



Monitoring trace metals using moss bags in Sardinia, Italy

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As well known anthropic activities are producing an increase of trace metal concentration in the terrestrial ecosystems. Previous researches have shown that several species of cryptogams can be used as a low-cost bio-accumulator to detect metal deposition.

In this study biomonitoring of airborne trace metals was made using moss bags technique. The moss *Hypnum cupressiforme* was used as a bio-accumulator for the estimation of atmospheric traces metal deposition in three sites characterized by different source of pollution around an industrialized area and two urban areas (north-west of Sardinia, Italy).

Moss carpets were collected from trees in a forest of central Sardinia where air pollution is not present. In the laboratory, the moss plant samples were cleaned and moss bags were prepared by weighing out 2 g air-dried weight, and packing it loosely in nylon nets of 12 x 12 cm with mesh of 4 mm². In each site the moss bags were exposed for six weeks during autumn, winter, spring and summer seasons from November 2007 to July 2008. Two moss bags, used as control, were not exposed. Following exposure the moss samples were analyzed for total concentration of As, Cr, Cu, Fe, Ni, Pb, V, and Zn by Inductively Coupled Plasma Atomic Emission Spectrometry. Results obtained showed higher values of trace metal load factor for the following elements: Cu, Ni, Zn, and As. The most accumulation values were found in moss bags exposed in the industrial area for all period of experimentation.