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Effect of Herbal Tea on The Change of Adenine Nucleotides in Liver Injury

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Abstract

In our scientific study, the effect of phytotea on the conversion of adenine nucleotides was studied. The primary function of adenin nucleotides is to bind all metabolic pathways together, so the state of the adenin nucleotide system affects the direction and rate of metabolic processes, which in turn depend on them. The state of the adenylate system is assessed by the magnitude of the phosphate potential (ATF/ADF.FN)or the magnitude of the Atkinson energy charge (ATF+½ADF/ATF+ADF+AMF). These magnitudes of the adenylate system affect various aspects of the metabolic process: phosphate potential thermodynamics, and energy charge kinetics.

Keywords: Adenine nucleotides, liver, biosynthesis, atkinson, phospholipids, cholesterol, fatty acids, lipids, heliotrin, enzymes, glucose, glycogen, energy charge

Introduction

The liver is involved in important physiological and biochemical processes and performs the following important functions: 1) in the biosynthesis of lipids, proteins, carbohydrates and other substances; that is, they are involved in biochemical and physiological processes in all organs and cells; 2) In urinary biosynthesis: urinary synthesis occurs in the liver as a final product of nitrogen metabolism; 3) In the synthesis of bile acids: bile acids, which are the main products in the digestion of fats and fatty substances, are synthesized only in the liver; 4) Detoxification of toxins that enter the body or are formed there depends on the activity of the liver; 5) Separation activity: products that are not needed in metabolism are excreted through the bile into the intestine and out.

In addition to glucose and glycogen coming from the blood through the portal vein, the liver also synthesizes fats and fatty acids. In some liver diseases (cirrhosis) the amount of connective tissue elements increases and the secretion of bile fluid is also impaired as a result of increased pressure in the blood vessels. 70% of the mass of the liver is water, 50% of the dry mass is composed of protein, 90% of which consists of albumin and globulins.

Liver enzymes have the ability to synthesize and break down all lipid metabolism products. As a result, high fatty acids, triacylglycerides, phospholipids and cholesterol are synthesized, high fatty acids are oxidized.

As a result of changes in environmental processes, the number of patients with liver disease is increasing day by day. As a result of increasing demand for agricultural products, the use of various chemical compounds to increase crop yields in agriculture, resulting in constant poisoning of the population with toxic chemicals, is leading to an increase in liver disease. Wild plants contained in cereals: As a result of the incorporation of seeds of plants such as thyme, kampirchopon into grain grains, chronic liver diseases are caused by the alkaloids they contain, making chronic liver injury one of the most common diseases in Central Asia. Hepatotoxic substances are plant products or chemicals that play a major role in liver cell injury. Such substances include phosphorus and organochlorine compounds. They cause chronic inflammation of liver cells as a result of their use in agriculture, in households. Plants with heliotrope-containing substances are common on the

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surface: senetsifalin, senetsifalidine and mainly heliotrin and lasiocarpine alkaloids, wild plant, hairy seed heliotrope (Neliotrorh lasuosorrum) is a plant of practical importance.

Method: A 5 mg solution of heliotrin in saline was administered intradermally once a week for two months per 100 g body weight.

Zeynul, a folk medicine center at the Institute of Plant Chemistry of the Academy of Sciences of Uzbekistan, prepared a tincture of Dunyo Phytochoi made from medicinal herbs grown in Central Asia. Essentsiale forte 7 mg was administered subcutaneously.

The amount of adenine nucleotides (ATF, ADF and AMF) in liver tissue was determined by the firm Boehringer (Germany) in enzymatic assembly reagents.

The amounts of ADF and AMF in liver extract were also determined in a collection prepared by Boehringer (Germany) according to a previously described method.

Results obtained: In our experiment, we aimed to study the amounts of adenine nucleotides in the liver and their ratio to each other, when heliotrin is introduced into the body. The amount of ATF in the liver during 0,5; 1; 1,5 and 2 months decreased to 8,3; 13,4; 28,8 and 32,4%, while the amount of AMF on the contrary increased to 33,3; 64,7; 72,2 and 78,9%. But there was no significant change in the amount of ADF. Bunda total amounts of adenine nucleotides 3,7; 4,2, depending on the duration of introduction of geliotrin into the body; Decreased to 15,5 and 18,1%, while the amount of inorganic phosphorus, on the contrary 3,0; 11,5; increased to 17,9 and 25,9%.

The introduction of geliotrin into the body led to a decrease in the potential of phosphatide in 0,5; 1; 1,5 and 2 months to 9,8; 21,9; 36,3 and 46,3%, and the energy charge of Atkinson to 3,8; 6,3; 9,0 and 12,7%.

By analyzing the results obtained, we can say that when heliotrin is introduced into the body, the amount of ATF in the liver decreases, the amount of AMF and phosphorus, on the contrary, increases. These changes, in turn, lead to a decrease in the energy charge of Atkinson and, in particular, the potential for phosphatide.

Most eukaryotes are synthesized in cells in the phosphorylation system with 95% ATF oxidation. A decrease or loss of ATF in the cell indicates a loss of the function of mitochondria, that is, a shutdown (or a strong decrease) of the oxidative phosphorylation process. The reactions taking place in different compartments, as is known, are interconnected, and the reduction of pyridine nucleotides, the ratio of ATF/ADF, ATF / ADF.FN the importance of ni phosphate potential, directly connected by cytoplasmatic and mitochondrial mexaniz.

Table 1 Alteration of adenyl nucleotides in liver tissue during heliotrin delivery (M ± m; n = 10)

Options	**Duration of the survey, in months**			
	0,5	**1**	**1,5**	**2**
	ATF			
A healthy animal	1,82±0,17	1,80±0,16	1,84±0,18	1,79 ± 0, 51
An animal with heliotrin	1,67±0,15	1,56±0,14	1,31±0,12**	1,21±0,12***
%	91,7	86,6	71,2	67,6
	ADF			

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A healthy animal	0,74±0,08	0,71±0,07	0,75±0,09	0,72±0,07
An animal with heliotrin	0,73±0,07	0,71±0,06	0,72±0,08	0,70±0,09
%	98,6	100	96,0	97,2
	AMF			
A healthy animal	0,18±0,05	0,17±0,06	0,18±0,07	0,19±0,06
An animal with heliotrin	0,24±0,04	0,28±0,03****	0,31±0,05****	0,34±0,08****
%	133,3	164,7	172,2	178,9
	F_N			
A healthy animal	2,66±0,21	2,61±0,27	2,68±0,24	2,62±0,29
An animal with heliotrin	2,74±0,24	2,91±0,18	3,16±0,16*	3,30±0,24**
%	103,0	111,5	117,9	125,9
Common of adenyl nucleotides				
A healthy animal	2,74±0,30	2,66±0,29	2,77±0,34	2,71±0,28
An animal with heliotrin	2,64±0,26	2,55±0,23	2,34±0,25	2,22±0,19*
%	96,3	95,8	84,5	81,9
	Phosphatid potential			
A healthy animal	0,93	0,96	0,91	0,95
An animal with heliotrin	0,83	0,75	0,58	0,51
%	89,2	78,1	63,7	53,7
	Atkinson's energy charge			
A healthy animal	0,80	0,80	0,78	0,79
An animal with heliotrin	0,77	0,75	0,71	0,69
%	96,2	93,7	91,0	87,3

Note: Total adenyl nucleotides (ATF + ADF + AMF); Phosphate potential (ATF / ADF. F_N); Atkinson's energy charge (ATF + ½ ADF: ATF + ADF + AMF).

Alteration of adenine nucleotides in liver tissue after the introduction of phyto-tea into the body of animals with hepatitis.

0.5 of the experiments from the results obtained; At 1 and 2 months, the amount of ATF in the liver of animals with hepatitis was 33.7; Decreased by 38.8 and 34.2%, respectively, and 22.5 in hepatitis-infected animals; Only 19.2% and 6.6% of the larvae showed a decrease in the number of healthy animals, respectively. 0.5 of the experiment; The amount of AMF in the liver of animals with hepatitis at 1 and 2 months was 89.5; 95.0 and 80.9%, respectively, and 63.1 in phyto-tea animals; Increased by only 30.0 and 4.7%, respectively. The amount of inorganic phosphorus is also 18.4 in hepatitis; 23.0 and 25.8%, respectively, and 14.4% for phyto-tea; Only 10.3 and 6.9%

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of the larvae increased, approaching the figure in healthy animals. Such changes in ATF, ADF, AMF, and Fn in liver tissue in hepatitis resulted in a decrease in the total amount of adeninucleotides. 0.5 of the experiment; At 1 and 2 months, the total amount of adeninucleotides in the liver of animals with hepatitis was 18.1; Decreased by 21.7 and 17.7%, respectively, and in hepatitis-infected animals by 9.7; Decreased larvae by only 12.6 and 3.7%, respectively, close to those in healthy animals. Phytochoy also normalized phosphatidic potential in the liver tissue of animals with hepatitis. If, 0.5 of the experiment; Phosphatid potential at months 1 and 2 was 41.6; Decreased by 48.4 and 46.3%, respectively, and in animals receiving phyto-tea by 36.3; Decreased by only 27.5 and 15.8%, respectively, approaching the figure in healthy animals in the last periods of the experiment. Atkinson's energy charge in the liver of hepatitis animals also underwent positive changes under the influence of phytochoy. Atkinson's energy charge in the liver tissue of controlled animals was 15.6; Decreased by 15.8 and 12.7%, respectively, and 6.7% when receiving phyto-tea; Decreased by only 5.0 and 2.6%, respectively, equal to those in the liver of healthy animals.

Table 2 **Effect of phyto tea on adenine nucleotides in the liver of animals with hepatitis (m ± m; n = 10).**

Pointer	Options	Duration of the study, in months		
		0,5	**1**	**2**
ATF	Healthy animal	2,05 ± 0,15	2,19 ± 0,17	1,99 ± 0,13
	Animal with geliotrin	1,36 ± 0,17	1,34 ± 0,15	1,31 ± 0,14
	%	66,3	61,2	65,8
	Phyto tea	1,59±0,17	1,77 ± 0,12	1,86 ± 0,16
	%	77,5	80,8	93,4
ADF	Healthy animal	0,75 ± 0,10	0,80 ± 0,08	0,80 ± 0,09
	Animal with geliotrin	0,73 ± 0,09	0,77 ± 0,08	0,78 ± 0,07
	%	97,3	96,2	97,5
	Phyto tea	0,80±0,11	0,79 ± 0,06	0,79 ± 0,06
	%	106,6	98,7	98,7
AMF	Healthy animal	0,19 ± 0,05	0,20 ± 0,03	0,21 ± 0,03
	Animal with geliotrin	0,36 ± 0,06	0,39 ± 0,05	0,38 ± 0,04
	%	189,5	195,0	180,9
	Phyto tea	0,31±0,05	0,26 ± 0,02	0,22 ± 0,03
	%	163,1	130,0	104,7
F_N	Healthy animal	2,99 ± 0,31	3,00 ± 0,28	2,91 ± 0,35
	Animal with geliotrin	3,54 ± 0,27	3,69 ± 0,36	3,66 ± 0,34
	%	118,4	123,0	125,8
	Phyto tea	3,42±0,25	3,31 ± 0,28	3,11 ± 0,32

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	%	114,4	110,3	106,9
ANU	Healthy animal	2,99 ± 0,30	3,19 ± 0,25	3,00 ± 0,25
	Animal with geliotrin	2,45 ± 0,32	2,50 ± 0,28	2,47 ± 0,25
	%	81,9	78,3	82,3
	Phyto tea	2,70±0,33	2,79 ± 0,20	2,89 ± 0,25
	%	90,3	87,4	96,3
FP	Healthy animal	0,91	0,91	0,95
	Animal with geliotrin	0,53	0,47	0,51
	%	58,4	51,6	53,7
	Phyto tea	0,58	0,66	0,80
	%	63,7	72,5	84,2
AEZ	Healthy animal	0,81	0,81	0,79
	Animal with geliotrin	0,70	0,69	0,69
	%	86,4	85,2	87,3
	Phyto tea	0,74	0,77	0,77
	%	91,3	95,0	97,4

Conclusion: analyzing the results obtained, Phyto tea equates to the indicators in healthy animals by restoring the volume of ATF in liver tissues, phosphatide potential and the energy charge of Atkinson in Hepatitis with heliotrin. The results obtained from this Phyto tea restore the synthesis activity of ATF of animal liver mitochondria with hepatitis.

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