

THE STRUCTURE OF A DOSIMETRIC EPR
SIGNAL IN APATITES OF BIOLOGICAL ORIGIN

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S u m m a r y

We investigate the electron paramagnetic resonance (EPR) spectrum close to $g = 2$ that is created by gamma radiation in apatites of biological origin: enamel, bone, and dentin. This signal is used in retrospective dosimetry for the determination of an irradiation dose. The form and structure of the radiation-induced EPR spectrum of the plates made of enamel and bone are described and interpreted for the first time. It is shown that the spectrum of the substances under investigation is mainly conditioned by the contribution of CO_2^- radicals of two kinds. One of these radicals represents an oriented center, while the other one is a disordered one. We also determined the relative contribution of oriented and disordered CO_2^- radicals to the EPR spectrum of bioapatites of various origins.