ARTIFICIAL AND NATURAL RADIOACTIVITY IN EDIBLE MUSHROOMS FROM SÃO PAULO, BRAZIL

L.P. Castro[1], V.A. Maihara[1]*, P.L.C. Moura[1], R.C.L. Figueira[2]

[1]*Instituto de Pesquisas Energéticas e Nucleares (IPEN/CNEN-SP); Av. Prof. Lineu Prestes, 2242, CEP 05508-000 São Paulo - SP, Brazil; vmaihara@ipen.br*
[2]*Universidade Cruzeiro do Sul (UNICSUL); Av. Regente Feijó, 1295, CEP 03342-000 São Paulo - SP, Brazil*

Environmental biomonitoring has demonstrated that organisms such as crustaceans, fish and mushrooms are useful to evaluate and monitor both ecosystem contamination and quality. Particularly, some mushroom species have a high capacity to retain radionuclides and toxic elements from the soil and the air. The potential of mushrooms to accumulate radionuclides in their fruit-bodies has been well recognized. In Brazil, there are no studies that determine natural and artificial radionuclide composition in edible mushrooms. Artificial (^{137}Cs) and natural radioactivity (^{40}K, ^{232}Th, ^{238}U) were determined in 17 mushroom samples from 3 commercialized edible mushroom species. The edible mushroom samples were acquired in different commercial points from Sao Paulo metropolitan region and different producers from other rural municipalities. About 400g were collected for each edible species. The edible mushrooms collected were *Agaricus sp*, *Pleurotus sp* and *Lentinula sp* species. All the samples were cleaned, lyophilized and homogenized. The mushroom samples were stored in pre-cleaned polyethylene bottles with 65 mm of diameter by 19 mm of height and then stored for about 35 days until the respective counting. The activity measurements were carried out by gamma spectrometry. The levels of ^{137}Cs varied from 1.7 to 8.6 Bq kg^{-1}, ^{40}K levels varied from 154 to 1215 Bq kg^{-1}, ^{232}Th levels varied from 5.4 to 38.1 Bq kg^{-1} and ^{238}U levels varied from 14 to 23 Bq kg^{-1}. The ^{137}Cs levels in Brazilian mushrooms are in according to the radioactive fallout in the Southern Hemisphere. The artificial and natural activities determined in this study were found to be below the maximum permissible levels as established by national legislation. Thus, these samples can be normally consumed by the population without any risks to human health.