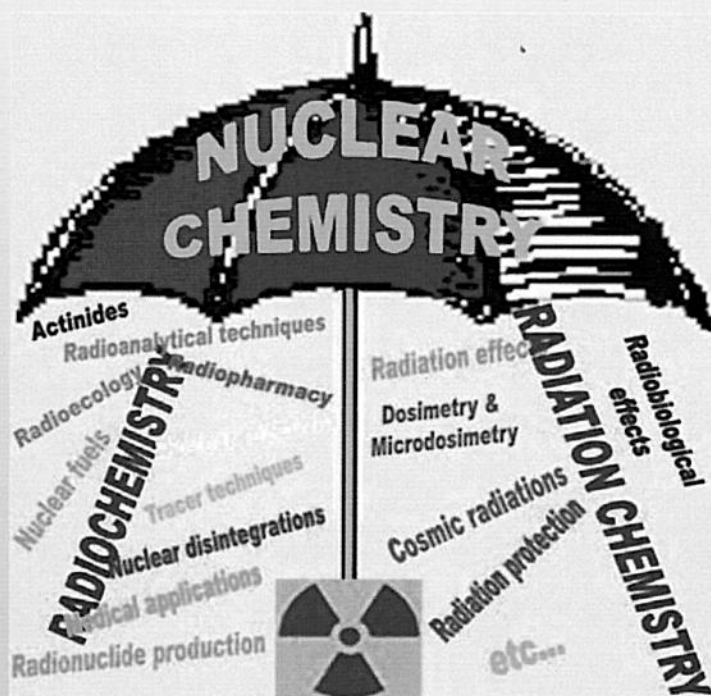


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## Program & Abstract Book

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## U, Th AND OTHER ELEMENT EVALUATION IN WILD MUSHROOM FROM A NATURALLY HIGH RADIOACTIVE REGION IN BRAZIL

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Mushrooms are fungi species which have high capacity to retain elements and radionuclides such as U and Th from the environment<sup>1,2</sup>. Studies have demonstrated that wild mushrooms can be used as environmental indicators and monitors to evaluate contamination and quality of ecosystems<sup>3</sup>. Many areas in the world are characterized by presenting a high natural radioactivity, which are called Natural Occurrence in Radioactive Materials (NORM). These areas are caused either by the geological structure and geochemistry of the soil, or by the radioactive content of the water flowing from hot water sources, or even due to cosmic rays<sup>5</sup>. Seventy areas of radioactive anomalies have been identified in the Poços de Caldas Plateau region in Brazil. Several studies have determined high level of radionuclides in agricultural products in this region. In this study, the objective of this study was to determine U, Th, As, La, Fe, Zn, Se, Cr, Cs, Co, Rb, and Sc levels in 24 wild mushroom samples collected in different points from the Poços de Caldas Plateau region, a region with high natural radioactivity. The samples were collected in humid areas under trees in open fields directly from the soil. The methodology employed was Instrumental Neutron Activation Analysis and the analytical control was verified with two certified reference materials:

INCT-MPH-2 Mixed Polish Herbs and IAEA Mushroom. U and Th concentrations in the wild mushroom samples ranged from 0.163 to 161 mg kg<sup>-1</sup> and 0.102 to 57 mg kg<sup>-1</sup>, respectively. The lower and higher As concentrations determined were 0.043 to 167 mg kg<sup>-1</sup>. Se content in wild mushrooms determined ranged from 0.371 to 209 mg kg<sup>-1</sup> and are in agreement with reported in the others studies. The Fe content of the wild mushroom ranged from 146 to 36616 mg kg<sup>-1</sup>. The highest concentrations of elements, mainly U and Th, in mushrooms were present in the samples collected in rural areas, where the most radioactive anomalies in this region occur. The results also showed that wild mushrooms can be used as bioindicators of the environmental radioactive contamination.

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