|| Print ISSN: 2958-3675 || Online ISSN: 2958-3683 ||
International Journal of Medical and Pharmaceutical Research (IJMPR)
Available Online at www.ijmpr.in
ORCiD ID: 0000-0002-3849-6959
Volume 3, Issue 1; Jan-June 2022; Page No. 30-33
Original Article Open Access

Madhuca Longifolia (Mahua) and Its Benefits: A Review

Navneet Kumar Verma[1*], Vikas Yadav[1], Ankur Yadav[1]

[1]Associate Professor, Buddha Institute of Pharmacy, GIDA Gorakhpur, UP, India-273209

A B S T R A C T

This article discussed some health benefits of Madhuca longifolia. Madhuca longifolia (Mahua) belongs to the Sapotaceae family. It is a massive tree known colloquially as the "butter nut tree." It can be found both cultivated and wild. Mahua flowers are employed as both a food source and a method of commerce in tribal and rural communities. Mahua seeds are economically valuable because they are high in edible lipids. Mahua fruits are consumed in huge quantities by the tribes of western Odisha as vegetables. Madhuca longifolia is a medicinal herb that can be used topically to treat skin diseases, rheumatism, headaches, persistent constipation, piles, and haemorrhoids. It is also used as an emetic and galactagogue on occasion. Mahua oil is used as a cooking oil in various Indian tribal regions, as well as to make laundry soaps and detergents. According to many researchers, Madhuca longifolia contains sapogenins, triterpenoids, steroids, saponins, flavonoids, and glycosides. The tribal people who live in the forest and treasure this tree consider it a blessing. The tribes see mahua trees and mahua drinks as vital components of their cultural history. As a result, increasing public awareness of the importance of protecting the wild forest is critical.

Keywords: *Mahua, Butter Nut Tree, Medicinal Herbs, Mainstream, Sapotaceae*

***Corresponding Author**
Navneet Kumar Verma
Associate Professor, Buddha Institute of Pharmacy, GIDA Gorakhpur, UP, India-273209

INTRODUCTION

The mahua is an important tree in Central India. Although the roots of many mahua trees are shallow, they contain a considerable spreading root system. Sapwood content is high, and the wood is hard to very hard. Hardwood is a reddish brown tint. It is a massive deciduous tree with a short Bole and rounded crown. Mahua is distinct among NTFPs in that it is intertwined with tribal subsistence systems in a variety of ways. It is a key source of seasonal earnings in addition to delivering food and other essentials. Its blossoms are used to make a popular local liquor in the country's tribal regions. The tree has religious and aesthetic importance in tribal culture. Mahua flowers and seeds are collected and kept because they offer both medicinal and nutritional benefits. A single mature tree can yield approximately Rs. 1500 from its flowers and seeds, in addition to countless other measured and intangible benefits [16]. Mahua provides a steady source of income for the impoverished. These households collect it for both personal use and selling, and the revenues are used to purchase household necessities. In most tribal locations, mahua gatherers trade for daily necessities, thus they rarely receive the true value of their harvest [12]. Mahua, also known as the Indian Butter Tree, is a significant tree that thrives throughout the tropical and subtropical regions of the Indian subcontinent and has significant economical importance. It is a deciduous tree that grows widely under dry tropical and subtropical climatic conditions. It may survive in pockets of soil between bare rock crevices and is extremely resistant, flourishing on rocky, gravely, saline, and sodic soils [34]. Mahua is a member of the Sapotaceae family [8]. It is one of the multifunctional forest tree species that offers a solution for the three main Fs, namely food, fodder, and fuel [25]. You can consume fruits either raw or cooked. While the dry husk is a good source for alcoholic fermentation, the fruit pulp can be used as a source of sugar. Oil is a good source in seeds. Mahua, the name of the tree, yields edible fruits and blossoms. An alkaloid glucoside called saponin is found in the leaves of the Mahua tree. The seeds have been found to contain sapogenin and other basic acids. Mahua flowers are well known for having a lot of nutrients and decreasing sugar. Plant flowers can be eaten. The corolla, also known as mahua blossoms, is a well-known sugar source that also contains significant amounts of vitamins and minerals [35, 36]. The flowers are also used to make vinegar, distilled spirits, portable spirits, and animal feed [2]. According to Midya and Brahmachary (1996) [19], 2acetyl1pyrroline (2AP), the chemical that gives basmati and other scented rice its pleasant aroma, can be found in the fresh blossoms of Mahua (B. latifolia Roxb.), which exude smell. Only the fleshy corolla of mature flowers is capable of synthesising 2AP [41]. Mahua is edible in the region of India where it is produced and is used to sweeten a number of regional cuisines such as halwa, kheer, puri, and burfi [25]. Nonetheless, due to a lack of sufficient scientific inquiry and post-harvest processing processes, they are picked and subjected to open yard sun drying until roughly 80% of the moisture is gone, followed by storage [25].

Fig.1; Mahua Tree

Fig.2; Mahua flower

Cultivation and Collection

This plant can be cultivated or self sown [9]. Flowering of this medium sized tree take place during the season of March to April, in every years.

UTILIZATION

Sugar syrup:

There are numerous reports on manufacturing sugar syrup from dry Mahua flowers since the fermentation process takes use of the sweetness of the blossoms [33, 24]. The aqueous extract of dried flowers is decolored using various decolorizing agents such as slacked lime and activated charcoal before being concentrated to the required concentration. According to Madhumita and Naik (2010) [24], activated charcoal at a concentration of 3.5-5.0% was the best agent for manufacturing Mahua sugar syrup. The syrup produced in this manner from the Mahua flower is used for a variety of applications, including chocolate manufacture and as a sweetener [4].

Fermented products:

Dried mahua flowers are an attractive source of fermented products due to the high sugar content. Preparation of mahua wine from fresh flowers [41]. Various products like alcohol, brandy, acetone, ethanol, lactic acid and other fermented products have been prepared from the dry mahua [13].

USE OF MAHUA AS A FOOD

Raw consumption of Mahua:

In spite of being a rich source of nutrition and easy availability in the rural areas these flowers are not very popular as food. Only a small quantity of flowers is consumed raw, cooked or fried in different parts of India [3].

Utilization of mahua for processing of different food products Sugar syrup:

Abhyankar and Narayana; 1942 reports on preparation of sugar syrup from dry mahua flowers, which can be further use as a sweeting agent in different food products.

Jam, Jelly, marmalade, pickle:

According to Reuther et al.'s 1967 article, citric acid is added to fully developed but unripe fruits to make jam. The pulp is also converted into syrup or marmalade, which are both utilised as food ingredients. To soften the astringent flavour, the pulp can be used alone or in a jelly. The pulp is also pickled. Flowers are used extensively in the manufacturing of distilled drinks [3]. Patel created Mahua jam and jelly in 2008 using fresh flowers. The created objects were evaluated for colour, flavour, taste, texture, and general approval using the hedonic test. Based on the findings of the hedonic test, all of the Mahua objects were deemed quite acceptable.

Bakery and confectionary:

Candy, biscuits and cake were prepared using the mahua concentrate as a liquid sweetener.

Puree and sauce:

Patel, 2008 [25] used fresh flowers and crushed it into puree (after manually removing the stamens) and processed it into sauce.

Nutritional and Medicinal Use:

The Mahua tree contains a wealth of nutrients. It produces fruit that is prized for the high quantity of fat that its seed, known commercially as Mahua butter or mowrah butter, yields. This fat has various food and medicinal uses, and it is also used to make biodiesel. Its fat has been utilized in place of ghee and cocoa butter. One of the main sources of natural hard fat, it is. Thusly obtained, the fat from Mahua fruit oil is used for frying, cooking, and making chocolate. Due to its emulsion properties, seed fat is primarily utilized as an emulsifying ingredient in a small number of pharmaceutical businesses. It is generally applied as massage oil in many part of the country, as it is very good to moisturize skin. Besides edible and medicinal uses, Mahua has industrial application as it can be utilized in the manufacture of laundry soaps and lubricants. Moreover, the seed cake is reported to have insecticidal and pesticide property and used as organic manure in crops like rice, sugarcane etc. The medicinal properties which are seen in this plant are stimulant, demulcent, emollient, heating. Skin disease, rheumatism, headache, laxative, piles, and sometimes as galactogogue astringent and many more. Review of literature based on chemical composition of mahua flower reveals its high nutritional value. Apart from being a rich sours of sugar and protein, the flowers also contain essential minerals like Ca, p, Fe, and K. Calcium is a major component of the bone and assists in teeth development phosphorus is next in importance to calcium as utilization of Ca is closely related to it. Most of the Calcium in the body is deposited as the calcium Phosphate.

CONCLUSION

Our review has led us to the conclusion that the tribal people's primary source of income is the mahua flower (*Madhuca indica*). Reduced sugar, protein, vitamins, and several minerals like calcium, phosphorus, and iron are all abundant in mahua. As a result, it is regarded as the complete diet for humans. In addition to this, it also contains some medical properties that are helpful in the treatment of a number of illnesses, including piles, bronchitis, cough, punctured thorns, eye sickness, etc. Mahua flower are so used to produce syrup for therapeutic purposes as well as the alcoholic beverage mahua (country liquor), which is produced by fermentation. The resulting liquid has a white tint, is powerful, and is colourless. Along with these qualities, it can be processed into nutraceutical food items, which primarily aid in the fight against the serious and prevalent issue of "Malnutrition" in tribal people.

REFERENCES

1. Abhyankar VS, Narayana N(1942). Reports on preparation of sugar syrup from dry mahua flowers which can be further use as a sweeting preliminary note on the preparation of syrup from mahua flowers. Poona Agric Coll Mage; 33:168-172.
2. Adhikary S, Adhikary J(1989). Sal olein and Mahua olein for direct edible use. J Am. Oil Chem. Soc; 66(11):1625-1630.
3. Bisht, V., Solanki, V. K., & Dalal, N. (2018). Mahua an important Indian species: A review. Journal of Pharmacognosy and Phytochemistry, 7(2), 3414-3418.
4. Anonymous(2006). The Useful Plants of India, Publication and Information Directorate, CSIR, New Delhi.
5. Anonymous(2008). The wealth of India, Raw Material, Council of Scientific and Industrial Research, New Delhi, 6.
6. Ansari SH(2007). Essential of Pharmacognosy, Birla Publication, New Delhi, Edition; 2:575-76.
7. Ayyanar, Ignacimuthu S(2005). Traditional knowledge of Kani tribals in Kouthalai of Tirunelveli hills, Tamil Nadu, India. J Ethnopharmacol; 102:246-255.
8. Banerji, R., & Mitra, R. (1996). Mahua (Madhuca species): uses and potential in India. Appl. Bot. Abstract, 16, 260-77.
9. Behl, P. N., & Srivastava, G. (1993). Herbs useful in dermatological therapy. CBS Publishers & Distributors.
10. Bina S Siddiqui, Shazia Khan, Nadeem Kardar M(2010). A New Isoflavone from the Madhuca latifolia. Natural Product Research; 24:76-80.

11. Chandra Dinesh(2001). Analgesic Effect of Aqueous and Alcohol Extract of Madhuca Indica Longifolia. Indian Journal of Pharmacology; 33:108-111.
12. FGLG India NTFP Enterprises and Forest Governence: Mahua, FGLG India, Centre for People, 2008.
13. Fowler GJ, Behram JDE, Bhate SR, Hassan HK, Mahdihassan S, Inuganti NN(1920). Biochemistry of Mahua flower, J Indian Inst Sci; 3:81-118.
14. Joseph J, Siddha(2008). Medicine background and principles and their application for skin diseases. Clin Dermatol; 26:62-78.
15. Kirtikar, K. R., Basu, B. D., & CS, I. (2001). Indian medicinal plants, oriental enterprises. Dehradun, 6, 2029-2035.
16. Kulkarni, P. S., Sharanappa, G., & Ramesh, M. R. (2013). Mahua (Madhuca indica) as a source of biodiesel in India. Int J Sci Eng Res, 4(7), 2319-2329.
17. Kumar Pavan K, Vidyasagar G(2011). Screening of Madhuca Indica for Antidiabetic Activity in Streptozotocin and Streptozotocin Nicotinamide Induced Diabetic Rat. International Journal of Pharma Tech Research; 3:1073-1077.
18. Kureel RS, Kishor R, Dev Dutt, Ashutos P. Mahua–a potential tree born oilseed. National oilseed and development Board. Ministry of Agriculture Govt. of India, Gurgaon, 2009, 1-27
19. Midya S, Brahmachary R. The aroma of Bassia flower. Curr. Sci. 1996; 71:430.
20. Miller Lucinda G, Herbal Medicinal. A Clinicians guide, Viva Book private Limited, New Delhi, Edition 2005; 1(2-3).
21. Palani S, Raja S, Karthi S, Selvi Archana, Sendhil Kumar B. In vivo analysis of nephro and hepato protective effects and antioxidant activity of Madhuca longifolia against acetaminopheninduced toxicity and oxidative stress. Journal of Pharmacy research. 2010; 3(1):9-16.
22. Patel M. Biochemical investigations of fresh mahua (Madhuca indica) flowers for nutraceuticals, 2008.
23. Patel M, Naik SN. Biochemical investigations of fresh mahua (Madhuca indica) flowers for nutraceutical. PhD. Thesis, Centre for Rural Development and Technology, Indian Institute of Technology, New Delhi, India, 2008.
24. Patel Madhumita, Naik SN. Flowers of Madhuca Indica J.F. Gmel: Present Status and Future Perspectives. Indian journal of Natural Products and Resources. 2010; 1:438- 443.
25. Patel M, Pradhan RC, Naik SN. Physical properties of fresh mahua. Int. Agrophys. 2011; 25:303-306.
26. Prajapati V, Tripathi AK, Khanuja SPS, Kumar S. Antiinsect screening of medicinal plants from Kukrail Forest, Lucknow, India Pharma. Biol. 2003; 4:166-70.
27. Raina AK. A critical appraisal of the potential petroplantations for tomorrow. In: Plantation Crops - Opportunities and Constraints. Proceedings of the Symposium on Plantation Opportunities in India. Srivastava HC, Vatsya B and Menon KKG (ed), Oxford and IBH Publishing Co, New Delhi, India, 1986, 1.
28. Ramar PS, Thwina MM, Gopalakrishnakone P, Ignacimuthu S. Ethnobotanical survey of folk plants for the treatment of snakebites in southern part of Tamilnadu, India. J Ethnopharmacol. 2008; 115:302-312.
29. Reuther W, Webber HJ, Batcher LD. The Citrus Industry. University of California, USA, 1967, 407-409.
30. Sardana S, Sharma OP. Fundamentals of Pharmacognosy, Birla Publication, Delhi, Edition. 2009-10; 1:40-42.
31. Sengar NPS, Agarwal Ritesh Singh. A Text Book of Pharmacognosy, Pharmamed press, Hyderabad, Edition. 2009; 1:44-45.
32. RD, G., & KS, J. (2007). Anti-inflammatory, anti-ulcer and hypoglycaemic activities of ethanolic and crude alkaloid extracts of Madhuca indica (Koenig) Gmelin seed cake. Oriental Pharmacy and Experimental Medicine, 7(2), 141-149.
33. Shriwastaea RK, Sawarkar SK, Bhutey PG(1970). Decolourization and Deodorizations studies on mahua extract, Res India; 15:114-117.
34. Singh IS. Mahua An oil bearing tree. Technical Bulletin, ND University of Agriculture and Technology, Kumarganj, Faizabad, Uttar Pradesh, India, 1998, 3-11,
35. Singh S, Singh AK. Genetic diversity in mahua (Bassia latifolia) under semi arid ecosystem of Gujarat. Indian J Agric. Sci. 2005; 75(8):519-523.
36. Singh, S., Singh, A. K., Apparao, W., Bagle, B. G., & Dhandar, D. G. (2005). Genetic divergence in Mahua (Bassia latifolia) under semi-arid ecosystem of Gujarat. Indian Journal of Plant Genetic Resources, 18(03), 244-249.
37. Sharma, S., Sharma, M. C., & Kohli, D. V. (2010). Wound healing activity and formulation of ether-benzene-95% ethanol extract of herbal drug Madhuca longifolia leaves in albino rats. Journal of optoelectronics and Biomedical materials, 1(1), 13-15.
38. Srirangam Prashanth, Annampelli Anil Kumar, Burra Madhu, Yennamaneni Pradeep Kumar. Antihyperglycemic and antioxidant activity of ethanolic extract of Madhuca longifolia Bark. International Journal of Pharmaceutical Sciences Review and Research. 2010; 5(3):89-94.
39. Srirangam prashanth, Annsmpelli Anil Kumar. Anti hyperglycemic and Antioxidant Activity of Ethanolic Extract of Madhuca Indica Bark, International Journal of Pharmaceutical Science Review and Research. 2010; 5:89-94.
40. Variers, P. S. (1995). Vaidyarathanam: Indian medicinal plants. Orient Longman Publication, New Delhi, Edition, 1, 362-366.
41. Wakte KV, Kad TD, Zanan RL, Nadaf AB(2011). Mechanism of 2acetyl1 pyrroline biosynthesis in Bassia latifolia Roxb. flowers. Physiol Mol Biol Plants; 17(3):231- 237.

