

INTISARI

Streptococcus sanguinis ATCC 10556 merupakan bakteri pionir dalam pembentukan plak gigi. Sifat hidrofobisitas *S. sanguinis* memengaruhi kemampuan perlekatannya pada permukaan gigi. Daun stevia (*Stevia rebaudiana* Bertoni M.) mengandung alkaloid, flavonoid, dan tanin yang berpotensi dapat menghambat adhesi bakteri. Penelitian ini bertujuan untuk mengetahui pengaruh paparan ekstrak daun stevia terhadap hidrofobisitas bakteri *S. sanguinis* ATCC 10556.

Hidrofobisitas bakteri diamati dengan metode pengukuran sudut kontak. Suspensi bakteri *S. sanguinis* ATCC 10556 dicampur dalam kelompok ekstrak daun stevia (5,36%, 2,68%, 1,34%, 0,67%), klorheksidin glukonat 0,2% (kontrol positif), dan *phosphate buffer saline* (kontrol negatif) dan diinkubasi selama 24 jam pada suhu 37°C. Bakteri dikultur kembali dalam BHI-B dan didepositkan pada membran filter selulosa asetat selama 18 jam. Selanjutnya, dilakukan *drop file analysis* dan pengukuran sudut kontak dengan menggunakan *software ImageJ*.

One-way ANOVA menunjukkan perbedaan signifikan ($p < 0,05$) indeks hidrofobisitas antar kelompok. Hal ini menunjukkan bahwa ekstrak daun stevia dapat menurunkan hidrofobisitas *S. sanguinis* ATCC 10556. Hasil uji *Post-Hoc Least Significant Different* menunjukkan bahwa terdapat perbedaan bermakna ($p < 0,05$) pada kelompok ekstrak daun stevia konsentrasi 5,36% dan 2,68% dengan klorheksidin glukonat 0,2%. Disimpulkan bahwa ekstrak daun stevia konsentrasi 5,36%, 2,68%, 1,34%, dan 0,67% dapat menurunkan hidrofobisitas bakteri *S. sanguinis* ATCC 10556. Konsentrasi ekstrak daun stevia 5,36% dan 2,68% memiliki efektivitas yang sama dengan klorheksidin glukonat 0,2% dalam menurunkan hidrofobisitas *S. sanguinis* ATCC 10556.

Kata Kunci: ekstrak daun stevia, hidrofobisitas, *Streptococcus sanguinis* ATCC 10556

ABSTRACT

Streptococcus sanguinis ATCC 10556 is a pioneering bacterium in the formation of dental plaque. The hydrophobicity properties of *S. sanguinis* affect its attachment ability to the tooth surface. Stevia leaves (*Stevia rebaudiana* Bertoni M.) contain alkaloids, flavonoids, and tannins that may potentially inhibit bacterial adhesion. This study aimed to determine the effect of stevia leaf extract exposure on the hydrophobicity of *S. sanguinis* bacteria ATCC 10556.

The hydrophobicity of the bacteria was evaluated by drop file analysis method. The bacterial suspension of *S. sanguinis* ATCC 10556 was mixed with various stevia leaf extract group (5.36%, 2.68%, 1.34%, 0.67%), 0.2% chlorhexidine gluconate (positive control), and phosphate buffered saline (negative control) and incubated for 24 h at 37°C. Bacteria were then re-cultured in BHI-B and deposited on the cellulose acetate filter membrane for 18 hours. After drop file analysis was completed, the measurement of contact angles were carried out using ImageJ software.

One-way ANOVA showed a significant difference ($p < 0.05$) in hydrophobicity index among groups, suggested that stevia leaf extract affected the hydrophobicity of *S. sanguinis* ATCC 10556. The results of the Post-Hoc Least Significant Different test no significant difference ($p < 0.05$) between 5.36% and 2.68% stevia leaf extract with 0.2% chlorhexidine gluconate. It is concluded that stevia leaf extract decrease the hydrophobicity of *S. sanguinis* bacteria ATCC 10556. Stevia leaf extract concentration of 5.36% and 2.68% has the same effectivity as 0.2% chlorhexidine gluconate have reduce the hydrophobicity *S. sanguinis* ATCC 10556.

Keywords: stevia leaf extract, hydrophobicity, *Streptococcus sanguinis* ATCC 10556