CONTRIBUTION TO FOOD SAFETY ASSURANCE OF THE FISH CONSUMED IN SÃO PAULO CITY: THE DETERMINATION OF ELEMENTS BY NEUTRON ACTIVATION ANALYSIS

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Fish is considered a nutritious food as it is a source of protein, polyunsaturated fatty acids, vitamins and minerals. For this reason fish consumption has increased in Brazil in recent years, also raising the fish quality control by Brazilian health authorities, with constant concern over the presence of contaminants. In general, the occurrence of many potentially toxic inorganic and organic compounds is related to water contamination and environment pollution which can result in abnormal levels, considered above the limits for human consumption. Within this context, the Neutron Activation Laboratory of IPEN - CNEN/SP participated in a technical cooperation project of the International Atomic Energy Agency directed to Latin America countries (IAEA ARCAL CIII) aiming the assurance of food quality and monitoring contaminants in shellfish and fish.

In this study the concentrations of elements present in the some of the most consumed species in São Paulo City were determined by Instrumental Neutron Activation analysis (INAA) and Atomic Absorption Spectromety (AAS). Subsequently, obtained values were compared to the limits of existing legislations, national and international, which set the maximum permitted concentration of elements in foods. The species analyzed were whitemouth croaker (*Micropogonias furnieri*), sea bass (*Centropomus sp*.), hake (*Cynoscion leiarchus*) and sardines (*Sardinella brasiliensis*). The elements analyzed were As, Br, Cd, Co, Cs, Fe, Hg, K, Na, Pb, Rb, Se and Zn. Ten specimens of each fish were purchased from *Companhia de Entrepostos e Armazéns Gerais de São Paulo* (CEAGESP), main supply center for the population of the metropolitan area of São Paulo. After gutted and cleaned, the edible tissues were freeze-dried, ground, sieved and homogenized. Element determination was performed with use of hiperpure germanium spectrometer after irradiation at the IEA-R1 nuclear research reactor. With the exception of seabass, the other species had As concentrations above those permitted by the Brazilian legislation (1.0 mg kg^{-1})[1].

REFERENCES

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