**Features of artificial 90Sr and 239+240Pu accumulation by poultry organs and tissues**

**A. Mamyrbayeva,1\* A. Panitskiy,1 N. Leschenko,1 S. Baigazy1**

*1Branch office ‘Institute of Radiation Safety and Ecology’ of RSE NNC RK, Kurchatov t., Republic of Kazakhstan*

\**e-mail:* *mamyrbaevaa@nnc.kz*

The paper presents the results of the field survey on the transfer factors of artificial 90Sr and 239+240Pu for the poultry organs and tissues on chronic intake with different components of the diet – contaminated soil and feed.

 Despite many years of research on the migration regularities of radionuclides in the body of farm animals and poultry, this issue remains relevant to this day. There are radionuclides whose behavior has not yet been studied, which continues to arouse a great scientific interest.

 The present study has used broilers as the study object, which were kept under caged conditions. The poultry was divided into two groups. The conditions for each group were identical except for the source of radionuclide intake, which was added to the daily diet: the first group was fed contaminated soil, and the second - contaminated plant feed. The duration that the poultry was kept for varied from 0 to 70 days. According to the calculations made and proceeding from the reported values of the average activity concentrations of radionuclides of interest in the soil and plant feed, the daily intake by the poultry was calculated. For instance, the average daily intake of 90Sr with soil and plant feed was 850 ± 120 and 140 ± 20 Bq/kg, respectively. The average daily intake of 239+240Pu with soil was 2,766,000 ± 415,000 Bq/kg, and the one with the plant feed - 220 ± 30 Bq/kg.

As revealed by the conducted experimental studies, the bone tissue is the major organ for 90Sr to deposit. 90Sr availability, on intake with the plant feed, was found to be higher and its concentration for the longest caging term of 70 days was 3,200 ± 500 Bq/kg, and on intake with soil - 350 ± 160 Bq/kg.

The organ for 239+240Pu to deposit is the softer tissues of the parenchymatous organs - the liver. The results show the inverse order of availability. For instance, the concentration of 239+240Pu in the liver on intake with the soil is higher being 180 ± 10 Bq/ kg, and on intake with the plant feed - 2.4 ± 0.5 Bq/kg.

As the work proceeded, the transfer factors of 239+240Pu in the liver ingested with the soil and plant feed were also calculated, which were (5.4±0.8) ·10-5 and (9.0·± 1.8) ·10-3, respectively, and those of 90Sr in the bone tissue - 0.4 and 23, respectively.

The study and findings have resulted in the dynamics of the accumulation of radionuclides, which depends on the source of intake, the physico-chemical form (soil, feed) and the type of tissue. The amount of findings is applicable for: calculating radiation burdens from poultry products; calculating the maximum permissible levels of radionuclide intake by the human body; developing recommendations for obtaining products under contamination conditions.