

Results of the Study of the National Dish "Asip" from Sheep Products

Z. A. Talkanbayeva¹, A. M. Kalkabayev², Ferruh Yucel³, S.A. Kalkabaeva⁴

¹Kh. A. Yassavi International Kazakh-Turkish university, Turkestan, Kazakhstan,

²Miras University, Shymkent, Kazakhstan.

³Osmangazi University, Eskishehir city, Turkey.

⁴South-Kazakhstan State University named by M. Auezov, Shymkent, Kazakhstan.

E-mail: ¹talkanbaeva_56@mail.ru, ²zeus-83@mail.ru, ³yferruh@gmail.com, ⁴Kalkabayeva@list.ru

ABSTRACT

In the article the chemical composition, nutritional and biological value of the product "asip" from sheep production was studied for the first time, the food "asip" is rich in proteins and oils, characterized by high levels of olein from essential lysine, amino acids leucine and isoleucine, nicotinic acid (vitamin PP), unsaturated fatty acids. The fatty acid value of "asip" meal is characterized by the degree of unsaturated fatty acid. Large amounts of palmitolein-olein-linoleic fatty acids were found in their composition.

Olein content is 1.5-2 times higher than palmitic fatty acids, guarantees food efficiency, plays a proactive role in meeting the body's oil needs.

The protein of these proteins has a good amino acid composition, limiting amino acids are absolutely absent, except tryptophan (85%), essential amino acids are characterized by high speed (149-563%).

Vitamin PP deficiency has a bad effect on health. This product contains the maximum amount of vitamin PP that is needed to provide nicotine acid processes. It is part of some oxidizing enzymes.

It is proved that national nutrition "asip" is one of the leading in the field of formation of biological and physiological function of organism. In the practical part, based on the results of the study, will fully contribute to improving the nutritional level of the table menu.

Keywords

asip, protein, fats, carbohydrates, vitamins, calories, value, nutritional value.

Article Received: 10 August 2020, Revised: 25 October 2020, Accepted: 18 November 2020

Introduction

The chemical composition and determination of the biological value of products is one of the pressing problems in biology and medicine, as food is one of the factors of the external environment affecting the human body. Compared to other environmental factors, it has specific properties: it serves as an internal factor after eating food, food nutrients affect cell growth, which increases human performance, increases the ability to resist various malignant situations. In this regard, F. Engels expressed one miracle interesting opinion about the activity of food in human formation:

"Only the transition from plant nutrition to meat nutrition is an important new step in human transformation. Meat has had the greatest impact on the brain, through which the brain has received many things that previously needed to be self-nourished and developed, enabling man to mature more quickly and more fully from generation to generation".

Meat contains a large amount of fat, outside of protein, which affects its caloric value and promotes rapid saturation. Meat has been scientifically proven to contain large amounts of minerals, in particular iron and vitamins. In addition, the most important thing is that meat includes substances called extractive, which when cooked turn into soup. Reactive substances cause appetite, increase the secretion of digestive juices [1, pp. 111-112, 2].

Differences in the nutritional properties of meat of different animals depend on how much fat, extractive substances and other compounds it contains than in the structure of proteins. Description of the meaning of Kazakh national cuisine in ethnographic, cultural and economic traditions dates from 1911 to 1927 and continues [3]. But these data meet the

requirements of society in the most developed era of science and technology.

The relevance of the study of the chemical and biological value of food products is due to the organization of a quality menu, which can determine the physiological needs of the body [4].

To achieve the goal, study the chemical composition and power of traditionally prepared national cuisine, assessment of nutritional value.

There is no doubt that the study of the chemical and biological value of food, the practical use of research results is a pressing issue. Unfortunately, within the framework of the Republic of Kazakhstan, there are very few scientific works done in this direction. As it was noted above, the most researched results are known in historical and ethnographic plan. Taking into account the revealed facts, in order to achieve the goal, to determine the power and caloric value of the national meal "asip", which is made from internal organs of traditionally prepared sheep of national consumption, by studying the chemical composition and evaluation of nutritional value.

Research materials.

"Food is the basis of man, there is nothing great about it." A food prepared with finely chopped meat in the large intestine with rice is called "asip".

"ASIP" is food cooked by slaughtering sheep. The laboratory sample was dosed from the boiled effect in the composition: 200 g of lung, 2 kidneys, heart, 100 g of fatty meat, rice, one onion, one cup of warm water, salt and pepper spice [6, 53-54 pp].

Cooking method "asip" - at least one meter of sheep's intestine is cleaned several times with warm water, then rinsed with salt water. To eliminate the smell, place in yeast milk for several hours. Then it is rinsed once more with cold water and turned into an inner surface. Tie one end tightly with a thread and place the finished minced meat on the empty side. After filling the intestine, the second tip is also tied with a thread.

The method of preparation of minced meat-lungs, meat, heart, kidneys are chopped or subjected to meat grinding. Finely chopped onions, ground rice, pepper and salt are added to it. Mixed with water a little bit. A dish "asip" filled in the intestine should draw air out with a spoon while boiling, when food is not blown up. The ripe "asip" meal is used horizontally cut.

The study of nutritional and biological value of these types of food was determined in the laboratory of the Kazakh Academy of Nutrition, equipped with modern technical devices.

Methods of research.

A food protein was detected by the micro-Kjeldal method [7]. In this case the calculated coefficient for meat products was obtained -6.25.

The total amount of fats was determined by the method of D.I. Kuznetsov and n.p. Grishin [8].

The total amount of carbohydrates was calculated by the difference between dry residue and protein, fat and minerals. Moisture, dry residue, ash content of food was carried out with the use of known physical and chemical methods [9].

The energetic value of food is calculated with the coefficient of heat released from one gram of protein and carbohydrates equal to 4.1 kilocalories, and the fat coefficient is 9.3 kcal.

The amino acid composition of protein was found in the hydrolyzate of the purchased product. For hydrolysis it is received 6 normal HCl. The quantitative content of amino acids was determined by the method of ion-exchange chromatography in an automatic analyzer.

The method of E.A. Isatullayev and R.K. Urbisinov (1986) was used to determine the complete amino acid composition of the studied food, including tryptophan [11].

The content of vitamins: B₁ (thiamine), B₂ (riboflavin)-fluorometric, PP (niacin)-chemical, C, A, E-colorimetric methods [10].

These investigations were processed by the usual statistical method and implemented with the help of a computer program [12].

Research result.

In a healthy food system, it is important to carefully monitor the nutritional quality of food and make recommendations for health. In this regard, highbiological properties of each dish are studied from a scientific point of view.

Great importance is attached to improving the structure of consumer food and providing the population with quality meat and dairy products, as these types of food, firstly, include the body of particularly valuable protein and amino acids, and secondly, the resulting insufficiency is very large. Therefore, the scientific offer, justified depending on age,

sex, body weight, type of work performed, always pays attention to the provision of the population with these types of food [12-13].

A special search was organized to study the chemical composition of the Kazakh national meal "asip". The results are shown in table 1, 2, 3, 4.

In the Basic laboratory of the Kazakh Academy of nutrition, the capacity, content of protein, oil, and carbohydrates obtained from the prepared "asip" dishes was established (table.1).

Table 1 - Nutritional values of "asip" food (in 100 g/mg of product)

N	Nameoffoodingredients	Amount (per 100 g of food)
1	Protein, g	6,13±0,06
2	Oil, g	4,33±0,03
3	Carbohydrates, g	21,18±0,4
4	Power, kcal	148±2,11

Analyzing the table, food protein "asip" was 6.13 g, fat-4.33 g, carbohydrate-21.18 g.

Table 2-vitamin indicators of nutrition "asip" (in the product mg / 100g)

N	Name of vitamins	Quantity, (mg / 100 g of product)
1	A	0,07±0,001
2	β-carotene	0
3	E	0,28±0,06
4	B ₁	0,05±0,003
5	B ₂	0,19±0,02
6	PP	2,2±0,06
7	C	0

Vitamin values were found in the product "asip": A-0.07 mg, E-0.28 mg, B₁ - 0.05 mg, B₂ - 0.19 mg, PP-2.2 mg. Vitamin PP is preferred.

Table 3-indicators of essential amino acids of food "asip" (in product mg / 100g)

N	Essentialaminoacids, mg	Quantity, (mg / 100 g of product)
1	Valine	289±1,7
2	Isoleucine	305±2,3
3	Leucine	563±2,5
4	Lysine	348±2
5	Methionine	149±1,5
6	Threonine	261±1,6
7	Tryptophan	85±0,8
8	Phenylalanine	288±2

As can be seen from the table, the level of amino acids leucine, lysine in food remains high.

Table 4-indicators of nonessential amino acids of food "asip" (in the product mg / 100g)

N	Nonessential amino acids, mg	Quantity, (mg / 100 g of product)
1	Alanine	204±1,6
2	Arginine	182±1,5
3	Asparagine	495±2,3
4	Histidine	122±0,9
5	Glycine	136±1,4
6	Glutamine	1240±1,3
7	Proline	660±2,6
8	Serine	362±2,1
9	Tyrosine	322±2,2
10	Cystine	66±0,7

When analyzing the nonessential amino acids listed in table 4, the highest level of glutamic acid was found, and subsequent levels of aspartic acid were found to be higher than in other acids.

Table 5-indicators of unsaturated fatty acids of food "asip" (in the product mg / 100g)

N	Unsaturated fats, mg	Quantity, (mg / 100 g of product)
Monounsaturated fatty acid		
1	Palmitoleic	0,58±0,03
2	Olein	1,23±0,07
Polyunsaturated fatty acid		
3	Linol	0,11±0,02
4	Linolene	0,13±0,08

Analyzing the table, the priority from unsaturated fatty acids showed olein.

Analysis of results.

It is known that biologically active substances in the diet have a great influence on health indicators. Currently, it is scientifically proven that the nutritional value of various proteins depends on its amino acid composition. The ratio of amino acids, which may not be the most important substitutes in it for better absorption of protein in the food, should be in a certain relationship with proteins in the food [14,41p].

If any of the specified amino acids is less than that indicated in the table, then other amino acids cannot fully utilize the body in the structure of proteins in the body.

From this perspective, many people around the world currently think that there is a significant shortage of three amino acids (tryptophan, lysine and methionine) in the food. These amino acids limit the absorption of food. Therefore, it is very important to properly use in the nutrition and feed of animals and protein resources in the world. Therefore, scientists are discussing the production of artificial amino acids in parallel with other chemical production. In the feeds of animal origin of these amino acids is quite large, and the content of lysine in it is much

higher than the average amount in other products. Therefore, not only well absorbed in the body proteins of animal origin, but also improve the absorption of plant proteins. The balance of amino acids in food is corrected during meals. Proteins found in nature contain about twenty amino acids. Of these, eight cannot replace. These include tryptophan, leucine, isoleucine, valine, threonine, methionine and phenylalanine. Unaffordable amino acids do not form in the body on their own. Therefore, it is obligatory for a person to supplement them with daily food in certain quantities [14, pp. 40-41].

Particular importance is given to lysines, leucines, methionines and threonines from among undigested amino acids in essential organisms, as in the conditions of food consumption there is a shortage of animal products among the population. For example, leucine deficiency causes metabolism disorders in the body, stops growth and development and decreases body weight.

According to the average consumption of nutrients by an adult, the daily requirement of leucine 4 - 6 g, lysine 3-5 g can be said that the food "asip" contains a large amount of leucine and lysine, which can not be metabolized amino acids, the daily requirement at the use of this product can be satisfied [14. P. 106-107].

One of the amino acids entering the human body only with food, has a large number of indicators of leucine, the basis for the formation of skeletal muscles of the body, is involved in the synthesis and breakdown of protein. And lysine is necessary for growth, tissue regeneration, production of hormones, antibodies and the formation of enzymes. Lysine is a component of connective tissue that forms the protein of muscle collagen. Lysine is involved in the elastic ligament of vascular tolerance as well as in the digestion of calcium. It participates in the prevention of osteoporosis, atherosclerosis, stroke and heart attack in the human body. Normalizes the work of mammary glands [15]. Of metabolic amino acids, glutamine was found at a high level. Its diversity as a regularity. The significance of glutamine for the vital functions of the body is that it contributes to purification of harmful waste caused by protein metabolism, improve brain cell respiration, stabilize the concentration of hydrogen ions, maintain a balance of acid-alkaline reaction, the effect on blood digestion with folic acid. Taking into account specificity of use of Kazakh national dish "asip" there seems to be no risk of shortage of essential amino acids.

Raw red muscle meat contains around 20-25g protein/100g. Cooked red meat contains 28-36g/100g, because the water content decreases and nutrients become more concentrated during cooking. The protein is highly digestible, around 94% compared to the digestibility of 78% in beans and 86% in whole wheat. Protein from meat provides all essential amino acids (lysine, threonine, methionine, phenylalanine, tryptophan, leucine, isoleucine, valine) and has no limiting amino acids. Protein Digestibility Corrected Amino Acid Score (PDCAAS) is a method of evaluating the protein quality, with a maximum possible score of 1.0. Animal meats like beef have a score of approximately 0.9, compared to values of 0.5-0.7 for most plant foods [9]. The amino acid glutamic acid/glutamine is present in meat in the highest amounts (16.5%), followed by arginine, alanine, and aspartic acid. [16]

Saturated and unsaturated fatty acids in "asip" food are effective for health. In addition, the quota for unsaturated fatty acids has been increased. They help prevent the negative impact of saturated fatty acids on health. Thus, if palmitic acid in interaction is 1.03 mg, oleic oil is 1.23 mg/percent. This result shows that food penetrates into double properties, i.e. saturated and unsaturated fatty acids interact well. The discovery of olein low fatty acid in small amounts guarantees the effectiveness of the diet for health, plays a proactive role in meeting the body's oil needs. Because of its increased oxidation, unsaturated linol and linolenic fatty acids are formed, and when hydrogen oxidation occurs, saturated fats appear. Unsaturated fatty acids are manifested from the number of essential substances, ie, they are not digested in the body, are taken only through food [17-18].

Improvement of the fat level in diets contributed to an increase in the intensity of lipid and protein metabolism processes, which characterize strengthening of assimilation processes in the body of young stock, which is consistent with an increase in their live weight gain [19-20].

The food is valuable with a level of nicotinic acid (vitamin PP) (2.2 mg/100g). Other vitamins: A-0.07 mg, E-0.28 mg, B1 - 0.05 mg, B2-0.19 mg.

The body of an adult requires 14-28 milligrams of nicotinic acid per day along with food. It provides biological oxidation processes in the body as part of certain oxidizing enzymes. Lack of vitamin PP bad effect on health: there is rapid fatigue, weakness, irritability, insomnia, inflammation of skin. Necessary vitamin PP vitamin depends on the protein in the diet or one of the amino acids that can not be replaced in it - tryptophan. In humans, nicotinic acid can be synthesized from tryptophan, so the more tryptophan is eaten, the less nicotinic acid is needed in the body [21]

Conclusion.

Summing up the results of research, for the first time in this work the definition of chemical, nutritious and biological value of Kazakh national meat dish "asip" was achieved. It is established that the data on power of food, vitamin stock, amino acid and fatty acid components are absent in tables prepared by foreign scientists.

For the first time the chemical composition, nutritious and biological value of the cooked national dish "asip" was studied, the corresponding tables were developed, the increased power, rich in proteins and oils. The protein of these proteins has a good amino acid composition, limiting amino acids are absolutely absent, except tryptophan (85%), essential amino acids are characterized by high speed (149-563%).

The national dish "asip" is mainly a biologically valuable product.

Special attention was paid to essential lysine, amino acids leucine and isoleucine, glutamine from essential amino acids. Vitamin PP is characterized by high levels of olein from unsaturated fatty acids.

Theoretically, the results of the work performed have applied significance, as it is proved that the formation of biological and physiological function of the organism is one of the leading in the field of providing valuable nutrients for national nutrition.

In the practical part, based on the results of the study, will fully contribute to improving the level of nutrition of the table menu.

The tabular data prepared in places of public, medical and preventive, sanatorium and family catering establishments are used [22]. Delicious and healthy food made from environmentally friendly products without the use of genetically modified organisms and preservatives increases the interest in domestic tourism.

Suitable for consumption by people of different professional groups and people of all ages. Currently, it is widely used among the population.

References

- [1] Sharmanov T. V. on the world health Council. - Almaty, 2008. - 131 P.
- [2] Abdilmanov T. R. state of nutrition and health of the population of Kazakhstan // Bulletin of the Semipalatinsk state University. Shakarima. - 2008. - № 4. - Pp. 220-225.
- [3] Historical facts: archaeology and source studies: Gylym. - theoretical Conf. materials (October 30, 2007). - Moscow: Higher School, 2007. -
- [4] Kryukova G. V. proper nutrition-the basis of good health // Economics, law, culture. scientific-practical Conf. - Almaty, 2007. - Pp. 236-238.
- [5] Batyrkhanova S. As-the path of man // school doctor. -2006. - № 3. - P. 2-4.
- [6] Sariev I. Dastarkhan. - Almaty, 1974. - 122 b.
- [7] V. Cosmas, the Armenians V. determination of attukal Yes prodisealimentareprin Kjeldahl / / ind. Alimov, 1970, Vol. 66, no. 5, pp. 257-259.
- [8] Kuznetsov D. I., Grishina n. p. unified system of methods for quantitative determination and isolation of food lipids. - Moscow: NAUKA, 1977. - 161 P.
- [9] Burshtynska S. I. methods of research of food products. - Kiev: state library, 1963. - 645 P.
- [10] R. A. Izatullaev, R. K. Urbisinov For determination of tryptophan in protein hydroliates by ion exchange

- chromatography / / laboratory case. - 1986g. - № 2. - P. 118-119.
- [11] Instructions on methods for analyzing the quality and safety of food products / ed. by M. S. Skurikhin, V. A. Tutelyan-M.: Brandes, 1998. - 340 P.
- [12] Urbach V. Yu. statistical analysis in biological and medical research. - Moscow: Nauka, 1975. -255 p.
- [13] T. L. Aleynikova, Avdeeva L. V. et al. Biochemistry: Textbook / ed. by E. S. Severin, Moscow: GEOTAR-Media, 2006.
- [14] A. A. Pokrovsky the role of biochemistry in the development of nutrition science. - Moscow: Nauka, 1974. - 127 p.
- [15] p. Pokrovskoe, Moscow: Higher School, 1990. -
- [16] Nurmukhanbetova R. History of development of Kazakh folk medicine. Moscow: Higher school, 1996.
- [17] Williams, PG, red meat nutritional composition, nutrition dietology and 2007,, 64 (Appendix 4), S113-S119.
- [18] Tlemisov X. Kazakh national cuisine. - Almaty, 1995. - 139 C.
- [19] Yu. a. Yuldashbayev, N. B. Mukhanov, R. I. Kudiyarov, N. Zh. Kozhamuratov, B. B. Traisov, S. K. Karynbayev. Alma-ATA, B. 184-194.
- [20] O. Yu. Petrov, D. A. Baymukanov, V. G. Semenov, V. G. Tyurin, N. N. Kuzmina, A. K. Nesipbaeva, M. M. Zhylykshybayeva, M. V. Erezhepova, K. B. Apeev (2019). Productive action of various levels of fat in the diet of Bulls // Bulletin of the National Academy of Sciences of the Republic of Kazakhstan. 2019. Volume 6, Number 382 (2019), 254. ISSN 2518-467 (online),
- [21] ISSN 1991-3494 (print).<https://doi.org/10.32014/2019.2518-1467.169>-да 1. General provisions
- [22] Aldashev S. A. therapeutic and preventive nutrition / labor Protection in Kazakhstan. - 2007. - № 12.
- [23] Kerimbekov B., Talkhanbayeva Z. chemical composition and nutritional value of the Kazakh national cuisine. - Moscow: Higher School, 2008. –