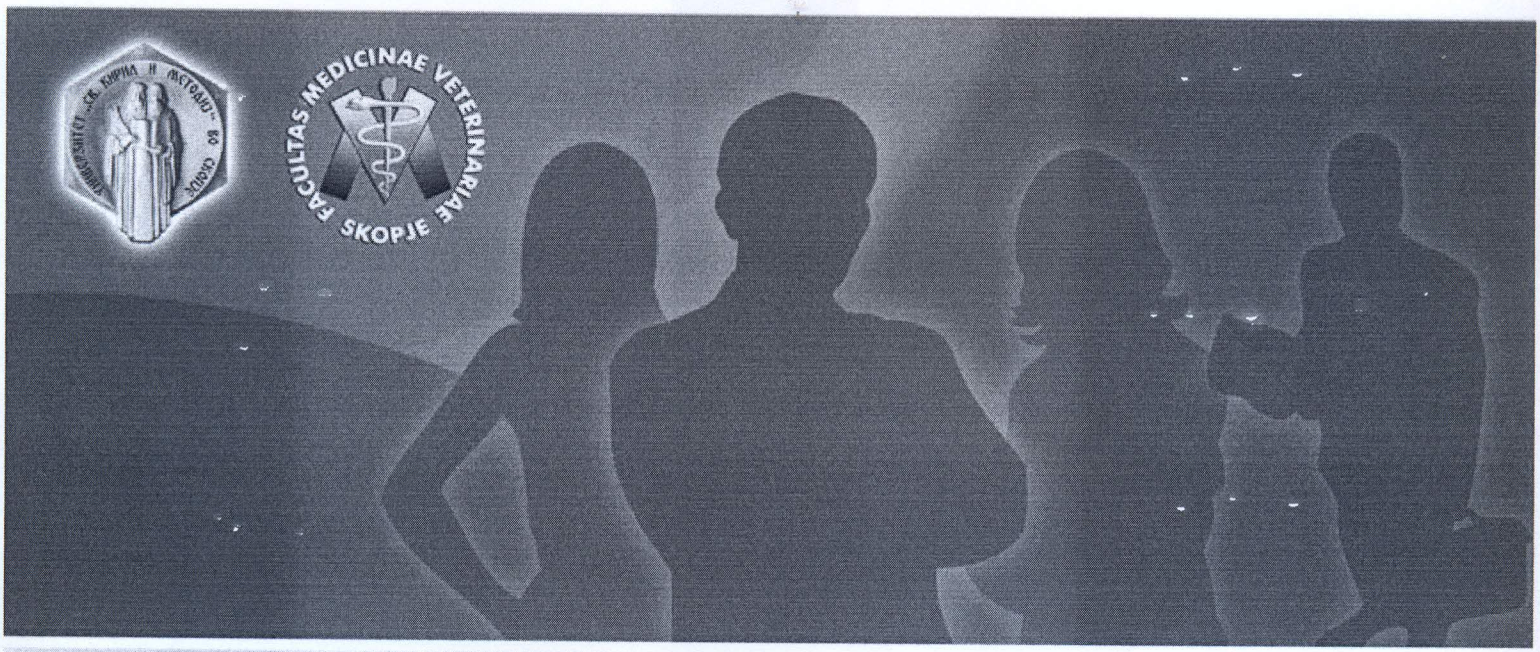
UNIVERSITY "Ss. CYRIL AND METHODIUS" IN SKOPJE
FACULTY OF VETERINARY MEDICINE - SKOPJE

PROCEEDINGS

DAYS OF VETERINARY MEDICINE 2013



The 4th International Scientific Meeting

06-08 September 2013
Struga, Republic of Macedonia

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P27 ACTIVITY OF ^{137}Cs AND ^{40}K IN SHEEP MILK

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ABSTRACT

The human does not exclude himself from the environment, thereby the changes in the radiologic contamination of the environment (water, air, soil, food products) also condition the level of radioactive contamination of the human organism.

In the tissues of animal organisms in European countries, the maximal value of radioactive contamination has been achieved in the period from 1963 to 1964 after the nuclear trial performed in China and after the accident of the nuclear power plant in Chernobil in 1986.

After this incident, the sheep were the most endangered species of domestic animals since they are bred in the mountain regions and they are fed from pastures, so for this reason, consumption of milk and meat was forbidden in Europe for a long time period.

The sheep milk is one of the links in the chains of circulation of radioactive substances, which through the nutrition reach the human and affect human's health. For this reason, radiation control of the content of natural radionuclides should be performed, including ^{137}Cs. Hence, the objective of this research was to determine the presence of ^{40}K and ^{137}Cs in samples of sheep milk, from different regions of Republic of Macedonia. 25 samples of sheep milk were analysed, taken from different regions in the Republic of Macedonia. While taking the samples, it has been confirmed that the animals are not fed up and they were kept exceptionally eating from pastures. The samples were analysed with clean semi-conductor gamma spectrometer Canberra Packard, with efficiency of the detector of 30% measured at ^{60}Co Na. On the basis of the obtained results, it has been determined that ^{137}Cs is present in all regions of the Republic and its activity is within the range from 0,22 Bq/kg to 0.68 Bq/kg, while the activity of ^{40}K is from 19,30 to 37,20Bq/kg. So the level of ^{137}Cs in sheep milk is not even close to the maximal allowed limits of pollution of 370Bq/kg. From the above indicated it follows that at the current level of radioactive contamination for the food products with plant origin similarly to agricultural products, animal body tissues and the food products of animal origin, there would be no need for taking measures in regard to reduction of the radioactive pollution, taking into consideration that the values from the radioactive pollution are lower, compared

to the level of radiological contamination from natural originAfter the performed comparison with the Rulebook for maximal allowed quantity of radionuclides in food, it has been shown that all samples fulfill the criteria given in the same.

However, continuous control of ^{137}Cs in sheep milk is required, because it represents an indicator of contamination of the environment

Key words: radionuclides, milk, analysis, gamma spectrometry, results