INTISARI

Streptococcus mutans ATCC 25175 merupakan salah satu galur *S. mutans* yang ditemukan pada karies dentin. Hidrofobisitas merupakan salah satu sifat *S. mutans* yang mendukung perlekatan bakteri pada permukaan jaringan keras gigi dan mengawali proses karies gigi. Daun kemangi (*Ocimum basilicum* L.) mengandung zat aktif seperti saponin dan tanin yang berpotensi dapat menghambat adhesi bakteri. Penelitian ini bertujuan untuk mengetahui pengaruh rebusan daun kemangi terhadap hidrofobisitas bakteri *S. mutans* ATCC 25175.

Hidrofobisitas bakteri diamati dengan metode pengukuran sudut kontak. Suspensi bakteri *S. mutans* ATCC 25175 dicampur dalam rebusan daun kemangi konsentrasi 28%, 14%, 7%, dan 3,5% diinkubasi selama 20 jam pada 37^{o}C kemudian disentrifugasi. Fasa bakteri kemudian dikultur kembali dalam BHI kaldu dan didepositkan pada filter selulosa asetat selama 18 jam. Selanjutnya, dilakukan *drop file analysis* dan pengukuran sudut kontak dengan menggunakan *software* ImageJ. Data dianalisis statistik dengan uji *One-way* ANOVA dan *Tukey* HSD ($p<0,05$).

Hasil penelitian menunjukkan bahwa hidrofobisitas tertinggi ditemukan pada kontrol negatif dan yang terendah pada rebusan daun kemangi konsentrasi 28%. Hasil uji *Post Hoc* dengan *Tukey* HSD menunjukkan bahwa rebusan daun kemangi konsentrasi 7%, 14% dan 28% memiliki efektivitas yang setara dengan klorheksidin glukonat 0,2% (kontrol positif). Kesimpulan dari penelitian ini adalah rebusan daun kemangi konsentrasi 3,5%, 7%, 14%, dan 28% mempengaruhi hidrofobisitas bakteri *S. mutans* ATCC 25175. Peningkatan konsentrasi rebusan daun kemangi hingga konsentrasi 28% menyebabkan penurunan hidrofobisitas bakteri *S. mutans* ATCC 25175. Rebusan daun kemangi konsentrasi 7%, 14%, dan 28% memiliki kemampuan yang setara dengan klorheksidin glukonat 0,2% dalam menurunkan hidrofobisitas *S. mutans* ATCC 25175. Rebusan daun kemangi konsentrasi 7%, 14%, 28%, dan klorheksidin glukonat 0,2% memberikan nilai hidrofobisitas moderat terhadap bakteri *S. mutans* ATCC 25175.

Kata Kunci: daun kemangi, hidrofobisitas, *Streptococcus mutans* ATCC 25175

ABSTRACT

Streptococcus mutans ATCC 25175 is one of *S. mutans* strain which isolated from dentin caries. Hydrophobic properties of the bacteria affects its ability to adhere to dental hard tissue leading to dental caries initiation. Basil leaves (*Ocimum basilicum* L.) contains saponin and tannin which potentially inhibit bacterial adherence. The aim of this study was to determine the effect of basil leaves decoction on the hydrophobicity of *S. mutans* ATCC 25175.

Hydrophobicity of *S. mutans* was determined by contact angle measurement test. *Streptococcus mutans* ATCC 25175 suspension was mixed with basil leaves decoction at concentration of 28%, 14%, 7%, and 3,5%. The mixtures were incubated for 20 hours at 37ºC and centrifuged. The bacterial phase was then inoculated in Brain Heart Infusion broth and deposited into cellulose acetate filter for 18 hours. Drop file analysis and contact angle measurement were performed using ImageJ software. The data was analyzed by One-way ANOVA and *Post Hoc's Tukey* HSD ($p<0.05$).

The result showed the highest hydrophobicity index was seen in the negative control group and the lowest was in 28% basil leaves decoction. The *Post Hoc's Tukey* HSD result showed that there were no significant difference between 7%, 14%, 28% basil leaves decoction and 0,2% clorhexidine gluconate (positive control). It is concluded that 3,5%, 7%, 14%, and 28% basil leaves decoction reduces hydrophobic properties of *S. mutans* ATCC 25175. The bacterial hydrophobic properties were decreases as basil leaves decoction concentration increases to 28%. The result showed that 7%, 14%, and 28% basil leaves decoction works as effective as 0,2% chlorhexidine gluconate to reduce hydrophobic properties of *S. mutans* ATCC 25175. Bacterial hydrophobicity index of *S. mutans* ATCC 25175 shows moderate hydrophobicity after it was exposed with 7%, 14%, 28% basil leaves decoction, and chlorhexidine gluconate 0,2%.

Keyword: basil leaf decoction, hydrophobicity, *Streptococcus mutans* ATCC 25175