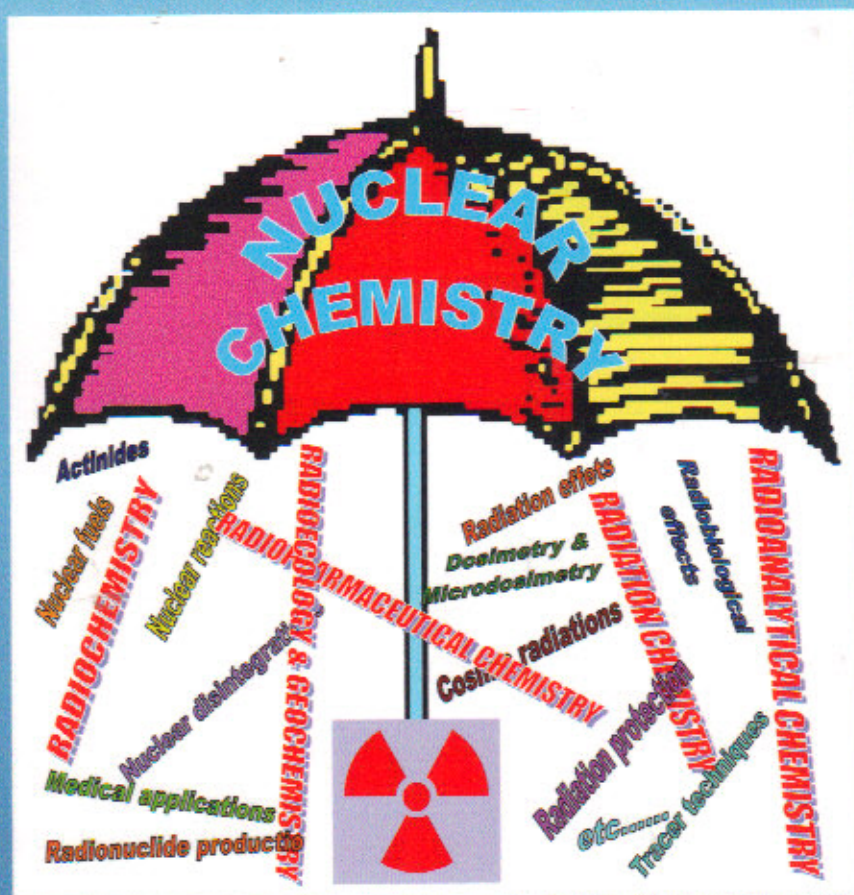# 4th-INCC

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ELEMENTAL DETERMINATION IN *Canoparmelia texana* LICHEN SPECIES USING X-RAY FLUORESCENCE SPECTROMETRY

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It is well known that large cities are affected by atmospheric pollution caused by vehicular emissions, urbanization and industrial activities. Presently, there is a growing need to evaluate air quality and the levels of pollutant emissions since they can affect the general health of the urban population. In most cases air quality is assessed by direct measurement by using collectors which in turn makes the air monitoring expensive and difficult for large urban areas like São Paulo city. An alternative method is the use of plants as biomonitors to evaluate air pollutants and their correlation to urban health problems. The aim of this study was to evaluate the viability of assessing pollutant levels by analyzing lichens by X-ray fluorescence spectrometry (XRFS). *Canoparmelia texana* lichen species were collected from tree barks in different sites of the Campus of the São Paulo University. In the preparation for analysis, lichen samples were cleaned, washed with water, freeze dried and ground. The resulting powdered lichen samples were compressed into cylindrical pellets with diameter of 1cm for XRFS measurements. The concentration of identified elements can be classified in different levels: Ca, K and S were found at the levels of percentage; As, Br, Cl, Cu, Fe, Mn, Rb, Sr and Zn at the mg kg^{-1} levels and the elements Cr at low level of µg kg^{-1}. For quality control of the results certified reference materials (IAEA Lichen 336 and INCT Mixed Polish Herbs) were analyzed and the comparison resulted in values of $|z$ score ≤ 2. The low detection limit (DL) achieved in the XRFS setup for most elements allowed a reliable determination of the concentrations found in the lichens. These findings showed that analysis of lichens using XRFS technique can be used to air pollution in large urban areas as well as in remote areas where there is no monitoring network.