

ABSTRACT 43

ASSESSMENT OF Sr-90, Cs-137, NATURAL RADIONUCLIDES AND METALS IN MARINE FISH SPECIES CONSUMED IN THE CITY OF SÃO PAULO - BRAZIL

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The study of artificial radionuclides dispersion into the environment is very important to control the nuclear waste discharges, nuclear accidents and nuclear weapons testing. The accident in Fukushima Daiichi Nuclear Power Plant on 11 March 2011, released several radionuclides in the marine environment by aerial deposition and liquid discharge, with various level of radioactivity. The ^{90}Sr and ^{137}Cs were two of the elements released into the environment, ^{90}Sr is estimated that its atmospheric releases ranged from $3.3 \cdot 10^{-3}$ to 0.14 PBq, and ^{137}Cs is estimated that its atmospheric releases ranged from 7 to 20 PBq. The ^{90}Sr and ^{137}Cs are produced by nuclear fission with a physical half-life of 28.79 years and 30.15 years, respectively. The natural radionuclides (^{210}Pb , ^{226}Ra and ^{228}Ra) were determined to check the reference values. The concentrations of metals were determined to compare with the values of the maximum limits of the regulation.

The aim of this study is to quantify the concentration of the ^{90}Sr , ^{137}Cs , natural radionuclides and metals in the muscles of marine fish species most consumed in São Paulo city. The species and scientific names of the fishes analyzed were bluefish (*pomatomus saltatrix*), croaker (*micropogonias furnieri*), hake (*merluccius merluccius*), Smooth-hounds nei (*Mustelus spp.*), sardine (*sardinella brasiliensis*) and mullet (*Mugil brasiliensis*). The determination of ^{90}Sr by liquid scintillation counting (LSC) measurement was performed using a 1220 Quantulus™ Ultra Low Level Liquid Scintillation Spectrometer. The ^{137}Cs and natural radionuclides were measured by gamma spectrometry, using an HPGe detector. The metals concentration was determined by instrumental neutron activation analysis (INAA).

The results obtained in this study can be used to ensure the quality of the fish consumed in the São Paulo city.