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Equal nutritional characteristics of ostrich meat with domestic meat

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Abstract.

This article studies the ostrich in the Urals, food prices. It is shown that egg and meat of black African ostriches cultivate in the soil and climatic conditions of the central non-chernozem zone of the Russian Federation is characterized by high nutritional, including biological value, low calorie content and can be recommended for use in the technology of functional foods. Ostrich eggs contain a small amount of cholesterol and fat, rich in protein, therefore, are considered a dietary product. They contain protein, calcium, potassium, phosphorus, vitamins A, E, carotenoids, essential amino acids [2, 8]. African ostrich meat in terms of protein content is not inferior to traditional types of raw materials. It contains little intramuscular fat, as a result of which it has a low energy value. The chemical composition of African ostrich meat is not inferior, and in a number of indicators surpasses the high-quality raw meat, traditional for our country. Use of eggs, meat African ostrich food especially favored but for the prevention of human cardiovascular diseases. Ostrich breeding remains for the Russian Federation an exotic type of poultry farming. In the Urals, the breeding of ostriches did not become commercial farmer called the most probable cause - high costs of poultry, which are not allowed to reach the level of profitability. Farms in which they are engaged in the breeding of this bird act separately. Notwithstanding the foregoing, the ostrich belongs to those animals, the breeding of which on an industrial scale allows to obtain an almost waste-free result. Therefore, currently operating farms in the Urals are working to attract tourists. The undoubted advantages of ostrich farming allow us to hope for the emergence of large industrial farms for breeding ostriches in the Urals in the future.

Key words: Ostrich meat, organoleptic characteristics of ostrich meat, the nutritional value.

INTRODUCTION.

Food for humans is a source of nutrients and energy, a means of supporting life, as well as a major factor in the normal functioning of the body. For the nutritional security of all organs and systems, the daily human diet should include meat or meat-containing products, which are the main sources of animal proteins, iron, zinc, and vitamins of group B. Meat and meat products occupy a significant share in the consumer basket of the population and are one of the largest sectors food market of Russia [5, 7].

The content of vitamins and mineral elements in ostrich meat is not inferior to high-quality beef, veal, pork, poultry meat [1, 9].

In the modern market of raw meat a considerable proportion of non-traditional meat (horses, camels, buffaloes, etc.) and wild animals, including exotic species (ostriches, roe deer and others). Russian farmer ostrich farming is a relatively young branch of agriculture. Currently, there are more than 250 farms in the Russian Federation. The total livestock of ostriches is more than 4,200 heads, the population of birds is black African ostriches, fully adapted for breeding at home [6].

Certain interest is the cultivation of ostriches in fairly harsh conditions, for example, in the Urals region.

In the diet of the ostrich, cereals, such as oats, wheat, barley, and maize, which are rather accessible in the Ural region, are additionally present and include bran, bone and meat and bone meal, and coarse feed, which includes hay or grass.

The purpose of the work was to study the quality and safety indicators of African-Russian ostrich meat produced in the Urals region.

MATERIALS AND METHODS.

Information obtained from open sources: annual statistical reports of the Ministry of Agriculture of the Russian Federation, Food and Agriculture Organization of the United Nations (Foodand Agriculture Organization, FAO).

Studies were carried out in the scientific laboratory of the university. Mass fraction of moisture, protein, fat, ash, concentration of hydrogen ions, organoleptic and microscopic indicators of freshness, volatile fatty acids, microbiological indicators of safety were determined by standard methods according to the relevant state standards. The energy value of the meat was determined by the calculation method.

Digital material was processed by the method of variation statistics using Student's criterion using the Microsoft Excel.

RESULTS AND DISCUSSION.

Ostrich breeding remains for the Russian Federation an exotic type of poultry farming. His followers argue that industrial breeding of ostriches in Russia is a feasible task, but requires consistency and attention from the farmer.

Ostrich breeding requires large capital investments at the initial stage and a relatively long return period.

For create farm, including a full cycle of cultivation of ostriches, loudspeakers - eggs - chicken-killer stud meat, the farmer must buy loudspeaker s feed, incubators, facilities, paddocks.

The energy value of ostrich eggs is 118 kcal. One ostrich egg equals 25–40 chicken and weighs from 450 to 2000 grams. The average weight of one is 1000-1400 g., In diameter – 15 cm, in length – 18 cm. All ostrich eggs are sent for incubation, they have a high commercial value. In cooking, table, unfertilized eggs, which are obtained from young females, are most often used. [4, 10].

Ostrich eggs contain a small amount of cholesterol and fat, rich in protein, therefore, are considered a dietary product. In their composition there is protein, calcium, potassium, phosphorus, vitamins A, E, carotenoids, essential amino acids. They help strengthen the immune system and bone tissue, improve brain function [3].

The content of the initial moisture in the eggs of the African ostrich is close to that of the hens raw protein is slightly less - on average, 7,69 versus 10,5% in protein, and 15,17 in yolk versus 17,4 %. At the same time, sodium and calcium in the yolk of ostrich eggs are less.

Organoleptic characteristics of ostrich meat are presented in the table 2.

The organoleptic analysis has established that fresh meat has a dark red color on the surface, on the section is cherry, of a dense consistency, not caused by microbial seeding and stickiness.

The broth obtained after cooking meat remained clear, with a small amount of small fat droplets. In terms of flavor and taste,

ostrich meat, past culinary processing, during tasting, is associated with lean beef.

In his works Kuzmichev V.Yu. and Kolodziej V.S. (2008) have established found that the muscles of femur and tibia ostrich having a basic commercial value obtained immediately after slaughter, grown on the farm, "Russian ostrich", the chemical composition of the product (moisture content, protein, fat and ash), conducted according to the established with the relevant standards, the methods correspond to their content in poultry meat . The results of the study in comparison with the chemical composition of traditional types of raw meat, having a high nutritional value, are presented in table 3 [8, 11].

The table shows that the meat of the African ostrich in protein content is not inferior to traditional types of raw materials. It contains little intramuscular fat, as a result of which it has a low energy value. The content in ostrich meat cholesterol is of particular interest. A number of scientific publications indicate its low content - from 30.4 to 37.8 mg / 100g (according to other sources - from 49 to 65 mg / 100g of meat).

The use of ostrich meat manifests many therapeutic and prophylactic effects, including a decrease in the level of cholesterol in the blood, which, for example, leads to a decrease in the risk of cardiac diseases and metabolic disorders leading to the development of diabetes. The use of meat raw materials with a low fat content and cholesterol to obtain products of deep processing is of great practical importance [2, 4].

However, as practice has shown, ostrich farming in the Urals has not become so industrial. Farms in which they are engaged in the breeding of this bird act separately. This is confirmed by the fact that accurate data on the number of ostriches in the Urals region have not been found.

It is known that the first entrepreneur who brought ostriches to the Urals region was Nikolai Mullanurov from Krasnoufimsk, who bought 11 birds in Holland [6].

On existing farms, the population of ostriches ranges from one family to 50. Many farms that were opened in the early 2000s have now been closed. The reason for closing can be considered the fact that the exit to the level of profitability is observed 5–7 years after the farm starts working and at least 42 heads are bred, which make up 14 ostrich families. Delivery of birds should be carried out from countries where there is a high-quality breeding herd. These countries include Poland and Sweden. Birds are usually imported from different farms. Accordingly, the creation of a living asset from a mature bird requires at least five years. This state is not conducive to the development of the industry. The number of ostrich farms in general is not large.

Ostrich farms operate and expand in the Urals. The largest in the Ural region is the farm "Straus Park", which contains more than 50 heads, located in the Perm region. On the territory of the Chelyabinsk region in the Sosnovsky district there is an ostrich ranch farm, in which 20 heads This farm is focused on selling ostrich meat and eggs, as well as on excursions.

It should be noted another ostrich farm in the Southern Urals - "Valley of Ostriches", which specializes in breeding black African ostriches. The farm also, in addition to eggs, ostrich meat and ostrich, offers a guided tour.

For breeding ostriches specialize such farms as "Irbit ostrich" (Sverdlovsk region), "Roshchino" (personal subsidiary farm from Kurgan region) and "Ural ostrich" (Perm region) and some others.

However, Ural farmers failed to build a business on exotic birds. The number of ostriches is steadily declining. Thus, according to the data of the Sverdlovskstat, in 2006 there were 65 birds in the region, and by 2017 their number had decreased to 13 [6].

The reason for the refusal of breeding ostriches farmers call the high costs of maintaining poultry, which did not allow to reach the level of profitability. Thus, the feed for one bird per month takes 6–7 thousand rubles. At the same time, ostrich egg production in the conditions of the Ural region turned out to be lower than expected.

In addition, the obstacle was the fact that farmers could not debug the mechanism of marketing and promotion of the finished product. Consumer preferences of the population do not include the use of expensive and unusual ostrich meat.

Despite all this, the ostrich belongs to those animals, the breeding of which on an industrial scale makes it possible to get a practically waste-free result. Industry uses meat, eggs, fat, feathers, claws. The skin has high strength (stronger than crocodile skin) and water permeability. Products from it are soft, comfortable and aesthetic. Even ostrich eyelashes are used to make artistic brushes and false eyelashes [7].

The problem is the high cost of products. The price of the final product is determined by the high cost of breeding material, since Ostrich is not a small fowl. Therefore, the farmer is not possible to increase the livestock to 5–6 thousand.

Table 1 - Characteristics of the chemical composition of eggs

Indicator, %	African ostrich						Chickens	
	protein			yolk			protein	yolk
		min	max		min	max		
Initial moisture	89,20	88,94	89,47	47,94	45,55	52,88	88,50	47,50
Raw protein in dry matter	71,20	70,75	71,69	29,16	28,0	29,00	-	-
Lipids in dry matter	-	-	-	58,20	56,47	59,46	-	-
Ash in the dry matter	6,002	5,80	6,38	3,57	340	3,76	-	-
Sodium	2,64	2,45	3,03	0,24	0,13	0,37	1,40	0,55
Calcium	0,268	0,21	0,29	1,068	0,91	124	0,13	1,35

Table 2 - Organoleptic indicators of ostrich meat

Indicator	Fresh
Surface color	Dark red
Smell	Characteristic for this meat
Consistency	Elastic
Microscopic. freshness analysis	In sight up to 10 yeast cells
QMAFAnM , CFU / g	4.1×10^3
Salmonella in 25 g	Not detected

Table 3 - The nutritional value of poultry meat

Type of raw material	Content%				Cholesterol, mg / 100 meat	Ener. Value, Kcal / J
	Moisture	Protein	Fat	Ash		
Meat afr. str mustache *	76.1 *	21, 4 *	1.8 *	1.1 *	48.5	-
Turkey meat	74.1	21.6	2.1	1.1	70	110/461
Chicken meat	74.2	21.2	2.9	0.9	60	111/465
Veal meat	77.5	20.4	0.9	1.1	80	90/377
Beef meat	73.7	21.0	4.2	1.0	70	121/507

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CONCLUSION.

Research has established that the meat of black African ostriches bred in the soil and climatic conditions of the Southern Urals is characterized by high nutritional value, low calorie content and can be recommended for use in the technology of functional foods. The chemical composition of African ostrich meat is not inferior, and in a number of indicators surpasses the high-quality raw meat, traditional for our country. Use of eggs, meat African ostrich food especially favored but for the prevention of human cardiovascular diseases.

However, currently operating farms in the Urals are working mainly to attract tourists. When visiting farms, visitors are invited to take pictures with birds, purchase feathers and eggs. At the same time, the undoubted merits of ostrich farming allow us to hope for the emergence of large industrial farms in the Urals in the Urals in the future.

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