

базовой терапией. При отсутствии выраженных инфекционно-воспалительных процессов в органах мочевыводящей системы необходима консервативная терапия, которая направлена на разрешение «каменной дорожки». Неэффективность консервативной терапии при непротяженных скоплениях мелких фрагментов дезинтегрированного конкремента в дистальных отделах мочеточника – показание для проведения оперативных вмешательств, направленных на устранение блока почки.

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ФАРМАКОЛОГИЯ, ФАРМАЦИЯ, ХИМИЯ

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СОДЕРЖАНИЕ БЕЛКА ПЛОДОВ ОВСА ПОСЕВНОГО (AVENA SATIVA L.), ЗАГОТОВЛЕННОГО В УЗБЕКИСТАНЕ

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Nurullaeva D.X., Farmanova N.T.
THE PROTEIN CONTENT OF OAT FRUITS (AVENA SATIVA L.)
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Аннотация. Было изучено содержание общего и растворимого белка в плодах овса посевного, методами Лоури и Кьедалья. Результаты исследования, показали, что содержание растворимого белка в плодах овса посевного варьируется в диапазоне 2,64-2,68%, а общего белка - колеблется в пределах 10,04-10,08%.

Annotation. The total and soluble protein content in the fruits of oats, Lowry and Chiedalia methods was studied. The results of the research demonstrate that the amount of soluble protein in the fruits of oats varies between 2,64-2,68 % , and the total protein ranges from 10.04-10.08%.

Ключевые слова: овес, белок, азот, аминокислота, Биуретовая реакция.

Key words: oat, protein, nitrogen, amino acid, Biuretic reaction and others.

Introduction

It is commonly known that vegetable protein is very valuable and the high content of protein in plants determines its dignity. Sown oats occupy a significant position among cereals owing to their amino acid balance, since amino acids are the main building elements in a living organism.

Proteins and amino acids in plants, as well as their biological effect, have a complex effect on the body and allow it to easily dissolve other biologically active substances. From the literature, it is known that the protein itself stimulates metabolism, increases the body's resistance to infections, participates in the synthesis of substances and hormones.

In the experiment by scientists of HPLC - MS, a lunazine protein with anti-inflammatory, antioxidant, hypocholesterolemic and antitumor activity [1,5] was determined.

Purpose of the study - to determine the protein content in the fruits of oat cultivated in Uzbekistan.

Research materials and methods

For the purpose of analysis, the raw materials of the research were collected in the period of full maturity in the territory of the Republic of Uzbekistan. The collected raw materials dried in the open air under 15-20°C shade. Then the material was placed

in sealed hermetically plastic containers and stored at room temperature ($20,3 \pm 2 \text{ }^\circ \text{C}$) for analysis.

In order to determine in a quality way protein was carried out in the Biuretic reaction (purple color building)

Determination of total protein/nitrogen content. To determine the total protein, the Kjeldal method was used. The used method is the determination of Kjeldal nitrogen followed by the processing of protein [2]. The essence of this method is to decompose the organic substance of a sample of boiling concentrated sulfuric acid to form ammonium salts, convert ammonium into ammonia, dissolve it in an acid solution, take into account the quantitative method of ammonia titrimetric and calculate the nitrogen content in the material under study. When researching the same average crushed sample, the low-fat fruit of the oat crop was weighed with an error of no more than 0,1%. The measured amount was transferred to the tube of Kjeldal. In addition, experiments were carried out with [3,2] methodological instruction.

During the distillation of ammonia to sulfuric acid, the mass fraction of nitrogen (x) in the object under study was calculated in% according to the following formula:

$$x = \frac{(V_1 - V_0) \times K \times 0.0014 \times 100}{M},$$

Here: V_0 - the volume of 0.1 mol / l sodium hydroxide solution used to titrate 0.05 mol / l sulfuric acid in the control experiment, ml; V_1 - the volume of 0.1 mol / l sodium hydroxide solution used for titration of sulfuric acid in the test solution, ml; K - correction to the titer of 0.1 mol / l sodium hydroxide solution; 0.0014 - the amount of nitrogen equal to 1 ml of 0.05 mol / l sulfuric acid solution; M - the weight of the sample, g.

For the final result of the test, The average arithmetic value of the results of the five parallel tests were taken. The results were calculated to the third decimal point and rounded to the second decimal point.

The mass fraction of nitrogen according to the dry substance (x_3) of the product, in percent, is calculated according to the formula:

$$x_3 = \frac{X_1 \times 100}{100 - W},$$

Here: X_1 - the mass fraction of nitrogen in the test sample, %;

W - the humidity of the test sample, %.

The portion of protein mass (Y) in percentage is calculated by the formula:

$$Y = K \text{ ЧX},$$

Here: K - the coefficient of nitrogen recalculation to protein.

Results of the study and their discussion. The results obtained from the research are presented in Table 1.

Table 1

Metrological characteristics of the methods of quantitative determination of total protein in the fruits of oat crops

x	\bar{x}	S^2	S	$t(pt)$	Δx	$\Delta \bar{x}$	$E_I\%$	$E\%$
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10,04								
10,07								
10,08	10,06	0,00025	0,0158	2,78	0,0439	0,0196	0,43	0,19
10,05								
10,06								

As the results of the research have depicted, the protein content in the fruits of oat crops varies between 10.04-10.08%. The relative error of the results of determining the protein content in the fruits of oat crops was 0.19 %.

The Lowry method was used to determine the solvent protein [4]. The protein concentration was determined by a calibration graph constructed using a suitable standard (albumin) protein. The results of determining the solvent protein are shown in the table 2.

Table 2

Metrological characteristics of the methods of quantitative determination of solvent protein in the fruits of oat crops

x	\bar{x}	S^2	S	$t(pt)$	Δx	$\Delta \bar{x}$	$E_1\%$	$E\%$
2,68								
2,65	2,66	0,00025	0,0158	2,78	0,0439	0,0196	1,65	0,73
2,67								
2,66								
2,64								

The results presented in the table demonstrate that the content of solvent protein in the fruits of oat crops varies between the range of 2.64-2.68%. The relative error of the results of determining the content of solvent protein in the fruits of oat crops was 0.73 %, respectively.

To conclude, it must be noted that the studied raw materials are one of the sources of protein that can be recommended for medical purposes and dietary nutrition.

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