

RESULTS OF THE FIRST CLINICAL STUDIES OF TRIGONELLA FOENUM-GRAECUM SEED INFUSIONS Soegov G.A.¹, Allaberdiiev A.², Gurbanov I.³, Berdiiev A.A.⁴, Khodjamberdiiev Z.Dzh.⁵

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Abstract: to conduct the first clinical studies, the infusion in the form of tea bags (the net weight of each of which was 3 grams, prepared from crushed grains of fenugreek) of shambhala growing in Turkmenistan, collected in the foothills of Kopetdag of the Akhal velayat, was used as the test material. The first clinical studies were conducted. Based on clinical studies, the occurrence of a beneficial effect of the infusion prepared from fenugreek seeds on the treatment of diabetes mellitus was revealed. Thus, in the future, the plant (fenugreek) can be offered for wide use in the treatment of diabetes mellitus.

Keywords: fenugreek (*Trigonella foenum-graecum*), fenugreek grains, infusions, clinical studies, treatment of diabetes mellitus.

In order to develop the national medical industry and improve the mechanisms for providing medicines to the population, pharmaceutical enterprises have been put into operation in our Motherland, producing various medical preparations from local raw materials based on medicinal plants of the Turkmen land.

Introduction of the latest treatment methods, provision of almost all kinds of specialised services available in the world medicine to patients, first of all, implies training of highly qualified personnel. In this regard, Turkmen specialists are regularly sent for courses to the leading medical centres in Europe and other countries of the world.

The digital system is being more and more actively introduced into the sphere of health care, and direct videoconferencing is used to exchange information. The latest telecommunication and computer technologies make it possible to involve foreign specialists regardless of the distance, both to provide routine and emergency medical care, and to hold consultations and exchange of experience in the field of diagnostics, treatment and prevention of diseases.

In this connection, the task of our research was to conduct the first clinical trial of a medicinal form prepared from fenugreek (*Trigonella foenum-graecum*), which is a local medicinal raw material containing vital biologically active substances.

Objective: To study the effect of infusion prepared from hay fenugreek grains on blood glucose level and lipid profile of diabetic patients.

Materials and methods: In the study was used infusion in the form of tea bags (net weight of each of which was 3 grams, prepared from crushed grains of fenugreek hay) of shambhala, growing on the territory of Turkmenistan, collected in the foothills of the Kopetdag Kopetdag of Ahal velayat.

The clinical study was conducted with patients of the endocrinology department of the S.A. Niyazov Health and Counselling Centre.

A total of 56 patients with type 2 diabetes mellitus (56.2 ± 5.3 years) of two genders participated in the clinical study. The patients undergoing the examination met the following criteria: morbidity 1-10 years, uncomplicated course of the disease, absence of gastrointestinal tract disease, taking only oral hypoglycaemic drugs (OHD) in treatment. The patients were divided into 2 groups, 28 patients in each group. Group I took OHD as well as infusion of chambalaya grains (fenugreek) three times a day after meals for 8 weeks. Group II as study group took only OHD.

Glucose, cholesterol, triglycerides, high and low density lipids were determined in the blood of all patients in the morning (07:00) and postprandially (11:00, 2 hours after breakfast) on the first day of the study and at the end of the study. To determine the fasting effect of the infusion prepared from fenugreek, fasting and postprandial glucose levels were checked in patients during the first three days of the study using GlucoDr™ glucometer, patients were interviewed about their complaints and subjective symptoms of the infusion were described.

Statistical calculations in the study were performed using MS Excel 2013 and GraphPad Prism 7.0 programmes. The difference between the pre-test scores of the groups was calculated using the independent t-Student's t-test method, and the difference between the pre-test and post-test scores of the same group was calculated using the dependent t-Student's t-test method. The difference between the scores was considered significant at $p < 0.05$.

Results: Laboratory blood parameters of the examined patients before and after examination are presented in Table 1. Only one of the patients of group I, who was given to drink fenugreek infusion, refused to drink the infusion on the second

day of the study, as he did not like its odour and caused nausea. The remaining 27 patients drank the infusion throughout the study.

Table 1. Comparison of glucose and lipid profiles in the infusion group (group I) and control group (group II) before and after the study.

		Group I (n=27)		Group II (n=27)	
		Avarage	p	Avarage	p
Fasting glucose	Before	9.20±1.73	p<0.001	9.35±1.64	p<0.05
	After	8.66±1.08		9.25±1.68	
Postprandial glucose	Before	10.84±2.19	p<0.001	10.98±2.04	p<0.05
	After	9.94±2.01		10.58±1.83	
Cholesterol	Before	5.59±0.14	p<0.05	5.56±0.11	p>0.05
	After	5.57±0.15		5.54±0.14	
Triglyceride	Before	1.80±0.05	p<0.01	1.78±0.06	p>0.05
	After	1.77±0.09		1.77±0.07	
High density lipids	Before	1.40±0.07	p<0.05	1.39±0.06	p>0.05
	After	1.42±0.05		1.40±0.07	
Low-density lipids	Before	3.55±0.16	p<0.01	3.56±0.15	p>0.05
	After	3.52±0.17		3.54±0.14	

During the first three days of the study compared to patients of group II, patients of group I had a significant decrease in fasting and postprandial glucose levels ($p>0.05$). It appeared that in group I patients subjective symptoms were favourable. Patients reported relief of constipation, laxative effect and reduction of symptoms of paresthesia in legs. These symptoms were not observed in group II.

As shown in Table 1, fasting and postprandial glucose levels in patients treated for 8 weeks were clearly reduced in both groups, but the level of certainty was higher in the infusion group (Group I), meaning it increased the treatment effect.

This clinical study showed that the infusion also has a positive effect on the lipid profile of patients. That is, it significantly reduces the amount of total cholesterol, low density lipids and triglycerides in the blood and clearly increases the amount of high density lipids.

Conclusion.

1. Infusions of hay fenugreek seeds were prepared.
2. The study conducted revealed the occurrence of favourable effect of infusion prepared from hay fenugreek seeds on the treatment of diabetes mellitus.
3. Thus, in future the plant (Fenugreek) may be proposed for wide application in the treatment of diabetes mellitus.

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