Original Article

Evaluation of minimal inhibitory concentration of two new materials using tube dilution method: An *in vitro* study

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Abstract

Aim: The aim of the study is to evaluate and compare the antimicrobial efficacy of two new materials MTA Plus and Biodentine with ProRoot MTA using tube dilution method.

Materials and Methods: The materials used were ProRoot MTA (Dentsply), MTA Plus (compounded by Prevest Denpro, Jammu, India for Avalon Biomed Inc, USA) and a calcium silicate based material Biodentine (Septodont, Saint-Maur-des-Fosses, France). Doubling dilutions of the material were prepared in Sabouraud's dextrose broth (SDB) and Brain Heart Infusion (BHI) broth for *Candida albicans* and *Enterococcus faecalis*, respectively. The minimal concentration at which inhibition of microorganism occurred was measured and noted as minimal inhibitory concentration (MIC) of the material.

Results: There was no statistically significant difference between the materials against *C. albicans*. Biodentine was statistically significant than MTA Plus against *E. faecalis* (*P*-value-0.022). ProRoot MTA was statistically significant at different time intervals against *E. faecalis* (*P*-value-0.001).

Conclusion: ProRoot MTA and Biodentine proved to have antimicrobial property. MTA Plusproved as a good antifungal agent.

Keywords: Antimicrobial efficacy; minimal inhibitory concentration; root-end filling

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