

Analysis of mosses along Sarp-Samsun highway in Turkey

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Abstract

The elemental analysis of mosses along Sarp-Samsun highway in Turkey was determined using energy dispersive X-ray fluorescence method. A radioisotope excited X-ray fluorescence analysis using the method of multiple standard additions is applied for the elemental analysis of mosses. An annular 50 mCi ²⁴¹Am radioactive source and annular 50 mCi ⁵⁵Fe radioactive source were used for excitation of characteristic K X-rays. An Si(Li) detector which has a 147 eV full width at half maximum for 5.9 keV photons was used for intensity measurements. A qualitative analysis of spectral peaks showed that the samples contained phosphates, potassium, calcium, titanium, iron, strontium, tin and barium. Since this study is the elemental analysis along the highway, one can expect to detect Pb. Due to the detection limit of EDXRF, elements were analyzed with Atomic Absorption Spectroscopy (AAS) for Pb. Evaluation of these elements with their potential hazards for ecology and human is briefly discussed. © 2007 Elsevier B.V. All rights reserved.

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