

ELEMENTS IN BONE OF THE PLEISTOCENE MAMMAL DETERMINED BY NEUTRON ACTIVATION ANALYSIS

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Bone is a complex material, consisting of interrelated mineral and organic components. Aspects of bone composition such as specific trace element concentrations provided information on diet and health status. Dead bone also possesses a variety of physical, biological and chemical properties, associated with inorganic elements. Such information is valuable in understanding the evolution of human and nonhuman fauna. So the determination of inorganic elements in bone (remains) can be of great applicability for the areas of archeology and paleontology. In this investigation, we present the results of neutron activation analysis in skeletal rest (bones) of fossilized Pleistocene mammals (*Macrauchenia patachonica*) of the Local Fauna La Paz (Formation Freedom, Uruguay). In this investigation a set of ten powder bone samples (of the two sections of bone tissue from long bones) were prepared. The neutron irradiation was performed at nuclear reactor (IEA-R1, 3-4.5MW, pool type) at IPEN/São Paulo – Brazil. Samples and a standard (certified reference material) were irradiated for a short time (30-60s) using the pneumatic station. Long duration irradiation (4-8h) was also performed in the core of the reactor. After the irradiation, the activated materials (samples and standard) were γ -counted using an HPGe detector. A partial reduction of the bremsstrahlung was achieved using the iron shield. The concentrations were calculated using the software Ativação. The behavior of the elements concentration (Ca, K, Na, Mg and U) was investigated in function of the extension of bone. The use of this technique provides data with potential use for fossil characterization, dating and assessing the preservation of the inorganic components of bones.