iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 12 **Issue:** X **Month of publication:** October 2024

DOI: https://doi.org/10.22214/ijraset.2024.64701

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue X Oct 2024- Available at www.ijraset.com

Albizia Odoratisima: Review on Morphology, Pharmacological Activity, Physicochemical, Phytochemical Study and Traditional Uses

Komal Bhoir[1], Akshada varatha[2], Leena Tamnar[3], Rahul Jagdale[4]
Matoshri Institute of Pharmacy, Yeola, Maharashtra India

Abstract: ***A black Siri's belonging to the Fagaceae family and the Mimosaceae subfamily, Albizia odoratissima Bent (L.F.) is extensively grown in China, India, Bangladesh, Bhutan, Nepal, Myanmar, Thailand, Sri Lanka, and Vietnam. It is considered one of the best trees for nitrogen fixation. Albizia odoratissima Bent is used to treat a variety of diseases and conditions (L.F.). It has been used to treat a wide range of diseases such as antidiabetic action. All the Albizia species, Albizia odoratissima exhibits the best anti-diabetic properties. Historically, many plant parts have been used as remedies for conditions like diabetes, asthma, leprosy, bronchitis, cough, skin diseases, and inflammatory pathologies like burns and ulcers. There have been reports of a variety of pharmacological activity, including antidiabetic, antioxidant, antimicrobial, and anti inflammatory properties, for different prepared extracts of these plants and their parts. Providing a pharmacognostical description, pharmacological activities, therapeutic value, and uses is the aim of the current review study.***

Keywords: ***Traditional Use, Preliminary Phytochemical study, Pharmacognosticalprofile, Plant profile, Pharmacological Activities, Physicochemical properties.***

I. INTRODUCTION

Albizia Odoratissima Bents (L.F.) belongs to the category Fagaceae. This deciduous tree grows swiftly, reaching a diameter of 120–150 cm, grows quickly. It can ascend fifteen to twenty five meters. Not only that, but it is a widespread plant in India, Nepal, Bhutan, Bangladesh, Myanmar, Laos, Thailand, China, Sri Lanka, and Vietnam. Albizia odoratissima has dense, frequently striped heartwood that ranges in color from dark brown to black. It is used in furniture, structural lumber, and farming implements. It becomes shiny and performs nicely over time**[1][2].** Every portion of the plant exhibits depressive and anxious behaviors. The flower head contains diuretic, anthelmintic , sedative, oxytocin , and digestive properties. The stem portion is mostly used to treat diabetes and contains analgesics, stimulants, swelling, injuries, abscesses, diuretics, and anthelmintics**[3]**. Albizia odoratissima trees yield dead and damaged branches of shade trees, which constitute a substantial fuel supply. The gum produced by the tree is insoluble and is used as an extender when mixed with other gums. Albizia odoratissima leaves provide great cattle fodder, and monkeys consume the pods**[3]**. Because of its deep root system, which reduces soil erosion, the tree was planted with the intention of preserving soil. There are no published pharmacogenomic or preliminary phytochemical investigations on this plant's leaf portio**[4]**.

II. PLANT PROFILE

A. Albizia Odoratissima

1) The name of the plant: Albizia odoratissima Bents (L. F)
2) Biological source: It contains dries seeds of Albizia. English name : - Ceylon rosewood
3) Common name: Black Sirius, Fragrant Albania.
4) Family: Fagaceae-Mimosoideae.



Fig: 1 Albizia Odoratissima plant

©IJRASET: All Rights are Reserved

III. MORPHOLOGY

The Tree of Albizia odoratissima Bent (L. F) is a fast-growing deciduous tree and the Tree has different parts which have different morphological characters. The Parts of a plant consist of root, stem, flower, leaves, and seeds**[5][6]**.

A. Leaves

The leaves are definitely complex, with three to nine pairs of pinnate and roughly ten to thirty pairs of pinnules. Pinnate is 2?8 Pairs, opposing, even pinnate, 5-13 Cm long; Racist is 20-30 cm long, stout, grooved above, brown pubescent, with a gland at the base. Bipinnate, alternate, stipulate leaves are stipple free, lateral, and caduceus[7] .



Fig:2 Albizia Odoratissima leaves

B. Flower

The fragrant blossoms are seen as huge clusters of terminals that become pale orange and white as they wither. Each head has 10 to 15 dimorphic, fragrant, pale yellowish white flowers **[7]**.



Fig :2 Albizia Odoratissima flower

C. Seeds

The seed or beans are thin, flattened, and dark brown or reddish brown. They are 13–20 cm (5.1–7.9) in length and 2-4 cm (0.79–1.57) in width. Within are 8–12 mature, reddish brown pods, each weighing roughly 0.5g **[8]**.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue X Oct 2024- Available at www.ijraset.com



Fig: 4 Albizia Odoratissima seeds

IV. PHARMACOLOGICAL ACTIVITIES

A. Antioxidant Activity

The extracts of Albizia odoratissima leaves in hexane, chloroform, ethyl acetate, and methanol were reported for their in vitro antioxidant activity using ferric reducing antioxidant power, hydrogen peroxide, 2,2- amino-bis –(3-ethyl benzothiazoline-6-sulphonic acid) ammonium salt, and 2-diphenyl-1-picrylhydrazyl (DPPH) analyzes**[9][10][11]**.

B. Antidiabetic Activity

The ethanol bark extract of Albizia odoratissima was found to have antidiabetic properties when administered to albino mice at a dose of 250–500 mg/kg body weight over the course of 28 days**[12][13]**.

V. PHYSIOCHEMICAL STUDY

1) *Moisture Content:* A 5g sample was put in an oven set to 150°C to determine the moisture content using the loss on drying approach until a stable weight was attained. The sample that was obtained after drying was utilized to determine the medication sample water or moisture content as a percentage [14][15] .
2) *Total Ash Value:* The Ash value of crude pharmaceuticals determines their purity and quality. Two grams of seed powder were placed within a silica crucible, which was then fired in a furnace at 600˚C until it turned white. Weighting the ash came after it had cooled in a desiccator. The total ash content was determined using the collected sample and was reported as a percentage[14][16].

VI. PRELIMINARY PHYTOCHEMICAL STUDIES

Preliminary phytochemical analyses using established procedures to determine the presence or absence of phytoconstituent such as gum's mucilage, proteins, amino acids, carbohydrates, steroids, saponins, tannins, flavonoids, and phenols**[17][18][19][20][21]**.

A. Tests for Alkaloids

1) Dragendroff's Test

Combine a few drops of the plant extract with 1 milliliter of Dragendroff's reagent. The production of an orange-red precipitate indicates the presence of alkaloids.

a) Wagner's test: To 1-2 ml of the plant extract, add 1 ml of Wagner's reagent. A reddish-brown precipitate that forms and signals the presence of alkaloids[22] .
b) Hager's test: Combine a milliliter of Hager reagent with a few drops of plant extract. Alkaloids are present when a yellow precipitate forms[23].

2) Test for saponins

After diluting 1-2 ml of the extract with distilled water, it was shaking. The continuous generation of foam signifies the existence of saponin.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

3) Test for Tannins

The 1-2 ml plant extract was mixed with a few drops of a diluted ferric chloride solution; The dark blue hue that developed suggests the presence of tannins.

VII. TRADITIONAL USES

A. Barks

The conventional method for treating ulcers involves using the bark of Albania odoratissima (L.F.) Bent. In addition to being used to heal ulcers, the plant's bark is also used to treat leprosy. The bark is used externally and for ulcers that don't go away **[24]**. The bark of Albania odoratissima has a methanol extract that exhibits antidiabetic properties. In albino mice given Allan, this extract significantly lowers serum cholesterol, triglyceride levels, alkaline phosphate, and total proteins **[25][12]**.

B. Leaf

To heal ulcers, apply a poultice made from Albania odoratissima leaves. The leaves are applied to coughs**[24,26,27,28]**.

VIII. CONCLUSION

The review presents Albania odoratissima (L. F) Bent pharmacogenomic profile, phytochemical studies, pharmacological activities, and medicinal uses (Fagaceae). Around the world, Albania odoratissima (L.F.) Benthic is used to cure a variety of illnesses, including leprosy, diabetes, ulcers, and coughs. With antidiabetic, antiulcer, antioxidant, and antimicrobial properties, this plant is significant for medical use. Plant identification is aided by phytochemical analysis and pharmacognostical profiling.

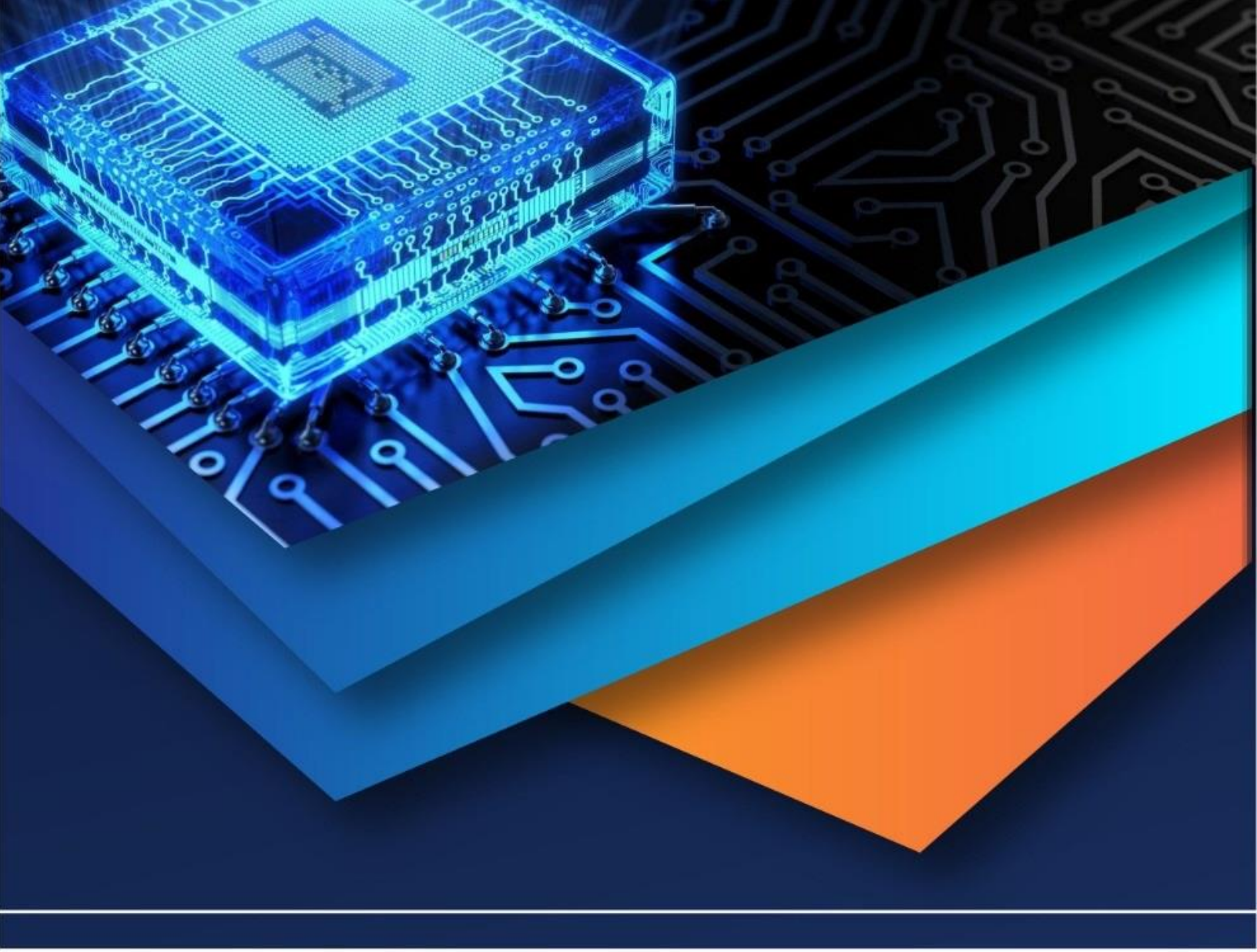
REFERENCES

[1] The Wealth of India Raw Material series. New Delhi: National Institute of Science Communication, 2006. Pp. 1-128.
[2] https://www.google.co.in/search?hl=en&gbpv=1&dq=Pullaiah+T.+Encyclopedia+of+World+Medicin al+Plants.+Regency+publications.+New+Delhi, +2006 and +1: p.101- 102&printsec=frontcover&q=inT.Pullaiah. Encyclopaedia of World Medicinal Plants. Regency Publications, 2006. Pp. 101-102. Vol. 1.
[3] Protocols for Micropropagation of Woody Trees and Fruits. Rajeswari, V., Paliwal, K. Sringer, Dordrecht Publications, 2007.
[4] Two and a Bud. Ahmed, N., Bezbaruah, H. P. And Singh, I. D. Botany Department, Tocklai Experimental Station, Tea Research Association Two and a Bud, 1993, Germination and storage of shade tree seeds., Vol. 40.
[5] Pharmacognostical and Phytochemical Studies of The Leaves of Albizia odoratissima (L.F) Benth. M. Rajan, V. Kishor Kumar, P. Satheesh Kumar, T. Venkatachalam, V. Anbarasan. International Journal of Pharmacognosy and Phytochemical Research, 2011, pp. 47-55.
[6] Dillenia indica: A Review on Morphology, Phytochemistry and Pharmacological Aspects. Padmavathi D., Netravati Deshpande, Sarala A. July 2011, Research J. Pharm. And Tech., pp. 1037-1039.
[7] Orwa C, Mutua A, Kindt R, Jamnadass R, Simons A. Agroforestree Database: A tree reference and selection guide version 4.0. World Agroforestery Centre (ICRAF), 2009.
[8] Occurence of Bruchidius bilineatopygus Pic. As a pest of pods and seeds of the multipurpose tree species Albizia odoratissima (L.F) A.procera (Robx.) and Paraserianthus falcatoria. Abraham, C. C., Sudhakara, K. And Ushakumari, R. 1995, Insect Environment, Vol. 1.
[9] Phytochemical screening and evaluation of in vitro antioxidant and antimicrobial activities of the indigenous medicinal plant Albizia odoratissima. Banothu V, Neelagiri C, Adepally U, Lingam J, Bommareddy K. Pharm Biol., Feb 20, 2017, pp. 1155-1161.
[10] Synthetic Procedures and Pharmacological Activities of 1,2,4-Oxadiazoles- A Review. Sunaina Agarwal, Anju Goyal, Rajwinder Kaur. 2020, Research Journal of Pharmacy and Technology.
[11] Phytochemical Constituents and Pharmacological Activities of Nyctanthes arbor-tristis. Sowmyalakshmi Venkataraman, S. Harinya, R. Richardson Raja. 2019, Research Journal of Pharmacy and Technology, pp. 4639-4643.
[12] Antidiabetic activity of methanolic bark extract of Albizia odoratissima Benth. In alloxan induced diabetic albino mice. Dinesh Kumar, Sunil Kumar, Sonia Kohli, Renu Arya, Jyoti Gupta. 2011, Asian Pacific Journal of Tropical Medicine.
[13] Antidiabetic Activity of Psidium Guajava. Karunakar Shukla, PK Dubey. 2009, Research Journal of Science and Technology. Vol. 1 .
[14] Khandelwal, Dr. K.R. Practical Pharmacognosy: Techniques and Experiments. Ninth. Delhi: Nirali Prakashan, 2002. Pp. 23-25.
[15] Pharmacological and Phytochemical Evidences for the Plants of Wedelia Genus- A Review. Meena AK, Rao MM, RP Panda P, Renu. 1, 2011, Asian Journal of Pharmaceutical Research, pp. 7-12.
[16] Dr. S. S. Khadbadi, Dr. S.L. Deore, Dr. B. A. Baviskar. Experimental Pharmacognosy. Nirali Prakshan, 2013.
[17] Pharmacognostical and Phytochemical Studies of The Leaves of Albizia odoratissima (L.F) Benth. M. Rajan, V. Kishor Kumar, P. Satheesh Kumar, T. Venkatachalam, V. Anbarasan. 2011, International Journal of Pharmacognosy and Phytochemical Research., Vol. 3, pp. 47-55.
[18] Preliminary Phytochemical Screening and Evaluation of effect of aqueous and Ethanolic leaf extracts of Chloroxylon swietenia on blood glucose in Streptozotocin Induced Diabetic rats. SLDV Ramana Murty Kadali, Magala Charan Das, MHRK Gupatha Bayya, Vijay Kumar M. 11, 2019, Research Journal of Pharmacy and Technology, Vol. 12, pp. 5495-5500.
[19] A Review and Preliminary Phytochemical Screening of Tridax Procumbens L. As Important Medicinal Plants. Dr. S. G. Pawar, A. M. Patil. 11, 2017, International Journal of Scientific Research, Vol. 6, pp. 205-206.
[20] Phytochemical screening and Extraction: A Review. . Prashant Tiwari, Bimlesh Kumar, Mandeep Kaur, Gurpreet Kaur and Harleen Kaur. 2011, Internationale Pharmaceutica Sciencia., pp. 98-106.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

[21] A Review on Phytochemical Constituents and Pharmacological Activities of the Plant: Aerva Lanata. Ankul Singh, Gowri K, Chitra V. 2020, Research Journal Of pharmacy and Technology.
[22] A Review o Ethnobotnical, Phytochemical and Pharmacological Activities of Quisqualis Linn. Charulata Pandit Mahajan, A.N. Aher 2017, Research Journal of Pharmacy and Technology, pp. 47- 52.
[23] Overview of Pharmacognostical and pharmacological properties of moringa oleifera. Sneha Mali, Sonam Bendre, Shital Patil. 2022, Asian Journal of Pharmacy and Technology.
[24] The World Checklist of Vascular Plants (WCVP): Fabaceae. Catalouge of Life. [Online] Digital Revolution, Kew, 05 26, 2022. https://www.catalogueoflife.org/data/dataset/2304.
[25] Anti diabetic medicinal plants used for diabetes mellitus. G Arumugam, P Manjula, N Paari. Elsevier, 2013, Journal of Acute Disease. Pp. 196-200.
[26] Pharmacological Activities of Phytoconstitutents and Essential oil obtained from Cymbopogon citratus Linn. Prbhat Kumar Upadhayay, Prakhar Dixit, Debapriya Garabadu. 2021, Research Journal of Pharmacy and Technology.
[27] A review article on Euphorbia hirta uses and Pharmacological Activities. PM. Kale. Asian Journal of Research in Phamaceutical Sciences., pp. 141-145.
[28] Important uses of Amalaki (Emblica officinalis) in Indian system of Medicine with Pharmacological Evidence. Sanjib Kumar Das, Anuradha Das, Banamali Das, Purnendu Panda, G. C. Bhuyan, Bipin Bihari Khuntia. 2017, Research Journal Of pharmacology and Pharmacodynamics., pp. 202-206.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)