

INTISARI

Streptococcus mutans memiliki beberapa faktor virulensi yang berperan penting dalam terjadinya karies gigi. Dalam menginisiasi terjadinya proses karies, bakteri harus melekat pada permukaan gigi. Kemampuan adhesi *S. mutans* dipengaruhi oleh beberapa faktor seperti adanya protein perlekatan pada permukaan sel dan glukon. Daun jambu biji (*psidium guajava* L.) telah dikenal sebagai salah satu bahan obat tradisional untuk mengobati berbagai penyakit. Tujuan penelitian ini adalah untuk mengetahui efek rebusan daun jambu biji terhadap kemampuan adhesi bakteri *S. mutans*.

Kemampuan adhesi *S. mutans* ditentukan oleh perlekatan bakteri di dalam 96-well microplate. Rebusan daun jambu biji konsentrasi 2.5% dan 5% ditambahkan kedalam sumuran yang mengandung 1.5×10^8 sel bakteri dalam kaldu BHI. Microplate diinkubasi selama 24 jam pada suhu 37°C. Microplate dicuci menggunakan phosphate buffered saline dan diwarnai dengan kristal violet 0.1%. Densitas optik diukur dengan menggunakan microplate reader pada $\lambda 540$ nm. Persentase penghambatan *S. mutans* dihitung dari hasil densitas optik.

Hasil One Way ANOVA menunjukkan perbedaan signifikan persentase penghambatan ($p < 0,05$) antar kelompok. Analisis lanjut LSD menunjukkan perbedaan signifikan persentase penghambatan antara rebusan daun jambu biji konsentrasi 5% dibandingkan dengan konsentrasi 2.5% tetapi tidak memiliki perbedaan secara signifikan dibandingkan klorheksidin glukonat 0.2%. Kesimpulan dari penelitian ini adalah rebusan daun jambu biji dapat menghambat adhesi bakteri *S. mutans*.

Kata kunci: daun jambu biji, adhesi, *S. mutans*.

ABSTRACT

Streptococcus mutans has several virulence factors that play an important role in dental caries. In order to initiate the caries process, the bacteria has to adhere on the tooth surface. Adhesion ability of *S.mutans* is affected by several factors such as the presence of glucan and adherence protein expressed on the surface of the cell. Guava leaf (*Psidium guajava* L.) has been known as a traditional medicine to treat various diseases. The aim of this study was to know the influence of guava leaf decoction on the adhesion ability of *S. mutans*.

The adhesion ability of *S.mutans* was determined by bacterial adherence on a 96-well microplate. 2.5% and 5% guava leaf decoction were added to the well containing 1.5×10^8 cell bacteria in BHI broth. Microplate was incubated for 24 hours at 37°C. Microplate was washed using phosphate buffered saline and stained with 0.1% crystal violet. Optical density was measured using microplate reader at $\lambda 540$ nm. Inhibition percentage of *S. mutans* was calculated from optical density result.

One Way ANOVA result showed significant differences of inhibition percentage ($p < 0,05$) among groups. LSD result showed significant difference of inhibition percentage between 5% guava leaf decoction compared to 2.5% guava leaf decoction but had no significant difference compared to 0.2% chlorhexidin gluconate. In conclusion, guava leaf decoction can inhibit *S. mutans* adhesion.

Keywords: guava leaf, adhesion, S. mutans.