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P37 PRESENCE OF ^{137}Cs IN DIFFERENT MASHROOMS SAMPLES IN THE REPUBLIC OF MACEDONIA

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Introduction: Recently, the environment radioactivity research is of particular importance in order to obtain better understanding for the environmental fate of radionuclide pollutants. The radionuclide content in some environment bioindicator plants provides an insight into the contamination level in the eco-system. For these purposes, mostly used plant species are mushrooms and lichens. Measuring the mushrooms radioactivity, one could obtain important information for the radionuclides behavior in the environment, using such information as reliable parameter for radiological assessment.

Material and Methods: The goal of this examination was focused on determination the activity concentrations of ^{137}Cs in various mushrooms types, collected from different locations in Republic of Macedonia. One hundred and sixteen samples of mushrooms were analyzed by gamma spectrometric instrument (Canberra Packard) equipped with high-purity germanium detector. Data acquisition and analysis were performed with 8192 channel digital analyzer; duration of acquisition interval for each sample was 65 Ks. The gamma line at 661.6 keV was used to determine the ^{137}Cs activity.

Results: On the basis of examinations performed, the calculated average value of ^{137}Cs activity was within the range 0.57 Bq kg^{-1} - 5.16 Bq kg^{-1} . From the very research results, one can conclude that the ^{137}Cs distribution in the examined mushroom types is unequal, and is highly dependable upon the mushroom variety. The mycorrhizal fungi, such as the Morel (*morchella esculentis*), contain the highest ^{137}Cs concentration, unlike the Scotch bonnet (*marasmius oreades*) which is a saprobe fungi and grows in a meadows. The last one has small mycelium dimensions, and for this reason, it has low absorption ability. The average values differences and the level of their statistical relevance were calculated by Tukey HSD test, in order to determine specific sub-groups of mushroom types, regarding the ^{137}Cs level and the homogeneity thereof. According to this, mushrooms were divided into 3 groups as follows:

- Group 1 – with low ^{137}Cs level (1.00 Bq kg^{-1})
- Group 2 – with medium ^{137}Cs level (2.68 Bq kg^{-1})
- Group 3 – with high ^{137}Cs level (4.60 Bq kg^{-1})

Conclusion: The compliance assessment according the Regulative on maximum permitted radioactivity in food revealed that no samples tested contained increased radioactivity that could negatively affect the human health. These examinations indicate that due to the long ^{137}Cs half-life, continuous surveillance should be performed. With time, this radionuclide could be relocated, drained by falls, and redistributed, however, for a long time it will be present in the eco-system.

Key words: bioindicators, mushrooms, radioactivity, ^{137}Cs , gamma spectrometry