# "COMPARATIVE EVALUATION OF ANTIMICROBIAL AND ANTIFUNGAL EFFICACY OF BIOACTIVE ROOT- END FILLING MATERIALS: AN INVITRO STUDY"

by

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# ABSTRACT

## COMPARATIVE EVALUATION OF ANTIMICROBIAL AND ANTIFUNGAL EFFICACY OF BIOACTIVE ROOT- END FILLING MATERIALS: AN INVITRO STUDY

Background and Objectives: Microorganisms are the main cause of failure of endodontic treatment .When retreatment fails periapical surgery followed by retrograde filling is done to seal the apex. A root end filling material should have antibacterial and antifungal property as well as bioactive properties necessary for healing ,repair and regeneration of the apex .Thus the objective of this study was to evaluate the antibacterial and antifungal efficacy of 3 bioactive root end filling materials :MTA Plus, Biodentine, Endosequence root repair material against E.faecalis and C.albicans using agar diffusion test.

Methods - Enterococcus faecalis and Candida albicans standard bacterial strains were used. 100 µl was taken from liquid cultures of *E. faecalis* and planted in Mueller Hinton agar and the same amount of *C. albicans* was planted in Sabouraud dextrose agar by lawn culture.Then, MTA Plus(group 1), Biodentine(group 2) and Endosequence root repair material (group 3)were aseptically filled into the opened pits. Following this procedure, the media were kept in the drying oven at 37 °C for 24, 48 and 72 hours and the diameters of the inhibition zones were measured. Statistical analysis was carried out by Krukal-Wallis ,Post hoc (Mann-Whitney) , Friedman and Post hoc (Wilcoxon –sign )test.

Results-All three groups showed significant antimicrobial and antifungal activity.Statistical analysis showed that among the 3 groups, Biodentine showed statistically significant difference in diameter of inhibition zone against E.faecalis and MTA Plus showed statistically significant difference in diameter of inhibition zone against C.albicans .

Interpretation and conclusion- Biodentine exhibited greatest antimicrobial activity and MTA Plus exhibited greatest antifungal activity among the three groups .ERRM exhibited least antibacterial and antifungal activity among the three groups.

Keywords:Biodentine;Enterococcus Faecalis;Candida albicans;retreatment