

SHORT-LIVED RADIATION-INDUCED RADICALS IN BIOAPATITES

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S u m m a r y

We present the results of EPR studies of specimens of γ -irradiated biological apatites (tooth enamel, bone). It is established that, immediately after the irradiation, an additional signal is observed besides the known signal of CO_2^- radicals. This signal is unstable and disappears after a few weeks of storage at room temperature. Dynamic characteristics and radiospectroscopic parameters ($g_x = 2.0044$, $g_y = 2.0033$, $g_z = 2.0019$) of this EPR signal point to CO_3^{3-} radicals as the origin of this signal. Based on the data obtained and literature data, different models of the radiation-induced formation of CO_2^- radicals in apatites are analyzed. The preference is given to the $\text{CO}_3^{2-} \rightarrow \text{CO}_3^{3-} \rightarrow \text{CO}_2^-$ transformation mechanism.