

LA-ICP-MS STUDY OF MATERIAL CHANGES IN FOSSILS

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Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS) is a widely used method for the analysis of samples in solid state, as it offers high sensitivity, low limits of detection, multielemental capability, high spatial resolution and minimal sample preparation. This analytical technique was employed to study dinosaur skeletal remains. Chemical composition of skeletal remains and elemental distribution within a particular finding are utilized for estimation of diet and mobility/migration of individuals, physiology, taphonomy, diagenesis, paleo-environmental reconstructions and paleo-redox conditions, for instance. Mineral phase of this skeletal tissue is hydroxyapatite, however, it could be modified *via* substitutions by cations and/or anions during diagenesis. These *post-mortem* changes depend on many factors (geographical location, the composition of soil, environmental conditions, tissue porosity and extent of damage).

High total levels of REE (up to units of %_{m/m}) as well as presence of various mineral phases were observed in dinosaur skeletal remains originating from Mongolia. Moreover, positive and/or negative anomaly of Ce was found depending on analyzed phase. The obtained information about elemental contents, distributions and associations in analyzed fossils can be used to determine the level of diagenesis. Electron MicroProbe Analysis was used as a comparative method and for the purpose of quantification.

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