

## INTISARI

*Streptococcus sanguinis* merupakan bakteri pionir yang berperan dalam pembentukan biofilm. Perkembangan biofilm dapat menyebabkan terjadinya penyakit di rongga mulut sehingga keberadaan biofilm perlu dikontrol. Daun sawo manila memiliki kandungan flavonoid, saponin, alkaloid, dan tanin yang bersifat sebagai antibakteri dan antibiofilm. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak daun sawo manila terhadap destruksi biofilm bakteri *S. sanguinis* ATCC 10556.

Jenis penelitian ini adalah eksperimental laboratoris. Daun sawo manila sebanyak 1 kg diekstraksi dengan metode maserasi menggunakan pelarut etanol 70% sehingga diperoleh ekstrak kental. Model biofilm merupakan biakan murni bakteri *S. sanguinis* ( $1,5 \times 10^8$  CFU/mL) dalam 96-wells microtiter plates dan diinkubasi pada suhu 37°C selama 24 jam. Selanjutnya, pada biakan *S. sanguinis* dipaparkan ekstrak daun sawo manila konsentrasi 10,42%, 5,21% (sebagai *Minimum Inhibitory Concentration* terhadap bakteri *S. sanguinis* ATCC 10556), dan 2,60% sebagai kelompok perlakuan. Klorheksidin glukonat 0,1% dipakai sebagai kontrol positif, sedangkan NaCl 0,9% sebagai kontrol negatif. Setelah dilakukan inkubasi selama 24 jam, sumuran diwarnai dengan kristal violet 0,1%. *Optical density* dibaca dengan spektrofotometer ( $\lambda=450$  nm). Data dianalisis dengan uji *One-way ANOVA* dan uji *Post-Hoc Least Significant Difference (LSD)*.

Hasil uji *One-way ANOVA* menunjukkan perbedaan yang signifikan antar kelompok ( $p<0,05$ ). Uji *Post-Hoc LSD* menunjukkan terdapat perbedaan bermakna ( $p<0,05$ ) pada kelompok ekstrak konsentrasi 10,42% jika dibandingkan dengan ekstrak konsentrasi 2,60% dan 5,21%. Berdasarkan data yang diperoleh disimpulkan bahwa ekstrak daun sawo manila memiliki kemampuan dalam mendestruksi biofilm *S. sanguinis* ATCC 10556 dengan ekstrak konsentrasi 10,42% memiliki kemampuan paling tinggi dalam mendestruksi biofilm dibandingkan dengan ekstrak konsentrasi 2,60% dan 5,21% dan kemampuannya setara dengan klorheksidin glukonat 0,1%.

**Kata kunci:** daun sawo manila, destruksi biofilm, *Streptococcus sanguinis*

## ABSTRACT

*Streptococcus sanguinis* is a pioneer bacterium playing a crucial role in biofilm formation. Oral diseases can be caused by biofilm development, so its presence needs to be controlled. Manila sapodilla leaves contain flavonoids, saponins, alkaloids, and tannins with antibacterial and antibiofilm properties. This study aimed to determine the effect of manila sapodilla leaf extract on the destruction of *S. sanguinis* ATCC 10556 bacterial biofilm.

The method used in this study was an experimental laboratory test. 1 kg manila sapodilla leaves were subjected to maceration using 70% ethanol as a solvent to obtain a thick extract. The biofilm model was created by culturing *S. sanguinis* bacteria ( $1,5 \times 10^8$  CFU/mL) in 96-well microtiter plates and incubated at 37°C for 24 hours. Treatments were applied to the formed biofilm, namely the addition of manila sapodilla leaves extract at concentrations of 10.42%, 5.21% (as the Minimum Inhibitory Concentration against *S. sanguinis* ATCC 10556), and 2.60% as treatment groups. Chlorhexidine gluconate 0.1% was used as a positive control, while NaCl 0.9% as a negative control. After incubation for 24 hours, the wells were stained with 0.1% crystal violet. Optical density was measured using a spectrophotometer ( $\lambda=450$  nm). Data were analyzed through *One-way ANOVA* and *Post-Hoc Least Significant Difference* (LSD) tests.

Significant differences among groups ( $p<0.05$ ) were revealed by the *One-way ANOVA* test results. *Post-hoc* LSD analysis indicated a significant difference ( $p<0.05$ ) in the 10.42% extract concentration group compared to the 2.60% and 5.21% extract concentrations. According to the obtained data, it is concluded that manila sapodilla leaf extract can destroy *S. sanguinis* ATCC 10556 biofilm, with the 10.42% concentration having the highest efficacy compared to the 2.60% and 5.21% concentrations. Its efficacy is comparable to 0.1% chlorhexidine gluconate.

**Keywords:** manila sapodilla leaf, biofilm destruction, *Streptococcus sanguinis*