Anti-microbial capacity of a Chlorine Dioxide based toothpaste

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The purpose of this study was to determine the percent kill in a simulated oral environment by a dentifrice containing 0.1% chlorine dioxide against Antiobacillus actinomy cetumittans (Aa) and Porphyromonas gingivalis.

Method: Ten grams of toothpaste were placed into each of two sterile 50ml beakers, each containing a magnetic stir bar. 10ml sterile distilled water was added to a third beaker as a control. 1.6ml 10% sodium thiosulfate was added to the first beaker to neutralise the chlorine dioxide in the toothpaste. Subsequently, 18.4ml calf serum was added. 20ml calf serum was added to the remaining two beakers. Toothpaste suspensions were mixed thoroughly on a magnetic mixer. While mixing, 3ml of the test organisms suspension was added. At 10 and 30 second intervals, 10ml was removed from the beaker and placed in a 16 x 125mm tube which contained 2ml 15% sodium thiosulate. Tubes were capped, mixed and anaerobic plate counts performed employing spread method on anaerobic blood agar. Plates were incubated in a candle jar. The experiment was repeated.

Results: Aa and P. gingivalis were killed at the 99%+ level in 10 seconds and 30 seconds with a 0.1% chlorine dioxide formulation in a simulated oral environment.

Conclusion: The chlorine dioxide toothpaste was an effective germicide against both organisms tested.

Effects of Chlorine Dioxide mouthrinse on oral Streptococci, Lactobacilli and Candida Albican

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It has been claimed that Chlorine Dioxide containing mouth rinses have anti-microbial activity without significant local side effects.

Method: In this clinical trial a 0.1% Chlorine Dioxide mouth rinse (RetarDEX* oral rinse) was tested for its activity against oral mutans streptococci, lactobacilli and candida albicans using standard chair side microbiological diagnostic kits [Vivacare, Liechtenstein]. Thirty-three patients (mean age = 62 years) were recruited into the study.

Subjects were requested to rinse for sixty seconds three times daily with the mouth rinse for a period of two weeks. Mutans streptococci, lactobacilli and candida albicans were cultured from salivary samples at baseline and two weeks. Counts of micro organisms in saliva were then recorded.

Results: From this data, there were reductions in counts of both mutans streptococci and lactobacilli (p<0.01) but no change was detected with candida. A control group of dental students rinsed with a placebo under the same circumstances and no reduction of counts were noted. Some mild disturbance in taste was noted in five subjects using the active mouth rinse, which returned to normal following its cessation.

Conclusion: From this clinical trial it would appear that RetarDEX* oral rinse is capable of reducing salivary mutans streptococci and lactobacilli.