INTISARI

Streptococcus mutans adalah bakteri Gram positif fakultatif anaerob yang banyak ditemukan pada awal formasi biofilm. Daun karika (*Carica pubescens)* mengandung senyawa flavonoid, alkaloid, tanin, saponin, dan triterpenoid yang berperan sebagai antibakteri dan antibiofilm. Tujuan dari penelitian ini yaitu mengetahui pengaruh ekstrak daun karika terhadap destruksi biofilm *S. mutans* ATCC 25175.

Penelitian diawali dengan uji *minimum inhibitory concentration* (MIC) dan didapatkan konsentrasi 5,21% sebagai MIC. Pembentukan biofilm dilakukan dengan menginkubasi suspensi *S. mutans* ATCC 25175 dengan media BHI-B + 1% sukrosa pada *96-wells microtiter plate* selama 24 jam pada suhu 37°C. Ekstrak daun karika konsentrasi 2,60%, 5,21%, dan 10,42%, klorheksidin glukonat 0,1% (kontrol positif), serta larutan salin (kontrol negatif) ditambahkan pada sumur. Dilakukan 5 replikasi pada setiap kelompok uji. Setelah diinkubasi selama 24 jam pada suhu 37°C, biofilm diwarnai dengan *crystal violet* 0,1% dan absorbansinya diukur menggunakan *microtiter plate reader* (λ=450 nm).

Hasil uji *One-Way* ANOVA menunjukkan adanya perbedaan signifikan antar kelompok uji dalam destruksi biofilm ($p<0,05$). Hasil uji *Post-Hoc* LSD menunjukkan bahwa tidak terdapat perbedaan signifikan ($p>0,05$) antara semua konsentrasi ekstrak daun karika, namun terdapat perbedaan signifikan antara semua konsentrasi ekstrak daun karika terhadap klorheksidin glukonat sebagai kontrol positif ($p<0,05$). Kesimpulan dari penelitian ini yaitu ekstrak daun karika konsentrasi 2,60%, 5,21%, dan 10,42% memiliki kemampuan yang sama dalam mendestruksi biofilm *S. mutans* ATCC 25175, tetapi efektivitasnya lebih rendah dibandingkan klorheksidin glukonat.

Kata kunci: *Streptococcus mutans,* ekstrak daun karika, destruksi biofilm.

ABSTRACT

Streptococcus mutans is a facultative anaerobic Gram-positive bacteria that plays a significant role in the initial formation of caries. Karika leaves contain flavonoids, alkaloids, tannins, saponins, and triterpenoids which act as antibacterial and antibiofilm. This research aimed to determine the effect of karika leaf extract on the destruction of *S. mutans* ATCC 25175.

Research began with the minimum inhibitory concentration (MIC) test and obtained a concentration of 5.21% as the MIC. Biofilm formation was carried out by incubating the suspension of *S. mutans* ATCC 25175 with BHI-B media + 1% sucrose in 96-wells microtiter plate for 24 hours at 37°C. Karika leaf extract concentrations of 2.60%, 5.21%, and 10.42%, 0.1% chlorhexidine gluconate (positive control), and saline solution (negative control) were added to the wells. All experiments were conducted in 5 replications. After incubated for 24 hours at 37°C, the biofilms were stained with 0.1% crystal violet and the absorbance was measured using microtiter plate reader (λ=450 nm).

One-Way ANOVA test showed that there were significant differences among the groups in biofilm destruction ($p<0.05$). Post-Hoc LSD test showed that there were no significant differences ($p>0.05$) between all concentration of karika leaf extract, however, there was a significant difference between all concentration of karika leaf extract against chlorhexidine gluconate as positive control ($p<0.05$). In conclusion, karika leaf extract concentrations of 2.60%, 5.21%, and 10.42% have the same ability to destroy *S. mutans* ATCC 25175 biofilm, however, their effectiveness are lower than 0.1% chlorhexidine gluconate.

Keywords: *Streptococcus mutans*, karika leaf extract, biofilm destruction.