



Contribution ID: 209

Type: Poster

Polonium ^{210}Po in edible mushrooms collected in northern Poland

Tuesday, May 13, 2014 5:15 PM (1h 30m)

The main aim project was ^{210}Po determination in caps and stems of mushrooms from *Leccinum pseudoscarbum*, *Leccinum aurantiacum*, *Leccinum vulpinum*, *Leccinum duriusculum* and *Leccinum quercinum* collected in Pomorskie, northern Poland. Mushrooms are organisms which contain a lot of water (75-90%). Mushrooms absorb heavy metals such as mercury, chrome, cadmium and radionuclides: e.g. polonium, uranium, plutonium from the environment (soil, air). Our studies have shown that the radionuclides are included not only in green plants, but also in mushrooms. Radioactive elements are taken either from the soil, through the mycelium or directly from the entire surface gathered in the fruiting bodies. As a result of the Chernobyl accident radioactive contamination of the environment has grown considerably. Many European countries were contaminated with significant amounts of radioactive elements.

In our research natural polonium ^{210}Po were determined. ^{210}Po is characterized by high radiotoxicity and its main sources in the environment are water, food, urban pollution and the Chernobyl accident. The average ^{210}Po concentration in caps and stem mushroom ranged from $0.85 \pm 0.09 \text{ mBq}\cdot\text{g}^{-1}$ in *Leccinum quercinum* stem to $10.77 \pm 0.47 \text{ mBq}\cdot\text{g}^{-1}$ in *Leccinum pseudoscarbum* cap. Analysis of ^{210}Po concentrations in mushrooms showed its higher values in caps than stem. This means the main source of ^{210}Po is wet and dry atmospheric fallout. The studies showed interspecies differences among all analyzed species and *Leccinum pseudoscarbum* ($10.15 \text{ mBq}\cdot\text{g}^{-1}$) as well as *Leccinum aurantiacum* ($11.83 \text{ mBq}\cdot\text{g}^{-1}$) accumulated more polonium than *Leccinum vulpinum* ($2.22 \text{ mBq}\cdot\text{g}^{-1}$), *Leccinum duriusculum* ($3.65 \text{ mBq}\cdot\text{g}^{-1}$) and *Leccinum quercinum* ($3.57 \text{ mBq}\cdot\text{g}^{-1}$).

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Session Classification: Poster Session - Radionuclides in the Environment, Radioecology

Track Classification: Radionuclides in the Environment, Radioecology