

INTISARI

Streptococcus alpha merupakan salah satu bakteri aerob yang ditemukan pada saluran akar gigi desidui nekrosis. Pengurangan jumlah mikroorganisme secara fisik dapat dilakukan dengan memanfaatkan gelombang ultrasonik. Penelitian ini bertujuan untuk mengetahui pengaruh lama paparan gelombang ultrasonik frekuensi 20.000 Hz terhadap pertumbuhan bakteri *Streptococcus alpha* isolasi saluran akar gigi desidui nekrosis.

Jenis penelitian adalah eksperimental semu. Obyek penelitian adalah bakteri *Streptococcus alpha* yang diisolasi dari saluran akar gigi desidui nekrosis. Dilakukan pemaparan gelombang ultrasonik frekuensi 20.000 Hz selama 1 menit, 3 menit dan 5 menit. Jumlah replikasi adalah 10. Kelompok kontrol tidak diberi pemaparan gelombang ultrasonik. Jumlah koloni bakteri *Streptococcus alpha* dihitung dengan metode *Total Plate Counter (TPC)*. Analisis data menggunakan uji *One way ANOVA* dan dilanjutkan dengan uji *Post Hoc LSD*. Hasil penelitian menunjukkan bahwa jumlah koloni bakteri *Streptococcus alpha* pada kelompok kontrol adalah 81,20 CFU/ml, kelompok perlakuan yang dipapar dengan gelombang ultrasonik selama 1 menit 51,90 CFU/ml, 3 menit 40,50 CFU/ml dan 5 menit yaitu 35,40 CFU/ml. Hasil uji *Anova satu jalur* menunjukkan nilai $p = 0,00$ ($p < 0,05$). Hasil Uji *Post Hoc LSD* menunjukkan perbedaan bermakna antara kelompok kontrol dengan kelompok paparan 1 menit, 3 menit dan 5 menit dan antara kelompok paparan 1 menit dan paparan 5 menit. Kesimpulan penelitian adalah paparan gelombang ultrasonik dengan frekuensi 20.000 Hz selama 1 menit, 3 menit, dan 5 menit dapat menurunkan jumlah pertumbuhan koloni bakteri *Streptococcus alpha*. Paparan gelombang ultrasonik frekuensi 20.000 Hz selama 5 menit lebih banyak menurunkan jumlah pertumbuhan koloni bakteri *Streptococcus alpha* dibandingkan dengan paparan selama 1 menit.

Kata kunci : gelombang ultrasonik, lama paparan, *Streptococcus alpha*, gigi desidui nekrosis

ABSTRACT

Streptococcus alpha is one of the aerobic bacteria found in deciduous necrotic root canals. The reduction of the number of microorganisms can be done by using ultrasonic waves. The aim of this study was to determine the effect of the frequency of 20,000 Hz ultrasonic waves against the growth of alpha Streptococcus bacteria isolating root canals of deciduous necrotic teeth.

The design of the study was an experimental quasi. The object of this study is Streptococcus alpha bacteria isolated from deciduous necrotic root canals. Treated by exposure to ultrasonic waves with a frequency of 20,000 Hz for 1 minute, 3 minutes and 5 minutes. The number of replications is 10. The control group was not treated. The number of colonies of Streptococcus alpha bacteria is counting by Total Plate Counter (TPC) method. Data analysis used the One way ANOVA test and continued with the Post Hoc LSD test.

The results showed that the highest number of Streptococcus alpha bacterial colonies in the control group that were not exposed to ultrasonic waves was 81.20 CFU / ml followed by a treatment group exposed to a 1-minute exposure period of 51.90 CFU / ml, 3 minutes exposure time 40.50 CFU / ml and the lowest at 5 minutes exposure time is 35.40 CFU / ml. One-way Anova test results showed a value of $p = 0.00$ ($p < 0.05$). Post Hoc Test results showed significant differences between the control group and the 1 minute exposure group, 3 minutes and 5 minutes and between groups 1 minute exposure and 5 minutes exposure. Conclusion of this study was ultrasound wave exposure with a frequency of 20,000 Hz for 1 minute, 3 minutes, and 5 minutes can reduce the amount of growth of Streptococcus alpha bacterial colonies. Ultrasonic wave exposure with a frequency of 20,000 Hz for 5 minutes more decreased the number of growth of Streptococcus alpha bacterial colonies compared to 1 minute exposure.

Keywords: ultrasonic waves, length of exposure, Streptococcus alpha, deciduous teeth necrosis