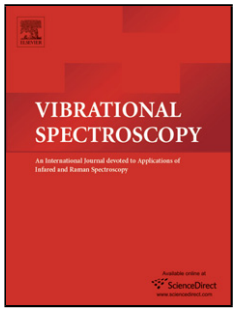

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Determination of storage solutions influence on human enamel by Raman spectroscopy

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Abstract:
The dental studies carried out over a long period of time cause that extracted teeth have to be stored in some solutions. These solutions are used to prevent the dehydration of samples as well as the growth of microorganisms. However, the storage solution may also affect the results of experimental studies by changing the enamel structure. The aim of this study was to determine the effect of 12 most commonly utilized storage solutions on enamel structure by analysis of the Raman spectra. The influence of storage period on the enamel structure was also evaluated. Raman spectroscopy was used in the analysis as a potential method that is still being developed to diagnosis of early dental caries. According to the results, all of the studied solutions can be used for storing the teeth in the spectroscopic investigation of enamel structure and composition. Moreover, during the fluorescence emission experiments, it would be beneficial to use the distilled water which provides the most stable spectral characteristic of the tooth. However, in this case it should be remembered that this environment does not carry the antibacterial properties.

Short title:
Determination of storage solutions influence on enamel

Keywords:
storage solution; enamel; tooth; Raman spectroscopy