

Total disinfection of the root canal system of teeth Ag nanos in mode of plasmon resonance

A.Barylyak1

¹ *Danylo Halytsky Lviv national medical university. Pekarska 69 V, Lviv 79000, Ukraine.*

E-mail: email adriana.barylyak5@gmail.com

Earlier, we established the fact of deep penetrations of silver nanoparticles in dentine tubules of the tooth.

This enabled us to achieve a bactericidal effect not only makrokanali tooth root, but the system mikrokanaltsiv that traditional irrigation method is not possible (1, 2).

This paper presents the results of further research, the aim of which was stimulation of penetration of nanoparticles to a maximum depth of dentinal tubules ultrasonic waves generated under pulsed laser excitation of nanoparticles in colloidal solution of dentine tubules.

In contrast method RIRS (Photon Induced Photoacoustic Streaming) (3), where the ultrasonic waves generated by laser pulses stimulate ingecting of disinfecting solution only in to the makrokanals proposed approach provides in addition and inclusion in a dynamic process of disinfection of silver nanoparticles as a unique antibacterial agent.

The use of pulsed laser radiation with a wavelength of 420 - 460 nm, which is available today with the advent of n / lasers excites the surface of silver nanoparticles and their agglomerates plasmons. This dramatically enhances the bactericidal effect of silver nanoparticles on the surrounding bacteria with the power of termoplasmon effect on nanoparticle ensembles that act kind of Admissions nanoantennas electromagnetic waves.

Presented bacteriological tests on the bacteria E. coli. It was observed Nanolaser method in endodontic as alternative method to antibiotic therapy and proposed clinical protocols of treatment treatment.

1. Patent of Ukraine 25845, A 61 C 5/00. Method of disinfection of the root canal system of tooth. A.Y. Barylyak et al.

2. Barylyak A.Y. Nanolaser disinfection of the root canal system of trhe tooth. Доповіді НАН України. – 2008. №9. P.180-183

3.G. Olivi , E. DiVito. Photoacoustic Endodontics using PIPSTTM: experimental background and clinical protocol. Journal of the Laser and Health Academy .Vol. 2012, No.1; p.22-25