

## INTISARI

Bahan kumur merupakan agen kontrol plak kimiawi yang menghambat pertumbuhan bakteri dengan kandungan antibakteri. Salah satu bakteri pembentuk plak gigi adalah *Staphylococcus aureus*. Ekstrak kulit batang jambu mete memiliki senyawa fenolik yang bersifat antibakteri dan dapat dijadikan bahan obat kumur. Efek antibakteri juga diketahui dapat ditingkatkan oleh nano kitosan. Tujuan penelitian ini adalah mengetahui efek penambahan berbagai konsentrasi nano kitosan pada bahan kumur ekstrak kulit batang jambu mete terhadap daya hambat pertumbuhan *S. aureus*.

Subjek penelitian berjumlah 24 sampel ( $n=6$  untuk setiap perlakuan). Kelompok A merupakan ekstrak kulit batang jambu mete, kelompok B ekstrak kulit batang jambu mete dan nano kitosan 1%, kelompok C ekstrak kulit batang jambu mete dan nano kitosan 2%, dan kelompok D ekstrak kulit batang jambu mete dan nano kitosan 3%. Uji daya hambat menggunakan media padat *Muller Hinton Agar* (MHA). Sumuran berdiameter 7 mm dibuat sebanyak 5 pada tiap cawan petri lalu diisi 50  $\mu$ l bahan kumur. Media diinkubasi 24 jam dengan suhu 37°C lalu dilakukan pengukuran diameter zona hambat. Data dianalisis statistik Anava satu jalur dan uji Post-hoc LSD ( $p<0,05$ ).

Hasil rerata diameter zona hambat sebesar  $12,01\pm0,39$  mm (Kelompok 0%);  $9,14\pm0,38$  mm (Kelompok 1%);  $8,26\pm0,81$  mm (Kelompok 2%); dan  $6,93\pm0,34$  mm (Kelompok 3%). Uji Anava menunjukkan penambahan berbagai konsentrasi nano kitosan pada ekstrak kulit batang jambu mete berpengaruh terhadap daya hambat pertumbuhan *S. aureus* ( $p<0,05$ ). Uji *Post-hoc* LSD menunjukkan perbedaan signifikan antar kelompok perlakuan. Kesimpulan penelitian adalah penambahan nano kitosan berbagai konsentrasi pada obat kumur ekstrak kulit batang jambu mete berpengaruh menurunkan daya hambat pertumbuhan *S. aureus*.

**Kata kunci:** nano kitosan, daya hambat, ekstrak kulit batang jambu mete (*Anacardium occidentale* L.), *Staphylococcus aureus*.

## ABSTRACT

Mouthwash is a chemical agent of plaque control that inhibits the bacterial growth due to its antibacterial properties. One of the bacteria that forms dental plaque is *Staphylococcus aureus*. Cashew bark extract contains phenolic compounds which are antibacterial and can be used as a mouthwash ingredients. The antibacterial effect is also known can be enhanced by nano chitosan. The aim of this research is to determine the effect of adding various concentrations of nano chitosan into mouthwash containing cashew bark extract on the inhibitory potential against *S. aureus* growth.

The research involved 24 samples (n=6 for each treatment group). The group A consisted of cashew bark extract, group B consisted of cashew bark extract and 1% nano chitosan, group C consisted of cashew bark extract and 2% nano chitosan, and group D consisted of cashew bark extract with 3% nano chitosan. The inhibitory test was using solid Muller Hinton Agar (MHA) media. Five wells with a diameter of 7 mm were made in each petri dish, then filled with 50  $\mu$ l of mouthwash. The media were incubated for 24 hours at 37°C, followed by observation and measurement of the diameter of the inhibition zones formed. Data were analyzed using One-way ANOVA and Post-hoc LSD ( $p < 0,05$ ).

The mean results of the inhibition zone diameter were 12,01 $\pm$ 0,39 mm (Group 0%); 9,14 $\pm$ 0,38 mm (Group 1%); 8,26 $\pm$ 0,81 mm (Group 2%); and 6,93 $\pm$ 0,34 mm (Group 3%). The ANOVA test showed that the addition of various concentrations nano chitosan to cashew bark extract had an effect on inhibiting the growth of *S. aureus* ( $p < 0,05$ ). The Post-hoc LSD test showed significant differences between the treatment groups. The conclusion of this research was that the addition of nano chitosan at various concentrations to mouthwash formulated with cashew bark extract has the effect of reducing the inhibitory power against the growth of *S. aureus*.

**Key words:** nano chitosan, inhibitory power, cashew bark (*Anacardium occidentale* L.) extract mouthwash, *Staphylococcus aureus*.