Amla: A boon for Periodontal health

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Abstract: **Amla or Emblica officinalis is a medicinal plant that is considered as first medicinal plant evolved on earth. Due to the presence of Vitamin C and bioactive phytoconstituents Amla possess antibiotic, antioxidant, hepatoprotective, appetite stimulator, cardioprotective, immunomodulatory and astringent properties. It is used in various herbal preparations like Chyawanprash, murabba, digestive tablets etc. Periodontal diseases are caused by the microbes that destroy the periodontal structure. Due to antimicrobial and anti-ulcerative property of Amla, it is used in dentistry for the treatment of periodontal diseases. The aim of the present article was to review properties of Amla and its uses for periodontal health in light of recent literature.**

Keywords **- Amla, Periodontitis, Gingivitis, Emblica officinalis, Gum health**

I. INTRODUCTION

Oral diseases have become a serious health problem globally. Cavities, Periodontal diseases and oral mucosal lesions are the most common oral issues. The most predominant reason for oral diseases is accumulation of microorganisms in the oral activity. Periodontal diseases are the most prevalent diseases among all oral diseases caused by the periodontopathogenic microorganism. According to WHO, prevalence rate of Periodontal diseases is very high. There are many synthetic compounds commercially available in market for prevention and treatment of Periodontal diseases but those may cause side effects like staining of teeth, bad taste and sometimes regurgitations. Thus, there is a need of natural compound to treat Periodontal diseases. Medical plants with active phytochemicals can serve as medication with minimal or no side effects [Turagam et al., 2017].

There are several medicinal plants present in nature which can cure diseases and provide health benefits. Emblica officinalis or Amla are among those medicinal plants. Amla belongs to the family Euphorbiaceae by the botanical name of Phyllanthus emblica or Emblica officinalis. In Ayurveda it is commonly used as a tonic to restore body energy [Dasaroju et al., 2014]. Among all phytoconstituents present in Emblica officinalis, Gallic acid is the primary phytoconstituent of Emblica officinalis. Other constituents of Emblica officinalis are tannins, phenolic compounds and alkaloids. Amla fruit contains Vitamin C in abundance. Due to presence of these phytoconstituents, Amla has a valuable role in several diseases like liver diseases, heart diseases, cancer, anemia, diabetes and ulcers. Amla acts as antioxidant, antipyretic, analgesic, immunomodulatory, cytoprotective, gastroprotective and antitussive [Grover et al., 2015].

II. EMBLICA OFFICINALIS IN AYURVEDA

Emblica officinalis fruits tastes sour, sweet and bitter all together and also possess strong astringent property. Emblica officinalis is being used to cure tridosha - the vat, pitta and cough especially in pitta. After chewing it tastes sweet. It is cool in nature. Commercially Emblica officinalis is being used to make juice, candy, murabba, as one of the key ingredients in chyavanprash, pickle and oil [Dasaroju et al., 2014].

III. MECHANISM OF ACTION OF AMLA

Main reason of diseases is imbalance in homeostasis of the body. Either there is an increased production of free radicals or inability of antioxidants to scavenge free radicals to protect the body against ill effects of free radicals. Emblica officinalis has abundance of Vitamin-C and hydrolysable tannins. Due to presence of these, Amla possess antioxidant property. Tannins in the form of emblicanin A, emblicanin B, punigloconin and pendunculagin protect the body against oxidized free radicals. Tannins recycle the sugar molecule and convert them into medium and high molecular weight tannins. Due to powerful antioxidant property, it enhances natural cell killer (NK) activity and protect the gingiva against oral micro pathogens [Prakash et al., 2013].

IV. AMLA AS A BOON FOR PERIODONTAL HEALTH

Infections in the Periodontal apparatus i.e. Gingiva, alveolar bone, periodontal ligament and cementum surrounding the teeth called periodontal diseases. Gingivitis and Periodontitis are the most common periodontal diseases. If periodontal diseases are left untreated, they can lead to loosening of teeth in their socket and eventually tooth loss. Recent researches have shown association between periodontal disease and non-communicable diseases like atherosclerosis in the heart, diabetes, complications in pregnancy, arthritis, respiratory problems and stroke [Hattarki et al., 2018]. Hence, Amla is current interested topic for prevention and cure of Periodontal diseases. Various researches also have been conducted to check the efficacy of Emblica officinalis or Amla against oral periodontopathogenic microorganisms. Some of them are discussed in Table 1.

IV. DISCUSSION

Medicinal plants are used since ancient time in prevention and treatment of diseases. India is the richest source of herbs that's why traditional medicine plays important role in cure of diseases. In developing countries about 80% of population use herbs or herbal products for their health. Emblica officinalis is one of the Medicinal plants used in Indian traditional system as Medicine as well as in Indian kitchen in recipes. It possesses an abundance of vitamin C and also bioactive phytoconstituents like gallic acid, tannins, flavonoids etc. Due to these phytoconstituents Amla possesses antibiotic, antioxidant and wound healing property. As seen in Table 1, in clinical trials Amla effectively inhibit the growth of plaque causing bacteria thereby prevent the progression of gingivitis and periodontitis as well due to anti-ulcer property, it heals the affected sites.

V. CONCLUSION

Periodontal diseases are considered as a major health disease that leads to tooth loss. Medicinal plant-based product comes as a saviour with no or minimal side effect in comparison to conventional therapies. Phytoconstituents present in the Medicinal plants prevent and cure the periodontal diseases by inhibiting the plaque causing microorganism. Emblica officinalis in the form of gel, mouthwash, in dentifrice or as a local subgingival pack can be used as an effective treatment of periodontal diseases. Only few researches were conducted for checking the efficacy of Emblica officinalis in Periodontal diseases. Thus, more researches should be conducted on Emblica officinalis incorporated products so that periodontal diseases can be treated in an effective and cost friendly manner with minimal side effects.

Table

Table 1 – Research studies in prevention and treatment of gingivitis/periodontitis

	Researcher	Study	Outcome
1	Tewari et al. (2018)	10% Emblica officinalis irrigation in treatment of Periodontitis in comparison of chlorohexidine and saline.A double-blind randomized control trial	Emblica officinalis significantly reduce plaque index, bleeding index and pocket depth.
2	Mhaske et al. (2016)	Emblica officinalis with other medicinal plant in Oxitard capsule for treatment of Desquamative gingivitis.	Emblica officinalis is rich in Vitamin C and other phytoconstituent. It acts as antioxidant and antibiotic agent. it is used in treatment of desquamative gingivitis.
3	Tripathi and Tiwari (2015)	Triphala (Equal quantity of Emblica officinalis, Terminalia belerica, Terminalia chebula) decoction as mouthwash and triphala powder 3gm for 1 month in treated group in comparison of antibiotic and chlorohexidine mouthwash in control group	Triphala improved the status of periodontal disease.
4	Pathak et al. (2012)	Antimicrobial culture study to determine the antibacterial effect of Emblica officinalis in inhibition of plaque causing bacteria.	Emblica officinalis effectively controlled the growth of plaque causing bacteria.
5	Guru et al. (2011)	Emblica officinalis gel for treatment of plaque induced gingivitis	Emblica officinalis controlled the gingivitis in 1 week.
6	Gupta et al. (2006)	Triphala and Emblica officinalis in treatment of periodontitis as 1gm extract of Amla dissolved in 10ml glycerin.	Effectively cure the periodontitis. Research was applied on patents in United states.

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