

## ANTIMICROBIAL ACTIVITY OF A CHITOSAN MOUTHWASH AGAINST ORAL PATHOGENS

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The control of dental biofilm is a determining factor for oral health. The mouthwashes are widely used for eliminating oral pathogens are generally chlorhexidine or cetylpyridinium chloride base which have limited use due to adverse effects like staining of teeth. Chitosan is a natural biocompatible polymer with antimicrobial activity that can be used as active ingredient of formulations. According to the mentioned the aim of this study was to evaluate the antimicrobial activity of a chitosan mouthwash, against cariogenic microorganisms. For this research inoculum of *Streptococcus salivarius*, *Lactobacillus acidophilus*, *Streptococcus mutans*, *Streptococcus sanguis* and *Candida albicans* adjusted to  $5 \times 10^7$  colony Forming Unity/mL, were used as test microorganism. Chitosan mouthwash formulation was prepared using low molecular weight chitosan from Sigma® solubilized in 1% acetic acid with the final concentration of 1% (v/v). The pH of solution was adjusted for 5.8 using 0.5N NaOH. The antimicrobial assays were carried out by macrodilution method in BHI and Sabouraud broth, and subsequent incubation in BHI and Sabouraud agar without substance test, for determine the Minimum Inhibitory Concentration (MIC), and the Minimum Bactericidal Concentration (MBC), respectively. Microorganisms were incubated at 37°C/24h. The concentration of substance test varied: (600-50µl.mL<sup>-1</sup>). The mouthwash demonstrated MIC and MBC: 200µl.mL<sup>-1</sup> and 300µl.mL<sup>-1</sup> to *L. acidophilus* and *C. albicans*; 100µl.mL<sup>-1</sup> and 200µl.mL<sup>-1</sup> to *S. mutans*, *S. sanguis* and *S. salivarius*, respectively. These results suggest the application of chitosan as an antimicrobial and preventive, therapeutic agent for dental plaque. This study demonstrates the antimicrobial activity of chitosan mouthwash. This potential should be further evaluated for application in pharmaceutic industry as a natural alternative to commercial mouthwashes.

**Keywords:** Antimicrobial agents, biopolymers, natural products.

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