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REVIEW ON BUTEA MONOSPERMA

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ABSTRACT

Butea monosperma (BM) belonging to the family fabaceae is a widely known herbal plant which is a moderate sized deciduous tree grown wildly in many parts of india it is also known as flame of forest commonly known as palash. It contains phytoconstituents like butin, butein, isobutrin, coreopsin, isocoreopsin, sulphurein, monospermoside and isomonospermoside, chalcones, aurones, flavonoids etc. Almost all parts of plant are used in the form of extract, juice, infusion, powder and gum. This plant species has been found to display a wide variety of biological activities. The plant is traditionally reported to possess astringent, bitter, alterative, aphrodiasiac, anthelmintic, antibacterial and anti-asthmatic properties . Bark yield red juice known as 'Butea gum' or 'Bengalkino'. Its reported pharmacological properties include anthelmintic, anticonceptive, anticonvulsive, antidiabetic, antidiarrhoeal, antiestrogenic and antifertility ,antimicrobial, antifungal, antibacterial, antistress, chemopreventive, haemaggultinating, hepatoprotective, radical scavenging, thyroid inhibitory, antiperoxidative and hypoglycemic effects and wound healing activities.

Keywords: Butea monosperma, antibacterial, antifungal, anti-inflammatory, antioxidant,antimicrobial.

1. INDRODUCTION

- **Botanical Classification:**
  - Division: Magnoliophyta
  - Class: Magnoliophyta
  - Order: Fabales
  - Sub-Kingdom: Tracheobionta
  - Family: Fabacea
  - Species: Monosperma

SYNONYMS OF PALASH:

- Palash: Leaves are beautiful as well as fleshy
- Ksharashrestha: Good source of alkali (Kshar)
- Parna (Leaf): Leaves are useful
- Yajniya: Used in religious rituals
- Raktapuspa: Flowers are red in color (the color of blood or rakta)
- Vatapotha: Pacifies vata (constitution)
- Bijanesha: Seeds (beej) are oily
- Vakrapushpa: Its flowers (pushpa) are curved
- Krmighna: Potent anthelmintic drug
- Kharaparna: Leaf is rough to
- Putadra: Sacred tree
- Samidvara: Useful in Yajna (ritual sacrifice with a specific objective)
- Triparna (Leaf of sacred Bael): Trifoliate leaves
- Bramhavriksha (embodiment of absolute reality that is Brahma): Used in religious sacrifices and rituls

VERNACULAR NAMES (NELAM,2015):

Hindi- Dhak¸ Tesu
English -Bastard Teak,
Kannada - Muttunga
Tamil- Parasa, pilasu
Bengali- palas
Gujarat- Khakharo
Punjabi- Chichra

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Figure1 : Flower Figure

Figure 2: leaf Figure

Figure 3 : Seed Figure

Figure 4 : Pods Figurs

Figure 5 :Root figure

CHEMICAL CONSTITUENTS :

Flower:- It contains butrin ,isobutrin, sulphurin, flavonoids, and monospermoside.

Gum:- Gum contains tannin, mucilaginous and pyrocatechin.

Seed:- Oil contains polypeptidase , lipolytic enzyme, proteinase and proteolytic

Leaves:- The leaves of b.monosperma contains glucoside, kino-oil containing oleic acid, linoleic acid, palmitic acid and lignoceric acid

Stem:- Stem contains stigmasterol -B-D glucopyrano side and non acosanoic acid

Bark:- The plant also contain allophanic acid, butolic acid, butrin and histidine

OCUMENTED SPECIES DISTRIBUTION:

A. Native :

Tropical South Asia, especially from the region of Pakistan, India (Indo-Gangetic plains), Vietnam, Malaysia, Western Indonesia, Laos , Cambodia , Bangladesh, Nepal, Sri-Lanka, Manmar, Thailand

B. Occurrence:

It is common throught out the greater part of India ,Burma and Ceylon extending in the north west Himalayas up to 1000 m, and higher in the outer Himalaya , Khandesh Akrani up to 1200m and Hill of South India up to 1300 m.(Chopra,1991). It is especially found in Maharashtra (Kolhapur) Karnataka (chikmagalur, coorg, mysore, Shimoga, S.Kanara)Kerala: Alapuzha, idukki, kasaragod, kollam, Kozhikode, malapuram. palakkad. Rajasthan : Jaipur ,Udaipur, kota in throught out india, except jammu&Kashmir, Himachal Pradesh, Sikkam, Arunachal Pradesh, Assam, Nagaland, Meghalaya, Manipur,Tripur, Mizoram

C. Butea species:

The plant belongs to family fabaceae which is widely distributed in throughout the world. Below mentioned species were recorded. Butea acuminate, Butea affinis, Butea Africana, Butea apoensis, Butea balansae, Butea braamiana, Butea bracteolate, Butea cuneiforms, Butea crassfolia, Butea dubia, Butea ferruginous, Butea gyrocarpa, Butea harmandii, Butea laotica , Butea listeria,Butea littoralis,Butea loureirii, Butea parviflora, Butea pulchra, Butea purpuea, Butea minor, Butea macroptera, Butea maingayi, Butea merguensis, Butea rosea, Butea riparia, Butea suberecta , Butea superba , Butea oblong folia ,Butea varians, Butea volubilis

D. Ecology:

Native to sub tropical environments, It is capable of growing in waterlogged situation, black cotton soil, saline, alkaline, swamy badly drained soils and on barren landa except in arid region.This species grows to elevations of 1200m.It regenerates naturally and easily in mixed deciduous stands in temperate forests.Natural reproduction is profuse by seed IV. MYTHOLOGICAL HISTORY It is believed that the tree is a form of agnidev ,God of fire.It was a punishment given to him by Goddess parvati for disturbing her and lord shiva's privacy(Murti et al., 1940). V. BOTANICAL DESCRIPTION Butea monosperma is a erect medium sized dry seasondeciduous tree,growing to 15m tall.All the botanical descriptive characters of this plant

PHARMACOLOGICAL ACTIVITIES:

A. Antifungal activity, Antimicrobial activity and Antibacterial activity:

The stem bark of Butea monosperma displays antifungal activity which is due to the presence of an active constituent (-)- medicarpin (Bandara et al.).The seed oil of Butea monosperma shows significant bactericidal and fungicidal effect in in-vitro testing (Mehta and Bokadia, 1981).

B. Anti-inflammatory activity:

The leaves of Butea monosperma exhibit ocular antinflammatory activity in rabbits (Mengi and Deshpande , 1995).The anti-inflammatory activity of methanolic extract of Butea monosperma evaluated by carrageenan induced paw edema at 600 and 800 mg/kg inhibition of paw edema by 26 and 35% in cotton pellet granuloma inhibition of granuloma tissue formation by 22 and 28% (Shahavi and Desai, 2008)

C. Anticonvulsive activity :

It shows anticonvulsive activity due to the presence of a triterpene. (Kasture et al.,2002).The ethanolic extracts of leaves of Albizzia lebbeck and flowers of Hibiscus rosa sinensis and the petroleum ether extract of flowers of Butea monosperma exhibited anticonvulsant activity.

The acetone soluble part of petroleum ether extract of Butea monosperma flowers showed anticonvulsant activity.The fractions protected animals from maximum electroshock electrical kindling pentylenetetrazole and lithium-pilocarpine induced convulsion but failed to protect animals from strychnine-induced convulsions.The fractions raised brain contents of gamma-aminobutyric acid (GABA) and serotonin (Kasture et al., 2000).

D. Anti-esterogenic and anti-fertility activity :

Alcoholic extract of flowers of Butea monosperma has also been reported to exhibit antiestrogenic (Shah et al., 1990). Hot alcoholic extract of Butea monosperma seeds have been reported for significant anti ovulatory and anti-implantation activities when given to rats and rabbits.

The active constituent has been identified as butin (Bhargava , 1986). Butin also exhibits male contraceptive properties (Dixit et al., 1981). Antifertility effect of seed extract of Butea frondosa has also been reported in mice (Razdan et al., 1970). The stem bark of Butea monosperma led to the isolation and identification of three new compounds named buteaspermin A, buteaspermin B and buteaspermanol along with 19 known compounds (Maurya et al., 2009).

E. Anti-diabetic activity :

The single dose treatment of ethanolic extract of Butea monosperma flowers at the dose of 200mg/kg P.O significantly improved glucose tolerance and cause reduction in blood glucose level in alloxan induced diabetic rats.(Somani et al., 2006). Oral adminstration of the ethanolic extract of the Butea monosperma seeds at the dose of 300mg/kg b.w.,exhibited significant antidiabetic, hypolipaemic and antiperoxidative effects in non-insulin dependent diabetes mellitus rats.

F. Anti-diarrhoel activity:

Butea monosperma gum has also been found useful in cases of chronic diarrhoea.It is a powerful astringent and also decrease bilirubin level.(Ramana et al., 2000).The ethanolic extract of stem bark of Butea monosperma at 400 mg/kg and 800 mg/kg inhibited castor oil induced diarrhoea due to inhibiting gastro-intestinal motility and PGE2 induced enteropooling.It is used as nonspecific anti diarrhoel agent in folk medicine .(Gunakkunru et al, .2005

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G Free radical scavenging:

Free radical scavenging activity of various extracts of flowers evaluated by using different in- vitro models like reducing power assay, scavenging of 2,2 diphenyl-1- picrylhydrazyl (DPPH) radical, nitric oxide radical, superoxide anion radical, hydroxyl radical and inhibition of erthrocytes hemolysis using 2,2' azo-bis (amid inopropane) dihydrochloride (AAPH). Methanolic extract along with its ethyl acetate and butanol fractions showed potent free radical scavenging activity.The observed activity could be due to higher phenolic contents in the extract (Schoeller et al.

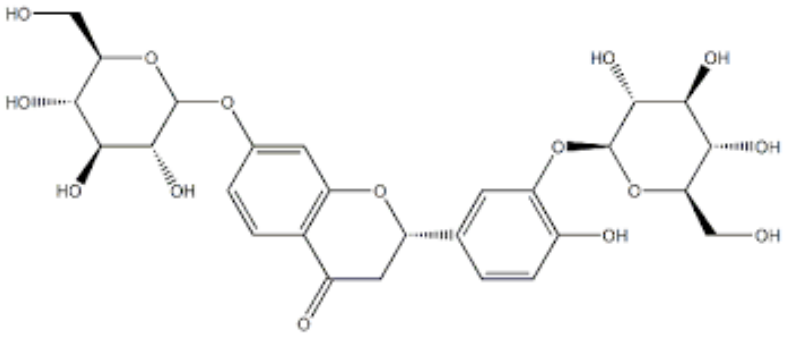
H. Wound healing activity:

Butea monosperma, also known as Flame of the Forest or Palash, is a tree native to the Indian subcontinent. Various parts of this plant, including leaves, flowers, seeds, and bark, have been traditionally used in Ayurvedic medicine for their medicinal properties, including wound healing. Several studies have explored the wound healing activity of Butea monosperma particularly focusing on its extracts and compounds.

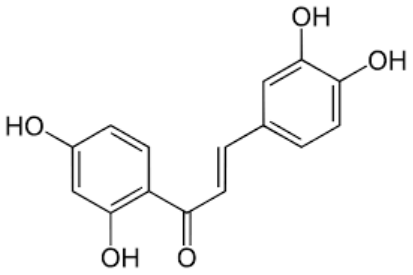
CHEMISTRY:

Butea monosperma, commonly known as Palash or Flame of the Forest, contains various phytochemicals that contribute to its medicinal properties. Here are some of the key compounds found in different parts of the plant:

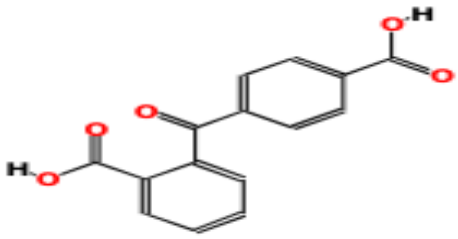
1.Flavonoids: Butein,Isobutein,Butrin,Isobutrin,Sulfuretin.
2.Chalcones: Butein,Isobutein.
3.Terpenoids: Beta-sitosterol,Lupeol.
4.Alkaloids.
5.Phenolic Compounds: Gallic acid,Catechin,Epicatechin.
6.Tannins.
7.Glycosides.



Butrin



Butein



Sulfuretin

2. CONCLUSION

Palash is a notable species with diverse importance, spanning from its ecological functions in biodiversity preservation to its traditional medicinal applications and cultural significance. It is essential to persist in research, conservation endeavors, and adopting sustainable management strategies to protect this invaluable natural asset and maximize its benefits for both humanity and the ecosystem.

3. REFERENCE

[1] Burli D. A And Khade, A. B., "A Comprehensive Review On Butea Monosperma (Lam.) Kuntze", Pharmacognosy Reviews, 2007; 1(2): 333-337.

[2] Panchal, C. B., Sapkal, E. A., Shah, S. D., Pisal, R. S., & Sane, M. V. (2014). Determination Of Sun Protecting Factor Of Methanolic Extract Of Butea Monosperma Flower, International Journal For Pharmaceutical Research Scholars (Ijprs), 3(4): 281-284

[3] Sharma Kumar Ajay And Deshwal Neetu. An Overview: On Phytochemical And Pharmacological Studies Of Butea Monosperma. International Journal Of Pharmtech Research, April-June 2011; 3(2): 864-871

[4] Yadav Singh Rohit, Et.Al. "Butea Monosperma (Palash): Plant Review With Their Phytoconstituents And Pharmacological Applications." Iosr Journal Of Pharmacy And Biological Sciences (Iosr-Jpbs), 2020; 15(1): 18-23

[5] Firdaus, R., & Mazumder, A. (2012). Review on Butea monosperma. International Journal of research in pharmacy and chemistry, 2(4), 1035-1039.

[6] Dr Arun Rangrao Deshmukh, Dr Dipak SahebraoDhone,Dr Meer Faisal Ali Meer Tilawat Ali Syed,Dr Dipak Dadarao Pawar, IJARESM 2024,12 (2)1409.

[7] Sutariya, B. K., & Saraf, M. N. (2015). A comprehensive review on pharmacological profile of Butea monosperma (Lam.) Taub. Journal of Applied Pharmaceutical Science, 5(9), 159-166

[8] Shah GM., et al. ―Observations on antifertility and abortifacientherbal drugs‖. African Journal of Biotechnology 8.9 (2009):1959-1964.

[9] Naraharikrut, Raj Nighantu, Hindi commentaryby Indradeo Tripathi, edited with Dravyaguna

[10] Citation: Prashant Tiwari., et al. ―Butea Monosperma: Phytochemistry and Pharmacology‖. Acta Scientific Pharmaceutical Sciences, 2019; 3.4: 19- 26.

[11] Bandara BR., et al. ―An antifungal constituent from the stem bark of Butea monosperma‖. Journal of Ethnopharmacology, 1989; 25.1: 73-75.

[12] Bhatwadekar AD., et al. ―Antistress activity of Butea monosperma flowers‖. Indian Journal of Pharmacology, 1999; 31.2: 153.

[13] Butea Monosperma: Phytochemistry and Pharmacology Volume 3 Issue 4 April 2019 © All rights are reserved by Prashant Tiwari., et al.

[14] Yadava RN and Tiwari L. ―New antifungal flavone glycoside from Butea monosperma O. Kuntze‖. Journal of Enzyme Inhibition and Medicinal Chemistry, 2007; 22.4: 497-500

[15] Thorat R., et al. ―Antidiabetic activity of HF on alloxan induced diabetic rats‖. Pharmacologyonline, 2010; 4.2: 1089- 1099.

[16] Wagner H, Geyer B, Fiebig M, Kiso Y and Hikino H (1986). Isoputrin and Butrin, the Antihepatotoxic Principles of Butea monosperma Flowers. Planta medica, 1986; 52(2): 77-79

[17] Anonymous, The Wealth of India. A Dictionary of Raw Materials and Industrial Products, Raw Materials. Publications and Information Directorate, CSIR, New Delhi, 2002; 2: 341-346.

[18] Mengi SA and Deshpande SG . Journal of Pharmacy and Pharmacology 1995; 47: 997-1001.

[19] Sehrawat A and Sultana S Chemoprevention by Butea monosperma of hepatic carcinogenesis and oxidative damage in male wistar rats. Asian pacific journal of cancer prevention, 2006; 7(1): 140-148.

[20] Hajre A, Chaudhary M, Gupta N. Plant review: Phytochemical constituents and their important characterization of Butea monosperma (Palash). International Journal of Application or Innovation in Engineering & Management (IJAIEM) [Internet]. 2017 [cited 25 March 2017]:1- 4.

[21] Butea monosperma (Lam.) Taub, Germplasm Resourses Information Network, United States,

[22] Sharma PV, Namarupajnanam, Chaukhambha Visvabharati. Varanasi, Reprinted. 2011, 123

[23] Astangasangraha commented by Indu, Sasilekha Sanskrit Commentry of, Sutrasthana-16, Chauk- hambha Sanskrita Series, Varanasi

[24] Prof. Priya Vat Sharma. Dhanvantari Nighantu (Hindi translation). 2nd ed. Varanasi; Chaukhamba Orientalia, 1998; 177.

[25] Astangasangraha commented by indu, sasilekha Sanskrit commentary of, Sutrasthana-16, Chaukhambha sanskrita series, Varanasi .