Contribution ID: **213** Type: **Poster**

Environmental impact due to the operation of a tin and lead industry inferred by lichens

Wednesday 19 September 2012 18:00 (1h 50m)

For the last 20 years, the brazilian most important tin and lead industry has been producing these metals in Pirapora do Bom Jesus, a city placed in state of Sao Paulo. As a consequence of the industrial process, wastes are released into the environment mainly as dust and in slag which is stored in piles in open air. The concentration of natural radioactivity can be increased as well as the trace elements by the industrial process. This paper analyzed the environmental impact due to the operation of a tin and lead industry using lichens as bioindicator. The lichen specie chosen was Canoparmelia texana because it is one of the most widely spread in natural ecosystem and also in polluted urban areas. Samples of these specie and soil were collected around the industry and the concentrations of the natural radionuclides from 238U and 232Th series, trace elements and lead isotopic ratio were determined using the techniques neutron activation analysis (NAA), alpha and gamma spectrometry, gross alpha and beta counting and thermal ionization mass spectrometer (TIMS), respectively. The lichen samples collected closer to the industry presented the highest concentrations of 238U, 226Ra, 210Pb, 232Th, 228Ra, Hf and Ta and, by the results of lead isotopic ratio, it was possible verifies the fingerprint of the contamination conforming the efficiency of lichens as bioindicator in environmental studies.

Author: Dr LEONARDO, Lucio (Ipen/CNEN, UNIP- Universidade Paulista, Brasil)

Co-authors: Dr MAZZILLI, Barbara (Instituto de Pesquisas Energeticas e Nucleares); Dr BABINSKI, Marly (Universidade de Sao Paulo); Dr DAMATTO, Sandra (Instituto de Pesquisas Energeticas e Nucleares)

Presenter: Dr LEONARDO, Lucio (Ipen/CNEN, UNIP- Universidade Paulista, Brasil)

Session Classification: Poster Session

Track Classification: Radioactive elements in the environment, radiation archeometry and Health Physics