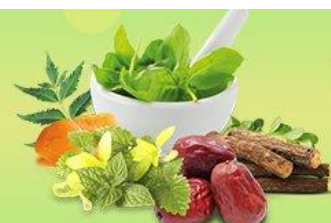


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An ancient treasure of medicinal properties in Indian medicine *Bargad (Ficus benghalensis Linn.)*

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Abstract

Ficus benghalensis, a genus of family Urticaceae is a tropical, deciduous, evergreen tree with more than 800 species and about 40 genera. *F. benghalensis* is known as common name *Bargad* and cultivated as a Garden tree or Spiritual tree. In Unani the aerial root and Latex are aphrodisiac, styptic, syphilis, biliousness, dysentery, inflammation of liver. A lot of pharmacological work has been scientifically carried out on various part of *F. benghalensis* but some other traditionally important therapeutically uses are also remaining to proof till now scientifically. The leaves of *F. benghalensis* is used as ulcer protective, leprosy and fever, inflammations (Ayurvedic). The milky juice is aphrodisiac, tonic, vulnerary, maturate also useful in piles, diseases of the nose, gonorrhoea. As analgesic, antipyretic, anti-ulcerogenic, inflammatory bowel, antimicrobial, antidiabetic etc. The various chemical constituents present in *F. benghalensis* are Bengalenosides, flavanoids and leucocyanidin glycoside.

Keywords: *Ficus benghalensis*, Mizaj, Sheer-e-Bargad, Diabetes, Badal, studies

Introduction

Ficus, the large genus, consists of over 800 species and is one of about 40 genera of the Urticaceae family including trees and shrubs of very varied habit. These include *F. benghalensis* Linn. (Banyan tree), *F. clastica* (the Indian rubber tree) and *F. Carica*. Other notable that the tree which sheltered the Buddha as he divined the "Truths".

Origin and Distribution: Widely distributed throughout India- Sub-Himalayan tract, Assam, Burma to Malaya and Peninsular India. Planted along roadsides, in gardens and at low and medium altitudes throughout the Philippines.

Botanical Description: Baleting-baging is an erect, smooth tree, 4 to 12 meters high, with spreading branches and many aerial roots. Leaves are leathery, elliptic-ovate, 5 to 12 centimeters long, shining, smooth, with entire margins, and narrowed at both ends. Petioles are 6 to 12 millimeters long. Receptacles are nearly spherical, about 1 centimeter in diameter or less, axillary, solitary or in pairs, stalk less, dark purple and fleshy when mature, smooth, and the base with three small ovate bracts [1, 2, 3, 5, 13, 15, 16, 17].

Taxonomical Classification: Botanical classification of *Ficus benghalensis* Kingdom: Plantae, Division: Magnoliophata, Class: Magnoliopsida, Order: Urticales, Family: Urticaceae, Genus: *Ficus* Species *benghalensis* [5, 13].

Vernacular name [1, 2, 3, 4, 5, 6, 7, 8, 9, 10].

Hindi: *Bar, Bad, Bargad*

Arabic: *Zatujjavanib, Kabeer-ul-Ashjar*

Persian: *Darkht-e-Reesh*

Latin: *Ficus benghalensis Linn.*

English: *Banyan tree,*

Botanical Name: *Ficus benghalensis* Linn.

Unani Description of *Ficus benghalensis* Linn [1, 2, 3, 4, 7, 8, 9, 10, 11].

It is very famous and big size tree. The fibrillate elicitation from the tree and become the stems. The soft Springer and Latex used for the medicinal purpose.

Azja-e-Mustemil (Parts used): Soft Springer & Fibrillate, Latex, Bark, Fruit, Sap.

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Mizaj (Temperament): Soft Springer & Fibrillate: - It is Cold & Dry in 1st degree.

Sheer-e-Bargad (Banyan Latex):- It is Cold & Dry in 3rd degree.

A'faal: Pharmacological Uses according to Unani Medicine

Muqawwi-e-Bah (Aphrodisiac), *Daf-e-Jiryān* (Spermatorrhoea), *Kasir-e-Riyah* (Carminative), *Daf-e-Fode wa Funsee* (Phlegmon & Furuncle), *Muqawwi-e-Aaza-e-Raiesa* (Power tonic for *Aaza-e-Raiesa*- Brain, Heart and Liver).

Istemaal (Therapeutic Use): *Zof-e- Bah* (Sexual dysfunction), *Surat-e-Inzal* (Premature Ejaculation), *Jiryān* (Spermatohoea), *Kasrat-e-Ehtelam* (Increased frequency of Nocturnal Emission), *Zof-e- Aaza-e-Raiesa* (Weakness of

Aaza-e-Raiesa- Brain, Heart and Liver), *Bawaseer* (Piles).

Sheer-e-Bargad (Banyan Latex):- *Qabiz* (Astringent), *Mujaffif* (Desiccative), *Mumsik-e-Mani* (Avasicious).

Muzir Asraat (Side effect): It is harmful for Intestine & Stomach.

Musleh (Antidote): Its side effect's antidotes are *Madhu* (Sugar), *Shahad* (Honey), *Gond Kateera* (Gum Karaya).

Badal (Substitute): *Gular ka Dudh* (*Ficus glomerta* Roxb.' Latex)

Miqdar Khurak (Dose): Soft Springer & Fibrillate: 3-5 gm. *Sheer-e-Bargad*: 2-3 drops.

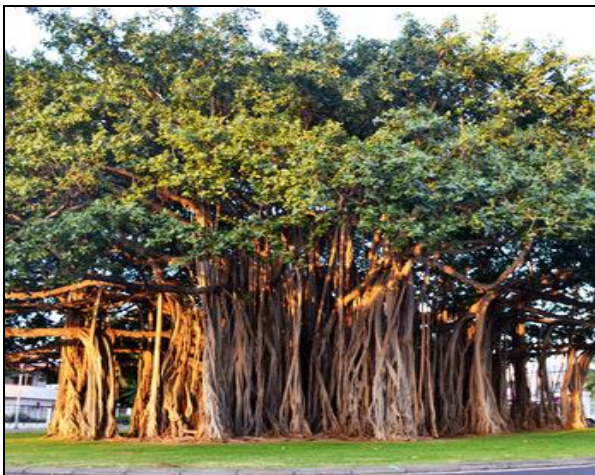


Fig 1: *Ficus benghalensis*

Folkloric [1, 2, 3, 4, 6, 5, 7, 8, 9, 10, 11, 12]

- Milky juice used as external application to pains and bruises and for rheumatism and lumbago.
- Heated leaves applied as poultice to abscesses to promote suppuration and discharge of pus.
- Internally, used for dysentery and diarrhea.
- Bark infusion used for diabetes.
- Decoction of bark, which is about 10% tannin, used as astringent lotion in leucorrhoea.
- Leaves that have turned yellow used in decoction with toasted rice as diaphoretic.
- Decoction of root-fibers, with or without honey, used for gonorrhoea.
- Infusion of small branches used in hemoptysis.
- Tender ends of hanging roots used in obstinate vomiting.
- Young buds, like the milk juice, used as astringent in cases of dysentery and diarrhea.
- Combination of the concentrated juice and fruit used as aphrodisiac; also used in spermatorrhoea and gonorrhoea.
- For toothaches, latex applied to the tooth or gums.
- Latex also applied to the soles of feet when cracked or inflamed.
- In Kerala, India, bark used in treatment of ulcers, erysipelas, vaginal disorders. Milky juice used for piles and gonorrhoea, and applied externally for rheumatic pains and lumbago.

- Decoction of leaf buds used for hemorrhages. Leaves applied as poultice to abscesses.
- Aerial roots used for gonorrhoea, syphilis, dysentery, and liver inflammation.
- In Ayurveda, used as bowel astringent, for treatment of biliousness, fever, ulcers, erysipelas, vomiting, gynecologic complaints, fever, inflammation and leprosy. Aerial roots used to boost the immune system in various diseases.
- In Unani system of medicine, latex is considered aphrodisiac, tonic, vulnerary, and maturate. Used for inflammation, piles, gonorrhoea.

Ethno-pharmacological Uses: Bargad (*Ficus benghalensis*) is commonly known as Vada in Marathi, Banyan tree in English, Bar / Bad in Hindi, in Unani Darkht-e-Reesh and as Avaroha in Sanskrit. According to Ayurvedic texts, consist of Nyagrodha. The bark and milky juice is powerful tonic; also have specific properties of Diabetes. Seeds are deemed cooling and tonic [1, 2, 3, 4, 5, 6].

Chemical Constituents: Taraxasterol tiglata from heart wood; quercetin-3- galatoside and rutin isolated from leaves [11]; three New methyl ether of leuco anthocyanin, Delphinidin -3-o- α L rhamnoside (I), pelargonidin-3-o- α -L-rhamnoside (II), leucocyanidine - 3 - 0 - β - Dgalactosyl cellobioside (III) -along, with Methyl ether of leucoanthocyanidin isolated from stem bark and

characterized and 20-tetratriaconten-2- one, pentatriacontan-5-one and heptatriaconten-10-one isolated from the stem bark and β -sitosterol, α -Dglucoside and meso-inositol isolated [4, 5, 6, 8, 9, 12].

- Bark contains tannin, wax, and caoutchouc.
- Fruit contains oil, albuminoids, carbohydrates, fiber, and ash.
- Bark analysis yielded tannins, saponins, flavonoids, steroids, terpenoids, and cardiac glycosides [1, 2, 3, 4, 6, 12, 13, 14].

Pharmacological Action: Anti-Tumor Activity, Analgesic, Antipyretic Activity, Anti-Rheumatic Activity, Anti-Oxidant Activity, Anti-Ulcerogenic Activity, Hypoglycemic, Anti-Diabetic Activity, Anti-Bacterial Activity, Nutritive Evaluation, Anti-Diarrhoeal Activity, Animal Feed, Cytotoxic Effect, Wound Healing Activity, Anthelmintic Activity, Immunomodulatory Activity [18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31].

Properties [1, 2, 3, 4, 5, 6, 7, 8, 9].

- Bark is tonic, astringent, and diuretic.
- Fruit is cooling and tonic.
- Young buds and milky juice are astringent.
- Milky juice is aphrodisiac, tonic, vulnerary, and maturate. Seeds are cooling. Aerial root is styptic and aphrodisiac.
- Traditionally used as antioxidant, anti-inflammatory, anti-asthma, anti-diabetic, analgesic.

Studies Prove

- **Anthelmintic / Latex:** Study of *F. religinosa*, *F. elastica* and *F. benghalensis* showed the three plants possess anthelmintic activity against Indian earthworm *Pheretima posthuma*. Results showed *F. religinosa* showed more activity than the other two [32, 33].
- **Hypoglycemic Activity:** Study in alloxan diabetic albino rats of 30 hypoglycemic medicinal plants selected from studies of indigenous folk medicines, including *Ficus benghalensis*, 24 samples showed definite blood glucose lowering effect within 2 weeks. In decreasing order, *F. benghalensis* was 12th in the 24 samples that showed hypoglycemic activity [34].
- **Hypoglycemic Activity / Inhibition of Carbohydrate Hydrolyzing Enzymes:** Study evaluated the effect of *F. benghalensis* stem bark on porcine pancreatic α -amylase, rat intestinal α -glucosidase and sucrase. Aqueous extracts exhibited significant dose-dependent inhibition of α -glucosidase and sucrase. Results demonstrated carbohydrate hydrolyzing enzyme inhibition as one of the mechanisms for the bark's hypoglycemic effect [35].
- **Immuno-modulatory Activity:** An aqueous extract of *F. benghalensis* was found to stimulate both cell and antibody mediated immune responses and also stimulated the proliferation of lymphocytes responsible for orchestrating immune responses to an antigen/disease [36].
- **Transdermal Patch Mucilage / Glimpiride:** Study showed Glimpiride can be developed as a transdermal patch with *Ficus benghalensis* fruit mucilage [37].
- **Hypoglycemic Activity / Bark:** Study of crude extracts of the bark of FB showed pronounced hypoglycemic effect. The partially purified compound was several

times more active than tolbutamide [38].

- **Biofuel:** Study of aerial roots suggests *F. benghalensis* may be an additional efficient biofuel with a calorific value comparable to conventional sources [39].
- **Anti-Inflammatory:** Study in experimental animals evaluated the anti-inflammatory property of aqueous extracts of leaves and fruits of *Cassia fistula* and aerial roots of *Ficus benghalensis*. Preliminary pharmacologic screening of the extract showed significant dose-dependent anti-inflammatory profile [40].
- **Anthelmintic:** Study of Anthelmintic activity of the roots of *F. benghalensis* using methanolic, aqueous, chloroform, and petroleum ether extracts showed all extracts were found to both paralyze and kill the earthworms. The aqueous and methanolic extracts were more effective in vermifugal activity [41].
- **Wound Healing:** Study evaluated the wound healing efficacy of ethanolic and aqueous extracts of *F. benghalensis* in excision and incision wound models. Results showed both extracts possess significant wound healing activity, evidenced by decrease epithelialization, increase in rate of wound contraction and skin-breaking strength [42].
- **Transdermal Patch Mucilage / Diclofenac:** Study evaluated the possibility of developing transdermal patches (matrix type) of diclofenac potassium using various ratios of *F. benghalensis* fruit mucilage. Results showed satisfactory pre-formulary and formulary characteristics, with proportionate release of drug as the proportion of *F. benghalensis* increased [43].
- **Antiulcer / Bark Extracts:** Study investigated the antiulcer activity of the bark of *F. benghalensis*. Phytochemical analysis yielded flavonoids, tannins, phenolic compounds, saponins, and carbohydrates. A methanolic extract showed better antiulcer activity compared to other extracts. Flavonoids may be responsible for the antiulcer activity of the bark [44].
- **Antimutagenicity against Cyclophosphamide-Induced Genotoxicity:** Study evaluated a *F. benghalensis* bark extract against cyclophosphamide-induced chromosomal abbreviation and micronucleus formation in rat bone marrow cells. Results showed dose-dependent preventive potential against CP-induced mutagenic effect in rat bone marrow cells [45].
- **Roots / Wound Healing Potential:** Study investigated the wound healing activity of aqueous and ethanolic extracts of *F. benghalensis* roots in three wound models ie. incision, excision and dead space wound. Results showed both extracts with activity in all three models, with the aqueous extract more effective than the ethanolic extract [46].
- **Hepatoprotective / Leaves:** Study investigated the hepatoprotective potential of ethanolic extract of *F. benghalensis* leaves against CCl₄- and ethanol-induced liver damage in rats. Results showed amelioration of effects of hepatotoxins and significantly reduced the elevation of biochemical marker enzymes [47].
- **Antibacterial / Aerial Roots:** Study investigated the anti-bacterial activity of various extracts of *F. benghalensis* aerial roots. Extracts showed significant antibacterial activity against selected organisms. Flavonoids may be the responsible active principle [48].
- **Antinociceptive Effect of *Ficus benghalensis* Bark Extract in Experimental Models of Pain** [49].

Conclusion

Ficus benghalensis is an easily available plant. The fruit being lot of potent pharmacological activity. The plant belongs to family Urticaceae, which has given us many important medicinal plants like *F. benghalensis* Linn. (Banyan tree), *F. clastica* (the Indian rubber tree) and *F. Carica*. etc. Hence it not be wrong to state that still a lot has to be worked upon this important plant. Apart from this, old traditional texts like Unani, Ayurveda, mention the protective role of *Ficus benghalensis* on important body organ like kidney, skin, digestive etc, many of which are scientifically proven. Clinical investigation on peptic ulcer with aqueous extract. It contains almost all the properties of pharmaceutical care designed like Antioxidant property, Aphrodisiac, Antidiabetic property, Cholesterol lowering and potent antimicrobial property etc. In developing countries like India, one must fully explore this important medicinal plant which might provide us some important “leads” in near future.

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