preparations were determined to be lower for the alcoholic extract compared to the aqueous extract, with values of c for the alcoholic extract and 350 and 150 µg/mL for the aqueous extract, respectively. Furthermore, both extracts demonstrated efficacy in causing the death of microfilaria *in-vitro*¹⁵.

Radio Protective /Antioxidant Activity: He radioprotective potential of *Ficus racemosa* Lin. was investigated using micronucleus assay in irradiated Chinese hamster lung fibroblast cells.

Pretreatment with ethanolic and water extracts at various doses 1 hour prior to 2 Gy γ -radiation resulted in a notable decrease in the percentage of micronucleated binuclear V79 cells, suggesting their role as radioprotectors. Additionally, the methanol extract from the stem bark exhibited potent *in vitro* antioxidant activity compared to the methanol extract from the roots. Moreover, the ethanol extract from the fruits displayed significant antioxidant activity in the DPPH free radical scavenging assay, with 3-O-(E)-caffeoyl quinate showing particularly noteworthy antioxidant activity¹⁶.

Angiotensin Converting Enzyme Inhibitor Activity: The radical scavenging and angiotensin converting enzyme (ACE) inhibitory activity of cold aqueous extracts of *Ficus racemosa* Lin. (FRC) and hot aqueous extracts of *Ficus racemosa* Lin. (FRH) stem bark were assessed in the study. HPLC analysis revealed bergenin presence in the cold aqueous extract, while the hot aqueous extract contained ferulic acid, kaempferol, and coumarin alongside bergenin. FRH exhibited significantly higher radical scavenging activity compared to FRC. Both extracts demonstrated dose-dependent inhibition of porcine kidney and rabbit lung ACE, with FRH displaying notably higher activity than FRC, reflected in lower IC₅₀ values (1.36 µg/mL for porcine kidney and 1.91 µg/mL for rabbit lung ACE) compared to FRC (128 µg/mL for porcine kidney and 291 µg/mL for rabbit lung ACE). Moreover, a correlation between radical scavenging activity and ACE inhibitory activity was observed¹⁷.

Cardioprotective Activity: The radical scavenging and angiotensin converting enzyme (ACE) inhibitory activity of cold aqueous extracts of *Ficus racemosa* Lin. (FRC) and hot aqueous extracts of *Ficus racemosa* Lin. (FRH) stem bark were assessed in the study. HPLC analysis revealed bergenin presence in the cold aqueous extract, while the hot aqueous extract contained ferulic acid, kaempferol, and coumarin alongside bergenin. FRH exhibited significantly higher radical scavenging activity compared to FRC. Both extracts demonstrated dose-dependent inhibition of porcine kidney and rabbit lung ACE, with FRH displaying notably higher activity than FRC, reflected in lower IC(50) values (1.36 µg/mL for porcine kidney and 1.91 µg/mL for rabbit lung ACE) compared to FRC (128 µg/mL for porcine kidney and 291 µg/mL for rabbit lung ACE). Moreover, a correlation between radical scavenging activity and ACE inhibitory activity was observed¹⁸.

Diabetic Complications: The administration of the tannin fraction extracted from *Ficus racemosa* Lin. effectively reversed elevated levels of blood glucose, total cholesterol, triglycerides, and low-density lipoprotein, while also significantly restoring insulin and high-density lipoprotein in the serum. Furthermore, tannins were observed to repair the activity of antioxidant enzymes such as superoxide dismutase and catalase, while decreasing levels of glutathione peroxidase and glutathione, thus restoring the antioxidant status of organs to normal levels. These findings highlight the beneficial effects of tannin supplementation on plasma glucose and lipid profiles¹⁹.

Hypolipidemic Effects: Dose-dependent studies on FrEBet (100-500mg/kg bw) were conducted to determine its effective pharmacological dose for treating diabetes and lowering lipid levels in alloxan-induced diabetic rats.

Results showed that increased blood glucose levels correlated with elevated total cholesterol, phospholipids, triglycerides, and free fatty acids, along with decreased HDL cholesterol in diabetic rats. However, oral administration of FrEBet at 300mg/kg bw restored blood glucose, lipid, and lipoprotein levels to near-normal ranges. These findings demonstrate the potent antidiabetic and

hypolipidemic effects of FrEBet in diabetic rats, comparable to the effects of the standard reference drug, glibenclamide²⁰.

Hepatoprotective Activity: An extract of the leaves of *Ficus racemosa* Linn. (Moraceae) was evaluated for hepatoprotective activity in rats by inducing chronic liver damage by subcutaneous injection of 50% v/v carbon tetrachloride in liquid paraffin at a dose of 3 mL/kg on alternate days for a period of 4 weeks.

The biochemical parameters SGOT, SGPT, serum bilirubin and alkaline phosphatase were estimated to assess the liver function. The activity of extract was also comparable to a standard liver tonic (Neutrosec)²¹.

Memory Enhancing Activity: The hepatoprotective effects of petroleum ether and methanol extracts from *Ficus racemosa* Lin. stem bark were investigated in rats administered with CCl₄, which led to a significant decrease in serum total protein and albumin levels, accompanied by an increase in total bilirubin and the activities of liver enzymes such as aspartate aminotransferase, alanine aminotransferase, and alkaline phosphatase. However, pretreatment with either the petroleum ether or methanol extract of *Ficus racemosa* Lin. resulted in a significant restoration of total protein and albumin levels in the rats²².

Protective Renal Oxidative Injury: Administering *Ficus racemosa* Lin. extract at doses of 200 mg/kg and 400 mg/kg resulted in a notable reduction in xanthine oxidase levels, lipid peroxidation, and gamma glutamyl transpeptidase activity in rats. Consequently, the extract demonstrates considerable potential as a chemopreventive agent and effectively mitigates potassium bromate-induced nephrotoxicity in these animals²³.

Anthelmintic Activity: The crude extracts of *Ficus racemosa* Lin. bark were assessed for anthelmintic activity on adult earthworms, demonstrating a dose-dependent suppression of spontaneous motility and responses to pin-prick, comparable to the effects of 3% piperazine citrate. Notably, worms treated with the aqueous extract did not show complete recovery, suggesting a potent wormicidal effect²⁴.

Wound Healing Activity: The ethanol extract derived from the stem bark of *Ficus racemosa* Lin. facilitated wound healing in both excised and incised wound models in rats²⁵.

Renal Anticarcinogenic Activity: Administration of *Ficus racemosa* Lin. extract at doses of 200 mg/kg and 400 mg/kg led to a marked reduction in xanthine oxidase, lipid peroxidation, γ -glutamyl transpeptidase, and hydrogen peroxide levels. Additionally, there was significant restoration of renal glutathione content and antioxidant enzyme activity, along with a decrease in renal ornithine decarboxylase activity, DNA synthesis, blood urea nitrogen, and serum creatinine levels. These effects were consistent when Ferric nitrilotriacetate (Fe-NTA) was utilized as a renal carcinogen²⁶.

Larvicidal Activity: The larvicidal potential of crude hexane, ethyl acetate, petroleum ether, acetone, and methanol extracts from both leaf and bark of *Ficus racemosa* Lin. was evaluated against early fourth-instar larvae of *Culex quinquefasciatus* (Diptera: Culicidae), resulting in moderate larvicidal effects. Notably, the acetone extract from the bark exhibited the highest larval mortality. Through bioassay-guided fractionation of the acetone extract, a tetracyclic triterpene derivative, Gluanol acetate, was isolated and identified as a novel mosquito larvicidal compound, demonstrating significant potency against fourth-instar larvae of *Aedes aegypti* L²⁷.

Anti-Diarrhoeal Activity: The ethanol extract derived from the stem bark of *Ficus racemosa* Lin. demonstrated notable inhibition of castor oil-induced diarrhea and PEG2-induced enter pooling in rats. Furthermore, it significantly reduced gastrointestinal motility in the charcoal meal test, providing evidence of its efficacy as an anti-diarrheal agent²⁸.

Antidiuretic Activity: The decoction of *Ficus racemosa* Lin. bark exhibited antidiuretic effects at doses of 250, 500, or 1000 mg/kg body weight, with a rapid onset observed within 1 hour, peak effects at 3 hours, and sustained activity throughout the 5-hour study period. Additionally, it induced a decrease in urinary Na⁺ level and Na⁺/K⁺ ratio while increasing urinary osmolarity, suggesting involvement of multiple mechanisms of action²⁹.

Antinociceptive Activity: In a study evaluating the potential antinociceptive effects, the ethanolic extracts of *Ficus racemosa* Lin. bark and fruit demonstrated significant activity in the acetic acid-induced writhing method in mice at a dose of 500 mg/kg body weight. The fruit extract exhibited the highest potency, inhibiting acetic acid-induced writhing by 61.38%, while the bark extract showed slightly lower inhibition at 42.6%³⁰.

Anti-Parkinson Activity: The anti-Parkinson's activity of the petroleum ether extract of *Ficus religiosa* (PEFRE) leaves was investigated using haloperidol and 6-hydroxydopamine (6-OHDA) induced experimental animal models. Evaluation included *in-vivo* behavioral parameters such as catalepsy, muscle rigidity, and locomotor activity, along with assessment of neurochemical parameters (MDA, CAT, SOD, and GSH) in rats. Treatment with PEFRE at doses of 200 and 400mg/kg significantly reduced cataleptic scores induced by haloperidol ($p < 0.001$). Moreover, PEFRE administration at 400mg/kg effectively improved motor performance and attenuated oxidative damage induced by 6-OHDA, indicating its potential in alleviating motor deficits and protecting against oxidative stress in Parkinson's disease³¹.

Cytotoxic and Anticancer Activity: The cytotoxicity and anticancer potential of *Ficus racemosa* Lin. were evaluated on the MCF7 human breast cancer cell line using the Sulphorodamine B (SRB) assay. The ethanolic extract of *F. racemosa* fruits exhibited significant activity with LC50, TGI, and GI50 values recorded at concentrations ≥ 80 $\mu\text{g/ml}$. These findings suggest that *Ficus racemosa* Lin. fruit extract possesses notable cytotoxic and anticancer properties *in vitro* against MCF7 human breast cancer cells³².

Platelet Aggregation Inducing Activity: Platelet aggregation was assessed by introducing *Ficus racemosa* Lin. Cold aqueous extract (FRC) and Hot aqueous extract (FRAE) at concentrations of 50 and 100 $\mu\text{g ml}^{-1}$ into aliquots of platelet-rich plasma (PRP) dissolved in PBS. Aggregation dynamics were monitored over 10 minutes via changes in light transmission using a dual-channel lumi-aggregometer in triplicates. Despite the presence of phenolics, flavonoids, and

isocoumarins, *Ficus racemosa* Lin. extracts induced platelet aggregation. This observation suggests that certain phytoconstituents in FRB may override the anti-platelet activity of polyphenols and flavonoids. The platelet aggregation-inducing activity of FRB extracts poses a limitation on its utilization, despite its proven therapeutic potential³³.

CONCLUSION: This review underscores the extensive therapeutic potential, pharmacological attributes, and diverse bioactive compounds present in *Ficus racemosa* (Linn), highlighting its significance for human civilization. Emphasizing the need for further research and clinical studies, it calls upon processors and researchers to explore its value addition in the nutraceutical and pharmaceutical industries.

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