Ba, Br, Ca, Ce, Co, Cr, Cs, Eu, Fe, Hf, K, La, Lu, Na, Nd, Rb, Sb, Sc, Ta, Tb, Th, U, Yb and Zn concentrations using Instrumental Neutron Activation Analysis (INAA) in four soil profiles and four sediment cores collected in the influence area of Taiaçupeba reservoir. To verify if these elements could be enriched and the ecosystem polluted the Enrichment Factor and the Geoacumulation Index were also used. Soil profiles were collected in trenches up to 2m deep and sampled every 5 cm; in the laboratory the samples were dried at room temperature. The sediment samples were collected with a manual PVC sampler sliced every 2 cm or according to their textural characteristics, and dried in an oven at 50°C; the length of the sediment cores ranged from 42 cm to 61 cm. After drying, soil and sediment samples were sieved in a 2 mm mesh and packed in polyethylene bottles for INAA. The elements Na, As and Sb presented the highest values for both soil and sediment samples, implying in continuous, regular and spatial monitoring of the reservoir. One sediment core presented a very high concentration of the element Zn when compared to the values of the Upper Continental Crust, indicating a possible anthropic contribution from the region's industries and classifying the reservoir as extremely polluted in relation to this element. In the evaluation of the enrichment factor it was concluded that the soil presented very high enrichment for the elements Na, As and Sb and the sediment presented very severe enrichment for the elements Na, As and Zn.

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P59 ELEMENTAL CHARACTERIZATION OF THE EXTRACT OF PROPOLIS PRODUCED BY SCAPTOTRIGONA POSTIÇA BEE FROM BRAZIL USING NAA

L.G.M. Leal[a,1], C.B. Zamboni[1], D.G.N. Silva[1], J.A.G. Medeiros[1], S.M. Simons[2], R.Z. Mendonca[2], R.M. Nascinto[3]

[a] 19lugui@gmail.com

[1] Nuclear and Energy Research Institute, São Paulo, Brazil

[2] Parasitology Laboratory, Butantan Institute, São Paulo, Brazil

[3] Evolution and Ecology Special Laboratory, Butantan Institute, São Paulo, Brazil

The *Scaptotrigona* postiça bee is a stingless insect belonging to Apidae family and subfamily Meliponinae. This genus occurs throughout in Neotropics. In Brazil, it is found in the northeastern mainly in the Barra do Corda County (Maranhão). Specifically, the propolis produced by this bee have several medical applications: it is used in the healing of wounds with an inflammatory process and in treatment of prostate tumors. Considering its importance in medicinal use and the great variability in relation to botanical origin, its standardization in relation to the dosage of inorganic elements is important to meet the different medical applications. The objective of this investigation was to perform a multielemental characterization using Neutron Activation Analysis technique. The measurements were performed using the IEA-R1

nuclear reactor at IPEN – CNEN/SP (Brasil). These data increase the knowledge of its inorganic components and can introduce improvements in the production of these extracts, mainly as regards to toxicity.

PERFORMANCE OF NEUTRON ACTIVATION ANALYSIS IN THE EVALUATION OF BISMUTH IODIDE PURIFICATION METHODOLOGY P63

M.J.A. Armelin[a], C.M. Ferras and M. Hamada

[a] **marmelin@ipen.br**

Nuclear and Energy Research Institute, São Paulo, Brazil

Bismuth tri-iodide (BiI_3) is an attractive material for using as a semiconductor. The behavior of semiconductor devices is strongly influenced by the presence of impurities or contaminants remaining due to incomplete purification of the semiconductor material. BiI_3 has emerged as a particularly interesting material in view of its wide band gap (1.7eV), large density (5.7g/cm^3), high atomic number elements (Z=68) and high resistivity (>10^9 Ω·cm). The BiI_3 crystals have been grown by the vertical Bridgman technique using commercially available powder. In this case, the BiI_3 powder was purified three times and, at each purification, the crystal was evaluated by systematic measurements of reduction of impurities, crystalline structure, stoichiometry and surface morphology. The purification efficiency was assessed by analyzing the crystals, through Instrumental Neutron Activation Analysis (INAA). INAA is the elemental analysis method usually chosen for these projects because of some features such as: small amount of sample available, minimal sample handling and high sensitivity for many elements. The analyzed crystals came from the impurity reduction process occurred after each purification by the Repeated Vertical Bridgman method. The results showed that INAA was a special analytical technique to identify and quantify the impurities (Ag, As, Br, Cr, K, Mo, Na and Sb) in the BiI_3 crystals and to evaluate the reduction of the trace impurities, after each purification step.

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