

ABSTRACT

*A mixture of calcium hydroxide ($\text{Ca}(\text{OH})_2$) powder will facilitate application into the root canal, antibacterial activity through the release of ions OH^- to increase pH and increase radiopacity. The aim of this study was to determine the differences in the effectiveness a mixture of $\text{Ca}(\text{OH})_2$ powder on the growth of *Enterococcus faecalis*.*

*This study is a true experimental with a posttest only control group design. An agar diffusion with a hole-plate technique with a diameter of 6 mm and a depth of 4 mm was filled with $\text{Ca}(\text{OH})_2$ + 2% chlorhexidine paste; $\text{Ca}(\text{OH})_2$ + Glycerin paste; $\text{Ca}(\text{OH})_2$ + Iodoform paste as much as 0.5 ml and sterile distilled water as a negative control. The inhibitory zone of *Enterococcus faecalis* was measured in millimeters after incubating for 24 hours at 37°C. The data were analyzed in SPSS software (version 24) using One Way Anova Test followed by Post Hoc Least Significant Different (LSD).*

*There were differences mean inhibition zone of the three type a mixture of $\text{Ca}(\text{OH})_2$ on the growth of *Enterococcus faecalis* ($p = 0,000$). The results of the Post Hoc LSD test showed that $\text{Ca}(\text{OH})_2$ + chlorhexidine 2% and $\text{Ca}(\text{OH})_2$ + Glycerin had significant differences in inhibiting the growth of *Enterococcus faecalis* compared to $\text{Ca}(\text{OH})_2$ + Iodoform ($p = 0,000$). There was no significant difference in inhibiting the growth of *Enterococcus faecalis* between $\text{Ca}(\text{OH})_2$ + 2% chlorhexidine paste and $\text{Ca}(\text{OH})_2$ + Glycerin ($p = 0.066$).*

*$\text{Ca}(\text{OH})_2$ + chlorhexidine 2% and $\text{Ca}(\text{OH})_2$ + Glycerin are more effective in inhibiting the growth of *Enterococcus faecalis* compared to $\text{Ca}(\text{OH})_2$ + Iodoform.*

Keywords: *Calcium hydroxide, Chlorhexidine 2%, Glycerin, Iodoform, Inhibitory zone, *Enterococcus faecalis**

ABSTRAK

Bahan pencampur pada penggunaan serbuk kalsium hidroksida ($\text{Ca}(\text{OH})_2$) akan memudahkan pengaplikasian ke dalam saluran akar, efek anti bakteri melalui pelepasan ion OH^- untuk peningkatan pH dan meningkatkan radiopasitas. Tujuan dalam penelitian ini untuk mengetahui perbedaan efektivitas bahan pencampur serbuk $\text{Ca}(\text{OH})_2$ terhadap pertumbuhan bakteri *Enterococcus faecalis*.

Penelitian ini merupakan eksperimental murni dengan rancangan penelitian post test only control group design. Metode difusi agar dengan lubang sumuran berukuran diameter 6 mm dan kedalaman 4 mm diisi pasta $\text{Ca}(\text{OH})_2$ + khlorheksidin 2%; pasta $\text{Ca}(\text{OH})_2$ + Gliserin; pasta $\text{Ca}(\text{OH})_2$ + Iodoform sebanyak 0,5 ml dan aquades steril sebagai kontrol negatif. Zona hambat *Enterococcus faecalis* diukur dalam satuan millimeter setelah diinkubasi selama 24 jam pada suhu 37°C . Analisis data dengan Uji *One Way Anova* dilanjutkan Uji *Post Hoc Least Significant Different (LSD)* menggunakan program SPSS versi 24.

Hasil penelitian menunjukkan bahwa ada perbedaan rerata zona hambat dari ketiga jenis bahan pencampur $\text{Ca}(\text{OH})_2$ terhadap pertumbuhan bakteri *Enterococcus faecalis* ($p = 0,000$). Hasil uji *Post Hoc LSD* menunjukkan bahwa pasta $\text{Ca}(\text{OH})_2$ +Klorheksidin 2% dan pasta $\text{Ca}(\text{OH})_2$ +Gliserin memiliki perbedaan secara bermakna dalam menghambat pertumbuhan bakteri *Enterococcus faecalis* jika dibandingkan dengan pasta $\text{Ca}(\text{OH})_2$ + Iodoform ($p = 0,000$). Tidak ada perbedaan yang bermakna dalam menghambat pertumbuhan bakteri *Enterococcus faecalis* antara pasta $\text{Ca}(\text{OH})_2$ + khlorheksidin 2% dan pasta $\text{Ca}(\text{OH})_2$ + Gliserin ($p = 0,066$).

Kesimpulan penelitian menunjukkan bahwa pasta $\text{Ca}(\text{OH})_2$ +Klorheksidin 2% dan pasta $\text{Ca}(\text{OH})_2$ +Gliserin lebih efektif menghambat pertumbuhan *Enterococcus faecalis* dibandingkan dengan pasta $\text{Ca}(\text{OH})_2$ +Iodoform.

Kata Kunci : Kalsium hidroksida, Klorheksidin 2%, Gliserin, Iodoform, Zona hambat, *Enterococcus faecalis*.