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Assessment of Toxic Elements in Atmospheric Deposition in Azerbaijan Using Moss Biomonitored Methods

Information from existing studies on heavy metal concentrations in mosses is an invaluable resource for international negotiations on heavy metal pollution. Results from moss studies help investigate both spatial and temporal trends of heavy metals in atmospheric sediments. Besides, these studies allow the identification of places with high levels of atmospheric pollutants that spread over large distances and heavy metals emitted from local sources. For this purpose, air pollution in the Goygol, Gedabey and Dashkasan regions of Azerbaijan was studied by moss biomonitoring using the moss species Pleurozium Schreberi and Hylocomium splendens. The presence of 44 elements was determined by neutron activation analysis (NAA), atomic absorption spectroscopy (AAS) and Particle-induced X-ray emission (PIXE). The main element associations were identified using factor analysis. Four factors were determined. Research methods are based on the application of mosses as indicators, the amount of elemental pollutants in atmospheric sediments and their suitability in mosses. Besides, it reflects the general state of atmospheric pollution in the studied areas. Distributional maps were prepared to point out the regions most affected by pollution and to relate this to the known sources of contamination.
Beside the anthropogenic influences, the lithology and the composition of the soil also play an important role in the distribution of the elements.

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