Karya Tulis Akhir ini, serta mengarahkan dan mengevaluasi setiap tahapan pengerjaan, sehingga Karya Tulis Akhir ini dapat terselesaikan dengan baik.

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Penulis

ABSTRACT

The Effect Of Cocoa Husk Extract Base Toothpaste And Green Tea Extract Base Toothpaste On Extracellular Polymeric Substance Biofilm Streptococcus Mutans (In Vitro)

Toothpaste formulations contain more triclosan, chlorhexidine and stannous fluoride (SnF2) as an antibacterial and fluoride source. Technology to make toothpaste has begun to develop, one of which contains active substances from natural ingredients or commonly called herbal toothpaste. Natural ingredients that can be used in toothpaste are cocoa husk extract and green tea extract. Based on previous research it can be proven that the cocoa husk extract and green tea has an antibiofilm effect on Streptococcus mutans. The use of natural ingredients is safer because it has relatively fewer side effects or hypoallergic than modern ingredients.The Objective of thi study is to determine the effect of cocoa husk extract base toothpaste and green tea extract base toothpaste on the formation of Streptococcus mutans biofilms in terms of the density of Streptococcus mutans biofilms and the thickness of EPS biofilms Streptococcus mutans.The sample of this study was a collection of plates which contained a single species of Streptococcus mutans ATCC (American Type Culture Collection) 35668 that was cultured on Trypticase Soy Broth (TSB) media. The number of samples used in this study were 30 samples divided into 5 groups consisting of 3 treatment groups, 1 negative control group, and 1 positive control group. Density of bacterial cells in biofilms as measured by units of Optical Density (OD) of bacteria using ELISA Reader. The thickness of the Streptococcus mutans biofilm-forming polymer was seen with the CLSM (Confocal Laser Scanning Microscope) with the help of dextren alexa fluor 647 coloring which emits red fluorescence and uses arbitrary units.The data generated were normally distributed using the Kolmogorov-Smirnov test (p value> 0.05). Levene Test results show that the data are not homogeneous (p <0.05). Next, a different test for the whole treatment group was performed using the Kruskall-Wallis Test. The results showed that p = 0.000 (p <0.05) showed that there were significant differences between groups. Tukey HSD Post hoc test was used to compare each group and the results obtained for each treatment group had a significant difference in average biofilm intensity with a result of p = 0,000 (p <0.05). However, in group I with group III which had a value of p = 0.930 (p> 0.05) showed that the two groups did not have significant differences in the average biofilm intensity. In addition, the control group II with group IV had a value of p = 0.817 (p> 0.05) indicating that the two groups did not have significant differences in average biofilm intensity.Basic toothpaste of cocoa husk extract is better in inhibiting the formation of Streptococcus mutans biofilm than the green tea extract basic toothpaste seen from the density of Streptococcus mutans biofilm and the thickness of Streptococcus mutans biofilms.

Keywords: *cocoa husk extract base toothpaste, green tea extract base toothpaste, EPS biofilm Streptococcus mutans*