

Comparison of Antimicrobial Effect between Triclosan Toothpaste and Nano-Silver Toothpaste

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Objective: To evaluate the antimicrobial effect of two commercial available toothpastes in vitro.

Materials and methods: Two toothpastes: Colgate Total® toothpaste (triclosan containing) and NanoCare Nano silver® toothpaste (nano-silver containing) were investigated. The antimicrobial effect on bacteria planktonic status was tested by agar diffusion assay. A dual-species biofilm model was established to quantify and visualize the bactericidal effect of toothpaste on biofilm status.

Results: Triclosan toothpaste produced significantly larger inhibition zones than those of nano-silver toothpaste in five of six oral microorganisms ($P < 0.05$). Both toothpaste solutions significantly reduced cell viability on biofilm compared with phosphate buffered saline ($p < 0.001$), but the differences between two toothpaste solutions were insignificant ($p > 0.05$). Confocal laser scanning microscopy images showed large proportion of dead cells on biofilm surface after toothpaste exposures.

Conclusion: Triclosan toothpaste showed a stronger inhibition effect on planktonic microorganisms but had a similar bactericidal effect on biofilm as nano-silver toothpaste.