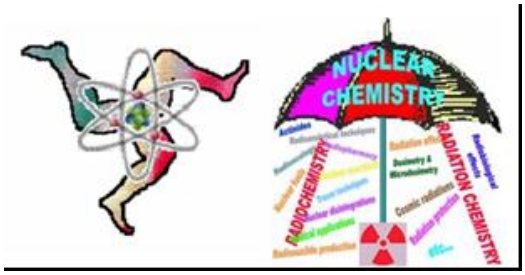

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Native and transplanted lichen and bark as air pollution biomonitors at three different meteorological conditions

Thursday 22 September 2011 17:30 (1h 30m)

At three sites of Portugal –Viana do Castelo, Sacavém, Sines –bark from Olea europea and the lichen Parmelia caperata, collected in clean areas, were exposed. The situation of the sites allows different meteorological conditions, from rainy to dry and cooler to warmer. Three different procedures for the lichen exposure were adopted: rectangular flat pieces, the lichen in its original form and biomass (previously ground lichen). Samples were exposed for 9 months and removed after 3, 6 and 9 months (continuous mode) and exposed for 3 months, in a winter campaign, a spring campaign and a summer campaign (discontinuous mode). Conductivity was measured before and after exposure whenever possible. Ten samples of each biomonitor were kept for analysis prior to exposure. All samples were analyzed by Instrumental Neutron Activation analysis (INAA), at the Portuguese Nuclear Reactor, and the chemical elements were determined. Total deposition was collected simultaneously to the exposures and analyzed by inductively coupled plasma mass spectrometry (ICP-MS). Meteorological data were taken from the Portuguese Meteorology Institute and processed together with the chemical element concentrations. Results are discussed on basis of 1) influence of humidity/precipitation and temperature on bark and lichen transplant elemental accumulation, and 2) of different procedure of lichen exposure (biomass, usual one and flat - well-determined exposure area - pieces).

Authors: Prof. PACHECO, Adriano (1CERENA-IST, Technical University of Lisbon); Dr FREITAS, Maria do Carmo (Instituto Tecnológico e Nuclear, URSN)

Presenter: Dr FREITAS, Maria do Carmo (Instituto Tecnológico e Nuclear, URSN)

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