Impact Factor: 9.9 ISSN-L: 2544-980X

Experimental Sugary In Diabetes of the Liver Structure to the Situation P. Major L. From the Plant Separate Received Polyphenols of Substance Effect

Tukhtaeva Fer/uza Shonazarovna [1]

Annotation: Research purpose P. major l. from the plant separate received polyphenols of the sum in rats alloxane using called experiential sugary diabetes in dynamics liver of hepatocytes morphological to the structure effect from assessment consists of Experimental alloxan sugary diabetes male rats belly to the void alloxan one 0.4 ml of citrate at a dose of 150 mg/kg once in the clipboard input the way with we called Group I animals control the group organize did , group II to animals each day mouth through polyphenols in the amount of 50 mg/kg , group III to animals and - at a dose of 100 mg/kg entered . 8 rats intact the group organize did Ether narcosis effect under animals decapitation the way with alloxane diabetes it was slaughtered on the 21st day of its development . P. major l. polyphenols amount when used , liver in the tissue hemocirculator disorders and some of hepatocytes destructive changes with transient little in quantity liver parenchyma injury furnaces observed . Dystrophy mixed character (protein , fat dystrophy), necrotic changes more of fragments central in parts to be in the portal tracts of infiltration lack of experiential alloxane in diabetes P. major l. polyphenols of the amount healer feature from existence proof gives .

Key words: alloxane diabetes , P. major l. polyphenols sum , liver , hepatocyte .

INTRODUCTION: Intensive to research despite type 1 diabetes diabetes right now treated it won't happen . Last thirty year inside diabetes to treatment directed in technologies from innovation more and more more using [1 ; 202 – 206 – pp.] . Sugary diabetes with those who are sick number forecast being done growth whole the world across medicine employees opportunities reduces [2 ; 1 – 29 p.]. The current COVID-19 pandemic diabetes with sick in people heavy infections risk increased [3; 813 – 822 – p.] , but recent data suggest that type 2 diabetes doubles the risk of requiring hospital treatment for any infection and type 1 diabetes nearly quadruples [4; 513–521–p.]. Almost all studies on TB and diabetes in low- and middle-income countries have focused on type 2 diabetes, and therefore data on the impact of type 1 diabetes on TB in these settings are lacking [5; 1 – 8 – pp.]. In research of the disease heterogeneity is both anthropometric and genetic studies through proved . This to heterogeneity however , some treatment ways , in particular , life style interventions to the disease ethnic to himself special didn't happen positive influence show was determined [6 ; 93 – 96 – p.]. The only treatment for type 1 diabetes is insulin therapy, and patients are dependent on insulin injections for life; new approaches to insulin therapy such as insulin pumps, continuous glucose monitoring, and hybrid closed systems are being developed. Although intensive glycemic control has reduced microvascular and macrovascular complications, the majority of patients with type 1 diabetes still develop these complications. Major research efforts are needed to develop better treatments for early diagnosis, prevention of β -cell loss, and improved quality of life and prognosis of those affected [5; 1-8 p . ; 7; 1 - 17. -b ; 8; 971 – 978 – pp.]. Technologies for the treatment of type 1 diabetes require the use of insulin and blood glucose-lowering agents [8; 971 – 978 – pp.].

METHODS: a) Modeling of diabetes: In order to limit the effect of daily fluctuations of functional parameters on the results of the study, treatments were carried out in the morning - 8.30-11.00 [9; 1–239–p.]. 114 male white rats with an initial weight of 170-220 g were taken for the research, 10 of which formed the intact group. Given that the diabetogenic effect of alloxan is evident in the fasting

[1] Alfraganus University, Uzbekistan

state, one day before inducing the diabetes model [10; 216–226–p.], the animals were starved, and 4% ascorbic acid (vitamin C) solution was given instead of water. This reduces animal mortality by protecting animals from dying when primary hyperglycemia occurs. We induced experimental alloxan diabetes in male rats by intraperitoneal injection of alloxan monohydrate (Sigma, USA) at a single dose of 150 mg/kg in 0.4 ml of citrate buffer. The injection was done behind the abdomen, because this type of administration is a less traumatic method for animals. The polyphenolic substance *P. major* was dissolved in distilled water in doses of 50 mg/kg, 100 mg/kg and was administered orally to animals for 21 days after the introduction of alloxan monohydrate. Changes in the amount of various biochemical indicators in experimental animals were studied on the 7th, 14th and 21st days after the introduction of alloxan monohydrate. During the experiment, the experimental animals showed lethargy, apathy, gray fur, blurred eyes, erosive changes in the tails and legs, and small hemorrhages. In addition, a lot of water consumption and a lot of urine excretion were observed by the experimental animals (the sheet on the bottom of the cage quickly became wet). Within 10 days of the development of experimental diabetes, 15 animals that were injected with alloxan died. This is 14.4% of the total number of animals studied. In the control group, 18 out of 24 rats (death rate 18%), *P. major l.* 18 out of 20 rats (mortality 10%) remained in the group injected with the sum of polyphenols at a dose of 50 mg/kg , and 18 out of 20 rats (mortality 10%) remained in the group administered at a dose of 100 mg/kg.

b) Morphological research methods: in diabetes with experimental alloxan and its P. major l. The study of the morphological condition of the liver during the treatment with the sum of polyphenols isolated from the plant was carried out in 21 days of the experiment. Animals of intact, control and experimental groups were decapitated under light ether anesthesia. Animal livers were cut, dried using filter paper, and cut into pieces using a razor blade. Liver slices were fixed in 10% neutral formalin solution. Then the slices were washed 3-4 times in 800 % ethyl alcohol and dehydrated in increasing concentrations of alcohols (96 % and 100 % alcohol). Then into pieces paraffin poured Har one paraffin from the block 60-80 μm from each other in the distance 5–8 μm thick 6-8 cuts received Received the material diagnosis to do for histological methods applied . Deparaffinized cuts tissue and cell structures learning for hematoxylin and eosin with painted and a VM 200 microscope under (ind. cat . 4.0; 10.0/0.25; 100/0.25, eyepiece WF 10x20) was studied .

RESULTS: Intact rats in the liver hepatocytes columns in the form of organized . Hepatocytes almost one different to dimensions have and their in the center round nuclei observed . Portal tracts vein, artery and grass ways own into take them around very little expressed lymphoid - cellular infiltration was observed (Fig. 1).

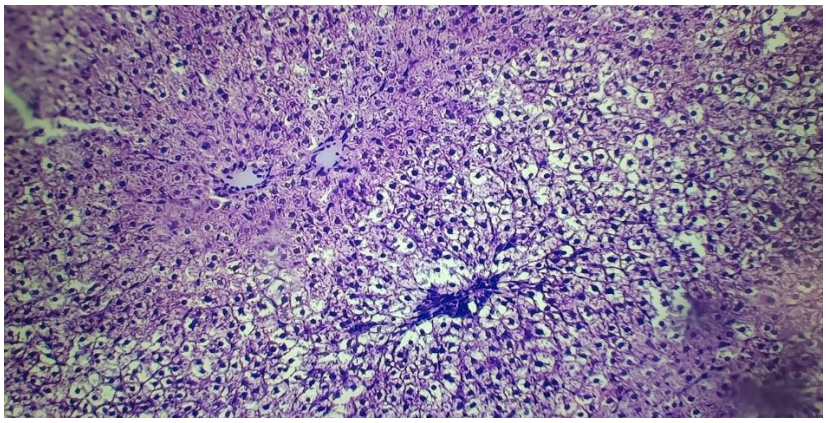

Figure 1. Intact rat liver tissue.

Hematoxylin-eosin. Magnification x 100.

On the 21st day of experimental alloxan diabetes, destructive and hemomicrocirculatory changes were observed in the liver. These changes were in the form of hemorrhagic infiltration in the form of hemorrhagic infiltration of the central vein and liver sinusoids.

Cellular infiltrates consisting of lymphocytes, histiocytes and a small number of plasma cells were detected around the vessels and sinusoids. Against the background of the specified microcirculatory disorders, fatty dystrophic and focal destructive changes were noted in hepatocytes, mostly in the central parts of the liver lobes , together with foci of collicative necrosis (Figs. 2 and 3).

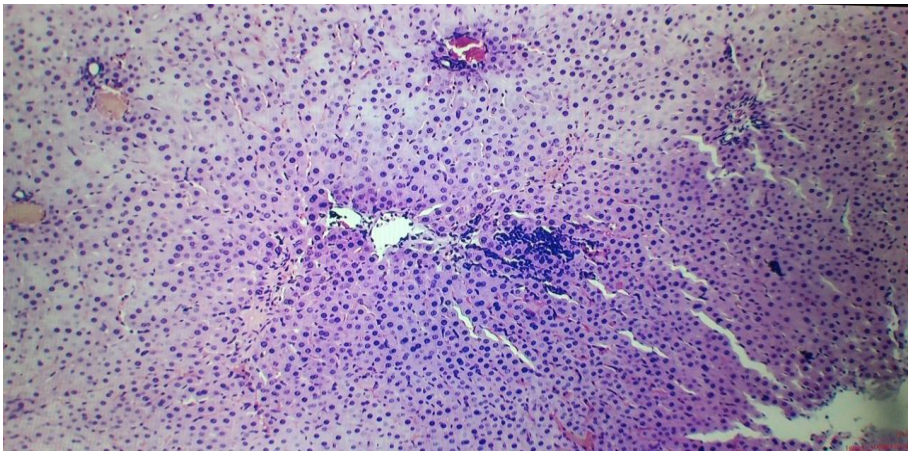

Figure 2. Alloxan diabetic rat liver tissue (day 21).

Destructive changes in hepatocytes, expansion of sinusoidal hemocapillaries, focal inflammatory infiltration of the portal tract with mononuclear cells, necrosis of the central lobular part of hepatocytes. Hematoxylin-eosin. Magnification x 200. Lens - 20^{x}; Eyepiece - 10^{x}.

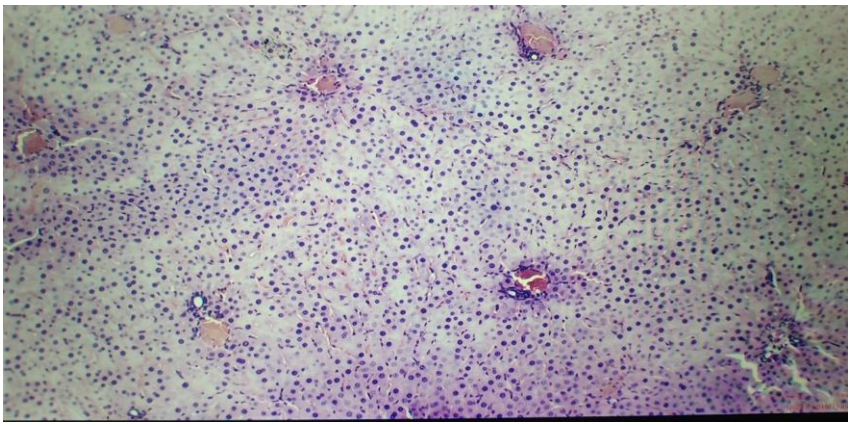

Figure 3. Alloxan diabetic rat liver tissue (day 21).

Diffuse hydropic dystrophy with foci of small drops of fat in hepatocytes, foci of necrosis with lympho-macrophagal infiltration. Hematoxylin-eosin. Magnification x 100. Objective - 10^{x}; Eyepiece - 10^{x}.

P. major l., a member of the family of spp . When the amount of polyphenols was administered in different doses for 21 days, stereotypic morphological changes were observed in the liver. *P. major l.* Inflammatory infiltration with mononuclear cells in the liver of rats receiving polyphenols extract at a dose of 50 mg/kg for 21 days was detected to a low degree, and it was manifested in the form of infiltration of chain cells only around some portal tracts. In this case, destructive changes of hepatocytes in the form of mixed small droplets, vacuole hydropic and fatty dystrophy with foci were observed, which were more common in the central part of liver lobes (Fig. 4).

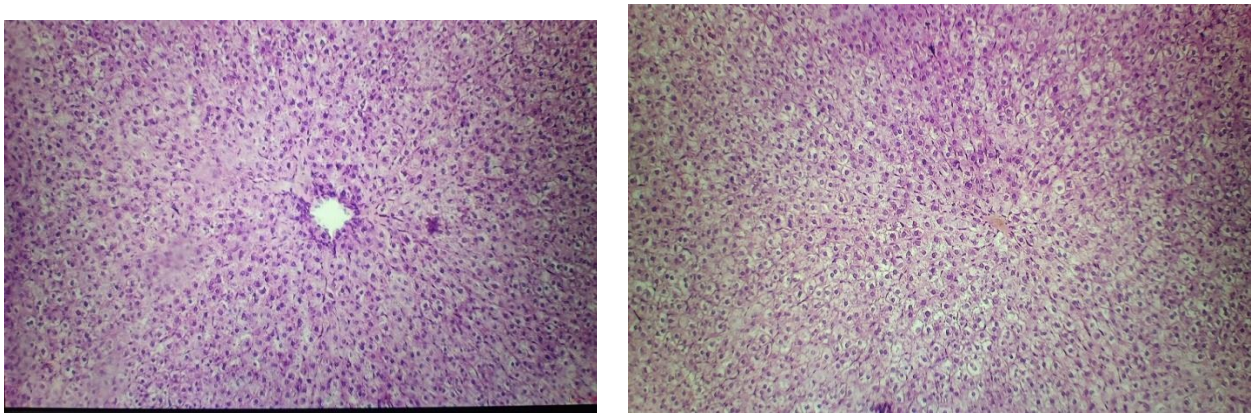

Figure 4. *P. major l.* the sum of polyphenols in liver tissue of alloxan diabetic rats injected at a dose of 50 mg/kg.

A small amount of inflammatory infiltration, foci of hepatocytes with small droplet, vacuolar and fatty dystrophy. Hematoxylin-eosin. Magnification x200.

In contrast, in the treatment of experimental diabetes, *P. major l.* when the sum of polyphenols was used in a dose of 100 mg/kg, on the 21st day of the disease, the compartmental structure and architecture of the liver was shown to be quite preserved. Mainly hydropic dystrophy, slight lymphohistiocytic reaction, small necrosis of hepatocytes inside the compartments and not very strong fullness of sinusoidal capillary spaces were observed. The veins of the portal tracts were also in this condition (Fig. 5).

The above are *P. major l.* showed that when the sum of polyphenols was administered to diabetic rats with alloxan at a dose of 100 mg/kg, liver parenchyma was more clearly preserved than when they were administered at a dose of 50 mg/kg.

Lobular architecture is preserved, hepatocytes are monomorphic, and a small number of sinusoidal capillaries are full. Portal tract veins venous and analogous in arterial types condition observed , liver cells in the cytoplasm average level dystrophic changes signs is determined .

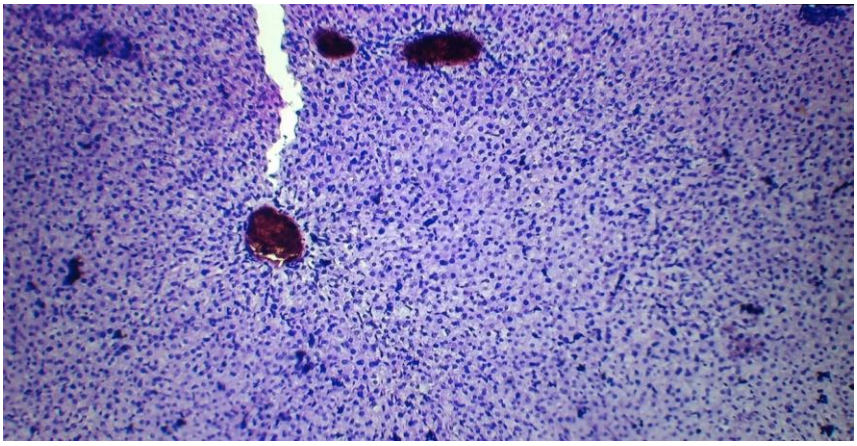

Figure 5. P. major l. Alloxan diabetic rat liver tissue injected with the sum of polyphenols at a dose of 100 mg/kg. Hematoxylin-eosin. Magnification x200.

DISCUSSION: Thus, the mixed character of dystrophy (protein, fatty dystrophy), presence of necrotic changes more in the central parts of slices, less infiltration in portal tracts in experimental alloxan diabetes *P. major l.* indicates the therapeutic properties of the sum of polyphenols and shows that the liver parenchyma was more clearly preserved when administered at a dose of 100 mg/kg than when administered at a dose of 50 mg/kg.

LIST OF REFERENCES

1. Ismailov S.I. Quality of life assessment in children and adolescents with type1 diabetes mellitus on insulin pump therapy in Uzbekistan // European science review. – 2019. – T. 2. – №. 1-2. – P.202-206.
2. Adeghate E., Schattner P., Dunn E. An update on the etiology and epidemiology of diabetes mellitus //Annals of the New York academy of sciences. – 2006. – T.1084, №1. – P.1-29.
3. Barron E., Bakhai C., Kar P., Weaver A., Bradley D., Ismail H., Knighton P., Holman N., Khunti K., Sattar N. Associations of type 1 and type 2 diabetes with COVID-19-related mortality in England: A whole-population study // Lancet Diabetes Endocrinol. – 2020. – T.8. - P.813–822.
4. Carey I., Critchley J.A., Dewilde S., Harris T., Hosking F.J., Cook D.G. Risk of Infection in Type 1 and Type 2 Diabetes Compared With the General Population: Matched Cohort Study // Diabetes Care 2018. – V.41, №.3 - P.513–521.
5. Van C.R., Critchley J.A. The interaction of diabetes and tuberculosis: translating research to policy and practice // Tropical Medicine and Infectious Disease. – 2021. – T.6. – №.1. – P.1-8.
6. Lam D.W., LeRoith D. The worldwide diabetes epidemic // Current Opinion in Endocrinology, Diabetes and Obesity. – 2012. – T.19. – №.2. – P.93-96.
7. Katsarou A. Type 1 diabetes mellitus //Nature reviews Disease primers. – 2017. – T.3, № 1. – P.1-17.
8. Miller K.M. Current state of type 1 diabetes treatment in the US: updated data from the T1D Exchange clinic registry // Diabetes care. – 2015. – T.38, № 6. – P.971-978.
9. Степанова С.И., Галичий В.А. Космическая биоритмология. Хронобиология и хрономедицина. – М. Изд-во Триада-Х, 2000. – С.1– 239.
10. Lenzen S. The mechanisms of alloxan and streptozotocin induced diabete // Diabetologia. – 2008. – V.51, № 2. – P.216–226.