UDC: 616.36:575.1:611-092

MORPHOLOGICAL FEATURES OF THE INFLUENCE OF A GEN-MODIFIED PRODUCT ON THE HEPATOBILAR SYSTEM IN THE EXPERIMENT

Avozmetov Jasurbek Egamberganovich
Urgench State Medical Institute

Resume: *According to the results obtained during the study of the article 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.*

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

INTRODUCTION

It is known that genetically modified organisms (GMO) are plant or animal organisms whose genotype has been modified into an organism in an unnatural way using genetic engineering. These plants are used to solve the problems of resistance to herbicides, pests, diseases, salinity, high and low temperatures, increasing yields, organic pollution of the environment, purification from heavy metals, ensuring the synthesis of compounds identified in the plant organism [1,6,9,12,14].

In this case, various new properties are introduced into the body, and the quality of the product is changed. The issues of their use are solved by ensuring the synthesis of certain compounds in plants [3,5,10,13,15].

To date, 140 different plant genes have been modified. A characteristic feature of GM-plants is resistance to pests and herbicides. For example, potatoes containing the earth bacteria gene that kills the Colorado potato beetle; drought-resistant wheat with the scorpion gene; tomatoes with the sea flounder gene; and soybeans with the bacterial gene have been cultivated [2,4,7,8,11].

Purpose of the work comparative study of the relationship between changes in biochemical parameters of the liver and blood of experimental animals under the influence of genetically modified soybeans

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.

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 (Fig. 1):

- middle lobe; - left lobe; - right lobe; - tail.

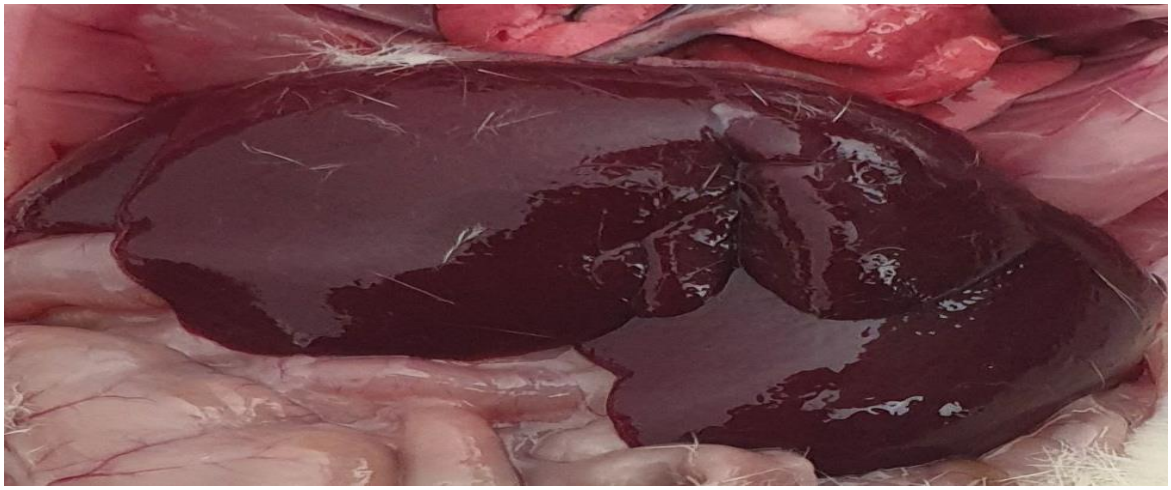

Fig. 1. Macroscopic anatomy of the liver of a white outbred rat

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 hepatic 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.

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.

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 directly intact laboratory animals, a picture made from the prepared preparation was visualized, then the following picture was obtained (Fig. 2).

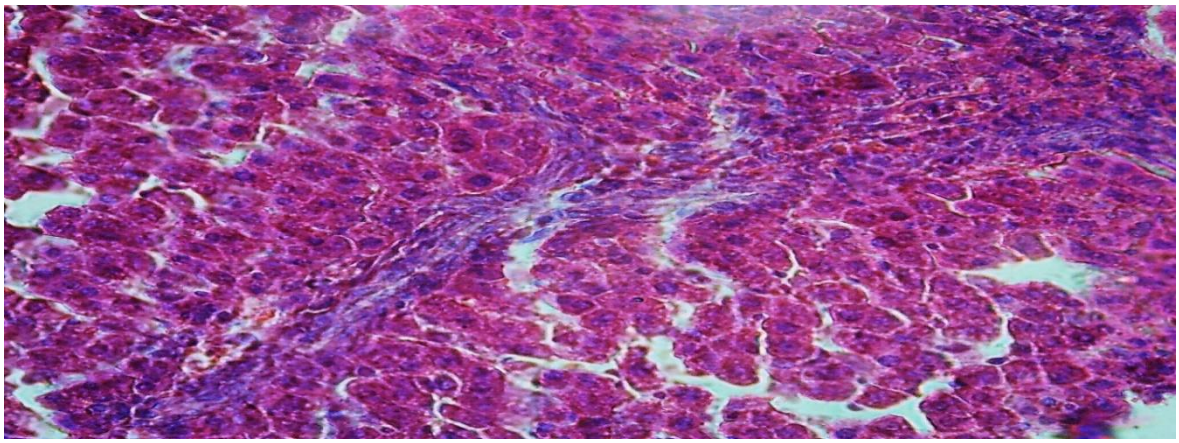

Figure 2. Histological appearance of liver tissue of intact white outbred rats (stained with hematoxylin-eosin)

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.

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. 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

4. 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).

5. Авозметов, Ж. (2021). Структурные и морфологические изменения в поджелудочной железе крыс после введения генетически модифицированного продукта. Общество и инновации, 2(7/S), 204-209.

6. Авозметов, Ж. Э. (2021). МОРФОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ВОЗДЕЙСТВИЯ ГЕННО-МОДИФИЦИРОВАННОГО ПРОДУКТА НА ПЕЧЕНЬ В ЭКСПЕРИМЕНТЕ. In WORLD SCIENCE: PROBLEMS AND INNOVATIONS (pp. 153-155).

7. Авозметов, Ж. Э. TIBBIYOTDA ANGI KUN. TIBBIYOTDA ANGI KUN Учредители: Бухарский государственный медицинский институт, ООО" Новый день в медицине", (4), 9-11.

8. 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.

9. Алимухамедов Д.Ш. Пищевая и биологическая ценность сои // Вестник Ташкентской медицинской академии. - Ташкент, 2013. - №2. - С.7-11.

10. Бобожанов, У. А., & Киличев, И. А. (2018). Факторы риска спинальных аномалий у детей. Национальный журнал неврологии, (1), 50-53.

11. 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.

12. 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.

13. Бобожанов, У., & Садикова, Г. (2021). Болаларда эпилепсиянинг келиб чиқиш сабаллари, ҳавф омиллари ва кечиши. Неврология, 1(2), 49-51.

14. Джусоева М.А. Генно-модифицированные продукты. За или против // Диабет. Образ жизни. - Москва, 2012. - №1. - С.18-20.

15. Садикова, Г. К., Таджиев, М. М., & Бобожанов, У. А. (2017). Анализ факторов риска спинальных аномалий у детей. Молодой ученый, (12), 151-153.