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Role of Noni (Morinda Citrifolia) in Dentistry

Saravanan D[1]*, Rethinam S[2] and Sundar S[3]

[1]Professor and Head, Department of Periodontology, RVS Dental College and Hospital, India
[2]Consultant, PSG Super Speciality Hospital, India
[3]Post Graduate Student, Department of Periodontology, RVS Dental College and Hospital, India

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***Corresponding author:** Deepshika Saravanan, Professor and Head, Department of Periodontology, RVS Dental College and Hospital, Coimbatore, Tamilnadu, India, Tel: +91 98650-46062; Email: deephsikasaravanan@gmail.com

Abstract

For many centuries herbal products were used in Indian traditional medicine for treating a variety of ailments. One such herb was Noni, which was favoured by many physicians because of its excellent healing properties. In this time and age many native medicine has been long forgotten because of modernisation in western medicine and lack of knowledge in traditional medicine. For the last few decades many physicians and modern day researchers have extended their knowledge and researches among these century old healing methods because of their increased medicinal importance with lesser known side effects, economical highly effective to achieve a healthy state. Even though Noni has been commonly used as a health drink supplement and various parts of the plants were used in day to day life, its definite role in dentistry remains unknown. This review explains about the various methods in which Noni has been used in dentistry to treat oral infections.

Keywords: Noni; Dentistry; Gingivitis; Periodontitis

Introduction

Indian subcontinent has centuries old history of using traditional plants in day to day life. This includes many precious herbs like Turmeric, Neem, Eucalyptus, Green tea, Tulsi, Aloe Vera, Noni and so many [1]. The botanical name of the commercially available Noni is *Morinda citrifolia* also known as Indian Mulberry [2]. Noni has gained popularity in recent times because of its antibacterial, antiviral, antifungal, antitumor, anti-tubercular effect, analgesic activity, immunological activity. Due to these medicinal properties it also consumed daily as a supplemental health drink [3,4].

Noni has been considered as a vital herb due to its numerous medicinal properties and has been recently included as a plant of interest in the field of dentistry. Oral infections occur as a result of imbalance between host immune response and oral Microbiota, if left untreated it will cause progression of disease to the surrounding supporting structures of tooth leading to tooth loss.

Noni was found to be abundant in major essential components such as scopoletin, octoanoic acid, potassium, vitamin C, terpenoids, alkaloids, anthraquinones, β-sitosterol, carotene, vitamin A, flavone glycosides, linoleic acid, amino acids, calcium, and phosphorus [5,6].

Applications of Noni in Dentistry

Preparations from various parts of the plant namely bark, leaves, fruits etc. were used in many branches of dentistry.

Endodontic Irrigant

The main aim of any endodontic therapy was to remove all the microorganisms from the root canals of the teeth. Noni juice was identified as first possible alternative to Sodium hypochlorite solution which was considered to be the gold

standard endodontic irrigant [7].

Anticaries Agent

Dental caries is a multi-factorial disease of the oral cavity which occurs mainly due to acid producing and acid resistant gram-positive bacteria like Streptococcus mutans, lactobacillus which creates acidic environment that has the ability to dissolve the calcium phosphate found in teeth and ultimately leads to dental caries [8] Extracts of *Morinda citrifolia* was found to be effective against these oral Streptococcus species because of its antibacterial activity.

Disinfectant Agent

Dental impressions were usually made with irreversible hydrocolloid materials, later they were disinfected either by surface disinfection or by immersion of the dental impression in the disinfectant solution. Noni extracts were added to the routine impression materials and then the impressions were recorded. The recorded impressions showed that there was a reduction in the microbial contamination without altering the dimensional stability of the impression [9].

Mouthrinse

Oral infections like gingivitis and periodontitis affects a majority of the population worldwide. Some of the factors predisposing to gingivitis and periodontitis includes improper oral hygiene, systemic conditions, pregnancy and puberty. So the gold standard when it comes to the treatment of gingivitis and periodontitis was to remove the local risk factors like plaque and calculus through mechanical debridement i.e., scaling. Since the ancient times many herbal products were used in the form of tooth brush, toothpaste, mouth rinse, local drug delivery agents and regenerative materials as an adjunct to scaling to improve the condition of the oral cavity. Extracts from ripe noni fruits were used as an effective mouth rinse following mechanical debridement because of their antibacterial, anti-inflammatory properties. Improved gingival status was observed in those who used noni mouth rinse [10,11].

Tissue Engineering

Periodontitis involves the destruction of the tooth supporting structures namely the cementum, the alveolar bone, the periodontal ligament, the gingiva. If left untreated it leads to tooth loss. The lost periodontal structures can be rebuilt with the help of tissue engineering in this modern age due to advancement in very scientific fields. Many herbal compounds were found to have the ability to aid in initiation of the naturally occurring regenerative process. Extracts from Noni leaves were used to induce cell proliferation, protein synthesis, and matrix mineralization in vitro studies. Hence Noni has the promising osteoinductive potential bone and periodontal tissue regeneration [12,13].

Bone Regenerative Material

Noni extract was found to act on human periodontal ligament cells, thus improves initiation of differentiation and proliferation as well as osteoblastic differentiation of the bone marrow derived stem cells [14,15]. Hence it was effectively used as a bone substitute material in intraosseous defects [16].

Noni Pulling

Noni fruit juice was found to be effective against a lot of gram positive and gram negative bacteria which are responsible for a numerous oral infection. 90% of the world population shows mild to moderate periodontitis, if left untreated or misdiagnosed leads to progression of the disease causing bone loss. Natural products have been used for many decades in treating periodontitis. Amongst these products, extract obtained from noni plant when used as an oral swishing agent was found to be efficacious for periodontal disease [17].

Conclusion

Hippocrates once said “Let food be your medicine and let medicine be your food” which still applies to this modern world in which” we are what we eat”. Hence herbal products can be used in various treatments with least side effects and enhanced health benefits. Extensive studies and long term researches are required to make it possible to use these herbal products with more ease in routine dental practise.

Conflict of Interest

No conflict of interest.

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