

**THE DIFFERENCE OF ANTIBACTERIAL EFFECTIVENESS  
OF CALCIUM HYDROXIDE-BASED SEALER-AMOXICILLIN  
AND RESIN-BASED SEALER-AMOXICILLIN AGAINST  
*Enterococcus faecalis***

**ABSTRACT**

**Background:** About 24-77% of root canal treatment failure cases are caused by infection of *Enterococcus faecalis* due to the resistance factor and virulence of these bacteria. Calcium hydroxide-based sealer and resin-based sealer are two types of sealer often used for root canal obturation due to their antibacterial properties. But the antibacterial properties owned by calcium hydroxide-based sealer has no effect on *Enterococcus faecalis*. Therefore, the adjunct of local antimicrobial such as amoxicillin is needed to increase antibacterial activities of root canal obturation materials (sealers) especially for calcium hydroxide-based sealer. **Purpose:** The aim of this study was to compare the effectiveness of antibacterial activity of calcium hydroxide-based sealer-amoxicillin and resin-based sealer-amoxicillin against *Enterococcus faecalis*. **Methods:** This study is an experimental laboratory with post test only control group design using *Enterococcus faecalis* ATCC 29212. Agar diffusion test was used to check the antimicrobial activity of calcium hydroxide-based sealer-amoxicillin and resin-based sealer-amoxicillin. by measuring the inhibition zone diameter of each treatment. **Results:** Resin-based sealer-amoxicillin's diameter of zone inhibition is 37,3 mm and calcium hydroxide-based sealer-amoxicillin's diameter of zone inhibition is 18,7 mm. **Conclusion:** Antibacterial activity of resin-based sealer-amoxicillin is significantly greater than calcium hydroxide-based sealer-amoxicillin.

**Keywords :** Calcium hydroxide-based sealer, resin-based sealer, amoxicillin, *Enterococcus faecalis*

**PERBEDAAN DAYA ANTIBAKTERI ANTARA KOMBINASI  
CALCIUM HYDROXIDE-BASED SEALER-AMOXICILLIN  
DAN RESIN-BASED SEALER-AMOXICILLIN TERHADAP  
BAKTERI *Enterococcus faecalis***

**ABSTRAK**

**Latar belakang:** Sekitar 24-77% dari angka kejadian kegagalan perawatan saluran akar disebabkan oleh infeksi dari bakteri *Enterococcus faecalis*. Hal ini terjadi karena resistensi dan virulensi bakteri tersebut. *Calcium hydroxide-based sealer* dan *resin-based sealer* merupakan dua bahan yang sering digunakan sebagai bahan pengisi saluran akar karena mempunyai daya antibakteri. Tetapi efek daya antibakteri yang dihasilkan oleh *calcium hydroxide-based sealer* tidak berpengaruh terhadap bakteri *Enterococcus faecalis*. Oleh karena itu, dibutuhkan tambahan bahan antimikroba lokal seperti amoxicillin untuk meningkatkan daya antibakteri dari bahan-bahan pengisi saluran akar khususnya untuk *calcium-hydroxide based sealer*. **Tujuan:** Tujuan dari penelitian ini adalah untuk mengetahui apakah ada perbedaan daya antibakteri antara kombinasi *calcium hydroxide-based sealer-amoxicillin* dan *resin-based sealer-amoxicillin*. **Metode:** Penelitian ini merupakan jenis penelitian eksperimental laboratoris dengan *post test only control group design* menggunakan *Enterococcus faecalis* ATCC 29212. Metode difusi agar digunakan untuk mengetahui aktivitas antibakteri dari *resin-based sealer-amoxicillin*, *resin-based sealer*, *calcium hydroxide-based sealer-amoxicillin* dan *calcium hydroxide-based sealer* dengan cara mengukur diameter zona hambat pada setiap perlakuan. **Hasil:** Diameter zona hambat *resin-based sealer-amoxicillin* adalah 37,3 mm dan *calcium hydroxide-based sealer-amoxicillin* adalah 18,7 mm **Kesimpulan:** Daya antibakteri yang dihasilkan oleh *resin-based sealer-amoxicillin* lebih besar secara signifikan dibandingkan dengan *calcium hydroxide-based sealer-amoxicillin*.

**Kata kunci :** *Calcium hydroxide-based sealer*, *resin-based sealer*, amoxicillin, *Enterococcus faecalis*