



Management of Dental Caries by Natural Plant Products

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Editorial

Tooth decay also known as dental caries represents one of the major worldwide dental problems. It has high prevalence to the extent that it possesses the second rank after common cold [1]. Dental caries usually arises as a result of variations in the equilibrium of the oral microbial biofilms, *Streptococcus mutans*, *Streptococcus sobrinus* and *Lactobacillus* spp, and teeth minerals. These bacteria can ferment carbohydrates and produce acids which in turns decrease the pH below 5.5 and lead to demineralization of tooth tissues and further tooth decay [2,3]. The factors involved in caries development may include; individuals' factors like oral hygiene, dental insurance coverage, sociodemographic status and education, oral environmental factors like saliva composition and flow rate, plaque pH & microbial species, fluoride amount, and consumption of dietary sugars, factors that directly contribute to caries development like the tooth status, the bacteria in the biofilm and composition of consumed diet [4]. The process of tooth decay is reversible if a fast recovery by fluoride, calcium, and phosphate is followed. Additionally, the use of protective agents originated from natural source had gained interests since it collect together the positive outcomes in disease management along with minimum side effects on the patient's health. The natural product may also solve the problem of antibiotics resistance and other antibiotics side effects as well. One of the outstanding natural treatments is the use of Cranberry proanthocyanidins (PACs) to manage oral infections, especially dental caries. These PACs are capable of inhibiting organic acids and biofilms formation by cariogenic bacteria [5]. It was proved that cranberry juice

was able to decrease the adherence of the *Streptococcus* bacteria to the hydroxyapatite pellets with consequent inhibition of biofilm formation by 80-95% [6]. The roots and stick of *Salvadora Persica* (S.P.), also known as Miswak, are used widely for cleaning the teeth. The sticks of S.P. gained approval by the World Health Organization (WHO) for being successful aid for maintaining oral health [7]. S.P. has about 1.0 µg/g of total fluoride, in addition to possessing antimicrobial activities including *Streptococcus mutans* [8,9]. Researchers had also formulated a muco-adhesive dental gel containing 25 mg/g of the extract of *Azadiracta indica* (Neem) and it had promising results in terms of reducing plaque and microbial counts [10]. Green tea had shown activity against *Streptococcus mutans* owing to several polyphenols found in its extract so many studies had been performed to mention its great effect in reducing dental caries [11-13]. Garlic as well was known by its antibacterial effect against oral pathogens, this activity was dependent upon production of allicin by the enzymatic activity of alliinase [14,15]. Future perspectives concerning management of dental caries must consider development of more mouth washes, oral gel and other products that involve these natural products instead of chemicals and the usual antibiotics formerly used.

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