



Contribution ID: 456

Type: Poster

Extraction efficiency of ^{210}Po in Polish herbal teas

Tuesday, 15 May 2018 18:15 (15 minutes)

Air and food are the main sources of many chemical elements, also natural and artificial radionuclides transferred to human organisms. The intensity of radioisotopes intake depends on the place of residence, local radiation quantity, diet habits and food origin. So far, during annual radiation doses evaluations in Poland, the most often consumed food products were taken into account. Among naturally occurring radionuclides, their potential ingestion and internal expose, the most important seems to be ^{210}Po and its parent nuclide ^{210}Pb .

Presented are results of a study on ^{210}Po extraction efficiency in Polish herbal teas and risk to human consumer due to exposure from highly radiotoxic decay particles emitted by ^{210}Po . 12 most popular commercially available Polish herbal teas, and their infusions in tap water and filtered water were analyzed and ^{210}Po activity concentrations were calculated.

The results in dried plants were between 2.11 ± 0.09 for milk thistle and $33.70 \pm 0.42 \text{ Bq} \cdot \text{kg}^{-1}$ dry wt. for cistus. The extraction efficiencies into tap water ranged from $4.93 \pm 0.39 \%$ for lime to $27.40 \pm 1.43 \%$ for elder, while for activated carbon filtered water were between $7.55 \pm 0.47 \%$ for lime and $20.32 \pm 1.09 \%$ for elder and there were no statistically significant differences between both extractions. There was no correlation found between ^{210}Po extraction efficiency into infusions and ^{210}Po activity concentrations in dried herbs. Herbal teas consumption should not contribute significantly to the annual effective radiation dose in Poland.

Primary authors: Prof. STRUMIŃSKA-PARULSKA, Dagmara (University of Gdańsk, Faculty of Chemistry); Dr OLSZEWSKI, Grzegorz (University of Gdansk, Faculty of Chemistry); Ms SZYMAŃSKA, Monika (University of Gdańsk, Faculty of Chemistry); Mr WESTA, Marcin (University of Gdańsk, Faculty of Chemistry); Ms MONI-AKOWSKA, Aleksandra (University of Gdańsk, Faculty of Chemistry); Ms DZIERWANOWSKA, Anna (University of Gdańsk, Faculty of Chemistry); Prof. SKWARZEC, Bogdan (University of Gdańsk, Faculty of Chemistry)

Presenter: Prof. STRUMIŃSKA-PARULSKA, Dagmara (University of Gdańsk, Faculty of Chemistry)

Session Classification: Poster RER

Track Classification: Radionuclides in the Environment, Radioecology