

THE INHIBITORY EFFICACY OF FLAVONOID OF MANGOSTEEN PEEL EXTRACT (*Garcinia mangostana* Linn.) AGAINST LACTOBACILLUS ACIDOPHILUS BIOFILM BACTERIA

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Background. *Lactobacillus* takes role in the formation of dental plaque which is the main factor that cause dental caries. The bacteria takes role in the metabolism of glucose in the mouth, producing organic acids which lower the pH in the oral cavity. This situation can lead to the formation of dental caries because these bacteria can form biofilm as a defense of microorganisms to antibiotics and the immune response. Mangosteen peel has active ingredients such as flavonoid that can be used to inhibit biofilm. The ability of flavonoid compounds in the phenol group can make the bacterial enzyme becomes inactive, causing the activity of glucosyltransferase enzyme that usually used by bacteria to synthesize sucrose in the medium becomes glucan. As a result, bacterial biofilm formation is inhibited because the amount of glucan as a medium of bacterial attachment is limited, but until now the effectivity dose of flavonoid from mangosteen peel extract (*Garcinia mangostana* Linn.) is has not known yet **Purpose.** The aim of this study was to determine the inhibitory efficacy of flavonoid of mangosteen peel extract against the formation of *Lactobacillus acidophilus* bacterial biofilm. **Methods.** Bacteria that had been formed into biofilms was studied in two times treatment, one concentration reviewed by flavonoid from mangosteen peel extract and without reviewed by flavonoid from mangosteen peel extract. The treatment group was incubated at 37°C until day 8 since the first day incubated. The treatment group was washed with phosphate buffered saline (PBS) 4 times and dried. The treatment group stained with 0.2 ml 0.1% crystal violet and 15 min incubation. The treatment group was rinsed with distilled water 3 times and then dried. Solvent DMSO 100% was added as much as 0.1 ml in each well. Microtiter plate was shaken for 1 minute and then placed in to the microplate reader and then the OD (Optical Density) can be rread. **Results.** There were significant differences between the inhibitory efficacy of flavanoid of mangosteen peel extract against *Lactobacillus achidophilus* biofilm bacteria, the control group and group treatments ($p < 0.05$). **Conclusion.** Flavonoid of mangosteen peel extract with the concentration of 0.78% had inhibitory effect against *Lactobacillus acidophilus* biofilm bacteria.

Keywords: Mangosteen peel extract (*Garcinia mangostana* Linn.), Flavonoid, *Lactobacillus acidophilus* biofilm bacteria, caries.