Efektifitas Ekstrak Propolis Terhadap Extracellular Polymeric Substance (EPS) Biofilm Bakteri Enterococcus faecalis

(Effectiveness of Propolis Extract Against Extracellular Polymeric Substance (EPS) Biofilm Bacteria Enterococcus faecalis)

ABSTRACT

Background: The resistance of Enterococcus faecalis bacteria in root canals is because it can form a biofilm. Biofilms are communities of microorganisms in a complex and dynamic structure attached to a surface, embedded in Extracellular Polymeric Substance (EPS). Propolis extract contains of flavonoids that can inhibit biofilm growth. Objective: To analyze the effectiveness of propolis extracts against Enterococcus faecalis biofilm EPS in vitro.

Materials and Methods: Enterococcus faecalis biofilm grown on media Tryptic Soy Broth (TSB), dextran conjugate alexa fluor 647 reagent was added, then incubated 24 hours. Enterococcus faecalis biofilm were divided into 4 groups: 3 groups treated by soaking propolis extracts 24 hours with each concentration of 0.2, 0.8% and 1.2%; 1 control group without extract of propolis. Biofilm samples examined using Confocal Laser Scanning Microscope (CLSM). Yield data was then analyzed using One Way ANOVA and Tukey HSD Test (p <0.05). Results: The treatment group showed a decrease in the average volume of biofilm EPS than the control group. Conclusion: propolis extracts with concentration of 0.2% 0.8% and 1.2%, effectively reducing the Enterococcus faecalis biofilm EPS.

Keyword: biofilm, Enterococcus faecalis, extracellular polymeric substance, propolis