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# A Compendious Write-up on Unani Potent Drug: Bargad (Ficus benghalensis)

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## ABSTRACT

Traditional medicine is the oldest form of healthcare and is used in the prevention and treatment of various diseases. Bargad that is found in tropical areas is one of the medicinal herbs used in the Unani System of medicine for the treatment of many diseases. Bargad is a tree with a wide range of multi-dimensional chemical structures and pharmacological actions. It is known as Batinurduand and commonly known as the Banyan tree in English. Bargad is a big tree distributed all over India, with a height of 15-20m and wide in radius. Aerial roots are hanging from the tree, which gives support to its branches. It has a red, round fruits and white milky latex exudates from its bark. All parts of Bargad are used medicinally and it interacts differently on internal and external application. In Unani classical texts, the temperament of Bargad is mentioned as Barid Yabis and its actions are qabiz, muqawwi-e-aza-e-raeesa, mumassik. It's all parts have a myriad of health benefits some of which are even unpredictable like bark is considered as a tonic and astringent, latex is used in piles, premature ejaculation etc. It is also used in various Unani compound formulations but is mainly used as a single drug. Bargad is also considered as sacred and is popularly used in folk and other traditional medicines. The various chemical constituents present in it include like aerial root contains phytosterolin, leaves contain triterpine and friedelin, the bark contains glucoside and many others. Although only a tiny fraction of existing plant species have been scientifically researched for bioactivities; it is found that it posses antidiabetic, antibacterial, antihelmintic, analgesic, anticancer, antioxidant and anti-inflammatory promoting properties. In a glance, this article contains the description, distribution, habitat, preservation, cultivation, medicinal properties, Unani aspect, aspect in other systems and researches done in Bargad, by making use of Unani classical texts and other sources available to us.

#### **1. INTRODUCTION**

Banyan (*Ficus benghlensis L.*) is a perennial, large, seed propagated, woody deciduous tree and is a member of the Mulberry family (Moraceae). It has been used for thousands of years and has become an essential plant in the medical as well as spiritual field. It is available throughout the year in different regions of the world. It grows evergreen except in some dry areas where it remains leafless for a

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very short time due to dryness and shortage of water. *Ficus benghlensis* (banyan tree), *Ficus carica* (Anjir tree) and *Ficus religiosa* (Pipal tree) are species that are common in the genus. Banyan tree has an epiphytic nature. It has a large spreading head. It can grow 20-30 m or more. Flowering occurs from May to August. It has leaves, which are very large, glossy, green, leathery, and elliptical. The essential oil, which extracted from FB, has different compounds. It also contains tannins, sterols, phenols, and saponins in large amounts. The 'Great Banyan tree' found in the Botanical Garden of Kolkata is over 250 years old and bears a great many numbers of roots. It is the largest known tree in India till date (Singh-2003).

The banyan tree is considered native to tropical Asia, from India through Myanmar, Thailand, Southern China, and Malaysia. It is also cultivated and naturalized in many tropical regions of the world including Western Africa, North America, the West Indies, Australia, the Middle East, and many islands in the Pacific Ocean. It is very much effective for different systems of the body. It has oral, digestive, hygienic, reproductive, morphological, skincare, anti-infectious; metabolically properties. It has ritual importance as well (Thaman *et al.*, 2000).

## 2.History

Banyan tree, as 'bargad ka ped' in Hindi has been time and again mentioned in the Hindu mythology as a sacred tree. The leaves of the banyan tree give out oxygen in more amounts to the atmosphere. So it is widely used to sit and have prayers under this tree for both physical and mental health. This is also a reason for the construction of many temples underneath this tree across the country. It is mentioned as Vata, a sacred tree in Atharvaveda. The Athreya Brahma informed that it grew abundantly in the region of Kurukshetra. It is connected economically, socially and spiritually to the people (Mahajan and Ramola 2003).

## **3. Systemic Classification**

Kingdom: **Plantae** Clade: **Tracheophytes** Clade: **Angiosperms** Clade : **Eudicots** Clade : **Rosids** Order : **Rosales** Family: **Moraceae** Genus : **Ficus** Subgenus :**Ficus subg. Urostigma** Species: **Ficus benghalensis** 

## 3. Vernacular Names

Hindi name: Bad, Bargad, Baragad English: Banyan tree Kannada: Alada mara, Alala, Vatavtuksha Assamese: Vat, Ahat, Vatgach Bengali: Bat, Bat Briksh Gujarati: Vad Kashmiri: Bad Malayalam: Peroal Marathi name: Vada Oriya: Bata, Bara Punjabi: Bhod, Bhaur Tamil: Ala Telugu: Pedda

## 5. Floral Formula and Floral Diagram



## 6. Unani description

## a. **Mahiyat**

It is a magnificent tree and is famous all over India. From the branches of this tree, thin fibrous roots are emerged which fall out and sink to the ground and become a permanent part of the tree. These aerial roots are known as sheer-e-bargad or bat ki dadi in Unani. A milky white latex oozes from its branches, known as Sheer-e-bargad. The buds which are soft and delicate and the latex are used more in medicine.

## b. Hissa Mustamela (part used)

Stem bark Aerial roots Underground roots Vegetative buds Leaves Fruits Latex

#### c. *Mizaj* (Temparament) *Barid Yabis* (cold and dry)

d. Afa'al (Actions according to Unani medicine):

\*Qabiz \*mujaffif \*mumassik \*muqawwi-e-aza-e-raeesa.

## e. Traditional uses

1.*sheer-e-bargad* is used in *bawaseer*(piles), *jaryan* (spermatorrhoea), *ihthilam* (nocturnal emission), and *sura`at-e-inzaal* (premature ejaculation).

2. The powder of soft buds and aerial roots is also used for *jaryaan* and *ihthilam*.

3. Latex of *bargad* is used as ear drops in case of worms or wounds in ear.

4. Fresh latex is good for inflammation of thigh and elbow.

5. leaf extract is used to heal wounds and is used in marham.

6. For diarrhoea and purgation:

a) the aerial roots of *bargad* is grinded in water, filtered and drunk.

b) the soft buds are prepared as *joshanda*.

7. For sexual weakness and *jaryan*: the aerial roots are squeezed to collect the extract, it is then boiled and the froth is removed from the top part. Then sugar is added to it and consumed with milk.

8. Infusions of young buds are useful in dysentery and diarrhoea.

9. Concentrated juices of young leaf, buds and fruits are

an aphrodisiac and of much value in spermatorrhoea and gonorrhoea.

f. Muzirat: (Adverse effects): For stomach and colon

g. Musleh(corrective): sugar, shahad, kateera.

**h. Badal**(substitute): goolar ka doodh ( Ficus racemosa latex)

**i.** *Miqdare Khurak*(dose): For buds and aerial roots-3 to 5gm For latex: 2-3 drops

#### j. Murakkabath

#### (It is mainly used as a single drug)

a) majoon e sheer bargad

- b) sheer -reeshe-bargadc) Safoof -e-sailan ur-raham
- d) Hab jirvan

## 7. Ethnobotanical Description

a. Botanicl Name: Ficus benghalensis

#### b. Family: Moracea

#### c. Habitat

Tropical, deciduous, evergreen tree with more than 800 species and about 40 genera of the family. *Ficus benghalensis* is known as common name *BARGAD* and cultivated as a garden tree or spiritual tree. Sub Himalayan tract and peninsular India planted along roadsides and in gardens. It is common in the low country dry regions of Srilanka up to an altitude of about 2000 feet. Also occurs in the sub-Himalayan forests and south India and naturalized elsewhere (Santapau, 1966).

## d. Distribution

Banyan trees are seen all over tropical and sub-tropical parts of India, Pakistan and Bangladesh. They are Native to Indian Subcontinent and known as the national tree of India and is the symbol of pride that is integral to the nation's identity. Banyan trees have certain philosophical and spiritual values which live in the core of the country's heritage.

They constitute the largest trees in the world by canopy coverage and are mainly seen in the forest, rural as well as urban areas of the country. The banyan trees sometimes use the branches of big trees or fissures within rocks as support, finally taking over by destroying the supporting host. In urban areas, they are seen to grow on the sides of buildings with the roots penetrating the walls and are called stranglers. The largest banyan tree in India resides at the Indian Botanical Garden in Shibpur, Howrah in West Bengal and is around 25 m tall and the canopy cover is around 420 m with over 2000 aerial roots.

## e. Cultivation

The banyan tree has an epiphytic nature and it grows by

germinating in the crevices of the host tree. As it grows it produces aerial roots, that hang downwards from its branches and root themselves wherever they meet the ground, and they appear as if it has multiple trunks. They have high moisture needs to grow and are drought resistant. They relish the sun to partial shade as well. Banyan trees are fastly damaged by frost and so they are best grown in warmer and humid climates. They require a lot of space as they grow rapidly and spread over a huge area. This tree should not be planted near foundations, driveways, streets or even your home, as its canopy alone can spread quickly. A banyan tree can reach up to about 100 feet (30 m.) tall and spread far over several acres. The leaves of banyan trees can reach almost from 5-10 inches (13-25 cm.) in size.

These trees are grown in houses as Bonsai and are well adapted to the indoor environment too. To foster branching and also to help in managing the size of the tree the shoot tips are pinched. While growing the banyan tree as a houseplant, it prefers well-drained but moderately moist soil. Banyan trees can be cultivated from softwood cuttings and seeds, which are taken from the roots and then rooted or by using eye cuttings. The eye cuttings should be at least half an inch above a leaf. The leaves are rolled and secured with a rubber band to avoid loss of moisture from the leaf. It will take more time to grow a banyan tree from seed. And while selecting seed for propagating allow seed heads to dry on the plant before collecting. During summer provide the banyan tree with moderately bright light and maintain indoor temperatures around 70 F. (21 C.) and at least 55-65 F. (10-18 C.) throughout winter.

## f. Morphology

A very large evergreen tree23-24 m tall, with large spreading limbs supported by aerial roots which later form trunks extending to a large area and stout, softly pubescent branchlets.

## Leaves

Simple, alternate, 10-20cm long, 5-12.5 cm broad, oval, ovate or orbicular-ovate to oblong, coriaceous, obtusely cuspidate, quite entire, glabrous or pubescent beneath, base rounded subcordate or acute, strong basal veins, lateral veins 7-8 pairs, finely reticulate beneath, petioles 1.2-5cm long stipules 1.8 -2.5 cm long, coriaceous.

#### Flowers

Minute, unisexual of three kinds, males, females and imperfect females (gall flowers) crowded along with bracteoles in the inner walls of fleshly receptacles which are sessile, globose, about 1.8 cm diameter. puberulous, arising in axillary pairs, basal bracts33, orbicular, spreading male flowers near the mouth of the receptacle, perianth4, stamen, filament erect. Female flowers perianth as in the male but shorter, ovary superior, unilocular with the pendulous ovule, straight or oblique, style eccentric, stigma simple.

#### Fruit

Fleshy pericarp and with achieves embedded in them, dark red color (10) round about 0.5 to 0.75 inches in diameter

#### and spongy.

#### **Aerial Roots**

They are thick, woody trunks found hanging from the tree, which on touching the ground gives to support the branches. The tree bark is thick, whitish colored. The leaves are thick, oval, 4-6 inches long

## g. Chemical Constituents

The aerial root contains Phytosterolin.

Leaves contain Triterpin, Friedlin and Beta-sitosterol. The bark of the tree contains a glucoside, Bengalinoside, flavonoid glycosides, Leucocyanidin and Leucopelargonidin. Heartwood contains ester of alphatatraxastetol and Ligilic acid.

Bark: Hypoglycemic principle, Glycoside

Leaves: Triterpin, Friedelin, Sitost

Heartwood: Ester of - tatraxasterol, Ligilic acid, Bengalenoside. FB has low-fat content, low amounts of Mg and Ca. The leaves have little amounts of stored crude protein, fibres, calcium oxalate, Cao and phosphorous, the flavanols are also identified in leaves, as well as quercetin-3galactoside and rutin. FB yields latex which contains sugar caoytchoue (2.4%), resin, albumin, cerin and malic acid.

## h. Phytochemistry

• The plant contains quercetin-3-galactoside, rutin, freidelin, taraxosterol, lupeol, beta amylin and psoralen.

• Latex contains caytchoue, resin, albumin, cerin, sugar and malic acid.

• The bark contains 5, 7 dimethyl ether of leucopelargonidin -3-0-alpha-L rhamnoside and 5, 3 dimethyl ether of leucocyanidin as well as meso-inositol.

• FB is an unusual rich source of oil containing fatty acids which can be used for industrial utilization. It contains vernolic acid, malvalic acid, sterculic acid along with other normal fatty acids like linoleic acid, lauric acid, myristic acid, oleic acid, palmitic acid and linoleic acid.

## 8. Pharmacological Action

Analgesic, Anti-pyretic, Antitumor, Anti-oxidant, Antirheumatic, Anti-ulcerogenic, Anti-diabetic, Antiinflammatory, Anti-bacterial, Anti-diarrhoeal, Antihelminthic, Immunomodulatory, anti-microbial, anti-atherogenic, anti-stress and allergic, ameliorative, hypoglycemic, anticancer, anti-hyperlipidemic and hypocholesterolemic, anti-fungal, Larvicidal activity. Hepatoprotective activity and Growth promoting activity.

## 9. Therapeutic effects

The different parts of the *Ficus benghalensis* are used in various diseases, as follows;

## Latex

1. The milky latex is applied over the wound and swelling

for quick relief.

2. It is used to treat premature ejaculation.

3. Latex is applied locally in dental caries, conjunctivitis and skin diseases.

4. It helps in boosting the immune system and prevents diseases.

5. For gynic disorders 5-10 drops of *Ficus benghalensis* milk with sugar candy up to 20 days before sunrise is given.

6. It is used locally for arthritis.

7. The latex of the tree, when taken with milk, has a relieving effect on piles (internally).

8. The latex also has a relieving effect on Lumbago.

## Bark

1. The decoction of the bark of *Ficus benghalensis* is given to treat vaginal diseases.

2. To control diabetes, the decoction of the bark is given.

3. The decoction is applied locally to cure leucorrhea.

4. For improving memory.

5. It is used to treat piles

6. The bark of this plant and gum of Accasiacatachu with black pepal locally used to treat toothache.

7. Syrup made from its bark when taken with honey and water is a good herbal remedy to treat venereal diseases.

## Leaves

1. Leaf extract of *Ficus benghalensis* with butter potted on pimples, it cures pimples.

2. To strengthen the uterine muscles during pregnancy, the tender leaves are given in the form of decoction.

3. To treat nausea and vomiting, the decoction prepared from leaf bud of Vata, jambu and ushira is taken with honey in a dose of 40-50 ml.

4. In excessive sweating, cold infusion from the tender buds of *Ficus benghalensis* is given in a dose of 40-50 ml.

5. The leaves are crushed to make a powder, which is then mixed with water to prepare a vaginal wash for the treatment of the infection.

6. Extracts prepared from banyan tree leaves have a soothing effect on the skin. It prevents skin allergies when used as a topical formulation along with aloe gel. When mixed with milk, this extract relieves acne and rashes.

7. The use of banyan tree leaf extract against inflammation caused by diseases such as arthritis.

8. The leaves are used to relieve chronic diarrhoea and dysentery.

## Root

1. The person affected with viper snake poisoning, paste of the root of the banyan tree is mixed with the juice of Durva, Manjishta, jivaka and kashmarya and consumed.

2. A decoction of the root fibers is useful as a treatment against gonorrhoea, whereas the tender ends of the aerial roots are used for obstinate vomiting.

3. One should clean their teeth using the roots of this tree. This helps in protecting the gums against all kinds of infections.

4. Tender roots are considered beneficial in the treatment of female fertility

## Fruits

1. The fruit is tonic and has a cooling effect.

2. Fruit juice is useful in stop vomiting.

3. Consuming banyan tree fruit at least once a day will reduce the risk of a sudden heart attack.

4. Decrease blood pressure and prevents coronary heart diseases.

5. It helps to prevent some kinds of cancers, such as cervical cancer, prostate cancer, breast cancer, brain cancer and colon cancer.

6. Helps to control weight

7. To increase weight, we can regularly consume fruit juice with milk right before going to bed.

8. To reduce weight, we can drink fruit juice without milk and sugar.

9. Maintains good vision

10. Consuming three or more banyan tree fruit daily supposed to reduce the risk of age-related macular degeneration.

11. Enhances the immune system.

12. Regulates the blood sugar.

13. Reduce respiratory problems, such as asthma; decrease the pain due to sore throat.

14. Prevents anemia.

15. Cures kidney stones.

16. Maintains healthy hair

17. The paste made from its prop roots is applied on the hair, to keep healthy and lustrous.

## 10. Pharmacological Studies

## i) Hypoglycemic and anti-diabetic Activity:

In many studies, the hypoglycemic effect of FB was evaluated. Anti diabetic effect of aqueous extract of *F. bengalensis* aerial roots at a dose level of 300 mg/kg p.o. was studied in streptozotocin induced diabetic rats using glipizide (2.5 mg/kg p.o.) as a reference standard.

Results revealed a 43.8% reduction in BGL of normal rats at 6 h. 40.7%, 54.8% and 51.7% improvement in glucose tolerance of normal, sub diabetic and mild diabetic rats respectively, was observed at 3 h during GTT.

Anti-diabetic and ameliorative potential of aqueous extract of the stem bark at a dose level of 500 mg/kg/ day p.o. was studied in streptozotocin induced diabetic rats by using tolbutamide (100 mg/kg/day p.o.) as the reference standard. Results revealed the hypoglycemic activity comparable to that of tolbutamide and restoration of hepatic cytochrome P-450 dependent enzymes (PNPH, PROD and EROD), kidney and liver lipid peroxidation (malondialdehyde and hydroperoxides) and glycolytic enzymes to near normal levels; also decrease in the levels of serum electrolytes (.Potassium, sodium and calcium) was observed. Histological examination revealed a reduction in swelling and inflammation of pancreatic tissue.

In another study, using the same extract and experimental conditions results concerning total protein (g/dl), albumin (g/dl), urea (m mol/l), uric acid (m mol/l), creatinine ( $\mu$  mol/l), Hb (g/dl), RBC, WBC and platelets were almost equivalent to that of tolbutamide.

Aqueous extract of the stem bark at a dose level of 50 mg/kg/day p.o. when tested on normal, alloxan recovered, mildly diabetic and severely diabetic rabbits caused improvement in glucose tolerance in alloxan recovered and mildly diabetic rabbits. It also caused 55.8% and 68% fall in FBG in mildly diabetic and severely diabetic rabbits respectively.

In a comparative study performed on alloxan induced diabetic rats, ethanolic extract of the fruit, at a dose of 120 mg/kg/day p.o., showed more diabetic activity than that of aerial root and stem bark. Glibenclamide at a dosage of 0.5 mg/kg/day p.o. was used as the reference standard (Al-Snafi-2018).

## ii) Anti-inflammatory Activity:

Anti-inflammatory effects of ethanolic and petroleum ether extract of the bark of FB was measured in different animals. The extracts significantly reduced carrageenan-induced paw oedema in rats. The results exhibited significant antiinflammatory activity. It was comparable to that of potent drugs i. e, diclofenac sodium and aspirin (Huang *et al.*, 2010).

## iii) Antioxidant Activity:

Aqueous extract of fresh aerial roots of FB showed good

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antioxidant activity due to the presence of phenolics and flavonoids. Photochemical the antioxidant activity of FB. The extract of banyan showed the best outcome when compared with other compounds such as ascorbic acid (Constantinescu-2020).

## iv) Antidiarrhoeal Activity:

Antidiarrhoeal effect of ethanolic extract of FB hanging roots was evaluated in different experimental models of diarrhoea in rats. It showed significant inhibitory activity against castor oil-induced diarrhoea and PGE2 induced enter pooling in rats (Ahmad *et al.,* 2011).

## v) Wound healing Activity:

FB contains effective wound healing agents. The wound healing capacity of aqueous and ethanolic extract of the root was studied by incision model, excision model and dead space wound model in rats. Increased breaking strength, decreased period of epithelialization and percentage wound contraction and increased hydroxyproline content were observed in the incision, excision and dead space model respectively. Results were comparable to that of standard drug povidone-iodine. Another study was done using aqueous and ethanolic extract of stem bark on excision and incision wound models and the results were significant (Bhattacharya *et al.*, 2018).

## vi) Immunomodulatory Activity:

The aerial parts of FB showed to have immunemodulatory activity. The immunomodulatory action of the aerial roots has effects on specific and non- specific immunity. Methanolic extract of the root was found to exhibit a prominent increase in the fraction of phagocytosis (Lans *et al.,* 2007).

## vii) Anti pyrexia and Analgesic Activity:

Many attempts have been made to study various pharmacological actions of this plant especially it's anti pyrexia and analgesic activity. It is found that ethanolic extract of *F. benghalensis* shows analgesic and antipyretic activity similar to those observed for non- steroidal analgesic drug aspirin. The phytochemical analysis revealed the presence of flavonoids, alkaloids, triterpenoids and tannins which might be responsible for this activity (Ullah *et al.*, 2014).

## viii) Hypolipidemic and Hypocholesterolemic Activity:

The water extract of F. benghalensis bark has been reported to possess hypocholesterolemic and hypolipidaemic effects. In 1995 hypolipidemic effect of water extract of the bark of F. benghalensis was investigated in alloxan-induced diabetes mellitus in rabbits. Treatment for one month (50 mg/kg body weight/day) brought down the level of total serum cholesterol (TC) in subdiabetic and diabetic rabbits from  $82\pm11$  and  $118\pm10.6$  mg% to  $42.7\pm3.1$  mg% and  $51.7\pm4.7$  mg%, respectively. Low-density lipoprotein cholesterol and very low-density lipoprotein cholesterol also came down (Dahanukar *et al.*, 2000)

## ix) Anthelmintic Activity:

The anthelmintic activity of methanolic, Chloroform and petroleum extracts of the roots of F. benghalensis was observed on adult earthworms. The extract was found not only to paralyze but also killed the earthworms (Aswar *et al.*, 2008).

## x) Antistress and Anti-allergic Activity:

screened various extracts of *F. benghalensis* for its antiallergic and antistress potential in asthma by milkinduced leukocytosis (antistress effect) and milk-induced eosinophilia (antiallergic effect). Aqueous, ethanolic and ethyl acetate extracts showed a significant decrease in leukocytes and eosinophils while petroleum ether and chloroform extracts were inactive. This shows the application of polar constituents of *F. benghalensis* bark as antistress and antiallergic agents in asthma (Ahmad *et al.*, 2011).

## xi) Anticancer Activity:

The fruit extract of *Ficusbenghalensis* has been documented for its anti-cancer activity in the potato disc bioassay, but none of the tested extracts showed any marked inhibition on the uptake of calcium into rat pituitary cell-line GH4CL (Rahman and Khan 2013).

## xii) Hepatoprotective Activity:

Methanolic extract of aerial root was tested for hepatoprotective activity against isoniazid-rifampicin induced liver injury in rats using Liv 52 at a dose level of 10mg/kg p.o as the reference standard. Results of MEFB at a dose level of 100,200 and 300mg/kg p.o were almost the same as that of Liv 52. Leucopelagronin derivative, isolated from the bark also showed the hepatoprotective effect.It was administered in CCl4 induced hepatotoxic rats, using vitamin E as the reference standard. The results were comparable to that of Vitamin E by Khaliq, H. A. (2017).

## xiii) Antibacterial Activity:

In 2007, aqueous and ethanolic extracts of F. benghalensis were investigated for antibacterial activity against Pseudomonas aeruginosa, Proteus mirabilis, Staphylococcus aureus, Bacillus cereus, Alcaligenesfaecalis and Salmonella typhimorium. The ethanolic extract showed considerable antibacterial activity against Pseudomonasaeruginosa, Proteus mirabilis and Bacillus cereus. It also showed certain antibacterial effects against A. faecalis and S. typhimorium but it was inactive against S. aureus. Aqueous extract of *F. benghalensis* had no antibacterial activity against any of the six bacterial strains investigated (Nair and Chanda 2007).

## xiv) Antifungal activity:

Antifungal activity of aqueous extracts of the stem bark, leaf and root was evaluated by agar diffusion technique at a dose level of 30 mg/ml using nystatin ( $30 \mu g/ml$ ) as the reference standard. Among the three extracts, stem bark extract showed antifungal activity against Trichophytonrubrum and Candida albicans (Tan *et al.*, 2015).

#### xv) Toxicological studies:

It has no known toxicity on human consumption. The latex of banyan tree exhibit toxicity to the growth of Pencilliumcitrinium and suppress the production of citrinin to an extent. Plant extract is 100% toxic to Epidermophytonfloccosum and Microsporumgypseum. As some parts of the banyan tree are poisonous if ingested, proper care and caution should be taken while handling the plant. It may cause skin irritations for some sensitive people.

#### CONCLUSION

*Ficus benghalensis* is a plant having medicinal, social, economical, environmental and spiritual values. It has been widely distributed all over the country, but some reduction is seen in the distribution nowadays due to human activities. All of its parts are used for medicinal purpose, especially in dermal and reproductive systems. Rather than including in *murakkabath*, it is added with other *mufrad* drugs for various diseases. Many pharmacological studies were conducted on this plant and is revealed to possess enthusiastic, anti-diarrheal, wound healing, anti-inflammatory and many other properties.

#### References

- [1] Traditional uses, phytochemistry, and bioactivities of Cananga odorata (Ylang-Ylang). *Evidence-Based Complementary and Alternative Medicine*, 2015.
- [2] Nair, R., & CHANDA, S. (2007). Antibacterial activities of some medicinal plants of the western region of India. *Turkish Journal of Biology*, 31(4), 231-236.
- [3] Khaliq, H. A. (2017). A review of pharmacognostic, physicochemical, phytochemical and pharmacological studies on Ficus bengalensis L. *Journal of scientific and innovative Research*, 6(4), 151-163.
- [4] Rahman, M. M., & Khan, M. A. (2013). Anti-cancer potential of South Asian plants. *Natural Products and Bioprospecting*, 3(3), 74-88.
- [5] Ahmad, S., Rao, H., Akhtar, M., Ahmad, I., Hayat, M. M., & Iqbal, Z. (2011). Phytochemical composition and pharmacological prospectus of Ficus bengalensis Linn.(Moraceae)-A review. *Journal of medicinal plants research*, 5(28), 6393-6400.
- [6] Tan, L. T. H., Lee, L. H., Yin, W. F., Chan, C. K., Abdul Kadir, H., Chan, K. G., & Goh, B. H. (2015).

- [7] Aswar, M., Aswar, U., Watkar, B., Vyas, M., Wagh, A., & Gujar, K. N. (2008). Anthelmintic activity of Ficus benghalensis. *International Journal of Green Pharmacy* (IJGP), 2(3).
- [8] Dahanukar, S. A., Kulkarni, R. A., & Rege, N. N. (2000). Pharmacology of medicinal plants and natural products. *Indian journal of pharmacology*, 32(4), S81-S118.
- [9] Ullah, H. A., Zaman, S., Juhara, F., Akter, L., Tareq, S. M., Masum, E. H., & Bhattacharjee, R. (2014). Evaluation of antinociceptive, in-vivo & in-vitro anti-inflammatory activity of ethanolic extract of Curcuma zedoaria rhizome. BMC complementary and alternative medicine, 14(1), 1-12.
- [10] Lans, C., Turner, N., Khan, T., & Brauer, G. (2007). Ethnoveterinary medicines used to treat endoparasites and stomach problems in pigs and pets in British Columbia, Canada. *Veterinary parasitology*, 148(3-4), 325-340.
- [11] Bhattacharya, A., Tiwari, P., Sahu, P. K., & Kumar, S. (2018). A review of the phytochemical and pharmacological characteristics of Moringa oleifera. *Journal of pharmacy & bioallied sciences*, 10(4), 181.
- [12] Ahmad, S., Rao, H., Akhtar, M., Ahmad, I., Hayat, M. M., & Iqbal, Z. (2011). Phytochemical composition and pharmacological prospectus of Ficus bengalensis Linn.(Moraceae)-A review. *Journal of medicinal plants research*, 5(28), 6393-6400.
- [13] Constantinescu, F., & Sicuia, O. A. B. (2020). Phytonanotechnology and plant protection. PHYTONANOTECHNOLOGY, 245.
- [14] Huang, L. J., Gao, W. Y., Li, X., Zhao, W. S., Huang, L. Q., & Liu, C. X. (2010). Evaluation of the in Vivo Anti-inflammatory Effects of Extracts from Pyrus bretschneideri Rehd. *Journal* of agricultural and food chemistry, 58(16), 8983-8987.
- [15] Al-Snafi, A. E. (2018). Chemical constituents, pharmacological effects and therapeutic importance of Hibiscus rosasinensis-A review. *Journal of Pharmacy*, *8*(7), 101-119.
- [16] Santapau, H. (1966). Common trees (p. 16). National Book Trust, India.
- [17] Thaman, Randolph R., Craig R. Elevitch, and Kim M. Wilkinson. "Multipurpose trees for agroforestry in the Pacific Islands." *Holualoa: Permanent Agriculture Resources* (2000).
- [18] Mahajan, V., & Ramola, B. G. (2003). Microfinance in India: Banyan Tree and Bonsai. Background paper prepared for the World Bank.
- [19] Singh, H. B. (2003). Herbal medicine of Manipur: A colour Encyclopaedia. Daya Books.