
EVALUATION OF ANTIMICROBIAL ACTIVITY OF COMMERCIALY AVAILABLE HERBAL TOOTHPASTE

DISCUSSION: Periodontal diseases encompass multifactorial diseases involving bacterial biofilms and the generation of an inflammatory response, including the production of cytokines, eicosanoids, and matrix metalloproteinase. Bacterial biofilms have been shown to be the primary etiological factor in the initiation of gingival inflammation and subsequent destruction of periodontal tissues. It is well established that supragingival plaque is the cause of gingivitis and plays a primary role in the initiation of periodontitis. The removal of microbial plaque leads to resolution of gingival inflammation, and cessation of plaque control leads to a recurrence of inflammation.

The control of plaque in the maintenance of gingival health has been well established in the literature. It has been shown that rigorous self-performed plaque control over long periods of time reduced the levels and altered the composition of sub gingival bacteria and reduced the frequency of deep periodontal pockets. Since the 1980's fluoride has been the most commonly used remineralizing agents. It is known to control caries predominantly through its topical effect. Fluoride inhibits demineralization, enhances remineralization, and inhibits bacterial activity. When the acid attacks the enamel surface, the pH begins to rise and fluoride present in the microenvironment causes enamel dissolution to stop. It acts by creating calcium and phosphate phases and thereby increases the surface fluoride content in the enamel. The other contributing factors for fluoride is its antimicrobial property, reduction in bacterial adherence and increases the plaque pH. thus, The fluoride tooth paste reduces the number of streptococcal colony forming units of dental plaque despite the fact that fluoride was added to the toothpastes first with aiming to preserve the product and then to protect the teeth. The effectiveness of fluoride toothpastes as an antimicrobial agent is concentration dependent.

According to the results of the present study, herbal toothpaste can cause inhibition of bacterial growth. The organisms employed in the present study include both the normal flora and the pathogens of the oral cavity. *S. mutans* has been strongly associated with the initiation of caries, while there is a correlation between Lactobacilli and the further development of carious lesions. It was observed that the dentifrice with multiple herbal components is more effective in inhibiting both the organisms as herbal extracts have received special attention because of being non-chemical and non-synthetic in nature, and have been used in traditional medicine. The antimicrobial activity of the herbs is due to the presence of secondary metabolites such as alkaloids, flavonoids, polyphenols, and lectins. Synergistic interactions between the principal components of these herbs are considered to be a vital part of their efficacy. Our study mainly

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concentrates in comparing efficacy of herbal dentifrices with conventional ones in inhibiting cariogenic bacteria, suggesting that efficacy of herbal dentifrices is similar and have superior antibacterial efficacy. Hence, the addition of natural plant extracts to toothpastes can increase the antimicrobial spectrum, thus reducing, controlling or preventing oral diseases.

CONCLUSION: In conclusion, the herbal toothpaste formulations studied in our experiments, appear to be more effective than the fluoride dental formulations. Hence, herbal toothpaste has been proved to have superior antimicrobial activity against streptococcus mutans than the fluoridated toothpaste due to the excess use of fluoride that can cause the dental fluorosis, stomach ailments, acute toxicity, skin rashes (perioral dermatitis) these herbal products are symbol of safety in contrast to synthetic toothpaste; that are regarded as unsafe to human beings and environment. Inhibit plaque may be expected to be of value in both the prevention and management of periodontal disease thus, exhibiting major effect on improving the oral health of the individual. However, further studies are needed to know the efficacy of these toothpastes.

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