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Short Communication.....!!!

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THE NEEM – NATURES GIFT

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ABSTRACT

Ethnomedicine is the study of traditional medicines having relevant written sources (Ayurveda, traditional Chinese Medicine) as well as those whose knowledge and practices have been orally transmitted over the centuries. Neem [*Azadirachta indica*] tree is native to India and Indian subcontinent, and Neem tree is known as wonder tree from ages. It has become popular on the global stage due to its potential to solve various problems faced by mankind. Nearly each and every part of Neem has some or other medicinal properties or pharmacological actions. Neem tree has many important uses in Dentistry. This review article focuses on pharmacological actions and medicinal properties of Neem, and its use to treat various dental problems.

INTRODUCTION

Azadirachta indica is also known as Neem¹, Neem tree¹ (Fig no.1), Indian liac¹ is a tree in the Mahogany family Meliaceae. It is one of two species in the genus *Azadirachta* and is native to India and Indian subcontinent. It grows in tropical and semi tropical regions. Neem oil is obtained from fruits (Fig no.2) and seeds of neem tree. Importance of Neem has been recognised by United States national academy of science, where Neem has been appreciated as “Tree for solving Global Problem”.² Neem products have been used in india for medicinal properties since ages.³ Neem products are believed by Sidha and Ayurvedic practitioners to be anti-helminthic, antifungal, antidiabetic, antibacterial, contraceptive and sedative⁴. It is considered a major component in Ayurvedic and Unani Medicine and is particularly used for skin diseases.⁵ Neem oil is also used for healthy hair, to improve liver function, detoxify the blood, and balance blood sugar levels⁶. Neem leaves have also been used to treat skin diseases like eczema psoriasis etc.³ Though many literatures studies shows wide uses of NEEM in dentistry, it's routine use in dental practice is limited. Involvement of more and more NEEM based product in routine dental practice would be significant improvement in existing practise.

Applications of Neem In Dental Practise:-

1] Neem Bark In Oral Health Care: Neem bark has been used as main ingredient of various dental creams and powder, due to its antimicrobial properties. Neem has become very popular in last few days as it doesn't have any adverse effect on oral health. Use of Neem sticks as 'Datoon' (Fig no. 3) for cleaning teeth is common practise in various parts of India.

2] ANTIBACTERIAL on Microorganism In Dental Caries:

Extract of Neem has antibacterial effect on organism causing dental caries. Microbial flora of mouth is highly complex which is responsible for dental caries. Dental plaque is causative agent for dental caries, which is predominant with *streptococcus mutans* and other streptococci. Extracts of Neem sticks and barks significantly decreases the adhesion *in vitro*. Neem extract reduces ability of streptococci to colonize. Neem produces maximum zone of inhibition of 50% With *Streptococcus mutans*. Other streptococci such as *S.salivarius*, *S.sanguis*, *S.mitis* are also inhibited by neem extract.⁷ Neem also have antibacterial effect on *Lactobacilli sp.* But at higher concentrations.⁸

3] Neem Extract In Treatment Of Chronic Gingivitis And Periodontal Disease:

The most important method of prevention of periodontal diseases is maintenance of proper oral hygiene practises. In addition proper motivation to maintain oral hygiene is equally important. For to achieve the goal of sound oral health antimicrobial agent would be of great importance. Various studies have demonstrated that *Azadirachta indica* based mouth rinses are highly efficacious and may be used as an alternative therapy in the treatment of periodontal diseases⁹.

4] Neem Extract As Potent Root Canal Irrigant:

Complete debridement of root canal and elimination of all microbial flora is the prime objective of endodontic procedure. *C.albicans* and *E. faecalis* are the predominant causative agent in root canal. *C. albicans*, *E. faecalis* and even their mixed state². However, preclinical and clinical trials are needed to evaluate biocompatibility and safety before Neem can conclusively be recommended as an intracanal irrigating solution, but in vitro observation of Neem effectiveness appears promising.

5] Anti-carcinogenic : Neem tree extract have efficacy of enhancing the bodies response against carcinogenesis. It boosts the cell mediated and lymphocytic immunity. Neem extracts can also protect against liver damage by anti-oxidant¹⁰.

Evidences:

There was a study published in Pelagia Research Library¹¹ which was carried out to evaluate the antimicrobial properties of neem extract against three bacterial strains causing dental caries using disc diffusion method. The pathogenic bacteria such as *Streptococcus mutans*, *Streptococcus salivarius* and *Fusobacterium nucleatum* were isolated from dental caries. The organic extracts of neem were prepared using different solvents such as petroleum ether, chloroform, ethanol and distilled water and were screened for its antimicrobial activity. Among the four extracts of neem, petroleum ether and chloroform extract showed strong antimicrobial activity against *S. mutans* with inhibition zone of 18 mm at 500 µg concentrations. Chloroform extract of neem showed strong activity against *Streptococcus salivarius* with inhibition zone of 18 mm. The third strain *Fusobacterium nucleatum* was highly sensitive to both ethanol and water extract of neems with inhibition zone of 16 mm. The results demonstrate that the chloroform

extracts of neem has a strong antimicrobial activity and suggest that it can be useful in the treatment of dental caries.



Fig. No. 1 neem tree



Fig. No. 2 neem fruits



Fig. No. 3 Neem sticks as 'Datoon'

CONCLUSION

Neem can be used safely against various dental problems with no or minimal side effects, need to work on its proper quantity to be used for respective purpose. With study at preclinical and clinical level, Neem could be the better alternative in dental practise.

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