

INTISARI

Enterococcus faecalis adalah bakteri gram positif berbentuk kokus yang sering ditemukan pada kasus kegagalan perawatan saluran akar. Medikamen saluran akar yang biasa digunakan dalam perawatan endodontik adalah kalsium hidroksida dan chlorhexidine. Beberapa penelitian menyarankan penambahan chlorhexidine dapat digunakan bersama dengan kalsium hidroksida untuk memperluas efek antimikroba. Tujuan dari penelitian ini adalah untuk mengetahui perbedaan daya hambat kalsium hidroksida, chlorhexidine, dan kombinasi kalsium hidroksida-chlorhexidine konsentrasi 0,5%, 1% dan 2% terhadap pertumbuhan bakteri *Enterococcus faecalis* ATCC 29212.

Pengujian daya hambat terhadap bakteri *Enterococcus faecalis* ATCC 29212 dilakukan dengan metode difusi menggunakan sumuran pada media *Mueller Hinton Agar* (MHA). Medikamen yang digunakan terdiri dari kalsium hidroksida, chlorhexidine gel 2%, dan kombinasi kalsium hidroksida-chlorhexidine konsentrasi 0,5%, 1% dan 2%. Pengujian dilakukan dengan mengukur diameter zona hambat yang terbentuk. Data hasil penelitian dianalisis dengan uji statistik *Kruskal-Wallis*, kemudian dilanjutkan dengan uji statistik *post hoc U-Mann Whitney*.

Hasil penelitian menunjukkan bahwa semua medikamen memiliki daya hambat terhadap pertumbuhan bakteri *Enterococcus faecalis* ATCC 29212. Chlorhexidine memiliki rata-rata diameter zona hambat yang terbesar yaitu $8,32 \pm 1,25$ mm. Kalsium hidroksida memiliki diameter zona hambat terendah yaitu sebesar $2,71 \pm 0,50$ mm. Kombinasi kalsium hidroksida-chlorhexidine 2% memiliki diameter zona hambat yang paling besar diantara kombinasi lainnya yaitu $4,48 \pm 0,24$ mm.

Kesimpulan dari penelitian ini adalah chlorhexidine memiliki daya hambat pertumbuhan bakteri yang terbesar dibandingkan dengan kalsium hidroksida dan kombinasi kalsium hidroksida-chlorhexidine konsentrasi 0,5%, 1% dan 2%. Kombinasi kalsium hidroksida-chlorhexidine 2% memiliki daya hambat yang paling besar dibandingkan dengan kombinasi lainnya.

Kata kunci : kalsium hidroksida, chlorhexidine, kombinasi kalsium hidroksida-chlorhexidine, *Enterococcus faecalis* ATCC 29212

ABSTRACT

Enterococcus faecalis is a cocci shaped gram positive bacteria which often found in cases of root canal treatment failure. Root canal medicaments which often used in endodontic treatment are Calcium Hydroxide and Chlorhexidine. A few studies suggest that an addition of Chlorhexidine can be used together with Calcium Hydroxide to enhance the antimicrobial effect. The aim of this research is to determine the difference in inhibition strength between Calcium Hydroxide, Chlorhexidine and combination of Calcium Hydroxide and Chlorhexidine with a concentration of 0.5%, 1% and 2% respectively, against the growth of *Enterococcus faecalis* ATCC 29212 bacteria.

The testing method used for measuring inhibition strength against *Enterococcus faecalis* ATCC 29212 was diffusion method using wells in *Mueller Hinton Agar (MHA)* media. Medicaments used were Calcium Hydroxide, Chlorhexidine Gel 2%, and combination of Calcium Hydroxide- Chlorhexidine with a concentration of 0.5%, 1%, 2% respectively. The testing was carried out by measuring the diameter of inhibition zone formed. The data result of this study was analyzed using *Kruskal-Wallis* statistic test then continued with *post hoc U-Mann Whitney* statistic test.

The result shows that all medicaments possess inhibition strength against the growth of *Enterococcus faecalis* ATCC 29212 bacteria. Chlorhexidine produced the largest inhibition zone diameter of $8,32 \pm 1,25\text{mm}$. Calcium hydroxide produced the smallest inhibition zone diameter of $2,71 \pm 0,50\text{mm}$. Combination of Calcium Hydroxide-Chlorhexidine 2% produced the largest inhibition zone diameter of $4,48 \pm 0,24\text{mm}$ compared to the other two combinations.

The conclusion of this study is that Chlorhexidine possess the highest inhibition strength against *Enterococcus faecalis* bacteria compared to Calcium Hydroxide and combination of Calcium Hydroxide-Chlorhexidine with a concentration of 0,5%, 1% and 2% respectively. The combination of Calcium Hydroxide-Chlorhexidine 2% has the highest inhibition strength compared to the other two combinations.

Keywords: Calcium Hydroxide, Chlorhexidine, Combination of Calcium Hydroxide-Chlorhexidine, *Enterococcus Faecalis* ATCC 2912