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Characterization of healthy and carious human permanent teeth using laser induced breakdown spectroscopy

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Abstract: Tooth samples were analyzed for their elemental constituents using the atomic transition lines of selected samples by LIBS method. The elements detected in a tooth sample were: calcium, phosphorous, magnesium, iron, lead and sodium. It was concluded that the caries-affected part contained less calcium, phosphorous and sodium in comparison with the healthy part. While higher concentration of magnesium and lead were found in the caries affected part. Many differences of Ca, P, Mg, Na and Pb contents were found between female's teeth and male's teeth. Also Pb and Mg content increase with age in teeth samples was noticed.
Keywords: LIBS; permanent teeth; healthy and caries; Laser irradiation.

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