

Crystallite size and micro strain studies of tooth enamel by XRD

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Abstrak

The purpose of this experiment is to study the influence of 10% carbamide peroxyde and 0.4% stannous fluoride application on the crystallite of hydroxypatite in tooth enamel, by using x-ray diffraction method. Hydrogen peroxide solution and distilled water are used as control. The materials are applied for X hours in an incubator with 37°C and 100% humidity, for total 192 hours. The crystallite size and the lattice parameters are calculated from x-ray diffraction pattern, and the structure was then refined by Rietveld analysis. It can be concluded that carbamide peroxyde and stannous fluoride do not influence neither the crystallite size of tooth enamel nor the lattice parameters, but they influence the micro strain in crystal. The X-ray diffraction on the facial surface of enamel shows preferred orientation pattern at $[002]$.