

Title	Physiological effects of a geothermal element: Boron excess in the epiphytic lichen <i>Xanthoria parietina</i> (L.) TH. FR.
Author	Tommaso Pisani, Silvana Munzi, Luca Paoli, Martin Backor, Stefano Loppi
Journal	Chemosphere, Volume 76(7)
Abstract	The results of a study aimed at investigating the effects of boron excess on a set of ecophysiological parameters in the lichen <i>Xanthoria parietina</i> , to set up a monitoring system to trace early biological effects of boron pollution in geothermal areas, are reported. To this purpose, lichen thalli have been incubated for 24 h in solutions at boron concentrations of 0.1, 1, 10 and 100 ppm, which were within the range in bulk deposition and geothermal fluids. The results showed a general trend of decreasing sample viability and increasing cell membrane damage and membrane lipid peroxidation under increasing boron concentrations, while photosynthetic efficiency, chlorophyll degradation and the contents of H ₂ O ₂ and water-soluble proteins were not affected. It was argued that the fungal partner, that represents the large majority of the lichen biomass, is more sensitive to boron excess than the algal partner.
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Title	Arsenic speciation in Portuguese <i>in situ</i> lichen samples
Author	M.M. Farinha, M.C. Freitas, Z. Šlejkovec, H.Th. Wolterbeek
Journal	Applied Radiation and Isotopes, Volume 67(12)
Abstract	In this work, 29 lichen samples collected <i>in situ</i> and representative of high loadings, medium loadings and zero loadings for factors related to natural and anthropogenic emission sources, were analyzed to determine arsenic contents and its species extractability. The studied sites showed As values between 430 and 5590 $\mu\text{g kg}^{-1}$. The cationic forms were extracted at most of the sites varying between 0.5% and 6.6%. Extracted anionic forms were not detected in any of the sites. In a few other sites the % of extracted As(III)—more toxic—exceeds the equivalent value of As(V). It is concluded that arsenic in native <i>Parmelia sulcata</i> Taylor under the form of As(V) either was kept unchanged or was partially transformed into As(III) (more frequent) or partially transformed into As(III) and dimethylarsinic acid (DMAA) or partially transformed into DMAA.
Year	2009
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