

THE ANTIMICROBIAL EFFICACY OF NANOSILVER MODIFIED ROOT CANAL SEALER

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ABSTRACT

Aim To test the antimicrobial effect of root canal sealer after adding nanosilver particles.

Methodology With the use of *Enterococcus faecalis* ATCC 29212 as a test microorganism, the agar diffusion test (ADT) was performed. Bacteria were grown to the log phase. Then, cells were resuspended and prepared by inoculating colonies for 24 hours on BHI agar plates in controlled incubation conditions. Suspension of 200 µl bacteria colonies were spread on plates with BHI agar. In each plate, five recesses were prepared and different mixes from the tested root-canal sealer material were mixed and filled the recesses. The tested material was sub-grouped to five groups with 0%, 0.5%, 1%, 2% and 4% additive of nanosilver particles to the weighted powder respectively. After incubation period, the diameter of bacterial-inhibition zones the agar plates (n=30) were measured in millimeter. The mean of each sample was calculated and data were statistically analyzed.

Results there was a significant difference among the tested group (P= 0.000). Groups with nanosilver additives showed significant difference compared to unmodified group (P= 0.000). The highest mean value was recorded with group 5 (4% nanosilver)

Conclusions Antimicrobial activity of the root-canal sealer increased significantly by adding nanosilver particles to the powder of the root canal sealer.

Keywords: agar diffusion test, *E. faecalis*, root-canal sealer antimicrobial activity, nanosilver.