

INTISARI

Keberadaan *L. acidophilus* yang tidak terkontrol pada rongga mulut dapat menciptakan plak gigi. Hidrofobisitas merupakan sifat bakteri *L. acidophilus* yang dapat mempengaruhi perlekatan awal bakteri dalam tahap pembentukan plak. Daun Stevia (*Stevia rebaudiana Bertoni*) memiliki kandungan alkaloid, flavonoid, dan tanin yang berpotensi menghambat perlekatan bakteri. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak daun stevia terhadap hidrofobisitas *L. acidophilus* IFO 13951 *in vitro*.

Hidrofobisitas bakteri diamati dengan metode analisis sudut kontak. Suspensi bakteri *L. acidophilus* IFO 13951 dicampurkan dengan ekstrak daun stevia konsentrasi 21,42%, 10,71%, 5,355%, 2,6778%, PBS (kontrol negatif), dan klorheksidin glukonat 0,2% (kontrol positif) lalu diinkubasi selama 24 jam pada suhu 37°C. Setiap kelompok perlakuan dilakukan pengulangan sebanyak 5 kali (n=5). Bakteri dikultur kembali pada media MRSB lalu didepositkan pada membran filter selulosa asetat dan diinkubasi selama 24 jam. Membran filter selulosa asetat dikeringkan dan dilakukan analisis sudut kontak menggunakan kamera dan *software* ImageJ. Analisis hasil diuji dengan statistik pada $p < 0,5$.

Hasil uji *Welsch's* ANOVA menunjukkan adanya perbedaan yang signifikan antar kelompok uji dalam menurunkan hidrofobisitas *L. acidophilus* IFO 13951. Hasil uji Post Hoc *Games-Howell* menunjukkan bahwa terdapat perbedaan signifikan pada seluruh konsentrasi ekstrak daun stevia dibandingkan dengan kontrol negatif dan kontrol positif. Kesimpulan dari penelitian ini adalah ekstrak daun stevia pada konsentrasi 21,42% dan 10,71% secara bermakna memiliki efektivitas setara dalam menurunkan hidrofobisitas bakteri *L. acidophilus* IFO 13951 namun kemampuannya dibawah klorheksidin glukonat 0,2%.

Kata kunci: ekstrak daun stevia, hidrofobisitas, *Lactobacillus acidophilus* IFO 13951

ABSTRACT

Uncontrolled presence of *Lactobacillus acidophilus* in the oral cavity can lead to dental plaque formation. The hydrophobicity of *L. acidophilus* is a bacterial property that can influence the initial adhesion of bacteria during plaque formation. Stevia leaf (*Stevia rebaudiana Bertoni*) contain alkaloids, flavonoids, and tannins, which are known to possess potential inhibitory effects on bacterial adhesion. This study was conducted to observe the effect of stevia leaf extract on the hydrophobicity of *L. acidophilus* IFO 13951 *in vitro*.

Bacterial hydrophobicity was observed using the contact angle analysis method. The suspension of *L. acidophilus* IFO 13951 was mixed with stevia leaf extract at concentrations of 21,42%, 10,71%, 5,355%, 2,6778%, PBS (negative control), dan chlorhexidine gluconate 0,2% (positive control), followed by incubation for 24 hours at 37°C. Each group was tested in five replications (n=5). The bacteria were then recultured on MRSB media, deposited on cellulose acetate filter membranes, and incubated for 24 hours. The membranes were dried and contact angle analysis was performed using camera and ImageJ software. Statistical analysis was performed with a significance level of $p < 0,5$.

The results of *Welsch's* ANOVA test showed that significant differences were observed between the treatment groups in reducing the hydrophobicity of *L. acidophilus* IFO 13951. The Post Hoc *Games-Howell* test indicated that significant differences were found between all concentrations of stevia leaf extract compared to the negative and positive controls. It was concluded that stevia leaf extract at a concentration of 21,42% and 10.71% was found to have similar effectiveness in reducing the hydrophobicity of *L. acidophilus* IFO 13951, although its effectiveness less than chlorhexidine gluconate 0,2%

Keyword: stevia leaf extract, hydrophobicity, *Lactobacillus acidophilus* IFO 13951