Title: CPC-Cymenol: A highly effective antimicrobial combination for the maintenance of oral hygiene

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Introduction

The most effective method of preventing oral problems such as halitosis, caries and periodontal disease is proper oral hygiene using toothpastes and mouthwashes containing powerful antimicrobial agents. Triclosan (TCS) and chlorhexidine (CHX) are two of the most widely used . In an effort to identify equally effective antimicrobial agents we tested cetylpyridinium chloride (CPC) and o-cymen-5-ol (cymenol) alone and in combination and determined their capacity to inhibit the growth of common oral pathogens and to prevent and eradicate biofilm formation in vitro.

Methods

The minimum inhibitory concentration (MIC) and minimum biocidal concentration (MBC) of CPC or cymenol alone, the combination of the two together (CPC-cymenol), TCS and CHX, against a series of pathogens commonly associated with oral biofilms was determined. Their effect on the prevention of biofilm formation and the eradication of preformed biofilms was also evaluated. MIC and MBC were also determined for mouthwashes and toothpastes containing CPC-cymenol.

Results

CPC-cymenol demonstrated very good *in vitro* activity, presenting MIC and MBC values comparable to that of TCS and CHX. Similarly, CPC-cymenol showed very good activity in both preventing biofilm formation and in bactericidal activity against previously formed biofilms.[1] When formulated into a toothpaste and mouthwash, CPC-cymenol also demonstrated very good inhibitory activity, even against *Pseudomonas aeruginosa*, a typically resistant microbe.

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