

INTISARI

Arginin merupakan salah satu asam amino yang potensial sebagai bahan antibakteri dalam bidang kedokteran gigi. Arginin memiliki muatan positif yang dapat berikatan dengan muatan negatif permukaan sel bakteri seperti lipopolisakarida (LPS), *teichoic acid* dan *phospholipid*. Penelitian ini bertujuan untuk mengetahui daya antibakteri arginin konsentrasi 5%, 8%, 10% dan 12% terhadap pertumbuhan *Enterococcus faecalis* sebagai bahan *dressing* pada perawatan saluran akar.

Metode yang digunakan dalam penelitian adalah difusi sumuran pada 8 media Mueller Hinton Agar (MHA) yang telah dioleskan suspensi bakteri *E. faecalis*. Pada masing-masing media dibuat 6 sumuran berdiameter 6 mm dan kedalaman 5 mm. Larutan uji berupa larutan arginin dengan konsentrasi 5%, 8%, 10%, dan 12%, gliserin sebagai kontrol negatif dan kalsium hidroksida ($\text{Ca}(\text{OH})_2$) sebagai kontrol positif dimasukkan kedalam masing-masing sumuran sebanyak 50 μl , kemudian diinkubasi pada suhu 37°C selama 24 jam. Zona hambat yang terbentuk diukur dengan jangka sorong dengan ketelitian 0,02 mm. Data yang diperoleh diuji dengan analisis statistik *One way* Anova dan dilanjutkan dengan uji LSD.

Uji Anova menunjukkan hasil bahwa terdapat perbedaan daya antibakteri antara larutan arginin 5%, 8%, 10%, 12%, gliserin dan $\text{Ca}(\text{OH})_2$ terhadap pertumbuhan *E. faecalis* ($p < 0,05$). Hasil uji LSD menunjukkan terdapat perbedaan bermakna antara larutan arginin 5%, 8%, 10%, dan 12% dengan $\text{Ca}(\text{OH})_2$ ($p < 0,05$).

Kesimpulan penelitian ini adalah larutan arginin 5%, 8%, 10%, dan 12% menunjukkan daya antibakteri terhadap *E. faecalis*. Daya antibakteri $\text{Ca}(\text{OH})_2$ lebih besar dibandingkan arginin. Konsentrasi arginin yang lebih tinggi menunjukkan daya antibakteri yang lebih besar.

Kata kunci : Arginin, bahan *dressing*, antibakteri, difusi, *E. faecalis*

ABSTRACT

Arginine is one of the amino acid which is potentially used as an antibacterial agent in dentistry. Arginine have a positive charge that can be bonded with negative surface of bacterial cell such as lipopolysaccharide (LPS), *teichoic acid* and *phospholipid*. The aim of this research was to know the antibacterial activity of arginine solution with concentrations of 5%, 8%, 10% and 12% against *Enterococcus faecalis* growth as a dressing agent in root canal treatment.

The used method in this research was well diffusion on 8 Mueller Hinton Agar (MHA) media, which had been swabbed with the bacterial suspension of *E. faecalis*. In each medium were made six wells with diameter of 6 mm and depth of 5 mm. The test solution that were arginine solutions with concentrations of 5%, 8%, 10% and 12%, glycerine as a negative control group, and calcium hydroxide ($\text{Ca}(\text{OH})_2$) as a positive control group were dropped into each well as 50 μl , and then were incubated at 37°C for 24 hours. Formed zone of inhibition was measured using a sliding caliper with accuracy of 0.02 mm. Data obtained were tested with One way Anova statistical analysis and were followed by LSD test.

One way anova test showed that was a difference of antibacterial activity between 5%, 8%, 10% and 12% solutions of arginine, glycerine and $\text{Ca}(\text{OH})_2$ against *E. faecalis* growth ($p < 0.05$). The result of LSD test showed that was a significant difference between all of solutions of arginine and $\text{Ca}(\text{OH})_2$ against *E. faecalis* growth ($p < 0.05$).

The conclusion of this research was that 5%, 8%, 10% and 12% arginine solutions showed the antibacterial activity against *E. faecalis*. Antibacterial activity of $\text{Ca}(\text{OH})_2$ is higher than arginine. The higher concentration of arginine solution produced the higher antibacterial activity.

Key words : arginine, dressing agent, antibacterial, diffusion, *E. faecalis*.