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An Adjunct In Periodontal Management A Review On Phytotherapy

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ABSTRACT

An additional therapeutic method for the treatment of various oral diseases is Phytotherapy, General health and immunity is enhanced by Phytotherapy. Herbs and their extracts has antimicrobial, antioxidative and anti-inflammatory properties. Aim of this review is to offer a basic overview of usage of herbal species in treatment of periodontitis. Besides routine treatment for periodontitis, the surgical and non-surgical periodontal therapy, the right combination of herbal plants and their extracts can improve the standard therapeutic procedure in patients with gingivitis and periodontal disease.

Keywords: Phytotherapy, Periodontal disease, Gingivitis, Herbs, oral health.

I. Introduction

Major public health problem, which affects up to 90% of the worldwide population is the periodontal disease [1]. periodontal disease occurs if the gingivitis left untreated. The main characteristic of periodontitis is destruction of supporting tissue of the tooth. Microbial oral biofilm is the main etiological factor for periodontitis. There are approximately 1250 medicinal plants getting used in formulating beneficial measures[2]. Herbal medicines are getting used increasingly as dietary supplements to fight or prevent common diseases[3]. They are both primitive and preventive in its approach. It is a comprehensive system, which uses various remedies derived from plants and their extracts to treat disorders and to take care of healthiness [4]. Herbs and their extract stimulate superficial circulation, increase elimination of harmful substance and reduce inflammation and irritation. Herbal products could even be used as pills, syrup, and infusions or externally as creams, ointments and liniments [5]. Herbal products may vary in their effectiveness, therefore it's necessary to pick herbal species carefully. Herbs and their extracts are often used as adjuvant in periodontitis treatment [6].

II. Neem

Azadirachtaindica, commonly referred to as the Neem plant, has led to an expanding number of scientific reports on its other interesting biological properties and uses (Ruskin, 1992).

Neem consists of sodium nominate, salami, nimbi, azadirachtin, nimbidiol, quercetin. Neem

leaves contain fiber, carbohydrates, and a minimum of 10 aminoalkanoic acid proteins, calcium, arytenoids, fluoride. Neem has antifungal, antiviral, antibacterial, antipyretic, anti-inflammatory, anticariogenic, anti-carcinogenic, antihelminthic, analgesic and anti-oxidant. Studies have shown that neem is used in the treatment of dental caries, gingivitis and periodontitis.[7,8,9] Vennila et al. conducted a study in chronic periodontitis patients on the effect of 10% whole neem chip used as an addition to scaling and root planing and located that the clinical parameters were statistically improved and presence of P. gingivalis strains were significantly reduced on the sites where neem chips were used. [10]

III. Syzygium aromatic (clove)

The molecule named eugenic in clove is essential oil has analgesic and antiseptic properties and particularly inhibits growth of nearly all disease-causing bacteria while leaving the beneficial bacteria unharmed [11]. It has been used in the dental fillings and dental cements for many years for their topical analgesic properties. The eugenic and other constituents of clove, like vanillin and iso-eugenol, have also been reported to possess antimicrobial effect[12]. Clove gel can provide dentists with an alternative to benzocaine for topical anesthesia and in their daily practice, especially for use with children and in areas where cost and availability limit access to pharmaceutical topical anesthetics [13,14]

IV.Pomegranate

Ellagic acid ellagitannins (including punicalagins), punicic acid, flavonoids, anthocyanidins, anthocyanins, and estrogenic flavonols and flavones are present in pomegranate fruit. It has Anti-inflammatory, antimutagenic, and antifungal activity. Anti-bacterial properties against perio pathogens and antiplaque effect Significantly improves clinical signs of chronic periodontitis and lower IL-1β and IL-6 levels.[33]

V.Triphala

Equal parts of Amalaki (Emblicaofficinalis), Haritaki (Terminaliachebula) and Bahera (Terminaliabelerica) are present in triphala, wide range of pharmacological activity are present in triphala and they are potent antioxidants [26.] Ascorbic acid, thiamine, riboflavin and niacin. It comprises betasitsterol, Gallic acid, pelagic acid, ethyl gallant, alloy glucose and chebulagic acid are present in Amalaki. chebulagic and chebulinic acid as well as corilagin are present in Haritaki. It is an antioxidant, antimicrobial property. It is Used to treat dental caries, bleeding and ulcerated gums [15].

VI. Psidiumguajava

Guava has a superb antioxidant property because it's primarily rich in Vitamin C (Ascorbic acid). It also has quercetin, carotenoids, and polyphenols which augment its antioxidant action [28,29]. Guava leaf extracts and essential oils from the stem have the power to scavenge free radicals, superoxide anion and inhibit the formation of hydroxyl radical [30,31]. The decoction of

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the root bark is suggested as a mouthwash and decoction of leaves as an effective mouth rinse for bleeding gums [32].

VII.Grape seed extract

It contains Polyphenolic compounds, mainly monomeric catechin and epicatechin, gallic acid, and polymeric and oligomericprocyanidins. It acts as a Immunomodulator agent. It has antioxidant, anticariogenic, anti-inflammatory effects. It helps in Inhibiting osteoclast differentiation, reducing osteoclast activity, and stimulating bone formation and it has Bacteriostatic effect on the anaerobes.[33]

VIII. Aloe vera

Aloe vera belongs to Asphodelaceae family. vitamins, enzymes, minerals, sugars, fatty acids, amino and salicylic acids are present in aloe vera[16]. Wound healing is improved by aloe gel. Burns, insect-bites and many other skin and mucosal lesions are treated by aloe vera gel. Numerous healing properties of aloe vera helps in various treatments. It has been used as dietary supplement and powerful antioxidant, as a wound healing accelerator, it is used after periodontal surgery, for traumatized gingival lesions by toothbrush, toothpick or solid food. Aloe vera (gel formula) possess non-toxic bactericide, antiviral, antifungal, anti-inflammatory, analgesic properties and immune-stimulating properties [16,17,18] Applications of Aloe vera (in the form of a gel) directly to the site of periodontal surgery or to gingiva when it has been traumatized with a tooth brush dentifrice abrasion, sharp foods, dental floss and toothpick injuries Aloe vera (in the form of a gel) improves healing properties[19]. Prevention of periodontal diseases and dental caries is obtained at optimum concentrations of Aloe vera gel in toothpastes or mouthwashes. [20]

IX.Camellia saneness (green tea)

Polyphone contents comprising catching(C), epicatechin (EC), gallocatechin (GC), epoigallocatechin (EGC), epicatechin gallant (ECG) and epigallocatechin gallant are present in green tea. Green tea has Anti-inflammatory, antibacterial and antiviral properties. Used in the treatment of periodontal disease. Green teaCatechins (e.g. EGCG) restrict the development and colonization of periodontal bacteria like *Porphyromonas gingivalis* and *Prevotella intermedia* and *Prevotella nigrescens*.[22] These restrain the release of toxic metabolites from periodontal bacteria. Green tea is well known for its antibacterial properties against anaerobic microorganisms and its use in halitosis. Green tea consumption can diminish oxidative and inflammatory tissue injuries in the oral cavity caused by cigarette smoking.[21]

X.Pineapple

Ananascomosus is a tropical fruit which is rich in vitamins, enzymes, and antioxidants. The plant belongs to the bromeliaceae family. Bromelain, which is an elementary extract from pineapple is the reason for the therapeutic qualities of pineapple, it exhibits various antiedematous,

fibrinolytic, anti-inflammatory, and antithrombotic activities. Bromelain can be considered as a substitute for non-steroidal anti-inflammatory agents, glucocorticoids, and immunomodulators. Bromelain has efficient antibacterial property against various aerobic and anaerobic microorganisms (s. Mutans, p. Gingivalis, escherichia coli and a. Actenomycemcomitans).[33]

XI.Turmeric (curcuma longa)

Turmeric, otherwise known as Curcuma longa, is a member of the ginger family, Zingiberaceae. The Latin name is derived from the Persian word "kirkum", which means saffron, in reference to the rhizomes vibrant yellow-orange color.Turmeric is widely known for its anti-inflammatory properties. A significant reduction in the trypsin-like enzyme activity of "red complex" species has been reported.Antimutagenic, anticarcinogenic, antioxidant, antibacterial, anti-inflammatory properties are present in turmeric. It is used in dental caries, oral lichen planus, gingivitis, halitosis, pit and fissure sealant, healing, photodynamic therapy and dental plaque detection system.[23]

XII. Garlic (allium sativum)

Garlic consists of alliin, ajoene, diallyl sulfide, dithiin, S-acetylcysteine and enzymes, B vitamins, proteins, minerals and has antibacterial, antiviral, and antifungal, antiseptic, bacteriostatic, antihelminthic effects. Dental caries and periodontitis are treated using garlic and studies have been reported. It is chopped and held in the mouth for 5 minutes to sterilize the oral cavity, which is due to its strong antibacterial activity.[27]

XIII. Tulsi

In periodontitis patients, Tulsi demonstrated effective antimicrobial property against *A. actinomycetemcomitans*, suggesting its possible use as an alternate medicine in the management of periodontal conditions. Also, the 2% tulsi gel showed good anti-inflammatory effect resulting in reduction of gingival inflammation and pocket depth confirming its use as an adjunct.[24]

XIV.Conclusion

Phytotherapy, an emerging therapeutic method, has been expanding rapidly, and it is benefiting and conquering the whole world. Natural Herbs and plant extracts have been used as adjuvants in periodontal treatment because they reduce inflammation and act as antioxidants and antibiotics. The usage of herbal products in periodontal treatment features a great potential, but it's a challenge to work out the right combination of herbal species and their extracts.

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