

ABSTRAK

nama : Ilma Al halifa Hasibuan
program pelatihan : Kedokteran gigi
judul : Efek antibakteri ekstrak belimbing wuluh (*Averrhoa blimbi L.*) terhadap *Streptococcus mutans*

Streptococcus mutans, bakteri gram positif penyebab karies gigi, menghuni rongga mulut. Pengobatan herbal dengan sifat antibakteri yang kuat mungkin diperlukan untuk menghentikan pertumbuhan mikroba penyebab penyakit. Para ilmuwan mulai meneliti kemampuan antibakteri dari *Streptococcus mutans* ekstrak terhadap buah belimbing (*Averrhoa blimbi L.*). Kelompok kontrol, yang melakukan tes hanya setelah intervensi, adalah bagian dari laboratorium terkontrol dalam penelitian ini. Strain *Streptococcus mutans* yang terisolasi digunakan untuk percobaan. Kelompok kontrol penelitian termasuk subjek yang menerima klorheksidin 0,2% atau empat dosis dimetil sulfoksida (DMSO). Jumlah ekstrak belimbing yang berbeda (20%, 40%, 60% dan 80%) juga digunakan pada empat kelompok perlakuan. Untuk mengetahui seberapa efektifnya terhadap mikroorganisme digunakan teknik difusi cakram. Data kemudian dilakukan uji ANOVA satu arah dan LSD post hoc untuk analisis statistik. Berdasarkan hasil penelitian, diameter zona hambat terhadap bakteri *Streptococcus mutans* berturut-turut sebesar $12,03 \pm 0,33$ mm, $16,70 \pm 0,48$ mm, $19,98 \pm 0,13$ mm, $22,25 \pm 0,26$ mm, $2 \pm 0,9$ mm pada $0,9 \pm 1$ mm. , masing-masing $0,9 \pm 1$ $0,9$ mm. , 40%. , 60% dan 80%. Kontrol negatif ditandai dengan tidak adanya zona hambat. Lebar zona hambat pada ekstrak belimbing wuluh (*Averrhoa blimbi L.*) bervariasi nyata ($p=0,000$; $p \leq 0,05$) dengan dosis 20%, 40%, 60%, 80%, kontrol positif dan kontrol negatif yang ditunjukkan oleh uji ANOVA cara. Dalam hal efikasi antibakteri terhadap *Streptococcus mutans*, hasil uji LSD post-hoc menunjukkan bahwa semua kelompok yang menerima ekstrak belimbing, termasuk kelompok kontrol positif dan negatif, memiliki pola yang berbeda secara statistik ($p \leq 0,05$). Hasil penelitian menunjukkan bahwa ekstrak belimbing mempunyai daya antibakteri terhadap *Streptococcus mutans* atas konsentrasi 80%.

kata kunci:

Streptococcus mutans, ekstrak belimbing, efek antibakteri, karies gigi

ABSTRAK

Name : Ilma Al Halifa Hasibuan
Study Program : Dentistry
Title : Antibacterial Effect of Star Fruit Extract (*Averrhoa blimbi* L.) against *Streptococcus mutans*

Streptococcus mutans, a gram-positive bacterium that causes dental caries, occupies a permanent place in the oral cavity. Herbal remedies with strong antibacterial properties may be needed to stop the growth of disease-causing microbes. Scientists have begun studying the antibacterial capacity of star extract (*Averrhoa blimbi* L.) against *Streptococcus mutans*. The control group, tested only after the intervention, was part of the study's controlled laboratory. The isolated strain of *Streptococcus mutans* was used for the experiments. The control group in the study included individuals given four doses of 0.2% chlorhexidine or dimethyl sulfoxide (DMSO). Different amounts of starfruit extract (20%, 40%, 60% and 80%) were also used in the four treatment groups. The disc diffusion technique is used to determine how effective it is against microorganisms. The data were then subjected to one-way ANOVA and post hoc LSD tests for statistical analysis. Based on the findings, the diameter of the inhibition zone against *Streptococcus mutans* bacteria is 12.03 ± 0.33 mm, 16.70 ± 0.48 mm, 19.98 ± 0.13 mm, 22.25 ± 0.26 mm, and 19.25 ± 0.25 mm at 0% dose 0.25 mm, respectively. , 60% and 80%. Negative controls are characterized by a lack of inhibition zones. The width of the inhibition zone in star extract (*Averrhoa blimbi* L.) varied significantly ($p=0.000$; $p \leq 0.05$) with doses of 20%, 40%, 60%, 80%, positive control and negative control as shown by one-way ANOVA test. In terms of antibacterial efficacy against *Streptococcus mutans*, the results of the LSD post-hoc test showed that all groups given starfruit extract, including the positive and negative control groups, had statistically different patterns ($p \leq 0.05$). The results showed that starfruit extract had antibacterial activity against *Streptococcus mutans* at a concentration of 80%.

keywords:

Streptococcus mutans, star fruit extract, antibacterial effect, dental caries