

# Analysis of $^{210}\text{Po}$ , $^{234}\text{U}$ and $^{238}\text{U}$ in the components of the post-mining environment in the Sudetes

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The paper presents the results of the analysis of uranium ( $^{238}\text{U}$ ,  $^{234}\text{U}$ ) and polonium ( $^{210}\text{Po}$ ) content in plant and soil samples collected from the area of the former uranium mine in Kowary (Sudety, Poland). The post-mining areas in Kowary are a place with an increased potential for contamination with natural radionuclides, due to the intensive exploitation of uranium ores carried out there in the past. Although several decades have passed since the end of mining activities, phenomena such as the movement of radionuclides, their accumulation in plants and the potential impact on local biocenoses remain a current subject of research. Analysis of the radionuclide content in environmental components is crucial for assessing the state of contamination, identifying potential ecological threats and planning remediation activities and radiological monitoring. The aim of the study was to assess the degree of environmental pollution and to determine the possibility of bioaccumulation of radionuclides by selected plant species occurring in the immediate vicinity of historical excavations.

Plant and soil samples were collected in selected locations located at various distances from former mining excavations. Before analysis, appropriate sample preparation was carried out, including drying, mineralization and radiochemical separation of the tested isotopes. The determinations were made using alpha spectrometry. Based on the obtained spectra, isotope concentrations were calculated and the highest and lowest concentrations of  $^{210}\text{Po}$ ,  $^{234}\text{U}$  and  $^{238}\text{U}$  in the samples were determined, and annual effective doses for adults were calculated.

## Literatura:

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