

SEM-EDX analysis of particulate matter on sticky pads and lichens immediately following closure of a Cu smelter in Romania

A.-M. RUSU¹, B.J. WILLIAMSON¹ AND O.W. PURVIS¹

¹Natural History Museum, Cromwell Rd. London, SW7 5BD, UK; a.rusu@nhm.ac.uk; b.williamson@nhm.ac.uk; w.purvis@nhm.ac.uk

Particulate matter deposition is being compared on sticky pads and *Hypogymnia physodes* lichen transplants exposed over a 3-month period along a 40 km transect centred on Zlatna, in the Romanian Apuseni Mountains [1,2]. The extent to which lichen metal concentrations reflect quantifiable deposition levels for different elements and physicochemical forms is controversial. This research is a necessary first step towards refining lichen biomonitoring protocols. This study aims (1) to identify the mineralogy and origin of particles on the surfaces of sticky pads and on *Hypogymnia* thalli (2) to examine the relationship between particulate capture on sticky pad surfaces and on *Hypogymnia* thalli.

As far as we are aware this is the first study investigating particles on sticky pads in relation to those on lichens and other environmental samples using advanced SEM / microscopical analytical techniques immediately following the closure of a major pollution source. This 'natural experiment' is centred on a large mine waste tailing close to Zlatna town centre two weeks following closure of an ore-processing plant and smelter and is developed from a study carried out in the Russian Urals during operation of a major copper smelter [3].

Particle chemical composition, size and shape are being quantified using automatic imaging software and compared with multi-element composition data obtained by ICP-AES and ICP-MS.

References

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