

## ABSTRAK

*Streptococcus sanguinis* merupakan mikroorganisme utama yang berperan dalam pembentukan plak. Sifat hidrofobisitas dari *S. sanguinis* mempengaruhi kemampuannya untuk melekat pada permukaan gigi. Kulit nanas (*Ananas comosus*) telah banyak digunakan untuk kepentingan medis dalam mengobati berbagai kondisi patologis. Kulit nanas mengandung komponen antibakteri seperti flavonoid, bromelin, dan tanin. Penelitian ini bertujuan untuk mengetahui hidrofobisitas *S. sanguinis* setelah dipapar ekstrak kulit nanas.

Hidrofobisitas *S. sanguinis* ditentukan dengan uji adhesi bakteri terhadap heksadekana. Suspensi bakteri *S. sanguinis* dicampur dengan ekstrak etanolik kulit nanas konsentrasi 0,39%, 0,78%, 1,56%, dan 3,13% serta kontrol negatif (akuades). Hidrofobisitas *S. sanguinis* diukur menggunakan spektrofotometer ( $\lambda = 550$  nm). Indeks hidrofobisitas dihitung sebagai nilai reduksi densitas optik relatif terhadap suspensi bakteri sebelum ditambahkan heksadekana.

Hasil *One Way ANOVA* menunjukkan perbedaan signifikan ( $p < 0,05$ ) indeks hidrofobisitas antar kelompok. Analisis lanjut *LSD test* menunjukkan perbedaan signifikan ( $p < 0,05$ ) pada hampir seluruh perbandingan antar kelompok ekstrak. Ekstrak konsentrasi 1,56% tidak menunjukkan perbedaan signifikan ( $p > 0,05$ ) dibandingkan dengan ekstrak konsentrasi 0,78% dan 3,13%. Kesimpulan dari penelitian ini adalah ekstrak kulit nanas mampu menurunkan hidrofobisitas bakteri *S. sanguinis* ATCC 10556. Ekstrak kulit nanas konsentrasi 1,56% paling efektif dalam menurunkan hidrofobisitas *S. sanguinis* dibandingkan dengan konsentrasi 0,39%, 0,78%, dan 3,13%.

Kata kunci : ekstrak etanolik kulit nanas, hidrofobisitas, *S. sanguinis*

## ABSTRACT

*Streptococcus sanguinis* is the main microorganism that plays a key role in dental plaque formation. Hydrophobicity characteristic of *S. sanguinis* affects its ability to adhere on teeth surface. Pineapple (*Ananas comosus*) peel has been widely used for medical purpose in treating several pathological conditions. Pineapple peel contains flavonoid, bromelin, and tannin which act as antibacterial components. The aim of this study was to know the effect of pineapple peel extract upon the hydrophobicity of *S. sanguinis*.

Hydrophobicity of *S. sanguinis* was determined by bacterial adhesion test toward hexadecane. The bacterial suspension was mixed with pineapple peel ethanolic extract with the concentration of 0.39%, 0.78%, 1.56%, and 3.13%. Aquadest was used as a negative control. Hydrophobicity of *S. sanguinis* was measured using spectrophotometer ( $\lambda = 550$  nm). The hydrophobicity index was calculated as the percentage reduction in optical density relative to the suspension in the absence of hexadecane.

The result of *One Way* ANOVA showed a significant difference ( $p < 0.05$ ) in hydrophobicity index among groups. Further analysis with *LSD test* showed significant difference ( $p < 0.05$ ) in almost all comparisons between extract groups. However, 1.56% pineapple peel extract didn't show a significant difference ( $p > 0.05$ ) in comparison with 0.78% and 3.13% extract. The conclusion of this study was pineapple peel extract reduced the hydrophobicity of *S. sanguinis* ATCC 10556. Pineapple peel extract with the concentration of 1.56% yielded the most effective result in reducing hydrophobicity of *S. sanguinis* in comparison with 0.39%, 0.78%, and 3.13% pineapple peel extract.

Keywords: pineapple peel ethanolic extract, hydrophobicity, *S. sanguinis*