

INVESTIGATION OF THE EFFECT OF A GENETICALLY MODIFIED PRODUCT ON THE MORPHOMETRY OF THE SPLEEN AND THYMUS OF EXPERIMENTAL ANIMALS

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Genetically modified organisms are organisms (for example, microorganisms, plants and animals) whose genetic composition has been changed in such a way that it no longer occurs in natural conditions through natural recombination or mating. This technology has offered many advantages over natural foods, but the argument is that the benefits far outweigh the potential risks and harms associated with it. Thus, genetically modified foods can be a double-edged sword. The risks to safety, health and the environment associated with GMo products remain unresolved to this day [1,5,6]. The safety of GM products raises many questions on which there are too limited scientific studies, and emphasizes the need for further scientific study in order to shed light on this dilemma [2,3,4,7]. Food obtained from genetically modified crops is unsafe for consumption, according to [8,10]. Who says that it is impossible to make a clear statement that GM products are safe, this should be evaluated only in each specific case [9,11]. There are major questions about the safety of GM products that cause disputes about the allergenicity and toxicity of these products. Food obtained from transgenic crops, otherwise known as GM products, is considered a serious problem for human health, since, according to some authors, it causes allergies [8].

The purpose of this study was to study and evaluate the effect of the GM product on the internal organs, biochemical and hematological blood parameters of laboratory animals in the experiment.

Materials and methods. Commercial soy flour was used as a GM product. Experimental studies were conducted on white mongrel rats. They were divided into 2 groups: the experimental group of animals, which in obsessively diet was included soybean meal (at a dose of 0.02-0.03 g for 1 rat weighing 160-180 g for 30 days (n=56); the control group included animals that received only obsessively diet without soybean meal (n=62). Macroscopic animal study was carried out on the basis of meeting the Ethical Committee of Ministry of Health of the Republic of Uzbekistan no. 4/17-1442 from 21.09.2020.

Research results and discussion. The parameters of the spleen of laboratory animals of the experimental and control groups also significantly differed. Comparative changes in the spleen concerned the size, structure (looseness) and color (dull). If the animals of the control group did

not have an increase, change in the structure and color of the spleen, then in the experimental group these parameters were noticeably different compared to the control. In the experimental group of animals, there are visible changes in the spleen, characterized by an increase in size, average weight, as well as changes in the structure and color of this organ. This means that the GM product-soy flour has a negative effect on the condition of the spleen. In the spleen, the correlation of cytological profile indicators (absolute values characterizing the number of cells of different types), unlike the thymus, did not increase, but decreased. The maximum decrease in conjugation was found in the central part of the lymphoid nodule. This indicates a significant increase in cellular autonomy and morphofunctional disorganization of individual parts of the organ, which makes it possible to attribute the spleen and, especially, its lymphoid nodules to the "weak links" of the immune system. An increase in the correlation of cytological profile indicators (absolute values characterizing the number of cells of different types) was revealed in the thymus: the maximum increase in conjugation was found in the medulla, the minimum-in the subcapsular zone, which indicates an increase in the interaction of various cell types in this lymphoid organ under the influence of GMOs, especially in its medulla.

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