

*“Application of instrumental and radiochemical neutron activation analysis to the monitoring of trace elements in Brazilian foodstuffs”. M.B.A. VASCONCELLOS; V.A. MAIHARA; C.J.A.S. MUNITA; D.I.T. FÁVARO; M.J.A. ARMELIN. Instituto de Pesquisas Energéticas e Nucleares, Comissão Nacional de Energia Nuclear -São Paulo, Brazil*

In Brazil lately there has been an increase of consciousness about the necessity of monitoring periodically the trace element contents in foodstuffs, to assess essential trace elements and to verify if toxic elements are present. Neutron Activation Analysis is one of the methods that can be applied for this purpose, due to its high sensitivity, precision and accuracy.

In the first part of this work food samples like milk powder, bread, rice and honey bought from local markets in the city of São Paulo (Brazil) were analyzed, as well as drinking water. In a second step, total diets consumed by pre-school children and also diets of elderly people were analyzed, using the method of duplicate portion for sample collection.

By Instrumental Neutron Activation Analysis, elements like Na, K, Cl, Ca, Mg, Al, Mn, Br, Cr, Zn, Rb, Sb, Se, Fe, Co, Cs, Sc, Ce, La can be analyzed, in concentrations from ppb to %. In the case of some elements present in very low concentrations, specially the toxic ones like Hg, As, Se, Sb, radiochemical separations had to be developed. For water analysis, a preconcentration procedure based on retention of several elements in a Chelex-100 resin was employed. Several reference materials were analyzed together with the foodstuffs samples for quality control.