EFEKTIVITAS ANTIBIOFILM TANIN KULIT MANGGIS TERHADAP BAKTERI ENTEROCOCCUS FAECALIS

(THE ANTIBIOFILM EFFECTIVITY OF TANNIN EXTRACT FROM MANGOSTEEN PERICARP AGAINST ENTEROCOCCUS FAECALIS BACTERIA)

ABSTRACT

Background: Root canal treatment is a procedure performed to eliminate microorganisms in 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 root canal treatment failure were the Enterococcus faecalis bacteria. Antimicrobial agents used as a root canal irrigation needed to eliminate microorganisms in the biofilms form.

Purpose: The aim of this study is to find the antibiofilm effective concentration of tannin extract from mangosteen pericarp against Enterococcus faecalis bacteria.

Method: This research is a laboratory experimental with the pretest-postest control group design. Enterococcus faecalis cells were grown in microtiter plates for 5 days, then the wells were washed to remove planktonic bacteria. Cells remaining adhered to the wells were subsequently stained with crystal violet to verify the biofilm formation. Tannin extract in 100%, 50%, 25%, 12.5%, 6.25%, 3.125%, 1.56%, and 0.78% concentrations were put into the suitable labeled-well. After 24 hours of incubation, the optical density (OD) of each well were measured, then converted into % of biofilm degradation.

Results: Tannin extract showed a decrease of OD value from positive control in all concentrations. The effective percentation of biofilm degradation is 91% at 12.5% tannin concentration.

Conclusion: 12.5% tannin extract is the effective antibiofilm concentration against Enterococcus faecalis bacteria.

Keywords: Enterococcus faecalis, antibiofilm, tannin extract, mangosteen pericarp