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## WFLD WORLD FEDERATION FOR LASER DENTISTRY 2008 HONG KONG CONGRESS

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### Bactericidal efficacy of high power diode laser irradiation in endodontic treatment: a clinical study

The antimicrobial effects of endodontic therapy associated with high power diode laser irradiation (980 nm) were investigated in vivo using culture and polymerase chain reaction (PCR). Twenty-two single rooted teeth with primary infection were included in this study and divided into Control and Laser groups.

The antimicrobial activity of control group was characterized by the use of 0.5% NaOCl solution and calcium hydroxide, whereas at laser group the action of these substances was associated with diode laser irradiation (CW; P=2.5W, I=1,000W/cm<sup>2</sup>). Samples (n=30) were collected from the root canal at different moments during the treatment, which included three clinical appointments. The number of colony-forming units (CFU) of anaerobic microorganisms, *Enterococcus* and *Lactobacillus* were examined in each sample by culture procedures. The presence of *E. faecalis* was investigated by PCR.

All samples were positive for anaerobic microorganisms at the beginning of the treatment confirming the presence of infection. The prevalence of viable anaerobic microorganisms reduced in control and laser groups with no statistical difference (Mann-Whitney p>0.05). The number of UFC of *Enterococcus* and *Lactobacillus* per sample was eliminated after chemical and mechanical procedures in both groups. PCR identified two positive samples for *E. faecalis* in control group at the end of treatment. In conclusion, both treatments demonstrated bactericidal effect on infected root canals.

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