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A Overview on Banyan Tree for Bed Sores

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ABSTRACT

Ficus Bengalnesis L. or banyan tree which belongs to the mulberry family (Moraceae). The traditional medicinal system like ayurveda, siddha, unani and homeopathy. It is a massive tree having branches with hanging aerial roots downwardly. The allplant part of banyan tree (Ficus Bengalnesis L.) that is leaves, fruits and stem bark, aerial roots are used as anti-helminthic, antibacterial, anti-oxidant, anti-cancer, antimicrobial Activities and also diarrhea, diabetes leucorrhea, nerve disorders, tonic and astringents properties. In this review aims to the information on the, pharmacognosy, physicochemical parameters, phytochemistry, pharmacological studies of Ficus Bengalnesis L. for use on pressure ulcer / bed sores. Clinical disorder on bed sores of banyan tree is effective. This review article discusses the phytochemicals, pharmacognostic properties, and pharmacological activity of Ficus Bengalnesis L. (Family Moraceae), a medicinal plant found in India and Bangladesh. According to their studies about F B plant we can determine various part extract of FB used as antioxidants, Analgesic, Anti-inflammatory, antiallergic Anticancer, antidiabetic activity wound healing properties, and to cure piles. In this Plant contains various phytochemicals such as Flavonoid, Terpene, Ketones, Ester, Alkaloid, Glycoside and flavonoid responsible for its Antiinflammatory activity.

KEYWORDS: *Banyan Tree, Pharmacognostic, Phytochemical, Pharmacological, Ficus bengalensis L.*

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INTRODUCTION

Bedsores are injuries to the skin and the tissue below the skin that are due to pressure on the skin for a long time. Bedsores most often arise on skin that covers bony areas of the body, such as the heels, ankles, hips and tailbone. Bedsores also are called pressure ulcers, pressure injuries and decubitus ulcers,are localized damage to the skin and underlying tissue that usually occur over a bony prominence as a result of pressure in combination with shear and friction. [1]

Pressure ulcers (also known as decubitus ulcers, pressure injuries, or pressure sores) are defined as "localized damage to the skin and underlying soft tissue usually over a bony prominence or related to a medical or other device as a result of intense and/or prolonged pressure or pressure in combination with shear" [2].

These injuries most frequently localize in the adult population over the bony prominences of the hip and sacral region, but about 25% of cases are observed to involve the lower extremities [3]. Nevertheless, decubitus ulcers can be observed in the pediatric population, especially in the occipital region [4].

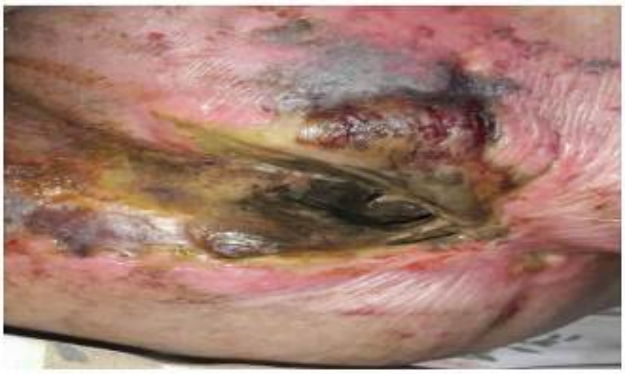


Fig. presuure ulcer injury (Bed Sores)

***OTHER NAME OF BED SORES.**

1. Decubitus ulcer.

2. Pressure injuries.
3. pressure sores.
4. pressure ulcer.
5. pressure wounds.[5]

SYMPTOMS

Symptoms of bedsores are:

- Changes in skin color or texture.
- Swelling.
- An area of skin that feels cooler or warmer to the touch than other areas.
- Sore areas.[6]

*CAUSES OF BED SORES.

1] Direct causes :	2) Indirect Causes :
-Pressure	-Mobility Problems|
-Shears	-Poor Nutrition
-Friction	-Health Condition
-Immobility	-Ageing Skin
-Loss of Sensation	-Incontinence
-Combined Pathology	-Mental Health Condition

Direct causes:

Pressure

As the living tissues are not static, the way they are distorted change over time. When constant pressure is maintained, soft tissues mould themselves to accommodate the external shape. This is known as tissue creep.[7] This may reduce the external pressures but may also exaggerate internal distortions of soft tissues that further reduce the vascular supply of already compromised area due to vascular kinking. This distortion of internal conjugation of soft tissues are significantly high in paraplegic patients[8]

Shear

Shearing occludes flow more easily than compression (for example, it is easier to cut off flow in a water hose by bending than by pinching it), so shear can be considered to be even more significant than pressure in the causation of pressure ulcers.[9]

Friction

Friction, along with pressure and shear, is also frequently cited as a cause of pressure ulcers. [10]

Immobility

Immobility is not a primary cause of pressure ulcers but in the presence of additional factors it can initiate them. Patients with a profound immobility but intact sensation rarely develop pressure ulcers when they can still communicate. Conversely, comatose patients, even with intact sensation, can develop pressure ulcer, as they cannot communicate regarding pain of increased pressure threshold. The pain of tissue ischaemia ensures that these patients frequently ask for their position to be changed. Patients with orthopaedic casts should be encouraged to report any discomfort and pain in order to prevent iatrogenic pressure ulcers[11]

Indirect causes (associated factors):

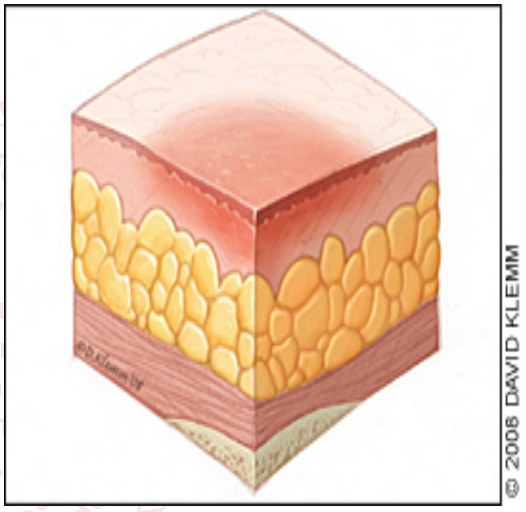
Combined pathology

When the reactive hyperaemia cycle ceases to function adequately, a pressure ulcer will almost certainly develop unless preventive action is taken. There are three predisposing factors for pressure ulcers:

- Loss of movement
- Failure of reactive hyperaemia
- Loss of sensation. [12]

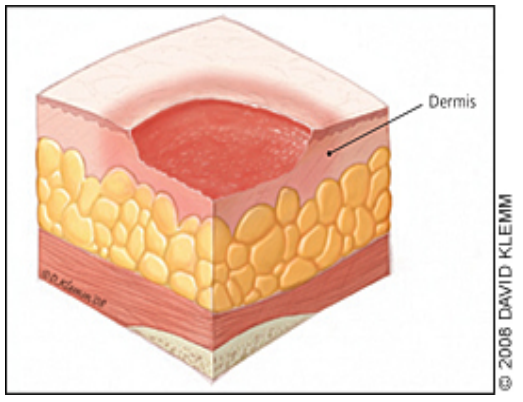
*STAGES

Stage-I: Intact skin with signs of impending ulceration. The skin may appear white, indicating a lack of oxygen.[13]



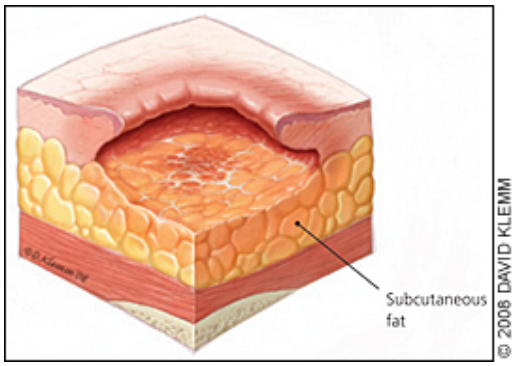
Stage I pressure ulcer. Intact skin with non-blanching redness. [14]

Stage-II: Partial thickness, loss of skin into the subcutaneous tissue (third layer of skin); looks like an abrasion or blister.[13]



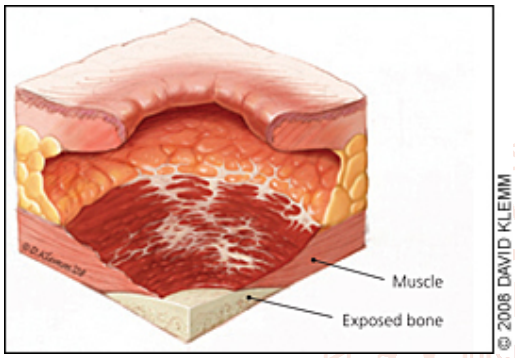
Stage II pressure ulcer. Shallow, open ulcer with red-pink wound bed.[14]

Stage-III: Full thickness, loss of skin into the subcutaneous tissue; looks like a crater.[13]



Stage III pressure ulcer. Full-thickness tissue loss with visible subcutaneous fat. [14]

Stage-IV: Full thickness, loss of skin and subcutaneous tissue with extension into muscle, tendon or bone. [13]



Stage IV pressure ulcer. Full-thickness tissue loss with exposed muscle and bone. [14]

➢ TREATMENT

Wound healing necessitates Wherever possible, ulcer treatment is designed to reverse the circumstances that produced the ulcer in the first place. Ulcers are frequently the result of many pathologies (such as diabetes, pressure, and loss of sensation). Prior to treatment planning, a thorough assessment is required. In general, the possible causal component (pressure, shear, friction) should be addressed, and the accompanying general state should be managed (for example, treating linked co-morbid illness and improving nutrition). The afflicted area requires extensive cleansing and dressing. To enhance venous and lymphatic drainage, elevate the limb and give it some relief from weight bearing, pressure, and friction. However, because full range of motion and vigorous physiotherapy of joints increase circulation, even non-weight bearing physiotherapy is beneficial.

Wound healing necessitates sufficient protein, iron, Vitamin C, and zinc. If there is a nutritional deficiency, supplements may be provided .[15]

CLEANSING AND PRESSURE IRRIGATION

Where dead tissue is eliminated with high-pressure water jets. There is now no data to support any specific and effective cleansing techniques or solutions in particular.[16]

Ultrasound

Dead tissue is eliminated by low-frequency energy pulses.[17,18]

Laser

Dead tissue is eliminated by focussed light beams.[19]

Wound dressings

The dressing used for each step of wound healing is specific to that stage; in fact, there is a wide selection of dressings available to help with the various stages of wound healing. These are categorized as non-absorbent, absorbent, debriding, self-adhering, and many more. Choosing the right dressing for an ulcer depends on factors such as the place and kind of the ulcer, hospital or domiciliary care, personal preference, and patient expense.

Dressings are typically occlusive, therefore ulcers heal better in a moist environment. If the ulcer is clean and dry, occlusive dressings are normally changed once a week, and more frequent changes are avoided since they remove healthy cells as well as debris. Contaminated or leaking wounds may necessitate more frequent dressing changes, even every few hours. Negative pressure wound therapy is used to treat severely infected ulcers.[20]

Hydrocolloid Dressings

These include a unique gel that promotes the formation of new skin cells in the ulcer while keeping the healthy section of skin dry.[21,22]

Nano silver dressings

These use the antibacterial property of silver to clean the ulcer .[23,24]

***fig**. Medial planter flap for heel sore: A long-standing deep trophic ulcer of heel (a). The islanded medial planter flap was transposed to the defect and the resultant donor site was covered by split thickness skin graft (b). The 1-week (c) and 3-

month (d) post-operative pictures showing stable coverage. Patient allowed full weight bearing from 6th week along with silicone footpad protection [25]

- **BANYAN TREE OVERVIEW AND SACRED MEDICINAL TREE WITH POTENTIAL HEALTH AND PHARMACOLOGICAL BENEFITS**

PLANT PROFILE

➢ **INTRODUCTION**

Ficus benghalensis (Family: Moraceae) is a huge evergreen tree found throughout India, from the sub-Himalayan region in the north to the deciduous forests of the Deccan and south India. It is a robust and drought-resistant plant that can endure mild frost and is found all year, from sea level to an elevation of roughly 3,000 feet. [26]In Ayurveda, it is used to treat diarrhoea, desyntry, piles, hypoglycemia, astringency, diuretic, tonicity, rheumatitis, and gingivitis. [27]Charaka recommended aqueous extract of Nyagrodha (Ficus) leaf buds combined with sugar and honey to treat diarrhea, hemorrhages, and bleeding piles. The aerial roots were utilized to prevent vomiting and osteomalacia in the limbs. [28]Bark is used for diabetes, leucorrhoea, and gonorrhea. The leaves are used for ulcers, leprosy, in allergies and abscesses of skin. The fruits are used as tonic and refrigerant. [29]

Fig. Banyan Tree

Banyan (Ficus Benghlensis L.) is a big plant that belongs to the Mulberry (Moraceae) family. It has been utilized for thousands of years and is now considered an essential plant in the medical profession. The form, growth habit, flower color, leaves, stems, and chemical content of banyans all vary. It is available all year in different parts of the planet. It is evergreen except in some dry locations where it is leafless for a brief period of time due to drought and a lack of water. FB (Banyan tree), Ficus carica (Anjir tree), and Ficus Religiosa (Pipal tree) are common species in the genus Ficus, which belongs to the family Moracea [30].Depending on where it exists in the world, FB is known by several names.

In English, FB is usually referred to as Banyan, while the most frequent term is Bohr. In India, it is known as Bargad among Hindi native speakers. It is known by various names in India, including Bera in Punjab, Bar in Bengali, Vatam in Malayalam, Vad in Gujarati, Ala in Kanarese, Vada in Marathi, Bahupada in Sanskrit, Alai in Tamil, and Peddamarri in Telugu [31].

***Scientific Classification:**

Kingdom: Planate

Subkingdom: Tracheobinote

Super division: Spermatophyta

Division: Magnoliophyta

Class: Magnoliopsida

Subclass: Hamamelidae

Order: Urticales

Family: Moraceae

Genus: Ficus

Species: Benghalensis, indica[32]

***Vernacular names of Banyan Tree:**

Names in different languages:

1. Hindi name – Bad, Bargad, Baragad
2. English name – Banyan tree
3. Kannada name – Alada mara, Aala, Vatavruksha
4. Assamese name – Vat, Ahat, Vatgach
5. Bengali name – Bat, Bat Briksh
6. Gujarati name – Vad
7. Kashmiri name – Bad
8. Malayalam name – Peroal
9. Marathi name – Vad
10. Oriya name – Bata, Bara.
11. Punjabi name – Bhod, Bhaur
12. Tamil name – Ala
13. Telugu name – Peddamari
14. Urdu name – Bad, Bargud[33]

***History:**

Vata is known as a sacred tree frequently mentioned in Atharvaveda. The Atreya Bramha informed that it grew abundantly in the region of Kurukshetra.

Vata is said to be very sacred to Hindus and the Shathpatha brahmana stated that Nyagrodha was named due to its downward growth bending its branches down to the ground and developing new secondary trunks. So that single tree in course of time from a large grove.

A very vast Vata tree near Narmada is famous in India and is called Kabir Vad. It is a very old one and large. Nearly 20,000 people can sit inside this.

The life span of the Vata tree is more than 100 years. Hence it is called Akshayvata. The great Sage Charaka has been categorized as mutrasangrahaniya (anti-diuretic). Acharya vagbhatta has mentioned the use of its twigs for brushing the teeth (dantdhavan). The decoction of its bark skin is useful in vaginal disease mentioned in astangasamghrha by Vagbhata. [33]

PHARMACOLOGICAL ACTIVITY: [34]

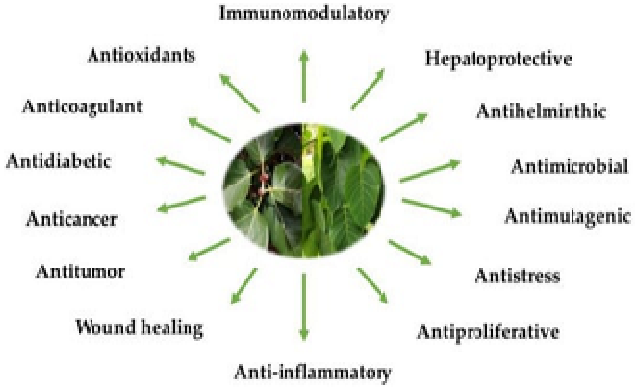
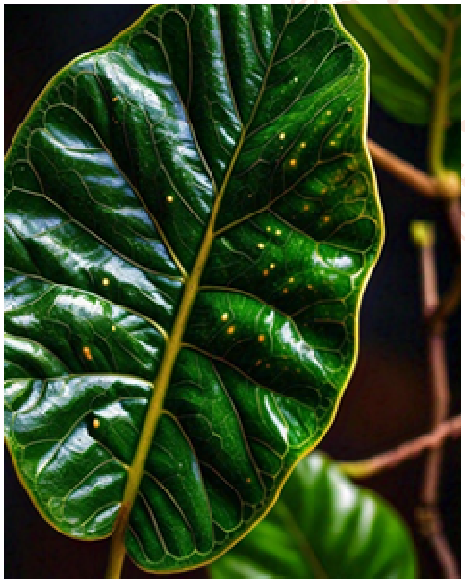


Fig. Pharmacological activities of Ficus benghalensis and Ficus religiosa.

***PART OF BANYAN TREE:**

[1] **Leaf:**



Leaves are coraceous having a slightly bitter taste, green in color, opposite arrangement, ovate to elliptic in shape (lanceolate shape) with obtuse apex and reticulately pinnate venation. Length and width are 10-30 cm and 7-20 cm respectively with 2.5-5 cm long petiole. Powder of leaf is pale green colored and odorless possessing a slightly bitter taste. Trichomes, fibers, calcium oxalate crystals, spiral thickenings, and epidermal cells with anticlinal walls are visible under a microscope. [35]

[2] **Fruit :**

Fruits are small, axillary, fleshy pericarp and when ripe dark red in color, diameter is 10-2.0cm and tiny seeds are present in the fruit. A fruit is not eating for humans but edible for monkeys, insects and birds.[36]

[3] **Stem Bark :**

Shade dried stem bark is of brownish grey color with dark patches from the outer surface and reddish brown to yellowish brown on the inner surface possessing stimulant odor, astringent taste, and rough texture due to the presence of lenticels. The thickness of bark varies with the age of the tree; normally 0.8 to 2.5 cm. Fracture is brittle in the outer bark and fibrous in the inner portion Microscopically, stem bark is differentiated into outer and inner bark having a width of 288–576 and 2.9–3.5 mm respectively. Periderm consisting of phellem and phelloderm originates from the deeper portion of the secondary phloem. Phellem cells are thin-walled, homogeneous, rectangular, and

suberized. Phelloderm is distinct and wide, its cells are turned into radially arranged cubical sclereids.[35]

[4] **Aerial Root:**

Prop roots synonymously known as columnar roots in Ficus spp., are a type of adventitious roots that grow above ground from the stem of a plant. They reach down and anchor the plant firmly into the soil. These roots play a vital role in stabilizing and providing mechanical support to the tall or heavy aerial branches and the canopy of the plants [8]. These prop roots help to keep the tree balanced and prevent it from toppling over, especially in strong winds or heavy rain. So, prop roots are trained as it will help to divert the different prop roots at desired positions strengthening of mechanical support to the plant. If it is not properly trained the prop roots will come at haphazard positions and also get damages naturally or even physically by the outside people. Prop roots can also help in gaining better canopy coverage area through nutrient absorption. [37]

LITERATURE REVIEW

1. **Aakrati Chauhan, Piyush Mittal And Kavina Ganapathy (2023):**

The mulberry family (Moraceae) includes the perennial plant known as the banyan tree. For thousands of years, it has been grown worldwide and utilized as a decorative plant and in ancient medicine. “Flavonol, quercitin-3-galactoside, -sitosterol, and rutin are the main components of banyan”. The amount of each of these chemical components changes based on the species or IJCBS, 23(2) (2023): 347-354 Chauhan et al., 2023 353 cultivar, as well as the growing environment's soil type, weather, and pH level. In addition to having cardioprotective, hepato-protective, and neuroprotective properties, bioactive peroxides are employed as anticancer, antiviral, diabetic, and malarial treatments. The bark of trees was used in the Ayurvedic medical system as a diabetes therapy.

2. **Abdulsalam Kamail, Rafia Rahman (Jan 2018):**

Banyan tree is a perennial plant belonging to the mulberry family (Moraceae). Mostly banyan contains flavonol, querecitin-3-glactoside, β sitosterol and rutin. The extent of each of these cheimcal constituents varies depending upon the type of species or cultivars as well as cultivation conditions such as soil type, weather and pH of soil where it grow. Bioactive peroxides are used as anticancer, antiviral, antidiabetic, and against malaria, as well as cardio-protective, hepato-protective, and neuroprotective effects. In Ayurvedic system, bark of the trees was used as a remedy for the treatment of diabetes

3. **Saeed Ahmad, Huma Rao (2011):**

This review article comprised of plant description, phytochemical constitution, pharmacological prospetus and toxicological study of F. bengalensis Linn. (Moraceae), a medicinal plant found throughout India and also in Bengal. This plant has a great medicinal value as it has been reported to have verstile phytochemical constituents including ketones, flavonols and flavonoids, terpenoids, coumarins, esters, carbohydrates, serine protease. It has pharmacological activities such as antidiabetic, hypolipidemic, anthelmintic, antibacterial, immunomodulatory, antistress and antiallergic, antioxidant, antiinflamatory, antidiarhoeal, analgesic and antipyretic, antiatherogenic, wound healing and growth promoting. Thus the plant has great medicinal potential for humans.

4. **Rakesh. N. Chaudhari, Yash. M. Mulani (2022):**

Ficus bengalensis L.is one of the most important plants of traditional medicines and is still in use, to treat various diseases, particularly diabetes, reproductive system disorders, inflammatory conditions, and swellings. Because of its importance in traditional medicines, its quality control factors are established by pharmacognostic studies and various phytochemicals have also been isolated and recognized. Pharmacological studies on various parts of the plant have confirmed its use in traditional medicines.

5. **Rajan Logesh, Jitendra Pandey(2023):**

The traditional uses, phytochemistry and pharmacological activities of F. benghalensis, a medicinal plant used commonly in South Asian countries. Stem bark and latex were the plant parts

that were mentioned in many books/articles as having various medicinal uses. However, the details of collection, processing formulations, dosage and duration of treatment were not explained in detail which makes it difficult to use in clinical practice. Detailed analysis of the studies related to phytochemistry revealed that only a very few studies have been carried out on the bioactive chemical constituents. derivatives and triterpenes were reported from the stem bark and triterpene derivatives and phenolic compounds including flavonoids were reported from the leaves. However, in traditional medicines, latex is widely used for various purposes but no detailed chemical analysis has been performed in latex, which needs attention. Both in vitro and in vivo pharmacological activity evaluations were carried out for the antidiabetic, anti-inflammatory, wound healing and other activities.

6. Preeti Singh, Jyotike Dhankhar(2023):

F. benghalensis has gained a lot of attention for its enormous pharmacological potential contributed by an abundant amount of phyto-compounds present in it. Besides the presence of common phenolics, flavonoids, coumarins, terpenes, fatty acids, leucoanthocyanin, etc., distinctive compounds such as bengalenoside and benganoic acid have also been reported from F. benghalensis. The present study confirmed its enormous applications in terms of anti-inflammatory, antidiabetic, antimicrobial, antioxidant, anticancerous, antistress, antiproliferative, analgesic, antidiarrheal, larvicidal, etc. activities that form a scientific platform of its use in the traditional medication system.

7. Onyenibe Sarah, Patrick Madubuchi Aja(2023):

The study evaluated the major biological properties of many medicinal plants with the aim of understanding their therapeutic uses and potential antioxidant properties. The overall biological properties, especially antioxidant strengths, of the plants were extensively studies. The medically significant plants were shown to possess high antioxidant capacity when compared to synthetic antioxidants. These plants have high phenolic and flavonoid contents alongside high DPPH and FRAP activities. They were also shown to possess some active compounds with high antioxidant and other biological activities. Systematic investigations of these antioxidant plants *in vitro* and *in vivo* studies using same experimental methods of analysis and solvents are needed to enable an overall ranking of the plants in order of their antioxidant capacities.

8. Rosalam Sarbatly, Rajesh Nithyanandam(2010):

This review discussed medicinally significant plant species from around the world and showed that many have high antioxidant activity when compared to synthetic antioxidants. In addition, many of these species have a high phenolic content and a large amount of flavonoids and flavonols. However, an overall ranking of the antioxidant strength of these species cannot be determined because of the different experimental methods used in various studies.

9. Michael Antolorich, Emillios Patsalides (2002):

Antioxidant activity has been assessed in many ways. The limitation of many newer methods is the frequent lack of an actual substrate in the procedure. The combination of all approaches with the many test methods available explains the large variety of ways in which results of antioxidant testing are reported. The measurement of antioxidant activities, especially of antioxidants that are mixtures, multifunctional or are acting in complex multiphase systems, cannot be evaluated satisfactorily by a simple antioxidant test without due regard to the many variables influencing the results. Several test procedures may be required to evaluate such antioxidant activities. A general method of reporting antioxidant activity independent of the test procedure is proposed.

10. Prajakta. J. Relekar, Yogesh. D. Patil (2023):

This review article contains phytochemicals, pharmacognostic characteristics, pharmacological activity of Ficus Bengalnesis L. (Family - Moraceae) & thus medicinal plant found in India & Bengal. According to their studies about F B plant we can determine various part extract of FB used as antioxidants, Analgesic, Anti-inflammatory, antiallergic Anticancer, antidiabetic activity wound healing properties, and to cure piles. In this Plant contains various phytochemicals such as Flavonoid, Terpene, Ketones, Ester, Alkaloid, Glycoside and flavonoid responsible for its Antiinflammatory activity.

CONCLUSION

This article summarized the traditional uses, phytochemistry and pharmacological activities of F. benghalensis, a medicinal plant used commonly in South Asian countries. Stem bark and latex were the plant parts that were mentioned in many books/articles as having various medicinal uses. However, the details of collection, processing formulations, dosage and duration of treatment were not explained in detail which makes it difficult to use in clinical practice. Detailed analysis of the studies related to phytochemistry revealed that only a very few studies have been carried out on the bioactive chemical constituents. Leucoanthocyanindin derivatives and triterpenes were reported from the

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REFERANCE

[1] Gebhardt KS. Part 1. Causes of pressure ulcers. *Nurs Times.* 2002;98:4. [PubMed] [Google Scholar]

[2] Edsberg, L.E.; Black, J.M.; Goldberg, M.; McNichol, L.; Moore, L.; Sieggreen, M. Revised National Pressure Ulcer Advisory Panel pressure injury staging system: Revised pressure injury staging system. *J. Wound Ostomy Cont. Nurs.* 2016, *43*, 585–597. [Google Scholar] [CrossRef] [PubMed] [Green Version]

[3] Edsberg, L.E.; Black, J.M.; Goldberg, M.; McNichol, L.; Moore, L.; Sieggreen, M. Revised National Pressure Ulcer Advisory Panel pressure injury staging system: Revised pressure injury staging system. *J. Wound Ostomy Cont. Nurs.* 2016, *43*, 585–597. [Google Scholar] [CrossRef] [PubMed] [Green Version]

[4] Baharestani, M.M.; Ratliff, C.R. Pressure ulcers in neonates and children: An NPUAP white paper. *Adv. Skin Wound Care* 2007, *20*, 208–220. [Google Scholar] [CrossRef] [PubMed]

[5] https://my.clevelandclinic.org/health/diseases/17823-bedsores-pressure-injuries

[6] https://www.mayoclinic.org/diseases-conditions/bed-sores/symptoms-causes/syc-20355893

[7] Dodd KT, Gross DR. Three-dimensional tissue deformation in subcutaneous tissues overlying bony prominences may help to explain external load transfer to the interstitium. *J Biomech.* 1991;24:11–9. [PubMed] [Google Scholar]

[8] Jay R. Pressure and shear: Their effects on support surface choice. *Ostomy Wound Manage.* 1995;41:36–8. 40. [PubMed] [Google Scholar]

[9] Goossens RH, Snijders CJ, Holscher TG, Heerens WC, Holman AE. Shear stress measured on beds and wheelchairs. *Scand J Rehabil Med.* 1997;29:131–6. [PubMed] [Google Scholar]

[10] Allman RM. Pressure ulcer prevalence, incidence, risk factors, and impact. *Clin Geriatr Med.* 1997;13:421–36. [PubMed] [Google Scholar]

[11] Bliss MR. Hyperaemia. *J Tissue Viability.* 1998;8:4–13. [PubMed] [Google Scholar]

[12] Kaveeshwar SA, Cornwall J. The current state of diabetes mellitus in India. *Australas Med J.* 2014;7:45–8. [PMC free article] [PubMed] [Google Scholar]

[13] Whitney J, Phillips L, Aslam R, et al. Guidelines for the treatment of pressure ulcers. Wound Repair Regen. 2006;14(6):663-679.

[14] Agency for Health Care Policy and Research. Treatment of pressure ulcers. Rockville, Md.: U.S. Department of Health and Human Services; 1994. AHCPR Publication No. 95-0652. http://www.ncbi.nlm.nih.gov books/bv.fcgi?rid=hstat2.chapter.5124. Accessed December 17, 2007.

[15] Desneves KJ, Todorovic BE, Cassar A, Crowe TC. Treatment with supplementary arginine, vitamin C and zinc in patients with pressure ulcers: A randomised controlled trial. *Clin Nutr.* 2005;24:979–87. [PubMed] [Google Scholar]

[16] Moore ZE, Cowman S. Wound cleansing for pressure ulcers. *Cochrane Database Syst Rev.* 2005;3:CD004983. [PubMed] [Google Scholar]

[17] vRamundo J, Gray M. Is ultrasonic mist therapy effective for debriding chronic wounds? *J Wound Ostomy Continence Nurs.* 2008;35:579–83. [PubMed] [Google Scholar]

[18] Kavros SJ, Liedl DA, Boon AJ, Miller JL, Hobbs JA, Andrews KL. Expedited wound healing with noncontact, low-frequency ultrasound therapy in chronic wounds: A

retrospective analysis. *Adv Skin Wound Care.* 2008;21:416–23. [PubMed] [Google Scholar]

[19] Graham JS, Schomacker KT, Glatter RD, Briscoe CM, Braue EH, Jr, Squibb KS. Efficacy of laser debridement with autologous split-thickness skin grafting in promoting improved healing of deep cutaneous sulfur mustard burns. *Burns.* 2002;28:719–30. [PubMed] [Google Scholar]

[20] Graham JS, Schomacker KT, Glatter RD, Briscoe CM, Braue EH, Jr, Squibb KS. Efficacy of laser debridement with autologous split-thickness skin grafting in promoting improved healing of deep cutaneous sulfur mustard burns. *Burns.* 2002;28:719–30. [PubMed] [Google Scholar]

[21] Wasiak J, Cleland H, Campbell F. Dressings for superficial and partial thickness burns. *Cochrane Database Syst Rev.* 2008;4:CD002106. [PubMed] [Google Scholar]

[22] Fletcher J. The benefits of using hydrocolloids. *Nurs Times.* 2003;99:57. [PubMed] [Google Scholar]

[23] Toy LW, Macera L. Evidence-based review of silver dressing use on chronic wounds. *J Am Acad Nurse Pract.* 2011;23:183–92. [PubMed] [Google Scholar]

[24] Leaper DJ. Silver dressings: Their role in wound management. *Int Wound J.* 2006;3:282–94. [PMC free article] [PubMed] [Google Scholar]

[25] Gulmen S, Kurtoglu T, Meteoglu I, Kaya S, Okutan H. Ozone therapy as an adjunct to vancomycin enhances bacterial elimination in methicillin resistant Staphylococcus aureus mediastinitis. The Journal of Surgical Research. 2013; 185: 64–69.

[26] Shivrajan VV. Ayurvedic drugs and their Plant sources. Oxford And IBH Publishing Company Pvt. Ltd, New Delhi. 2002.

[27] Nadkarni KM and Nadkarni AK. Indian Materia Medica. Popular Book Depot, Mumbai. 1955.

[28] Khare CP. Encyclopedia of Indian Medicinal Plants. Springer publication, New York. 2004.

[29] John PA. Healing Plants of Peninsular India. CABI Publishing, Wallingford. 2001.

[30] H. Tinker. (1977). The banyan tree: overseas emigrants from India Pakistan and Bangladesh.

[31] R.M. Kunwar, R.W. Bussmann. (2006). Ficus (Fig) species in Nepal: a review of diversity and indigenous uses. Lyonia. 11(1): 85-97.

[32] Brydon-Miller, M., Kral, M., Maguire, P., Noffke, S., Sabhlok, A., Denzin, N. and Lincoln, Y., 2011. Jazz and the banyan tree. Handbook of qualitative research, pp.387-400.

[33] Koona, S.J. and Rao, B.S., 2012. In vitro evaluation of antibacterial activity of crude extracts of Ficus benghalensis Linn., the banyan tree leaves.

[34] Kmail, A., Asif, F., Rahman, R., Nisar, S. and Jilani, M.I., Banyan tree-the sacred medicinal tree with potential health and pharmacological benefits.

[35] Khaliq, H.A., 2017. A review of pharmacognostic, physicochemical, phytochemical and pharmacological studies on Ficus bengalensis L. J Sci Innov Res, 6(4), pp.151-163

[36] SunitaVerma*, A Review Study on Phytochemical and Pharmacological Properties of Ficusbenghalensis (Indian Banyan Tree), 2016 IJSRSET | Volume 2 | Issue 4. 4 | Print ISSN: 2395-1990 | Online ISSN: 2394-4099 Themed Section: Engineering and Technology.

[37] Ramakrishna, T.M., Poornima, S. and Vimala, R. 2015. A Report on Different Types of Aerial Roots. World Journal of Pharmacy and Pharmaceutical Sciences 4 (06), 794- 797.