

INTISARI

Streptococcus mutans merupakan salah satu flora normal penyebab karies gigi. Salah satu kemampuan yang dimiliki oleh bakteri *S. mutans* sebagai langkah awal terjadinya karies adalah perlekatan dengan hidrofobisitas. *S. mutans* ATCC 25175 merupakan salah satu galur bakteri *S. mutans* yang ditemukan pada karies dentin. Kulit kentang (*Solanum tuberosum* L.) mengandung zat fitokimia seperti asam fenol (asam klorogenat), flavonoid, antosianin, dan alkaloid yang berpotensi menurunkan perlekatan bakteri. Zat tersebut dapat diperoleh dengan berbagai cara, diantaranya yaitu secara maserasi serta perebusan. Penelitian ini bertujuan untuk mengetahui perbedaan efek ekstrak dan rebusan kulit kentang terhadap terhadap hidrofobisitas *S. mutans* ATCC 25175.

Hidrofobisitas bakteri *S. mutans* ATCC 25175 ditentukan dengan pengukuran sudut kontak bakteri yang telah diberi perlakuan sesuai kelompoknya, yaitu kontrol, ekstrak kulit kentang konsentrasi 5%, 10%, dan 20%, serta rebusan kulit kentang konsentrasi 5%, 10%, dan 20%. Suspensi bakteri dicampur dengan sediaan sesuai kelompok serta kaldu BHI, lalu diinkubasi 24 jam suhu 37°C. Kemudian bakteri dikultur kembali sembari didepositkan pada membran filter selulosa asetat selama 18 jam. Selanjutnya membran dikeringkan untuk dilakukan *drop file analysis* serta pengukuran sudut kontak menggunakan *software ImageJ*. Data dianalisis statistik menggunakan *one-way ANOVA* serta *post hoc LSD* ($p < 0,05$).

Hasil analisis *one-way ANOVA* serta *post hoc LSD* menunjukkan bahwa bila dibandingkan antara ekstrak dan rebusan, konsentrasi 5% dan 20% berbeda secara signifikan, sedangkan konsentrasi 10% tidak berbeda signifikan. Ekstrak kulit kentang konsentrasi 20% tidak berbeda signifikan terhadap kontrol positif. Kesimpulan penelitian ini adalah ekstrak dan rebusan kulit kentang sama-sama dapat menurunkan hidrofobisitas bakteri bakteri *S. mutans* ATCC 25175.

Kata Kunci: kulit kentang, ekstrak, rebusan, hidrofobisitas, *Streptococcus mutans* ATCC 25175

ABSTRACT

Streptococcus mutans is one of the normal flora bacteria that can cause dental caries. One of the among others pathogenesis is adherence to the enamel and dentin, which is determined by its hydrophobicity properties. *Streptococcus mutans* ATCC 25175 is one of *S. mutans* strains which isolated from dentin caries. Potato peel (*Solanum tuberosum* L.) contain phytochemicals such as phenolic acid (chlorogenic acid), flavonoid, anthocyanin, and alkaloid which can potentially reduce bacterial adhesion. These phytochemicals can be obtained by various methods, including maceration and decoction. This research aims to compare the differences in the effects of potato peel extract and decoction on the hydrophobicity of *S. mutans* ATCC 25175.

Hydrophobicity of *S. mutans* ATCC 25175 was measured by contact angle analysis of the treated bacteria according to their treatment groups, which are grouped into two groups of concentration of 5%, 10%, and 20% extract and decoction respectively. Following the incubation with BHI for 24 hours at 37°C, the bacterial suspension was recultured and deposited to the cellulose membrane for 18 hours. Hydrophobicity of the bacteria deposited in the cellulose membrane was measured utilizing a drop shape analysis technique. The data was analyzed statistically using one-way ANOVA and post hoc LSD ($p < 0.05$).

The results showed there was a significant difference between potato peel extract and decoction for a respective 5% and 20% concentration, while for 10% was not found a difference. When compared with the positive control, only for a 20% concentration of potato peel extract which was found not a significant different. The conclusion is the hydrophobicity of *S. mutans* ATCC 25175 was decreased when the bacteria were treated with the both of potato peel extract and decoction.

Keyword: potato peel, extract, decoction, hydrophobicity, *Streptococcus mutans* ATCC 25175