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Dentin Hypersensitivity Treatment Using Shock Waves Transferring Micro and Nano-Sized Structures on Teeth

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Abstract

Herein, a laser-induced forward transfer (LIFT) method was used to activate hydroxyapatite films [Ca₁₀(PO₄)₆(OH)₂] as well as gold or aluminum particles. and transfer them to the tooth structure. This novel approach aims to treat dental hypersensitivity, a method that is expected to open new horizons for laser applications in dentistry. Interestingly, the transferred materials were in micro and nano-sized structures, as evidence by Field emission scanning electron microscopy (FESEM) and energy-dispersive X-ray spectroscopy analysis (EDS). This study has the potential of possible extension to cosmetics dentistry and for applications on increasing acid resistance of teeth by deposition of gold nano particles. Tightly adhering micro and nanoparticles were obtained as evidenced by the tape test. The expected pressure (Mbar) on different foil surfaces was estimated using a well-known relation between the laser parameters and the induced pressure on the irradiated foil.

Keywords

Author Keywords: LIFT; Hydroxyapatite; Hypersensitivity; Laser Ablation

KeyWords Plus: ND-YAG LASER; METAL-DEPOSITION; FEMTOSECOND; ABLATION

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