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**“ASPRULANS” OZIQ- OVQAT QO‘SHILMASINING BIOLOGIK FAOLLIGINI
O‘RGANISH****ИССЛЕДОВАНИЕ БИОЛОГИЧЕСКОЙ АКТИВНОСТИ ПИЩЕВОЙ ДОБАВКИ
"ASPRULANS"****"RESEARCH ON THE BIOLOGICAL ACTIVITY OF THE FOOD ADDITIVE
"ASPRULANS"****Asqarov Ibroximjon Raxmonovich¹** ¹Andijon davlat universiteti Kimyo kafedrası professori, k.f.d, O‘zbekistonda xizmat ko‘rsatgan ixtirochi, O‘zbekiston Tabobat Akademiyasi raisi**Marupova Manzura Aminovna²** ²Farg‘ona jamoat salomatligi tibbiyot instituti Tibbiy va biologik kimyo kafedrası mudiri, dotsent,**Nazarova Yorqinoy Xalpajonovna³** ³Farg‘ona jamoat salomatligi tibbiyot instituti Tibbiy va biologik kimyo kafedrası assistenti,**Annotatsiya**

Maqolada oshqozon va o‘n ikki barmoqli ichak yara kasalligining ko‘rinishlari, morfologik asosi, kelib chiqish polietilogiyasi chuqur tahlil qilingan. Asosiy e‘tibor kasallikning kelib chiqish sabablarini o‘rganish asosida Xalq tabobati usullari yordamida oldini olish va davolashga qaratilgan. Ushbu kasallikka bugungi kunda tibbiyotda ishlatiladigan dorilarning nojo‘ya ta‘sirleri tahlil qilingan. Antioksidantligi yuqori bo‘lgan, yong‘oq va shaftoli barglari asosida tayyorlangan “Asprulans” OOQning biologik faolligini aniqlash uchun biomarkerlar sifatida tajribadagi kalamushlar jigaridagi fermentlar (ALT, AST, IF va GGT) faolliklari aniqlangan. Asprulans OOQ yordamida kasalliklarni korektsiyalash natijalari tahlil qilinib, tegishli xulosalar berilgan.

Аннотация

В статье глубоко анализируются проявления, морфологическая основа и полиэтиологические причины заболеваний желудка и двенадцатиперстной кишки. Основное внимание уделяется изучению причин возникновения этих заболеваний с целью разработки методов профилактики и лечения с использованием народной медицины. Анализируются побочные эффекты лекарств, которые в настоящее время используются в медицине для лечения данного состояния. Для определения биологической активности пищевой добавки “Asprulans”, основанной на листьях грецкого ореха и персика с высокой антиоксидантной активностью, были определены активности ферментов (АЛТ, АСТ, ИФ и ГГТ) в печени экспериментальных крыс в качестве биомаркеров. Проанализированы результаты коррекции заболеваний с использованием “Asprulans”, и сделаны соответствующие выводы.

Abstract

The article provides a deep analysis of the manifestations, morphological basis, and polyetiological origins of gastric and duodenal ulcer diseases. The main focus is on studying the causes of these diseases to develop prevention and treatment methods using traditional medicine. The adverse effects of medications currently used in medicine for this condition are analyzed. To determine the biological activity of the food additive “Asprulans,” which is based on walnut and peach leaves with high antioxidant properties, the activities of enzymes (ALT, AST, IF, and GGT) in the liver of experimental rats were identified as biomarkers. The results of the correction of diseases using “Asprulans” were analyzed, and relevant conclusions were drawn.

Kalit so‘zlar: laktat, piruvvat mexanizmi, monoaminooksidazalar, glikoliz, Asprulans.**Ключевые слова:** лактат, механизм пирувата, моноаминоксидазы, гликолиз, Asprulans.**Key words:** lactate, pyruvate mechanism, monoamine oxidases, glycolysis, Asprulans.

INTRODUCTION

Gastric and duodenal ulcers are a chronic disease manifested by the appearance of ulcerative defects on the mucous membranes of these organs. The disease is more common in middle-aged patients (30-50 years old); the disease occurs more often in men than in women. The main cause of the development of this disease is considered to be *Helicobacter pylori*, the pathogen that provokes the development of ulcers. When an ulcer persists for a long time, bacteria necessarily enter the mucous membrane of the duodenum, where they form an ulcer [1].

The cause of this disease is the regular use of certain steroids, hormonal drugs, irregular diet, failure to maintain a healthy lifestyle, smoking, and alcohol consumption[2].

If you look at the side effects of drugs such as Omeprazole and Metronidazole, which are most often prescribed in medicine for this disease, patients experience skin rash, itching, headache, dizziness, nervousness, insomnia, depression, a bitter metallic taste in the mouth, nausea, vomiting, intestinal colic and other cases. Today in our country much attention is paid to the protection of the environment and human health, the development of preventive measures, especially the use of natural remedies in this regard [3].

In the treatment of diseases, people have rationally used medicinal products prepared from plant and animal products and minerals for many millennia. The Decree of the President of the Republic of Uzbekistan dated April 10, 2020 No. 4668 "on additional measures for the development of traditional medicine in the Republic of Uzbekistan" states that traditional medicine is recognized as an additional way of providing medical care to the population [4.10].

Testing of the biological activator of the food additive "Asprulans" based on walnut and peach leaves on experimental animals and recommendation as a food additive for the prevention and treatment of gastric and duodenal ulcers.

There is increasing attention and demand for the use of natural remedies, including dietary supplements, which can replace chemical drugs, for the prevention of gastric and duodenal ulcers and the treatment of patients with this disease. To achieve the goal in this direction, one of the pressing issues of our time is the search for medicinal plants in the field of traditional medicine, determination of their chemical composition, as well as biologically active substances with antioxidant properties, studying their action and recommending new natural remedies and nutritional supplements based on the results.

LITERARY ANALYSIS AND METHODOLOGY

Several scientists have worked on the origin of stomach and duodenal ulcers and their treatment through medical and natural methods. In particular; American scientist I.Zh. Kopin established the presence of 2 types of monoamine oxidases in the body, the similarity of these two enzymes in structure (MAO-A and MAO-B), and the identity of almost 70% of the amino acid sequences in them [5].

Japanese scientist T. Goto and from Arizona M.Vargas note that one of the most important enzymes in the body is lactate dehydrogenase (L-lactate: nad⁺-oxidoreductase, LDG) - an enzyme involved in glycolysis reactions and is considered one of the enzymes found in all living organisms, mainly in the cytoplasm of their cells [6,7].

Russian scientists A.G. Soloeva and T.D. Davidov pointed out the activity of aldehyde dehydrogenase in the liver and erythrocytes of rats, the characteristics of erythrocytes at the stages of ontogenesis under oxidative stress, the specific structure of the LDG molecule, the fact that it consists of 2 domains [8].

The literature states that the activity of the enzymes ALT, AST, ALP and GGT in the blood increases when liver tissue is damaged [9].

The study was conducted in May-June 2024. M. Conducted in the laboratory of the Ulugbek Institute of Biophysics and Biochemistry at Uzgu in accordance with the "rules for the use of experimental animals" (Declaration of Helsinki of the World Medical Association, Edinburgh, 2000).

The levels of ALT, AST, ALP and GGT in the blood serum of animals in the experiment were carried out using complexes of biochemical tests Cupress diagnostica (a test produced by a Belgian company).

RESULT AND DISCUSSION

In the gastrointestinal tract, the liver is the most important organ. Analysis of activity indicators of cytolytic enzymes in rat liver mitochondria in an experiment for the presence of pyruvate mechanisms: alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase and gammaglutamyltransferase and their determination using the extract of the food additive "Asprulans" correction results were analyzed.

The rats in the experiment were given xylene for 12 days. As a result, an ulcer formed in the stomach. We can recognize this by the fact that blood begins to flow out of the rats' droppings. Then they gave me the drug and started treatment.

Initially, our experiments studied the activity of the ALT enzyme in the mitochondria of rat hepatocytes as a result of the action of the food additive "Asprulans", the results of the study are presented in table- 1

Effect of the food additive "Asprulans" on the activity of the enzyme alanine aminotransferase in rat hepatocyte mitochondria (units/l)

table - 1

No	Experimental groups	n	(ed/l)
I	Control	3	45.47±0.94
II	Xylene	3	34.20±0.89*
III	xylene + "Asprulans"	3	37.32±1.02**

Note: (*p<0,05, **p<0,01, ***p<0,001 n=3)

The results of the effect of xylene on the activity of the ALT enzyme in rat liver mitochondria from the above table showed that a decrease in enzyme activity was observed in the first 1 and 5 days and that its activity in the blood serum was 75.2% and 82.07% compared to the control group, respectively, at 32.95% and 21.8%, respectively. This indicates that the serum ALT enzyme is more strongly inhibited by xylene. Partial restoration of ALT enzyme activity was observed in groups receiving correction with "Asprulans" (walnut: peach extracts (3:1)).

The effect of the food additive "Asprulans" on the activity of the enzyme alanine aminotransferase in the blood of animals treated with xylene (units/l)

table-2

No	Experimental groups	N	(ed/l)
I	Control	3	72.72±1.25
II	Xylene	3	107.91±0.94**
III	xylene + "Asprulans"	3	99.40±1.29***

Note: (*p0,05, **p0,01, ***p0,001 n=3)

It was found that as a result of the corrective action of Asprulans (walnut: peach extracts (3:1)) in the mitochondria of group III rats, by the Day of Decapitation the enzyme activity is restored. After exposure to xylene in rats of group III, which were administered the dietary supplement Asprulans, it was found that by 15 days in this group, the recovery of ALT activity in liver mitochondria was 67.38% compared to group II and 73.16% in blood serum.

In our next experiment, we examined the effect of xylene on the activity of AST, another important enzyme that indicates the normal physiological state of the liver.

According to the results of the study, a decrease in the activity of the AST enzyme in the mitochondria of hepatocytes as a result of exposure to xylene was noted; a decrease of 1.3 and 1.1 times was observed compared to the control group (table 3).

The effect of the food additive "Asprulans" on the activity of the enzyme aspartate aminotransferase in the blood of animals treated with xylene (units/l)

table-3

No	Experimental groups	n	(ed/l)
I	Control	3	84.41±0.56
II	Xylene	3	115.39±0.42**
III	xylene + "Asprulans"	3	108.63±0.25*

Note: (*p<0,05, **p<0,01, ***p<0,001 n=3)

KIMYO

In the studies, the dietary supplement “Asprulans” was administered, which was used to correct the effects of xylene. It was found that with the introduction of the dietary supplement “Asprulans” there was increased activity, while enzyme activity was partially normalized.

When studying the activity of ALP in rats as a result of the effect of xylene on liver mitochondria, it was found that the activity of the ALP enzyme in rats of group II increased by 65.7% compared to the control group (table 4).

The effect of the food additive “Asprulans” on the activity of the enzyme alkaline phosphatase in the blood of animals that were given xylene (units/l)

table-4

No	Experimental groups	n	1 day
I	Control	3	665.46 ±0.85
II	Xylene	3	1012.14 ±2.11*
III	xylene + “Asprulans”	3	942.95±0.89***

Note: (*R<0,05, **R<0,01, ***R<0,001 n=3)

We can see that a sharp increase in the activity of the ALP enzyme in the blood serum as a result of exposure to xylene was observed in the first days and accordingly decreased compared to the control, and also that the drug had a corrective effect.

Partial restoration of ALP enzyme activity was observed in groups corrected with “Asprulans”. It was found that as a result of the corrective action of the food additive “Asprulans” in rats of group III, the restorative activity of the enzyme in mitochondrial hepatocytes increased by 1.07% compared to group II.

In our next experiment, we studied the effect of xylene on GGT activity in rat hepatocyte mitochondria and in blood serum. When studying the effect of xylene on the activity of GGT in the mitochondria of rat hepatocytes and in blood serum, the study showed that a decrease in the activity of the GGT enzyme in the mitochondria of hepatocytes as a result of exposure to xylene was observed in the first days and increased by 68.2% compared to the control group, and with the introduction Asprulansa was corrected by 76.6% (table 5).

The effect of the food additive “Asprulans” on the activity of the enzyme gammaglutamyltransferase in the blood of animals that were given xylene (u/l)

table - 5

No	Experimental groups	n	GGT
I	Control	3	88.68±0.31
II	Xylene	3	129.91±1.48**
III	xylene + “Asprulans”	3	115.63±0.87***

Note: (*R<0,05, **R<0,01, ***R<0,001 n=3)

The studies observed a restoration of enzyme activity in group III rats that were administered the dietary supplement “Asprulans”, used to correct the effects of ultrasonic waves, which reflected the effect of the experiments on the activity of the GGT enzyme when administered the dietary supplement “Asprulans”.

CONCLUSIONS

- A rush of blood to the feces of rats means that an ulcer has formed in the stomach.;
- In rats treated with the Asprulans dietary supplement, the activity of alanine aminotransferase in the mitochondria of their hepatocytes increased by 73.16% ;
- In rats of group III, which were administered the food additive “Asprulans”, the activity of alkaline phosphatase increased compared to the control group by 65.7%;
- It has been established that the food additive “Asprulans” has an effective effect on the normalization of the activity of liver mitochondria and serum enzymes ALT, AST, ALP and GGT in rats exposed to xylene in the gastrointestinal tract.

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