

## INTISARI

*Streptococcus mutans* memiliki produk adhesin yang berfungsi untuk melekat pada reseptor spesifik di permukaan gigi sehingga terbentuk plak gigi. Enzim papain yang terkandung pada biji pepaya memiliki potensi dalam menghambat perlekatan *S. mutans* ATCC 25175. Tujuan penelitian ini adalah untuk mengetahui adanya pengaruh ekstrak biji pepaya terhadap perlekatan *S. mutans* ATCC 25175.

Subyek penelitian ini adalah *S. mutans* ATCC 25175 dengan kelompok perlakuan berupa ekstrak biji pepaya konsentrasi 2,5%, 5%, 10%, dan kelompok kontrol berupa kontrol positif (klorheksidin glukonat 0,2%) serta kontrol negatif (akuades). Uji perlekatan bakteri dilakukan menggunakan metode *microtiter dish biofilm formation assay* pada BHI cair selama 16 jam pada suhu 37°C. Daya hambat ekstrak biji pepaya terhadap perlekatan bakteri ditentukan berdasarkan nilai densitas optik yang diukur pada panjang gelombang 540 nm. Data berupa persentase perlekatan bakteri dianalisis menggunakan *One-Way ANOVA* dengan taraf signifikansi 95% ( $\alpha = 0,05$ ).

Hasil analisis *One-Way ANOVA* menunjukkan secara bermakna ekstrak biji pepaya berpengaruh terhadap perlekatan *S. mutans* ATCC 25175. Hasil analisis *Tukey HSD* menunjukkan ekstrak biji pepaya konsentrasi 10% berbeda bermakna terhadap ekstrak biji pepaya konsentrasi 2,5%, 5%, dan kontrol positif. Kesimpulan penelitian ini adalah ekstrak biji pepaya bermakna menghambat perlekatan *S. mutans* ATCC 25175, namun kemampuan penghambatan masih dibawah klorheksidin glukonat 0,2%. Selain itu, ekstrak biji pepaya konsentrasi 10% lebih berpotensi dalam menghambat perlekatan dibandingkan ekstrak biji pepaya konsentrasi 2,5% dan 5%.

## ABSTRACT

*Streptococcus mutans* is able to adhere to the tooth surface because of an interaction between adhesin product of *S. mutans* and specific receptor on it which forms dental plaque. There are specific substances in papaya seeds, such as papain enzyme, that potentially prevent the adherence of *S. mutans* ATCC 25175. The purpose of study was to determine the effect of papaya seeds extract on the adherence of *S. mutans* ATCC 25175.

The subjects of this study were consisted of *S. mutans* ATCC 25175, treated group in the form of papaya seeds extract in 2,5%, 5%, 10% concentration, and control group in the form of positive control (chlorhexidine gluconate 0,2%) and negative control (aquades). Microtiter dish biofilm formation assay method was used for adherence's test of *S. mutans* ATCC 25175 in liquid BHI for 16 hours at 37°C. Inhibition of extracts of papaya seeds against bacterial adherence was determined based on the optical density measured at a wavelength of 540 nm. Data in the form of percentage bacterial adherence was analyzed using One-Way ANOVA test with a significance level of 95% ( $\alpha = 0,05$ ).

Analysis One-Way ANOVA showed that the extract of papaya seeds significantly influences the adherence of *S. mutans* ATCC 25175. Tukey HSD test showed papaya seeds extract in 10% concentration is significantly different to 2,5%, 5%, and positive control. It was concluded that the extract of papaya seeds could inhibit the adherence of *S. mutans* ATCC 25175, but less potential than chlorhexidine gluconate 0,2%. In addition, papaya seeds extract in concentration of 10% has more potential inhibitory compared with 2,5% and 5%.