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**MORPHOLOGICAL CHARACTERISTICS OF THE EFFECT OF A GENETICALLY  
MODIFIED PRODUCT ON THE HEPATOBILIARY SYSTEM IN AN EXPERIMENT**

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**Resume:** *According to the results obtained during the article research in the experiment lobserved changes in the liver of laboratory animals, i.e., an increase in their size, average weight, and changes in the structure and color of the organ under study were described and studied. This means that genetically modified soy product negatively affects the condition of the spleen and liver [8,11,16].*

**Keywords:** *gen-modified cultures, laboratory tests liver, thymus, morphology.*

**INTRODUCTION**

Globally, soybeans, cotton, corn, rapeseed, wheat, rice, alfalfa, papaya, pumpkin, potatoes, tomatoes, sugar beets, and strawberries are currently cultivated in large quantities as genetically modified crops. In the USA, they account for 47% of the total cultivated area, in Brazil - 58%, in Argentina - 61%, in India - 7%, in China - 4% [3,6,10]. Sources indicate that when consuming genetically modified soybeans and corn, pathological conditions were observed in the human kidneys and liver, blood protein levels decreased to the level of an anomaly, and the reproductive function of rats fed these products was impaired, however, there are also research results that deny the negative effects of these products on the body[1.2]

To this day, the degree of their impact on the organs and systems of the human body and the consequences of these influences have not been fully studied. Taking this into account, it should be noted that the need to continue experimental research on this problem has not lost its relevance [12,17].

Purpose of the work comparative study of the macroscopic and histological effects of genetically modified soybeans on the hepatobiliary system (liver) and assessment of the degree of morphological changes

Materials and methods: For the purpose of conducting experimental studies, 90 male white outbred rats weighing 160-180 g were taken. For experimental studies, various laboratory animals were taken, and the degree of influence of various chemical and biological contaminants introduced into the body was studied. Comparative results of the morphological characteristics of the liver of laboratory animals involved in the study were studied at 3 months (n=6) and 12 months (n=6) of age.

Discussion of the obtained results: The examination results showed that the diaphragmatic surface of the liver is divided into right and left lobes by the semilunar ligament. The influence of neighboring organs on the visceral surface of the liver is visible in a concave form. On its lower surface, two sagittal and one transverse depressions can be

seen. The transverse is considered the porta hepatis, through which the portal vein, the liver, its own arteries, and nerve fibers enter the liver and exit the lymphatic vessels and common hepatic duct [4,5,7].

In front of the right sagittal lobe lies the gallbladder, behind which lies the inferior vena cava. The left sagittal sulcus in the anterior part contains the round ligament of the liver, which, it should be noted, was the umbilical vessel before the birth of the rat.

As can be seen from the macroscopic image, the liver of a white outbred rat consists of the following four lobes:

- middle lobe; - left lobe; - right lobe – tail [9,13].

The liver surface is covered with a thin connective tissue capsule (Glisson capsule) and a visceral layer. Lobules are structural and functional units of the liver parenchyma, having a hexagonal, prismatic shape. They are formed through intralobular sinusoidal blood capillaries and hepatic ducts. The lobules are separated from each other by thin layers of connective tissue, in which the hepatic triangle or portal ducts and sublobular vessels are located [14,15].

It was revealed that the hepatic ducts, constructed of hepatocytes, are located radially, and between them, in the direction from the periphery to the center of the lobules, blood capillaries surrounded by the Disse perisinusoidal space pass. Components of blood plasma enter this cavity. Among the hepatocytes, there are bile capillaries that do not have their own walls. They are formed by the contacting bile surfaces of hepatocytes. In the central part of the hepatic tract, bile capillaries begin, which carry bile to the periphery of the lobule [17].

It was established that the liver is supplied with blood from two sources - the portal vein, which drains blood from the organs of the gastrointestinal tract, and the hepatic artery, which drains blood from the aorta. These vessels in the liver divide into small vessels. The interlobular artery and interlobular vein correspond to the lobule, which divide into the perilobular vein and the artery. If, during the morphological examination of the liver tissue of intact laboratory animals, a drawing made from the prepared preparation is visualized, the following image is obtained [1,8].

As can be seen, the liver was represented by lobules of rectangular hexagonal shape, which consisted of radially arranged hepatic rays with anastomosing threads of liver cells. Among the diffuse rays, sinusoidal hepatic capillaries, lined with endothelial cells, are visible.

In the center of the lobules, central vessels are visible, some of which are filled with blood. In the liver of laboratory animals, due to the underdevelopment of interlobular connective tissue, the boundaries between the lobules are unclear. It was established that the majority of hepatocytes are mononuclear, they have a uniformly stained nucleus and homogeneous cytoplasm. Binuclear hepatocytes were also found in small quantities. It should be noted that among the lobules, a typical structure of the triad and collecting vessels were identified [3,16].

Conclusion: Thus, various sanitary, hygienic, and immunological criteria have been recommended for assessing the medical and biological risk of GM-products, however, morphological criteria that are important for assessing the effects of these products on the body have not been developed, and during the experiment, it has not been shown which of the internal organs has a negative effect and its degree.

Therefore, the demonstration of age-related (3-month and 1-year-old) changes in the liver of intact white outbred rats during experiments conducted to create these morphological criteria is important in assessing the range and degree of effect of this product on the liver.

#### REFERENCES:

1. Avozmetov, J. E. (2020). Influence of a Genetically Modified Organism on the rat's hepatobiliary system. *European journal of Molecular & Clinical Medicine*, 7(8), 1235-1237.
2. Avozmetov, J. E. (2021). ASSESSMENT OF THE EFFECT OF GENETICALLY MODIFIED FOODS ON HUMAN BODY. In НАУКА И СОВРЕМЕННОЕ ОБЩЕСТВО: АКТУАЛЬНЫЕ ВОПРОСЫ, ДОСТИЖЕНИЯ И ИННОВАЦИИ (pp. 116-118).
3. Bobojonov, U., & Sadikova, G. (2021, January). CLINICAL AND DIAGNOSTIC CHARACTERISTICS OF CHILDREN'S EPILEPSY LIVING IN THE ARAL SEA REGION. In Конференции.
4. Delaney B., Goodman R.E., Ladics G.S. Food and Feed Safety of Genetically Engineered Food Crops // *Toxicol. Sci.* – 2018. – Vol. 162(2). – P. 361-371
5. Egamberganovich, A. J. (2021, March). EVALUATION OF THE EFFECT OF A GENETICALLY MODIFIED PRODUCT ON THE MORPHOLOGICAL PARAMETERS OF THE LIVER OF LABORATORY ANIMALS. In *Archive of Conferences* (Vol. 17, No. 1, pp. 114-118).
6. Egamberganovich, A. J. (2020). Influence of a genetically modified organism on the Rat's hepatobiliary system. *European Journal of Molecular and Clinical Medicine*, 7(8), 1235-1241.
7. Авозметов, Ж. (2021). Структурные и морфологические изменения в поджелудочной железе крыс после введения генетически модифицированного продукта. *Общество и инновации*, 2(7/S), 204-209.
8. Авозметов, Ж. Э. (2021). МОРФОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ВОЗДЕЙСТВИЯ ГЕННО-МОДИФИЦИРОВАННОГО ПРОДУКТА НА ПЕЧЕНЬ В ЭКСПЕРИМЕНТЕ. In *WORLD SCIENCE: PROBLEMS AND INNOVATIONS* (pp. 153-155).
9. Авозметов, Ж. Э. TIBBIYOTDA ANGI KUN. TIBBIYOTDA ANGI KUN Учредители: Бухарский государственный медицинский институт, ООО "Новый день в медицине", (4), 9-11.
10. Авозметов, Ж. Э., & Хасанова, Д. А. (2021). НОВЫЙ ДЕНЬ В МЕДИЦИНЕ. НОВЫЙ ДЕНЬ В МЕДИЦИНЕ Учредители: Бухарский государственный медицинский институт, ООО "Новый день в медицине", (3), 392-397.

11. Алимухамедов Д.Ш. Пищевая и биологическая ценность сои // Вестник Ташкентской медицинской академии. - Ташкент, 2013. - №2. - С.7-11.
12. Бобожанов, У. А., & Киличев, И. А. (2018). Факторы риска спинальных аномалий у детей. Национальный журнал неврологии, (1), 50-53.
13. Бобожанов, У. А., & Киличев, И. А. (2019). STRUCTURE OF EPILEPTIC VESSELS IN CHILDREN RESIDING IN THE AREAL REGION AREA. Новый день в медицине, (3), 70-72.
14. Бобожанов, У. А., & Киличев, И. А. (2019). Структура эпилептических судорог у детей проживающих в зоне Приаралья. Тиббиётда янги кун. Илмий рефератив, маърифий-маъновий журнал, (3 (27)), 70.
15. Бобожанов, У., & Садикова, Г. (2021). Болаларда эпилепсиянинг келиб чиқиш сабаллари, ҳавф омиллари ва кечиши. Неврология, 1(2), 49-51.
16. Джусоева М.А. Генно-модифицированные продукты. За или против // Диабет. Образ жизни. - Москва, 2012. - №1. - С.18-20.
17. Садикова, Г. К., Таджиев, М. М., & Бобожанов, У. А. (2017). Анализ факторов риска спинальных аномалий у детей. Молодой ученый, (12), 151-153.