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different at each sampling point, depending on the level of influence of the installation. However, the profiles per point were similar for the long-lived radionuclides of the ^{238}U series (^{238}U, ^{234}U, ^{230}Th, and ^{226}Ra). Also, a major disequilibrium was observed between ^{210}Pb and ^{226}Ra in the surface layer, due to ^{222}Rn emanation and subsequent surface deposition of ^{210}Pb. The comparison of the natural radionuclides profiles with the major elements and pH helped us to understand the migration of natural radionuclides in soils.

THE EFFECT OF ORGANIC AMENDMENT ON SORPTION MECHANISMS OF CESIUM AND COBALT IN TROPICAL SOILS

M. A. WASSERMAN[1], R. J. L. GARCIA[1], A. C. M. FERREIRA[1], E. R. R. ROCHEDO[2], J. C. WASSERMAN[3] AND C. C. CONTI[1]

[1]*Institute of Radioprotection and Dosimetry-CNEN, Brasil*
[2]*Nuclear Facilities Management-CNEN, Brasil*
[3]*Fluminense Federal University, Brasil*

This work aimed to investigate the mechanisms involved in the sorption of ^{137}Cs and ^{60}Co as a function of the physico-chemical properties in some types of Brazilian soils. It also evaluates the behavior of these radionuclides due to changes in soil properties promoted by organic amendment. The experimental study was conducted in a controlled area, where pots containing different types of soils (Ferralsol, Nitisol and Histisol) and different doses of organic amendment (no amendment; 2 kg m^{-2} and 4 kg m^{-2}) were spiked with ^{137}Cs and ^{60}Co. The organic amendment used in this experiment was obtained from the Compost Unit of Pinheiral (RJ, Brazil), which origin is from the leaves swept from the streets of the city. The mobility of these radionuclides in the soil was assessed through a sequential chemical extraction and desorption studies as a function of soil pH. The bioavailability was evaluated through the effective absorption of radionuclide by root crops (Raphanus sativus, L) expressed as soil to plant transfer factor. This study evidenced that very acid conditions (pH<2) released more than 80% of the total cobalt, independently of the organic matter content of the studied soils. Alkaline conditions (pH>9) were also capable to mobilize significant amount of ^{60}Co, but in this case higher content of organic matter, as occurs in Histisol, reduced the release. Under natural pH of the studied soils the lower transfer factor for ^{60}Co occurred when it received 4 kg m^{-2} of organic fertilizer or in Histisol, a soil with very high organic matter content. Soil to plant transfer factor (TF) for ^{60}Co was respectively 8.2, 6.4 and 2.0 for Ferralsol, Nitisol and Histisol and for ^{137}Cs they were 1.18, 0.13 and 0.23. Although extreme acid conditions and low organic matter content may mobilize both radionuclides, cobalt mobility was shown to be more sensitive to both parameters than cesium. These results suggest that other soil parameters interferes on ^{137}Cs behavior, possibly the concentration exchangeable K, clay mineral type and nutritional status as reported in the specialized literature.