MOSS BIOMONITORING AS A TOOL FOR RADIOLOGICAL EXPOSURE ASSESSMENT

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The purpose of this study is to provide an insight into the Atmospheric Deposition of Airborne Radionuclides in Croatia by using the Moss Biomonitoring Technique.

Moss samples were collected during the summer of 2010, from 161 locations in Croatia evenly distributed across the entire country. Sampling was performed in accordance with the LRTAP Convention - ICP Vegetation protocol and sampling strategy of the European Programme on Biomonitoring of Heavy Metal Atmospheric Deposition.

In addition to the comprehensive qualitative and quantitative chemical analyses of all samples collected determined by NAA, ICP-AES and AAS, 22 out of 161 moss samples were subjected to gamma-spectrometric analyses for assessing activity of the naturally occurring radionuclides. The activities of ^{40}K, ^{232}Th, ^{137}Cs, ^{226}Ra and ^{238}U were determined by using a low background HPGe detector system coupled with an 8192-channel CANBERRA analyzer. The detector system was calibrated using gamma mixed standards supplied by Eckert & Ziegler (Analytics USA).

Preliminary research results on the Atmospheric Deposition of Airborne Radionuclides in Croatia by using the Moss Biomonitoring Technique confirm that it may serve as a valuable tool for Radiological Exposure Assessment. This research has the potential for simple, accurate, reliable and affordable environmental radiation control.