INTRODUCTION

The soil of Vojvodina is subject to radioactive contamination from a number of sources. First of all, these are the reactors of nuclear power plants in the region of southeast Europe that could contaminate a broader environment by their emission into air and water. As second, the use of phosphate fertilizers with high uranium concentration may cause a gradual increase of the uranium series activity concentration in soil. The widespread public belief that during the shelling Vojvodina was also contaminated with depleted uranium makes the perceiving of the state of agricultural soil radioactivity very actual.

RESULTS OF MEASUREMENT AND DISCUSSION

Activity concentration of man-made radionuclides, except $^{137}$Cs, is below the detection limit. The radionuclide $^{137}$Cs is present in all soil samples. This radionuclide originates from the accident of the nuclear power plant “Lenin” in Chernobyl, in 1986. Due to the long half-life of this radionuclide of 30 years, it will be relocated, washed out and redistributed, but it will be still present in the ecosystem of Vojvodina for a long time. The great standard deviation and the great difference between the minimum and maximum $^{137}$Cs activity concentrations show typical features of a man-made contaminant. Mean values of activity concentrations of the detected radionuclides are presented in Table 1.

Because the $^{238}$U activity concentration in all samples is at the usual level, and because the $^{238}$U/$^{226}$Ra ratio is not substantially changed, it can be concluded that the measured samples show no indication of depleted uranium presence (2,3). The activity concentrations of the natural radioactive series of $^{232}$Th and the natural radionuclide $^{40}$K are within usual limits.

If we compare the obtained results with previous measurements (4-7), we note a decreasing tendency of activity concentrations after 1988, except in the region of Vršac and Novi Sad where the values are slightly higher than in 1989 (Table 2). This difference might be due to the sampling from different micro locations in previous and this year. The precipitation process of $^{137}$Cs after the Chernobyl accident is obviously very nonuniform.
Acknowledgements

The authors are grateful to the Executive Council of Vojvodina for the financial support of this research.

REFERENCES


2. Richardson JJ. Depleted uranium. Mother Jones 23/6/99


