



International Journal for Innovative Engineering and Management Research

A Peer Reviewed Open Access International Journal

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IJIEMR Transactions, online available on 24th April 2021.

Link: <https://ijiemr.org/downloads/Volume-10/Issue-4>

DOI: 10.48047/IJIEMR/V10/I04/91

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Volume 10, Issue 04, Pages: 452-455

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TOXICOLOGICAL CHARACTERISTICS OF THE NEW MEDICINAL PRODUCT "PHYTOFERON"

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Abstract: The results of studying the chronic toxicity of the present "Phytoferon" collection showed that the studied preparation in doses of 10 ml / kg and 25 ml / kg was not toxic. In carrying out hematological and histological studies, the preparation did not exert a significant influence on the picture of peripheral blood and a histomorphological picture of internal organs with prolonged administration.

Keywords: phytoféron, collection, infusion, rat, peripheral blood, hepatocyte, enzyme. Hemoglobin, erythrocyte, leukocyte, histomorphology, anesthesia.

Introduction

Most of the drugs used in the treatment of patients in the world today are synthetic drugs. According to the analysis, drugs obtained by the synthetic method cause various unpleasant complications in patients. Herbal medicines are of great importance in medicine. Natural medicines have a delicate and selective effect. In the pharmaceutical industry of the Republic, great attention is paid to the production of drugs based on natural medicinal plants [1]. One thousand one hundred and fifty species of more than four and a half thousand plants found in our country are medicinal plants. It is known that the medicinal plants of tubercles, bird's nest, sweet brain root, water pepper and chamomile are widespread in the territory of the Republic. They are widely used in folk medicine in anti-inflammatory, diuretic, accelerating blood clotting, enhancing metabolism, lowering blood sugar and other diseases [2,3]. The creation of modern local medicines from them is one of the most pressing issues today (1).

The aim of the work: to study the effect of phytoferon tincture in chronic animals on experimental animals - a collection of medicinal plants such as rhubarb, bird's nest, sweet brain root, water pepper and chamomile.

Experimental method: Experiment 42, 140 - 156 g. were performed in weighted laboratory rats. Phytoferon tincture was administered

orally in doses of 10 ml / kg (1 ml / 100 g) and 25 ml / kg (2.5 ml / 100 g by weight) for 1 month. Animals in the control group were given distilled water accordingly. During the experiment, changes in the condition and weight of the animals were observed [4].

At the beginning of the experiment, blood tests were performed on the 15th, 30th and 60th days after instillation to study the chronic toxicity of the drug. Blood analysis was performed on a hematologic analyzer (VS-3000), serum aspartate-aminotransferase (ASaT) and alanine aminotransferase (ALaT), and the amount of glucose was studied in a biochemical analyzer using colorimetric methods using the enzyme glucose oxidase (VA-88). At the end of the experiment, the animals were anesthetized using mild anesthesia and histomorphological examinations were performed [4]. The statistical significance of the obtained values was determined by comparing the mean quantitative indicators by calculating the probability of error (R) in checking the distribution criterion (by the excess criterion) and the general variance equality (F - Fisher criterion) by the Student (t) criterion [6].

Experimental results: In both groups receiving phytoferon tincture, the general condition of the animals did not differ from that of the control group rats. However, the drug had a positive effect on the weight of

experimental animals. In particular, on day 60 of the experiment, it increased by 16.2% in the amount of 10 ml / kg compared to the initial value (before delivery of the drug) and by 17.5% at 25 ml / kg, respectively.

In the blood analysis, the amounts of some shaped elements (1 mm³) of peripheral blood were checked. The results showed that from the 15th day of the experiment under the influence of the drug phytoferon increased the amount of hemoglobin in the peripheral blood relative to the intact and control group. Hepoglobin levels in the peripheral blood of rats increased by 0.5 and 0.6 g% compared to the intact values and by 0.8 g%, respectively, in the control group, when phytoferon was administered at 10 ml / kg and 25 ml / kg. No change in the level of mathematical accuracy in the number of erythrocytes and leukocytes in the peripheral blood was detected. On the 30th day of the experiment, the amount of hemoglobin and erythrocytes in the blood of rats under the influence of both doses of the drug phytoferon increased by 0.9-1.1 g% compared to the control group and 0.3-0.6 mln. observed to increase. Almost the same condition was noted on the 60th day of the experiment. Changes in the number of leukocytes in the peripheral blood were also detected during the experiment. However, these figures did not differ from the control group results in the level of mathematical accuracy. In particular, the number of leukocytes in the blood was around the physiological norm during the experiment. When phytoferon tincture was administered chronically at 10 ml / kg and 25 ml / kg, weight gain of experimental rats relative to intact values was noted. However, it did not differ from the control group in terms of mathematical accuracy (Table 1).

Table 1 Effect of phytoferon tincture on peripheral blood cell counts in chronic administration to rats (M ± m; n = 6)

Indicators	Peripheral blood counts after phytoferon administration						
	Intact	15-day		30-day		60-day	
		10 ml/kg	25 ml/kg	10 ml/kg	25 ml/kg	10 ml/kg	25 ml/kg
Hemoglobin, g/%	12,1±0,1	13,3±0,35** 12,5±0,36	13,3±0,37* * 12,5±0,36	13,5±0,35** 12,6±0,27	13,7±0,40** 12,6±0,27	13,35±0,39** 12,4±0,36	13,5±0,37 12,4±0,36
Erythrocytes, mln/ul	6,1±0,23	6,2±0,30 5,9±0,25	6,27±0,27 5,9±0,25	6,3±0,25 6,0±0,35	6,6±0,35** 6,0±0,35	6,4±0,20** 5,95±0,25	6,5±0,29** 5,95±0,25
Leukocytes, mln/ml	9,7±1,9	10,5±2,0 10,5±2,1	10,2±2,1 10,5±2,1	10,7±1,6 11,5±2,1	10,3±1,7 11,5±2,1	10,4±0,50 10,5±0,42	10,2±0,32 10,5±0,42

Note: The results of the experimental group in the photo; the results of the control group in the maxilla

*- level of reliability in relation to the control group;

x –the degree of reliability relative to the intact index

Hence, phytoferon tincture when administered chronically to some extent stimulates the process of blood formation even in normal rats. In addition, phytoferon tincture in both doses on the 15th and 30th days of the experiment increased urine output by 19.2-21.0% and 21.3-22.3%, the color of the urine was clear, the pH was normal.

On day 30 of the experiment, biochemical analyzes in the blood were performed (Table 2). Based on the results obtained, the levels of AlAT and AsAT in the blood under the influence of phytoferon tincture did not differ at all from the rats of the control group. This means that the drug under study does not affect the activity of liver enzymes.

Table 2 Effect of phytoferon tincture on blood biochemical parameters in chronic administration (M ± m; n = 6)

Indicators	Results		
	In the control group	In the group receiving 5 ml / kg drip	In the group receiving 10 ml / kg drip
AlAT mmol.ch.l	140,6±2,03	141,7±2,07	142,6±1,63
AsAT mmol.ch.l	143,0±1,87	144,5±2,56	145,1±1,57
Proteins g./l.	59,6±1,66	63,2±1,64*	64,0±1,36*
Cholestero	1,72±0,01	1,76±0,041	1,75±0,06

1, mmol / l			7
Sugar content, mmol / l	4,85±0,41	5,36±0,65*	5,31±0,83*

Note. * - level of reliability in relation to the control group.

However, the process of protein synthesis in the liver is slightly intensified. In the group of rats receiving 5 ml / kg and 10 ml / kg, the amount of protein in the blood increased by 6% and 7.8%, respectively, compared to the control group.

At the end of the experiment, the rats were decapitated against the background of mild anesthesia and histomorphological examinations of internal vital organs were performed. Based on histological analysis, the boundaries of the liver sections in the liver of animals in the control group are not clearly visible. The trabecular structure of hepatocytes is clearly visible and each section of it is surrounded by a septum. The central veins of the liver are empty, the interstitial space is narrowed, the triad looks good. Hepatocytes located in all sections of the liver have almost the same structure, their nuclei are clearly visible.

The liver capsule of the animals receiving the tincture under study was very thin, as in the control compartment of the liver compartment and trabecular hepatocytes, the triads were in good view, the process of proliferation in hepatocytes around the triad and septal tract, 2 nuclei were noted in some hepatocytes.

The renal parenchyma is simple in structure and consists of the central brain and peripheral cortex. The capsule is very thin, the parenchyma stroma is thin, the globules are the same size, round or oval in shape, the capillaries of the lobe are thin and hollow. Shumlyansky - Bauman capsules are free of pathological fluids. In the cavity of the nephron tubules, invisible reticulate, pink protein weights were noted.

The histostructure of the kidneys of animals receiving phytoferon tincture appears to be the same as in the control group. Shumlyansky -

The cavity of the Bauman capsules is empty, and in the kidneys of some animals significant tumors and metachromasia are observed. Proliferation of fibroblasts in some areas of the stroma between the globules has been reported. The mucous, submucosal, muscular, and serous layers in the gastric wall appear normal. The structure of the intestinal walls is also simple, lying along the muscular layer and marked in the form of a circular layer. The intestinal mucosa is full-blooded, the villi are well developed, the protoplasm of the epithelial layer is basophilic, the nucleus is plasmatic. oily groups are collected in the mucous layer, which are composed of light cytoplasmic cells with a glassy foam.

The intestinal mucosa of some infused animals is well preserved, the villi are composed of plasma epithelium, their stroma is thin, the mucous membrane of the intestinal glands is partially swollen, the cell cytoplasm is vacuolated. The intestinal lymphoid apparatus is well developed. Occasionally, very small tumors were noted in the mucosal layer.

The histostructure of the heart is normal, the muscular layer of the heart - myocardium is saturated with blood, cardiomyocytes are full-blooded, the nucleus is oval. The capillaries of the muscles are markedly hypertrophied, with vacuoles in their cytoplasm.

The histological structure of other vital internal organs was found to be almost identical in animals in the control and experimental groups.

In summary, the histological structures of the vital internal organs of the rats in the control and experimental group did not differ from each other. This means that phytoferon tincture does not adversely affect the histological structures of the internal organs.

CONCLUSIONS

1. Phytoferon tincture has a positive effect on peripheral blood-forming elements when administered chronically to experimental rats in doses of 10 ml / kg and 25 ml / kg.

2. Phytoferon tincture does not affect the activity of liver enzymes in the amounts studied when administered chronically. Accelerates the breakdown of proteins in the liver.

3. Phytoferon tincture does not adversely affect the histological structure of the internal organs when administered chronically to experimental rats in doses of 10 ml / kg and 25 ml / kg.

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