ABSTRACT

PENENTUAN KONSENTRASI HAMBAT MINIMUM EKSTRAK PROPOLIS TERHADAP BIOFILM BAKTERI Enterococcus faecalis

DETERMINATION OF MINIMUM INHIBITORY CONCENTRATION PROPOLIS EXTRACT TO BACTERIAL BIOFILMS OF Enterococcus faecalis

Background. Endodontic root canal treatment is a treatment that can be performed in the dental pulp necrosis. Failure in endodontic root canal treatment can still occur, although it has been done in accordance with procedures. One cause of failure of root canal treatment is bacterial resistance to conservative treatment. Some microorganisms in pulp necrosis were able to form biofilm to enhance pathogen virulence. This happens because the necrotic pulp tissue is an opportunistic environment for development of microorganisms due to organic residues or nutrients, which serve as a substrate or microorganism culture. One of these microorganisms is Enterococcus faecalis. Medikamentosa needed to eliminate microorganisms in the root canal pulp necrosis, especially in the form of bacterial biofilms. The problem faced by this time almost all the materials used in dentistry is a chemical and it has side effects, it is necessary for natural ingredients from nature that has antibacterial or antibiofilm. Antibiofilm or antibacterial agent can be found in propolis. Propolis contains tt-farnesol and apegenin that have mechanisms for inhibiting growth and development of bacterial biofilm. Purpose. The aim of this study was to know the antibiofilm effects of propolis extracts by determining its minimum inhibitory concentration to Enterococcus faecalis biofilm. Methods. This study is an in-vitro experimental research laboratory. Propolis extract used is propolis extracted by maceration method, and dilution into several concentrations using aquadest. Biofilm formation was observed using the microtitter plate method then continued reading of Optical Density (OD) using ELISA reader to determine the minimum inhibitory concentration of propolis extracts to Enterococcus faecalis biofilm. Results. Minimum concentrations of propolis extract can inhibit the growth and development of Enterococcus faecalis biofilm is 5,75%. Conclusion. Influence of propolis extract in inhibiting the formation of biofilm produced by Enterococcus faecalis, compared with no propolis extract. Propolis extract concentration by 5,75% is Minimum Inhibitory Concentration to Enterococcus faecalis biofilm in vitro. Keywords: Propolis extract, Biofilm, tt-Farnesol, Apegenin, Enterococcus faecalis