

**MAJOR, MINOR AND TRACE ELEMENTS DETERMINATION USING INAA IN SOIL PROFILE AND SEDIMENT CORE SAMPLES COLLECTED IN THE CATCHMENT AREA OF PONTE NOVA RESERVOIR, SÃO PAULO – BRAZIL**

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A.R. Silva<sup>a,1</sup>, S.R. Damatto<sup>1</sup>, L. Leonardo<sup>2</sup>, J.M. de Souza<sup>1</sup>, P.N. Gonçalves<sup>1</sup> and M.F. Máduar<sup>1</sup>

<sup>a</sup> [andre.rodriigo@usp.br](mailto:andre.rodriigo@usp.br)

<sup>1</sup>Nuclear and Energy Research Institute, São Paulo, Brazil

<sup>2</sup> São Camilo University Center, Brazil

Elemental Chemical Characterization is a keystone in understanding environmental phenomena and its effects. Major and trace elements give important data about geological, physical, chemical and biological phenomena undergoing in natural environments. Ponte Nova reservoir (23°34'43.23" S, 45°56'56.76" W) is the first reservoir in a cascade system that was built in the 1970s to control Upper Tietê River basin water flow. Nowadays, this reservoir serves as a source of water for agricultural and industrial enterprises and as drinkable water source, and were a major concern for the population of São Paulo state due to a recent severe drought in the years of 2014 and 2015. In the present work, major and trace elements (As, Ba, Ce, Co, Cr, Cs, Eu, Fe, Hf, K, La, Lu, Na, Nd, Rb, Sb, Sc, Sm, Tb, Yb and Zn) were determined using Instrumental Neutron Activation Analysis (INAA) in the IEA-R1 nuclear reactor using the comparative method. This procedure consists in exposing 200mg of the sample and reference materials sealed in polypropylene bags to a thermal neutron flux of  $1 \times 10^{12} \text{ cm}^{-2}\text{s}^{-1}$ . Geo-accumulation indexes and enrichment factors were determined and physicochemical parameters (grain size analysis, pH, real and apparent densities, Loss on Ignition, porosity and humidity) were measured. The major and trace element concentrations were compared with the Upper Continental Crust values. Cluster analysis, correlation matrix and principal component analysis were applied in all the results obtained to verify a probable correlation between the major and trace elements determined in the soil and sediment samples.

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**NEUTRON ACTIVATION ANALYSES FOR INVESTIGATION OF ANTILONOMIC SERUM FOR CATERPILLARS LONOMIA OBLIQUA WALKER (LEPIDOPTERA: SATURNIIDAE)**

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A.R. Leão<sup>a,1</sup>, C.B. Zamboni<sup>1</sup>, D.G.N. da Silva<sup>1</sup>, I.M.M.A. Medeiros<sup>1</sup> and S.M. Simons<sup>2</sup>

<sup>a</sup> [anileaoleao@gmail.com](mailto:anileaoleao@gmail.com)

<sup>1</sup>Nuclear and Energy Research Institute, São Paulo, Brazil

<sup>2</sup>Parasitology Laboratory of Butantan Institute, São Paulo, Brazil

Since 1996 the Butantan Institute (IBu, São Paulo city), in collaboration with the Health Departments of some Brazilian states, produces serum antilonomic using the caterpillars of the species *L. obliqua* from several regions of Brazil. However, no data of their elemental composition to ensure that the antivenom produced (considering