

The antimicrobial effect of 0.1 ppm ozonated water on 24-hour plaque microorganisms in situ

Type: Article

Abstract:

Ozone is a known oxidant present in the atmosphere and is commercially produced by simple ozonizer machines. It is a powerful antimicrobial agent in its gaseous and aqueous forms. Ozone readily dissolves in water and retains its antimicrobial property even in the dissolved state. In this study, the effect of 0.1 ppm ozonated water was analyzed on 24-hour supragingival plaque (SP) samples in situ. SP was collected from the two most posterior teeth in the contra-lateral quadrants before and after a 30-second rinse with either distilled water (control group) or 0.1 ppm ozonated water (test group). The plaque was used to count the number of total bacteria, total anaerobic bacteria, *Streptococcus mutans*, and *Candida albicans* on selective agar media. The statistical analysis of the number of colony forming units (CFUs) obtained demonstrated a significant antimicrobial effect of ozonated water on the total bacteria ($p = 0.01$) and anaerobes ($p = 0.02$). A reduction in the post-rinse CFU count for *Streptococcus mutans* was also observed, but the effect was not statistically significant ($p = 0.07$). The *Candida* species was only grown from one sample. Ozonated water at the 0.1 ppm concentration was effective in reducing the load of 24-hour plaque bacteria, but it did not eliminate them completely.

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