

TITLE: EFFECT OF THE A DITERPENE ISOLATED FROM *Croton blanchetianus* AGAINST PLANKTONIC CELLS AND BIOFILMS FROM *Streptococcus mutans* and *Streptococcus parasanguinis*

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Microbial biofilms confer more resistance to microorganisms. The mouth has a very diverse microflora and favorable conditions for the development of oral biofilms. Caries and periodontitis arise from the presence of oral biofilms associated with other factors. Species of the *Croton* genus demonstrate proven biological activities; in some of these studies, diterpenes are responsible for therapeutic action. Thus, the aim of this study was evaluated the antibacterial and antibiofilm activity of the diterpene methyl 12-hydroxy-3,4-seco-cleistan-8,11,13,15,4(18)-pentaene-3-oate (ICB4) isolated from *Croton blanchetianus* against *Streptococcus mutans* ATCC 700610 and *Streptococcus parasanguinis* ATCC 903. The effect of ICB4 on planktonic cultures was determined by minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). Regarding biofilm formation, the compounds were added to bacteria (1×10^6 CFU/mL in Brain Heart Infusion broth supplemented with 1% sucrose) in different concentrations (125 to 1.8 $\mu\text{g/mL}$) in microtiter plates. The plates were incubated for 24 h at 37°C in under atmospheric pressure with 5% CO₂. Subsequently, biofilms were characterized by total biomass, through crystal violet staining, and number of viable cells, expressed as log CFU/mL. Moreover, electromicrographs were obtained by scanning electron microscopy (SEM), in order to understand the action of ICB4 on biofilms. ICB4 showed MIC and MBC values of 7.8 $\mu\text{g/mL}$ on *S. parasanguinis* and 31.2 on *S. mutans*. Regarding biofilm formation, in general, ICB4 reduced biofilm biomass and was effective in reducing the number of viable cells of the biofilms of both species. Furthermore, in the electromicrographs of the biofilms it was possible to observe structural alterations in the morphology of the bacterial cells. In summary, ICB4 may be an effective compound against infection caused by of *S. mutans* and *S. parasanguinis* biofilm.

Keywords: diterpene, *Croton blanchetianus*, biofilm

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