Effect of Ginger Extract on Mutans Streptococci and Candida Albicans in Comparison to Chlorhexidine Gluconate

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Abstract

Background: Ginger, whose botanical name is *Zingiber officinale,* has been grown in India and China for thousands of years. It is used in cooking and for medicinal purposes such as anti-bacterial, anti-fungal, anti-inflammatory and antioxidant. The rhizome, which grows underground, is the part of ginger that's used medicinally. It is used for treating many of diseases like: motion sickness, gastritis, ulcers, common cold, sore throat, sinus problems, menstrual cramps, renal function improvement, arthritis and cardiovascular conditions.

Aims of the study: This study was conducted to test the effect of ethanolic extract of ginger on growth, adherence and acidogenicity of mutans streptococci and on growth of *Candida albicans* in comparison to chlorhexidine gluconate 0.2% and de-ionized water.

Materials and methods: From saliva of ten volunteers (dental students 20-22 years); mutans streptococci and *Candida albicans* were isolated, purified and diagnosed according to morphological characteristic and biochemical tests. Ginger was powdered and extracted, different concentrations of ginger extract were prepared. Chlorhexidine gluconate 0.2% used as a control positive; while de-ionized water was used as a control negative. In this study, in vitro and in vivo experiments were conducted. In vitro experiment, agar well technique was used to study the sensitivity of mutans streptococci and *Candida albicans* to different concentrations of ginger extract and other control agents; also effect of ginger extract on the viable count of mutans streptococci and *Candida albicans*, and on the adherence and acidogenicity of mutans streptococci were studied. In vivo experiment, the volunteers couldn’t tolerate the extract.

Results: Both mutans streptococci and *Candida albicans* were sensitive to different concentrations of ethanolic ginger extract, but they were more sensitive to chlorhexidine gluconate than the extract. The effect of ginger extract on the

viability counts of mutans streptococci at concentrations (30%, 35% and 40%) and on the viability count of *Candida albicans* at concentrations (1%, 2% and 3%) showed highly significant reduction in the count of the bacteria and fungi but less than chlorhexidine effect. In the effect of the extract on the adherence of mutans streptococci, the concentrations (30%, 35%, 40%) were used and only 40% and chlorhexidine prevent the plaque formation. But in the acidogenicity of mutans streptococci procedure 35%, 40% of the extract and chlorhexidine showed effectiveness in reducing acid formation.

Conclusion: ginger extract was effective against both mutans streptococci and *Candida albicans*, chlorhexidine is more effective than other agents.