

## CHAPTER 12

# Medicinal uses of *Ficus racemosa* L. from Moraceae family

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A valuable and important tree having a variety of medicinal qualities is the genus *Ficus*. *Ficus racemosa* (L.) is a scientific name for the fig tree, belongs from Moraceae family. Other names for *Ficus racemosa* include umbmar, goolar, and several other more names. India is one among the many nations where *Ficus racemosa* can possibly be found. It can be intentionally cultivated, but it grows naturally close to sources of water. *Ficus racemosa* has not just evergreen but is distributed all over major area of India in humid areas, near the borders of lakes, sides of valleys and additionally on stony hills, frequently nearly systematically. It is frequently grown in all towns in India due to its tasty fruits. *Ficus racemosa* is one of the medicinally important plants with a variety of therapeutic

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uses that is mentioned in Ayurvedic, Siddha, Unani, and homoeopathic preparations. Ever since the beginning of time, people from nearly every culture have relied on medicinal plants to get healthier (Siwakoti & Siwakoti, 2000). There have always been plant-based substances that can be employed in medicine. For example, the Veda scriptures and other traditional literature about herbal medicines and therapeutic preparations that are made from commonly available herbs and mixture of different medical plants. These products have been used for a long time. Many people have also seen that people in most poor and undeveloped countries use traditional medicine and healing plants as a normal way to stay healthy. Herbal remedies are also being used extensively in modern societies because drugs and chemotherapy medication have been extracted and developed from such plants along with from herbal medicines that have been used for a long time in country areas. Around eighty percent of people in the world, according to the World Health Organization (WHO), use plant based medicine as their main form of medical treatment (Akerele, 1993).

*Ficus racemosa* is considered therapeutically significant in Ayurveda since it is currently utilized largely for the management of bile diseases, liver disease, complications of diabetes, diarrhea and other inflammation situations. *Ficus racemosa*, and this has been claimed to possess various healing qualities, is widely grown all over India. Various components of the plant are typically used as feed, food and ritual. Every component of this tree has been utilized as medicines according to the ancient system for treatment in India (Singh et al., 2011). The combination of leaves mixed using honey is mixed and utilized in severe digestive illnesses. A mixture of leaves can be utilized in menstrual cramps and also to rinse for sores and scrapes. The juice of the leaves is rubbed upon hair to stop splits. Leaf rubber can be utilized for rashes and lesions and smallpox (Rao et al., 2002).

The unripe fruit is a sour, gastrointestinal stimulant medicine used for menstrual cramps. The fruits are utilized as a cure for abdominal blockage, cramps and bloating. A warm bath composed of bark and figs is viewed as an effective treatment for skin diseases. The fruit itself is viewed as an effective treatment for the diabetic conditions. The bark of the tree is bitter. A decoction of bark extract is applied as a mouth cleaner in weak gum illness, diarrhea, and menstrual disorders. It may be utilized as a disinfectant for cuts, highly effective in threatening pregnancy and also suggested in uropathy for pain relief. A mixture of bark material is prescribed in asthmatic and severe piles. The sap taken from the tree has been regarded as useful medicine in hyperglycemia. Mixture of plant stem bark can be utilized in injuries, irritation, rashes, and indigestion (Rahman et al., 1994).

The latex from this plant is erotic and is given in infections, dysentery, constipation, and ulcers. It is additionally employed to cure vomiting, cholera and herpes. It has been described in the conventional system of therapeutics mostly used in neighboring countries for the management of joint fracturing to manage serious diarrhea, especially in children. Latex is used as glue). Juice of the root is administered for urinary tract infections, obesity, and as an oral remedy in herpes or other inflamed gastric swellings. Root juice is supposed to treat cardiac arrest, permanent injuries and parasitic infections in animals (Pingale et al., 2019).

The ability of several *Ficus racemosa* portions or plant parts useful for avoiding diabetes has been tested in rats that have diabetes initiated by streptozotocin. A water soluble extract equivalent to fifteen milligrammes of powdered *Ficus racemosa* bark lowered blood sugar levels by 12% in normal rabbits, 14% in diabetic animals, and 17% after 18 and 48 hours of feeding. Water and ethanol-based extracts of the tree bark showed a considerable extended preventative action by reducing blood sugar levels by 70% in rats with alloxan induced diabetes. The effects of glibenclamide and extractions from ethanol on glucose reduction were comparable. The extracts significantly increased plasma glucose levels & decreased hexokinase activity. Another solvent-soluble extract from *Ficus racemosa* bark reduced blood sugar, plasma lipids, and lipids to nearly normal levels; these outcomes were comparable to those of glibenclamide, a popular antidiabetic drug. Methanol extract from pine bark of the stem had a robust hypoglycemia effect in both normal and alloxan-triggered diabetic rats at increasingly dose-dependent levels, which is consistent with glibenclamide, a popular antidiabetic drug (Mandal et al., 1997). In another study, rats with diabetes induced by alloxan showed significant reductions in blood sugar, glucose, serum urea, and serum triglycerides when tiny doses of petroleum-derived ether constituent extract were administered. The hypoglycemic results were compared to those obtained with glibenclamide. Furthermore, on alloxan-induced diabetes rats, petroleum ether concentrate derived from fruits showed a significant hyperglycaemic effect. Amyrin acetate isolated from *Ficus racemosa* seeds decreased the levels of blood sugar by 12% and 14% at 5 and 24 hours, respectively, in a streptozotocin mediated diabetic rat trial that was deprived of sucrose (Balas & Agha, 1985).

In alloxan-treated diabetes rabbits, an extract from a formulation of medicinal herbs that included *Ficus racemosa* plant leaves as a constituent had a substantial hypoglycemic effect and dramatically raised blood insulin amounts. The research found that the regenerating process of certain pancreatic cells was responsible for the rise in blood insulin levels in diabetics rabbits. Oral treatment of the root's ethanol solution significantly lowered blood glucose levels in rats with alloxan treated diabetes, but the chemical formula did not exhibit acute toxicity or alter behaviour.

In rats with alloxan triggered diabetes, the herbal preparation including *Ficus racemosa* had a notable lower blood sugar level and successfully reduced kidney damage (Chandra et al., 1979, Vasudevan et al., 2007). Due to their fewer adverse effects, which have been thoroughly evaluated by several investigators, plant radio protective agents are becoming more important in the search for radioprotective drugs. One of the main causes of radiation-associated damaged cells and reproductive death in cells is destruction of Chromatin and Membrane lipid. Considerable detoxification of free radicals was shown by the extract of ethanol of *Ficus racemosa* stem bark in a dosage-dependent way. Because radiation-associated neurotoxicity is mainly caused by the production of free radicals in the biological system, such free radical scavengers play a crucial role in radioprotection. Researchers looked into the antioxidant properties of the roots ethyl acetate substance, and the findings show that the substance in question has significant antioxidant activity that is supported by hydrogen peroxide quenching activity, free radical capture, and reducing capability (Malairajan et al., 2006). According to preliminary plant chemical research and  $\beta$ -carotene linoleate oxidised models, the extract contains polyphenols, which may contribute to its antioxidant capacity. Significant detoxifying action was shown by racemosic acid, which was extracted from the ethanol extracted of *Ficus racemosa* bark. In alloxan-treated diabetic rats, solvent and ethanol extracts of *Ficus racemosa* branch bark demonstrated powerful antioxidant properties and greatly enhanced antioxidant capacity by lowering the concentration of radicals and other catalytic antioxidant defence mechanisms. *Ficus racemosa* branch bark extracts in 70% both methanol and acetone showed dose dependent reducing power action, with the methanol component having a greater capacity to donate hydrogen (Channabasavaraj et al., 2008).

*Ficus racemosa* leaf petroleum ether extract's hepatic protective were assessed in cases of chronic liver damage brought on by paracetamol. SGOT, and SGPT levels were all significantly lower after consumption of the herb extract. The extract's effectiveness was similar to Neutrosec's. Additionally, the treated group had a 3.95% death rate, and an autopsy revealed an enlarged and congestion liver that was frequently linked to intestinal haemorrhage and inflammation. However, the extract-treated groups showed no signs of death. In cases of paracetamol triggered hepatotoxicity, the herbal remedy also demonstrated a notable hepatoprotective effect similar to that of Neutrosec. When administered orally, the bark-derived extract from methanol demonstrated a significant liver protection as shown by the restoration of elevated serum transaminases similar to the histopathological alterations caused by silymarin (Bheemachari et al, 2007). Rats treated orally via *Ficus racemosa* herb extract showed a significant reduction in renal activity, the restoration of renal glutathione levels, glutathione metabolizing proteins, and enzymes that protect cells suggests that *Ficus racemosa* extract is a powerful chemopreventive agent. The peroxidation of lipids was

significantly reduced in rats given *Ficus racemosa* extracts orally. Renal glutathione and enzymes associated with antioxidants were also shown to have recovered significantly. Additionally, the elevation of renal ornithine decarboxylase production, the production of DNA, blood urea nitrogen, and creatinine levels in the blood was reversed, suggesting that *Ficus racemosa* extracts is a powerful chemopreventive drug that suppresses potassium bromated triggered renal damage in rats (Sangameswaran et al., 2008).

The hepatoprotective properties of *Ficus racemosa* leaf extract with petroleum ether were assessed in cases of chronic liver injury caused by paracetamol. and bilirubin levels in the blood were significantly reduced when the leaf extracts was taken orally. Neutrosec's activity and the extract's were similar. Additionally, an autopsy revealed an increased and clogged liver that was sometimes linked to bowel haemorrhage and inflammatory conditions, and a 3.95% death rate was noted in the group receiving treatment. On the other hand, those treated with extract showed no mortality. Additionally, the extract demonstrated a noteworthy hepatoprotective effect in paracetamol-associated hepatotoxicity that was equivalent to that of Neutrosec. When administered through the stomach, the bark's methanol concentrate demonstrated substantial hepatoprotection, as shown by a reduction of elevated serum transaminases levels that were equivalent to the histological alterations caused by silymarin (Nair & Chanda, 2006).

Rats treated orally via *Ficus racemosa* extracts showed significant reductions in , xanthine oxidase, synthesis of DNA, and tumour incidence in ferric nitrilotriacetate-induced chemotherapy. Antioxidant liver enzymes, glutathione metabolising enzymes, and adrenal glutathione concentration were all recovered, indicating that *F. racemosa* extract is a powerful chemopreventive agent. Rats given *Ficus racemosa* extract orally showed an important decrease in the size of stones and kidney based glutathione were also observed to have recovered significantly. Additionally, the increase in kidney ornithine decarboxylase functioning, the production of DNA, plasma urea nitrogen level, and creatinine levels in the blood was reversed, suggesting that *Ficus racemosa* extracts is a powerful chemopreventive drug that inhibits potassium bromated triggered kidney damage in rats (Khan & Sultana, 2005). Overall the different parts of *Ficus racemosa* possess different medicinal properties and very useful to cure many chronic diseases.

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