ISOTOPIC CHARACTERIZATION OF SOME ALPHA EMITTERS IN CUBAN SOIL

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Abstract
As the Cuba Island has never been contaminated by artificial human activities employing alpha emitters, these soils could be specifically considered as a reference soil samples for the Central American zone.

The determination of alpha emitters, namely of uranium, thorium and plutonium isotopes, in the soils, is a useful way in order to evaluate the radioactive fallout and to better understand the isotopic distribution profiles in different soil layers.

It is well known that the analytical results, especially for the determination of some actinides, are strongly influenced by some characteristics of the samples investigated. Inhomogeneity, broad distribution of the particles size and very low concentration effects were considered.

In this work the EPA 3050b procedure was used as a digestion method of the samples to give preliminary information on the amount of some metals including uranium and thorium. To determine elements at very low concentration such as Pu and Ra, a further treatment of the solutions obtained from the EPA mineralization was performed.

The results obtained didn’t show any particular increasing in the plutonium concentration accomplished by significantly results in thorium and uranium analyses. In addition, a comparison between actinides and other transition metal ions concentrations, was evaluated in order to correlate the concentration distribution profiles for the different tracers in the examined soil layers.

All the analyses were performed separately in two labs in order to compare and to validate the obtained results. Furthermore, with the aim of checking the repeatability, reproducibility and uncertainty related to the data, the two labs performed the same analytical procedures on the Nº 375 IAEA reference soil.