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Developing A Specialized Meat Product Based On Ostrich.

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ABSTRACT

This article examines the use of ostrich meat as the basis for the production of meat products specialized direction. The results of study of the chemical, amino acid, fatty acid and vitamin composition of ostrich meat. Suggested dietary supplements for people with high physical activity.
Keywords: specialized products, ostrich meat, biologically active additives

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INTRODUCTION

Specialized food products - are products of natural or synthetic origin with a high biological activity, have a pleasant taste and a pronounced healing effect for a person. The necessity special foods associated with rising food shortages, which affects all countries of the world [1].

In a separate category of foods can be distinguished specialty products for people practicing sports. Currently, there is a need to develop new types of products contain high protein and full of essential fatty acids enriched in biologically active components that promote adaptation to additional physical activity.

The use of meat as a raw material for specialty products based on the fact that the composition as the meat and other raw materials of animal origin originally includes many bioactive substances, such as linoleic acid, carnosine, anserine, glutathione, taurine and creatine, which are not only involved in the formation of taste and flavor of the meat products, but, as is known, are biologically active substances [2]. Currently, the assortment of meat processing plants is insufficient specialized meat products adequate physiological needs of the body of people engaged in physical culture and sports. Deficit of high quality limited edition of the required volume of specialty products, which leads to the relevance of the development and expansion of its product range by using non-traditional raw materials of animal origin. Among such raw materials should be noted meat of African ostrich [3, 4].

Experts estimate the annual productivity of the ostrich, on average, five times higher than the productivity of beef cattle, so the ostrich in the long term can supply a significant amount of meat that can be an alternative to traditional types of raw materials in the first place, veal and beef. In this regard, it has been tasked to evaluate the use of ostrich meat for the production of specialized food products.

MATERIALS AND METHODS

The study of the chemical composition of different types of meat carried out in the infrared analyzer FoodScan Lab (FOSS). Determination of cholesterol carried by highly specific enzyme in the laboratory lipid, mineral elements - and by atomic absorption spectrophotometric methods, thiamine and riboflavin - fluorimetric method, the amino acid composition, pyridoxine, cyanocobalamin, niacin, pantothenic and folic acid, total creatine - by high performance liquid chromatography (HPLC) on a column of LiChrosorb RP-18, carnitine - HPLC on Capillary 300AC18 (LCPacking International), carnosine and anserine - micellar chromatography column LiChrosorb NH2 (Merck), taurine - ion exchange chromatography on a column of 2616 (Hitachi).

RESULTS AND DISCUSSION

Important conditions for obtaining high-quality meat food products for people engaged in physical culture and sports, are directional selection of raw meat (table 1).

Table 1: Chemical composition of different types of meat

Type of raw materials	Content, %				Cholesterol mg / 100 g of meat	Energy valuable, kcal / kJ
	Moisture	Protein	Fat	Ash		
Ostrich meat	75,4	22,5	0,9	1,1	43	98/411
Meat broiler chickens	75,3	20,6	2,6	0,9	60	106/444
Turkey	74,1	21,6	2,1	1,1	70	110/461
Veal	77,5	20,4	0,9	1,1	80	90/377
Beef	73,7	21,0	4,2	1,0	70	121/507
Pork	54,2	17,0	27,8	1,0	60	318/1332

From this table it is clear that ostrich meat protein content is not inferior to traditional kinds of raw materials. Significant interest in the content of ostrich meat cholesterol. A number of scientific publications marked a low content of sterol of animal origin - from 30,4 to 37,8 mg / 100 g (according to other sources - from 49 to 65 mg / 100g of meat) [4]. Data on amino acid composition of the meat of the species listed in Table 2.

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Table 2: The amino acid composition of various types of meat

Amino acid	Content, g / 100 g of meat				
	Ostrich meat	Chickens	Turkey	Beef	Pork
Leucine	1,96	1,50	1,82	1,62	1,54
Isoleucine	1,00	0,76	1,03	0,94	0,97
Valine	1,19	0,95	1,02	1,15	1,13
Threonine	1,15	0,85	0,96	0,88	0,96
Lysine	2,00	1,70	1,93	1,74	1,63
Methionine + Cystine	0,945	0,72	0,62	0,90	0,76
Phenylalanine + Tyrosine	1,82	1,38	1,56	1,70	1,51
Tryptophan	0,20	0,32	0,35	0,27	0,27
Histidine	0,52	0,57	0,44	0,77	0,77
Arginine	1,40	1,28	1,40	1,30	1,22
Alanine	1,35	1,24	1,32	1,36	1,21
Serin	0,945	0,86	0,86	0,90	0,73
Glutaminic acid	3,35	3,12	3,71	3,60	3,39
Aspartic acid	2,20	1,83	2,10	2,3	1,90
Proline	1,08	0,96	0,91	0,66	0,53
Glycine	1,37	1,35	1,31	0,88	0,86

Table 3: Fatty acid composition of the species of meat

Fatty acid	Content,% of the amount of fatty acid in the meat					Mature human milk (reference)
	Ostrich meat	Meat broiler chickens	Meat of rabbit	Turkey	Beef	
Linoleic	10,45	16,33	21,52	28,10	2,50	10,85
Linolenic	0,48	1,18	2,88	1,40	0,87	0,62
Arachidonic	2,34	0,49	0,32	1,90	0,13	0,95
∑ Saturated fatty acid	46,41	32,53	38,72	34,60	44,5	41,78
∑ Monounsaturated fatty acid	39,81	50,91	34,88	34,40	46,4	43,03
∑ Poliunsaturated fatty acid	13,77	18,39	24,72	31,40	3,5	12,42

Table 4: The content of micronutrients in different types of meat

Micronutrients	Content, mg / 100 g of meat					
	Ostrich meat	Meat broiler chickens	Turkey	Veal	Beef	Pork
B_1	0,55	0,09	0,05	0,16	0,10	0,84
B_2	0,48	0,15	0,22	0,25	0,20	0,20
PP	2,97	6,1	7,8	6,00	5,40	3,90
B_5	1,1	0,79	0,65	1,0	0,6	0,7
B_6	0,53	0,51	0,33	0,4	0,42	0,5
B_9, mcg	5,5	3,3	9,6	6,0	9,6	6,1
B_{12}, mcg	0,65	0,42	-	2,1	3,0	1,1
Na	55	88	86,0	108	73,0	64,8
K	320	325	285	345	355	316
Ca	10	9,00	18,8	12,5	10,2	8,00
Mg	17,0	28,0	23,0	23,7	22,0	27,0
P	249	200	227	206	188	170
Fe	4,4	1,20	1,40	2,92	2,90	1,94
Cu	0,2	0,07	0,09	0,23	0,18	0,10
Zn	2,4	2,13	2,45	3,17	3.24	2,07
Mn	0,031	0,01	0,01	0,03	0,03	0,03
Cr	0,025	0,008	0,01	-	0,008	0,01
Se	0,024	0,014-0,22	-	-	0,01-0,35	-

Analyzing the data in Table 2 may be mentioned high content of essential amino acids in the ostrich meat. According to the content of leucine, threonine, lysine, methionine, isoleucine, valine, cystine, alanine,

glutamic acid, which are involved in the formation of the organoleptic properties of the meat products, ostrich meat is not inferior to the traditional high-quality meat raw material.

The linoleic acid content in meat ostrich approaching etalon. According to the content of arachidonic acid is very important for a person, ostrich meat is superior to the etalon several times. Arachidonic acid is scarce for athletes because high demand for it as compared with the rate of consumption.

For a more complete characterization of the biological value of different kinds of meat studied the content of water-soluble vitamins and mineral elements (Table 4).

In analyzing the data in this table may be mentioned relatively high content of thiamine and riboflavin, iron, copper and chromium in the ostrich meat.

Table 5: The contents of extractive substances in meat traditional types of farm animals and ostrich meat

Extractive substance	Content, mg / 100 g of meat	
	Traditional types of meat	Ostrich meat
Carnosine	200-300	192
Anserin	90-150	21,2
Carnitine	20-50	35,4
Creatine	200-550	432
Taurine	30-150	120

As shown in table 5 the content of carnosine, carnitine and creatine ostrich meat is comparable to the meat of domestic animals. The use of creatine helps athletes maintain a high level of energy reserves in the muscles, increases stamina [5].

To improve the nutritional and biological value specialized products offered to use ingredients that improve endurance, restore health, and improve metabolism:

- **Succinic acid**, improves cellular respiration, which provides the body with energy, relieves pain in the muscles, the body adapts to physical activity. Sources produce succinic acid are beets, turnips, not ripe berries;
- **Ginger** reduces inflammation and pain in the muscles during physical education and sports, without the negative side effects;
- **Selenomethionine**, which suppresses the activity of various radicals which significantly inhibit muscle growth by damaging the muscle cells;
- **L-carnitine** promotes the accelerated oxidation of lipids and release of the body more energy.

CONCLUSION

Thus, the use of an ostrich meat with addition of the proposed complex biologically active substances will create a meat product, able to provide the body's need of essential ingredients when subjected to increased physical activity.

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