ABSTRACT

PENENTUAN KONSENTRASI HAMBAT MINIMAL LARUTAN IRIGASI *CHLORHEXIDINE* TERHADAP BIOFILM BAKTERI *Enterococcus faecalis*

***DETERMINATION OF MINIMUM INHIBITORY CONCENTRATION OF CHLORHEXIDINE IRRIGATION SOLUTION TOWARD BIOFILMS OF Enterococcus faecalis* BACTERIA**

Background. *Root canal treatment is a procedure that performed to eliminate microorganisms in the root canal of the tooth with necrotic pulp. Microorganisms in a biofilm on the root canal led to the failure of root canal treatment. One of microorganisms that were able to form biofilms and cause failure of root canal treatment were the Enterococcus faecalis bacteria. The use of antimicrobial agents as a root canal irrigation were needed to eliminate microorganisms in the biofilms form. Chlorhexidine were an antimicrobial agent that is often used for root canal irrigation solution, cationic molecules of chlorhexidine would bind with a layer of extracellular polymeric matrix of biofilms that can inhibit the growth of bacteria in the biofilm.* ***Purpose.*** *The aim of this study is to know the minimum inhibitory concentration of chlorhexidine irrigation solution toward biofilm of Enterococcus faecalis.* ***Method.*** *This research was experimental laboratories in vitro research. The concentration of chlorhexidine solution were 2.5%; 1.25%, 0.625%; 0.3125%; 0.15625%. Biofilm formation was observed using the microtiter plate method, then continued by reading of Optical Density (OD) of biofilms using ELISA reader at a wavelength of 570 nm.* ***Result.*** *The percentage of biofilm OD exposed by concentration 2.5%; 1.25%, 0.625%; 0.3125%; 0.15625% of chlorhexidine solution in sequence were 6.59%; 8.98%; 11.24%; 13.07%; 15.17% from the positive control.* **Conclusion.** *Concentration 1.25% of chlorhexidine solution were the minimum inhibitory concentration of chlorhexidine irrigation solution toward biofilm of Enterococcus faecalis bacteria in vitro.*

Key words : *Biofilms, Enterococcus faecalis, chlorhexidine, extracelluler polymeric matrix, cationic mollecules.*