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Chapter 28

LICHENS AS BIOINDICATORS OF AIR QUALITY IN MINING AREAS OF LATIN AMERICA, WITH SPECIAL REFERENCE TO CATAMARCA, ARGENTINA

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ABSTRACT

The lichens *Parmotrema austrosinense* and *Canomaculina consors* were transplanted to a site within an open-pit mining project and to three localities potentially affected by mining emissions in the Western region of Catamarca, Argentina. In order to contribute to the interpretation of chemical response of these species to mining airborne pollutants and to analyse the feasibility of their use in air quality biomonitoring programmes, results of multielemental determinations by instrumental neutron activation analysis in the thalli are presented. The observed quali- and quantitative interspecific differences in the accumulative response of the transplanted lichens could be interpreted using the exposed/control ratio (EC ratio). The elemental accumulation of transplanted thalli could relate to mining airborne pollution only in *P. austrosinense*. Therefore, this species is the most suitable for biomonitoring air quality in areas with open-pit mines and environmental characteristics as those of Western Catamarca. In both species, the multielemental accumulation of the thalli reflected the geochemical characteristics of each transplantation site and local and regional environmental dynamics. In this regard, the results presented here contribute to establish environmental quality baselines for this region, which is in the process of exploiting its natural resources.

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