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Review Article

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MADHUCA LONGIFOLIA (MAHUA) AS A NATURAL AGENT FOR ORAL HYGIENE: A DRUG REVIEW WITH ETHNOBOTANICAL AND EXPERIMENTAL CORRELATION

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ABSTRACT

Madhuca longifolia (Mahua) is a medicinal plant extensively documented in Ayurvedic texts and tribal traditions. Its twigs are customarily used as *Dantadhavana* (tooth-cleaning agents) and are believed to enhance oral hygiene through their *Vata-Pittahara*, *Shita* potency, and antibacterial properties. This drug review presents a comprehensive outlook on Mahua's Ayurvedic relevance, ethnobotanical significance, phytopharmacology, and modern clinical data. Notably, a recent in-vitro study demonstrated Mahua twig extract's superior antibacterial activity against Streptococcus mutans compared to chlorhexidine. The article consolidates classical references, scientific findings, and field applications to validate Madhuca's role in preventive dentistry.

KEYWORDS: Madhuca longifolia, *Mahua*, *Dantadhavana*, Streptococcus mutans, Oral hygiene, Ayurveda.

INTRODUCTION

Oral hygiene is foundational to general health. In Ayurveda, daily routines (Dinacharya) emphasize oral care practices like *Dantadhavana* (toothbrushing), *Jihwanirlekhana* (tongue scraping), and *Gandusha* (oil pulling) for maintaining oral cleanliness and *doshic* balance.[1] Charaka and Sushruta advocated the use of herbal twigs from trees like Neem, Khadira, Karanja, and Madhuca for their astringent and antimicrobial actions.[2]

Madhuca longifolia (Mahua), native to Indian subcontinents and revered among tribal communities, has a long-standing tradition in oral and systemic health.

Its soft twigs are chewed and used as toothbrushes (datun), especially by indigenous people, due to their beneficial properties for teeth and gums.

Botanical Description

Parameter Details[3]

Botanical name - Madhuca longifolia (Koen.) Macbr.
Family – Sapotaceae
Common names - Mahua, Madhuka, Butter Tree
Part used - Stem twigs for Dantadhavana
Distribution Widely in India: - Chhattisgarh, Odisha, Jharkhand, MP, UP.

Ayurvedic Pharmacodynamics (Dravyaguna)

Table no. 1.

Rasa	*Madhura*
Guna	*Snigdha*
Virya	*Guru, Shita*
Vipaka	*Madhura*
Doshaghnata	*Vata-Pittahara*

Classical Reference

"*Nimbashcha niktake shreshthah kashaye khanirasthitaḥ*, *Madhuko madhure shreshthah karanjah katuke tatha*." (Sushruta Samhita, Chikitsa Sthana 24)

Ethnobotanical Use in Oral Health[4]

Tribal communities such as Gond, Halba, and Dorla use Mahua twigs for brushing teeth. Its bark decoction is used as mouthwash in bleeding gums, and its cake smoke is used to eliminate tooth worms.
In Gond tribes, Mahua twigs are known to strengthen teeth.
Bark decoction is traditionally gargled to relieve gum inflammation.
Mahua glue is applied to tooth abscesses and boils.
These uses reflect deep-rooted oral ethnomedicine, passed down generations.

Phytochemistry and Pharmacological Actions

Active Phytoconstituents

Saponins, Tannins, Flavonoids, Terpenoids, Phenolics,

Alkaloids, Ascorbic acid
Vitamins: B1, B2, B3, C, E.[5]

Pharmacological Properties[6]
Table no. 2.

1.	Antibacterial (especially against oral pathogens)
2.	Anti inflammatory
3.	Antioxidant
4.	Astringent
5.	Antiseptic
6.	Wound healing

Experimental Evidence[7]
In-Vitro Study (Fatma et al., 2024) on S. mutans Inhibition:- Test organism: Streptococcus mutans (MTCC.strain).
Method: Agar Well Diffusion.
Extract: Aqueous extract of Madhuca stem twigs Concentration (%) Volume (µl) Zone of Inhibition (mm) 10% 250 20 mm 0.2% Chlorhexidine 40 9.5 mm Minimum Inhibitory Concentration (MIC): 35mg/ml
Result: Madhuca longifolia extract showed significantly better antibacterial efficacy than chlorhexidine.

DISCUSSION

Madhuca longifolia, through its phytoconstituents and mechanical action, achieves comprehensive oral health. Ayurveda's recommendation of *datun* as part of *Dinacharya* is validated through clinical and lab research. It is particularly suited for *Pitta* and *Vata prakriti* individuals and presents a sustainable alternative in dentistry, especially in rural and tribal health settings. This aligns with WHO's focus on preventive healthcare and indigenous medicinal systems.

CONCLUSION

Madhuca longifolia stem twigs are a natural, effective, and economical oral hygiene aid. Scientific validation through in-vitro antibacterial assays and clinical comparison studies supports its therapeutic role in maintaining oral health. Its integration into primary health services and traditional practices offers a holistic, culturally acceptable solution to improve oral health.

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