

RESULTS OF PRE-CLINICAL STUDIES OF TRIGONELLA FOENUM-GRAECUM SEED INFUSIONS

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Abstract: to conduct preclinical studies, infusions prepared in different ratios from fenugreek grain collected in the foothills of the Kopetdag of the Akhal velayat were used as the test material. In accordance with the State Pharmacopoeia, infusions were prepared in ratios of 1:5; 1:10. Then, preclinical studies were conducted with them. Based on preclinical studies, it was found that the acute toxicity level of fenugreek seed infusion is higher than 10.0 ml/kg, and the chronic toxicity of fenugreek seed infusion is higher than 5.0 ml/kg.

Keywords: fenugreek (*Trigonella foenum-graecum*), fenugreek seeds, infusions in ratios of 1:5; 1:10, preclinical studies, acute and chronic toxicity.

Relevance. The protection of human health, the highest value of society and the State, is one of the priorities of Turkmenistan's policy. This determines the solution of a wide range of problems: prevention and treatment of diseases, improvement of social protection of the population, approval of the principles of a healthy lifestyle, and guaranteeing the healthy development of citizens.

Health care, physical education and sport are the most important components of the development of the modern Turkmen society, since strong physical health is an indispensable condition for the country's socio-economic progress, happiness and well-being.

That is why concern for the health of the people was initially elevated in Turkmenistan to the rank of the primary state task. The success of this task is clearly demonstrated by the unique national model of the health protection system that has been formed in recent years, harmoniously combining the centuries-old experience of skilful folk healers and advanced trends in world health care.

In accordance with the State Programme “Saglyk” developed under the leadership of the National Leader of the Turkmen people, Chairman of the Khalk Maslakhaty of Turkmenistan, Hero Arkadag, and continued by President Serdar Berdimuhamedov, a number of comprehensive measures are being taken to further develop this sphere.

Providing citizens and medical institutions with medicines and other medical products in the country has always been considered the most important issue.

On this basis, one of the most important tasks of our time is in-depth study of medicinal plants grown on the blessed Turkmen land, as well as production of easily available and harmless medicines from them.

According to the requirements of the International Health Organisation, no matter how harmless medicinal plants are, it is necessary to determine the level of toxicity of medicinal forms from medicinal plants before their mass application. This statement is also published in the State Pharmacopoeia.

In this connection, the task of our exploratory research was to determine the degrees of acute and chronic toxicity of Fenugreek plant (*Trigonella foenum-graecum*), which is a local medicinal raw material containing vital biologically active substances.

Objective of the work. To determine the degrees of acute and chronic toxicity of fenugreek seed infusion.

Materials and methods. Prepared infusions in different ratios of fenugreek seeds collected in the foothills of Kopetdag mountains of Akhal velayat were used as the study material for preclinical studies.

The experiments were carried out on white mice weighing 25-30 g. Infusion prepared from fenugreek seeds was administered to experimental animals in different volumes (one teaspoon 5.0; one dessert spoon 10.0; one tablespoon 15.0 and two tablespoons 30.0) orally once and for 14 days.

The drug was studied under normal atmospheric pressure and the animals were not restricted in food and water. Experimental animals were divided into two groups, 6-10 experimental animals per group. The results obtained were calculated by Student's method. The first group of animals was given water for comparison. Determination of acute toxicity of fenugreek seed infusion was carried out at the first stage. Fenugreek seed infusion in doses of 5.0 ml/kg, 10.0 ml/kg, 15.0 ml/kg and 30.0 ml/kg was administered to mice once. No more than the above mentioned amounts were administered to experimental animals at one time. To determine chronic

toxicity, mice were administered 2.5 ml/kg, 5.0 ml/kg, 10.0 ml/kg, 15.0 ml/kg and 30.0 ml/kg for 14 days. The levels of acute and chronic toxicity are shown in Table 1.

In addition to studying chronic toxicity, the effects on general mental state, anxiety level, sleep and myorelaxation were also studied.

Results and their discussion. Infusion prepared from fenugreek seeds, when administered in high doses for a long time (14 days) to some extent weakened - mental activity, exploratory activity - orienting reflexes. However, other physiological parameters of animals did not change, their activity did not decrease, wool did not fall out, and weight remained at the same level.

Table 1. Results of determination of toxicity of hay fenugreek seeds.

Experimental conditions	Method of administration	Volume, ml/kg	Additional pharmacological effects
Mice were administered once	per/orally	5,0 ml/kg	Well tolerated. Behavior did not change
Mice were administered once	per/orally	10,0 ml/kg	Well tolerated. Behavior did not change
Mice were administered once	per/orally	15,0 ml/kg	Behavior changed
Mice were administered once	per/orally	30,0 ml/kg	Behavior changed
Mice were administered for 14 days	per/orally	2,5 ml/kg	Well tolerated. Behavior did not change
Mice were administered for 14 days	per/orally	5,0 ml/kg	Well tolerated. Behavior did not change
Mice were administered for 14 days	per/orally	10,0 ml/kg	Behavior changed
Mice were administered for 14 days	per/orally	15,0 ml/kg	Behavior changed
Mice were administered for 14 days	per/orally	30,0 ml/kg	Behavior changed

Based on the data obtained in animal experiments, the following conclusions can be drawn: the level of acute toxicity of fenugreek seed infusion is higher than 10.0 ml/kg; the chronic toxicity of fenugreek seed infusion is higher than 5.0 ml/kg.

The results obtained were tested by Student's t-test and when the experiments were repeated, they gave the same data.

Conclusions:

1. Hay fenugreek seed infusions were prepared in different ratios (1:5; 1:10).
2. On the basis of preclinical experiments it was found that, the acute toxicity level of fenugreek seed infusion is higher than 10.0 ml/kg and chronic toxicity of fenugreek seed infusion is higher than 5.0 ml/kg.
3. According to research, when prescribing fenugreek seed infusion for prophylactic purpose in diabetes mellitus, endocrine disorders, bronchial asthma, they should be measured based on these indicators.

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