

CHANGES IN THE LIVER OF RATS WITH COBALT MICROELEMENT DEFICIENCY

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Abstract. *In this study, the lack of Co in the body was studied in rats. For this, a change in the composition of the liver, an internal organ of rats, was observed.*

Keywords: *Cobalt, Saturn, spectrometry, Mufelpechi.*

Relevance of the topic: Long-term lack of microelements and the effect of ionizing radiation on the body, first of all, negatively affects the metabolism of minerals and vitamins, causing the deterioration of the functional state of the liver, kidneys and thyroid gland, and the decrease in the functional activity of immune-complement cells and organs. [1,3,4,5]

The main purpose of the work: Determining the changes in Co deficiency in mammals (cross-breed rats). [1,2,10,]

Materials and methods: 100 healthy male rats of the same age - 4 months old, with the same body weight of 500 grams, of the mixed breed were selected for conducting research experiments. First 70 were selected as experimental group, and second 30 were selected as control group. The experiment was conducted at SamTU's vivarium for 6 months from April to November. Experimental rats were fed low-Co products. Rats in the control group were fed according to the usual diet. [7,6,8,9] After 6 months, the internal organs of the animals were separated and examined. In this experiment, microelements were determined using the atomic absorption method in the "Saturn" spectrophotometer. For this purpose, 5 grams from each organ was taken and burnt it in a 180⁰C oven until it turned completely black. Then the experiment was conducted in a muffle heater. And it was heated at 450⁰ C until ash was formed. To speed up the burning process, a few drops of nitric acid were added to the prepared samples, mixed with 0.1 g of HCl and dissolved. The liquid substance was transferred to the atomic state, after which, in the process of irradiation, the sufficient and insufficient Co element was compared to the norm. Statistical data was compiled in Excel.

Research results: According to the characteristic symptoms of Co deficiency in rats, it appeared in 2 groups: severe weight loss, osteodystrophy, loss of appetite. The first group experienced a decrease in body weight on average in 14 rats - 20%. In the second group, the body weight did not change, but the symptoms of mild intoxication - loss of appetite, lack of activity, vomiting, hair loss, tumor formation were observed in 56 rats (80%) during this time, the weight of rats in the control group increased to 30-50, their active no negative changes were observed in the appetite in their movement. When spectrometry of the liver tissue of rats was performed, the amount of the element in the liver was 0.526-0.479mg/kg in the experimental group. In comparative study 0.0766-0.0658 mg/kg was found in the livers of the control group.



Figure 1. Organs in the rat.



Figure 2. Organ harvesting.

In conclusion, chronic Co deficiency leads to a decrease in physiological activity in the body, a decrease in appetite, the manifestation of general signs of intoxication, as a result, vomiting, nausea, vomiting, unchanged or decreased body weight, and it was defined that the amount of Co in the spectrometry of their liver was 0.02 mg/kg as low as compared to that of the control group.

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