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COMPARISON OF FATTY ACID CONTENT OF ORGANIC AND TRADITIONALLY GROWN BROILER CHICKENS

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Abstract. The article presents the results of a study on the fatty acid content of broiler chickens meat purchased from the retail network and broiler chickens grown under organic conditions. Samples were compared in terms of their nutritional value and quality. Meat of broiler chickens enters the retail chain from farms with a traditional (intensive) grow technology. In contrast, organic poultry farming is extensive. To conduct the experiment in organic conditions, 2 poultry groups were formed (control and experiment). In the experimental group, broiler chickens received a postbiotic preventive drug with organic feed. For an in-depth study of the mechanisms of its effect on the body of chickens and the quality of the products obtained, the changes in the fatty acid composition of total lipids in skeletal muscle and the biochemical composition of the muscle tissue of chickens were investigated. There were no significant changes in the fatty acid content of the meat compared to the control group of the poultry. The content of palmitooleic, linoleic and caprylic acids is slightly increased. At the same time, comparing broiler chickens meat of intensive grow with organic chickens meat, a significantly lower fat content in organic chickens meat, both experimental and control group, was observed, which is positive for the dietary properties of such meat. An increased content of omega-3 fatty acids in organic broiler chickens and an optimal ratio of omega 3 to omega 6 fatty acids have been established. Organic chicken meat contains less fat by 3–5% compared to chicken meat from the retail network. The amount of saturated fatty acids in the meat of chickens grown using organic technology is significantly increased by 11.13%, there is a significant decrease in omega-6 fatty acids by 7.57% and an increase in the amount of omega-3 fatty acids by 0.8% compared to the meat of chickens from the retail network. Therefore, the value of organic chicken meat lies not only in the absence of residues of antibiotic substances, pesticides and herbicides, but also in its biological value and dietary properties.

Key words: broiler chickens, fatty acids, organic poultry farming.

Introduction. Formulation of the problem

Organic products market in Ukraine is developing in parallel with the production of products with intensive technologies. Organic products have a number of competitive advantages, as human health depends on the clean environment, lifestyle, and quality nutrition. Factors of environmental pollution, the presence of GMOs, pesticides, herbicides in animal feed, as well as the use in livestock of antibiotics, growth promoters, enzymes lead to the production of poor quality food.

Today, more and more consumers are emerging in the world, who prefer organic products, safer, more natural, with simple composition and minimal processing. High calorie is no longer a priority and even vice versa, dietary meat is preferred.

Nutritionists also advise that, for health reasons, they should eat fresh seasonal produce, mainly locally sourced (from regions close to their place of residence) and, as opposed to fast food, come slow food. This attitude is consistent with the lifestyle of modern man and is successfully implemented in developed countries. According to the Office for Disease

Prevention and Health Promotion, today in the United States, 94% of consumers are consciously purchasing products only from companies that declare the use of safe technologies [1]. There are also quite a few consumers who have given up eating meat (vegetarians, vegans). However, for the harmonious growth and development of humans, especially children, namely, building muscle proteins of one's body requires essential amino acids and fatty acids (saturated and unsaturated) from animal meat. Their lack can cause metabolic disorders and its undesirable effects.

Analysis of recent research and publications

Poultry meat has high biological value, is nutritious, easily digested and contains essential amino acids in the required ratio. However, the nutritional value of poultry meat is not limited to its nutritional value and protein content. Important indicators are also the amount of fat and the ratio of individual fatty acids. The main lipids of poultry meat are triglycerides, phospholipids and cholesterol. Their ratio depends on the species of the bird and the anatomical origin of the meat. The lipids of poultry meat, unlike the lipids of meat of other farm animals, are rich in essential fatty acids – linoleic, linolenic and arachidonic, with an average of 22% by weight of all fats. With the age of the bird the content of essential fatty acids decreases, so the fat of young farm poultry is more biologically valuable than the fat of adults. Poultry meat contains some minerals (phosphorus, calcium, iron), as well as vitamins (groups E and B) [2,3].

The chemical composition of fats is important for characterizing the nutritional value of a particular product. The chemical structure of edible fats is represented by a mixture of triglycerides. The ratio of fatty acids is one of the indicators of the biological and nutritional value of fats. In the human body, food has two functions: nonspecific - as a source of energy, and specific – as a source of essential fatty acids, fat-soluble vitamins, a material for biosynthesis and body fat building. This balanced diet is realized when you include in the diet 1/3 vegetable and 2/3 animal fats. It is generally accepted that the fat component of a daily diet should provide no more than 30% of energy requirements, including in equal quantities separate fractions of fatty acids, ie SFAs:PUFAs:MUFAs = 1:1:1 [4-6].

For organic poultry farming, there are a number of restrictions on feed ingredients, including GMO ingredients, synthetic ingredients (amino acids, premixes), meat and bone meal, non-certified organic ingredients, and more. In addition, the flow of physiological and biochemical processes in the body of birds is also affected by the conditions of confinement. All this certainly affects the quality of the meat and its composition, in particular the fatty acid ratio [7,8]. Dalziel, C. J. et al (2015) showed a significant difference in the fat content of meat, which was lower in organic chickens, and in particular with higher cis-monounsaturated fatty acids [9].

Particularly noteworthy is the content and ratio in lipids of fatty acids of the omega-3, omega-6, omega-9, which are part of the triacylglycerols. These fatty acids have the highest biological value, since without them complete regeneration of cells is impossible [8].

Features of metabolism of linoleic and linolenic acids, differences in their biological effects served as the basis for the separation of two families of essential fatty acids: the family of linoleic acid or omega 6 and the family of linolenic acid or omega 3 [9].

The main polyunsaturated acids of the omega-3 family are α-linolenic acid (C18: 3), eicosopentaenoic acid (C20:5), docozohexaenoic acid (C22:6); omega-6 families: linoleic (C18:2), gammalinolenic (C18:3). Both of these groups of fatty acids are essential, that is, they are not synthesized in the body and must necessarily come from the outside with nutrients. The omega-9 family is oleic acid (C18:1); arachidic acid (C20:1); erucic acid (C22:1); nervonic acid (C24:1). The group of unsaturated omega-9 fatty acids has not been sufficiently studied, although it is quite common in nature. The oleic acid (C18:1) is the most important among them, which reduces the level of unwanted cholesterol in the body's tissues. Oleic acid is not essential, it can be formed in the body from stearic acid [4]. Omega-9 fatty acids are easier to digest than omega-6 and 3, although the latter are considered more important. Attention to polyunsaturated fatty acids has increased since their role in cholesterol metabolism, their effect on the skin and in the prevention of atherosclerosis [10].

The high proportion of ω-3 acids in the product contributes to the prevention of a number of diseases, including cancer. Saturated fatty acids lauric (C12:0), myristic (C14:0) and palmitic (C16: 0) increase the concentration of LDL (low density) cholesterol [11].

The most important essential fatty acid of the ω-6 family is linoleic (C18: 2), which is part of cell membranes, is involved in the metabolism and synthesis of prostaglandins, required for cell growth and regeneration (daily requirement is 7 g). From linoleic acid by desaturation, gamma-linolenic acid (C18:3) is formed in the body, it is also necessary for the synthesis of prostaglandins. Arachidonic acid is synthesized in the body by elongation (increase in chain length) and desaturation of gamma-linolenic acid (C20:4). Arachidonic acid is an essential component of cell membranes and phospholipids, playing a significant role in the course of inflammatory processes and immune responses. The presence of arachidonic acid in excess can increase the risk of atherosclerosis and inflammatory processes in the joints of people with rheumatism [12].

Therefore, improving the nutritional value and safety of chicken meat is a priority issue for production, as consumers prefer natural and organic food in the face of significant man-made pollution.

The research purpose: to investigate the effect of different broiler chickens on the biochemical and fatty acid composition of their meat.

The following **tasks** are solved in the article:

– to study the qualitative and quantitative changes in the fatty acid content of broiler chickens using conventional (intensive) technology for growing and organic farming;
– to investigate the biochemical composition of broiler meat for different types of cultivation.

Research materials and methods

The experiment was conducted on broiler chickens of Cobb-500 (Cobb-500) meat direction of productivity at the experimental site in the conditions of certified organic production of FG "Dacha" with. Elizabeth, Korostyshiv district, Zhytomyr region. According to the principle of analogues from the daily chicks, two groups were formed, with 50 heads each. Keeping chickens was free-walking (up to 1 month old – outdoor), access to feed and water was free. The birds were fed compound feed made from organic ingredients. The temperature and light modes in the first month of keeping the bird meet the recommended standards. After the chickens were transferred to the pasture, the indoor climate was not normalized. In addition to the ventilation system and weekly litter replacement).

The first room contained control chickens fed a diet based on organic components without additives. In the second chicken received organic feed treated with an aerosol of the first developed postbiotic (a solution of a mixture of 4% lactic acid and Nizin bacteriocins) in the amount of 0.05 g/kg feed.

Meat quality assessment was carried out after the planned slaughter for 81 days (the minimum allowed period for growing chickens according to organic standards). 3 carcasses of broiler chickens were selected for the study.

In order to compare the quality and nutritional and biological value of the meat, a survey of fresh chicken meat from the supermarket was conducted. Samples of carcasses (3 pcs.) Were taken as soon as they were received at the supermarket.

Meat studies were performed at the Ukrainian Laboratory of Quality and Safety of Agricultural Products NULES of Ukraine, which is accredited according to DSTU ISO / IEC 17025: 2006.

The muscle of broiler chickens was separated from the bones, from the breast and thighs (without skin). A homogenization sample was obtained from each carcass. Total received 6 meat samples.

In order to assess the quality of broiler chickens grown in compliance with the requirements of organic law, the following physical and chemical studies were carried out: moisture content (DSTU ISO 1442: 2005); mass fraction of fat (DSTU ISO 1443: 2005); mass fraction of protein (GOST 25011-81).

Lipid extraction from chick muscles was performed using the Folch method (Folch, 1957) [13]. Hydrolysis and methylation of lipid fatty acids obtained from the test samples were performed according to DSTU ISO 5509-2002. LC methyl esters were analyzed on a Trace GC Ultra (USA) gas chromatograph with a flame ionization detector according to DSTU ISO 5508-2002. The identification of fatty acids was performed using a standard Supelco 37 Component FAME Mix sample. Quantitative assessment of the spectrum of fatty acids was carried out by the method of internal normalization, determining their content in percentage. The studies were performed in 3 parallels.

Statistical processing of experimental data was performed by conventional methods of variational statistics. The likelihood of a difference in scores was estimated by Student's t-test. The differences between the compared indicators were considered significant at the significance level $P \le 0.05$ [14].

Results of the research and their discussion

Analysis of the results of experimental broiler chickens carcasses' anatomical analysis showed that in their body under the influence of prophylactic postbiotic, in addition to quantitative changes that appeared in the increase in live weight, there were also qualitative changes. Chickens of the experimental groups in such indicators as pre-slaughter mass, mass of unkempt, semi-pat and carcass of the carcass, were significantly superior to the control ones. Indicators such as carcass categories by fattening and physiological maturity, meatiness index - were not investigated, due to the fact that the bird did not reach the slaughter weight at the end of the experiment. Instead, the chemical composition, bioavailability and fatty acid content of the meat were determined.

Since the breeding cycle of broiler chickens, in the traditional intensive way is 42 days, so the meat obtained from chickens is immature. Despite this, broiler chickens cannot be called dietary because it can contain 5–10% fat in addition to high protein content.

According to the data obtained (Table 1), the content of moisture in organic chickens was 3.01–5.62% lower than that of traditional (conventional) chicks. The 3.01% difference in moisture content between the experimental and control groups can be explained by the increased amount of protein and fat in the chicken meat of the experimental group. Chicks in this group also had a higher slaughter mass.

Protein content was not significantly different in all study groups, but in organic chicken meat it was higher by 0.9% compared with intensive cultivation technology chicken meat.

Table 1 – Biochemical composition of broiler meat of different types of breeding, % M±m; n=3

Indicators	Conventional (intensive)	Organic breeding control	Organic breeding experiment
Humidity	71.18±0.11	76.8±0.21	73.79±0.39
Protein	20.11±0.06	21.01±0.17	21.72±0.23
Lipids	5.60±1.64	1.04±0.05	2.01±0.21

Fat content was significantly higher by 4.56% in meat of intensive-growing chickens (from the retail network) compared to organic-grown chickens (experiment). This pattern can be explained by the fact that traditional poultry farming uses an intensive fattening system in which the bird rapidly builds muscle tissue. However, excess nutrients lead to the formation of fat. The fat content of the test and control chicken meat varied by 0.97%. Therefore, optimal fat content in dietary chicken meat was recorded in the experimental group of organic chicks. The positive influence of the postbiotics developed by us was manifested in the fact that, according to visual observations, the chickens of the experimental group were physiologically developed and fattened, and they had a higher slaughter mass than the control ones. In addition, the diet for intensive broiler chickens contains a variety of technological additives (premixes, antibiotics, synthetic amino acids, etc.), which contribute to the imbalance in the exchange of physiological processes.

Due to the peculiarities of the fatty acid composition, the lipids of poultry meat have a low melting point and are therefore easily emulsified in the human digestive tract and are well absorbed. High fat gas chromatography revealed and quantified 20 fatty acids in the muscles of broiler chickens: caprylic (C8: 0), capric (C10: 0), lauric (C12: 0), myristic (C14: 0), pentadecanoic (C15:0), palmitic (C16: 0), palmito-oleic (C16:1), margarine (C17: 0), stearic (C18:0), oleic (C18: 1n9c), linoleic (C18: 2n6c), arachidic (C20: 0), linolenic (C18: 3n3), eicosamonoen (C20:1n9), eicosatriene (C20:3n6), eicosatetraene (C20: 4n6), nervonic (C24: 1), eicosapentaenoic (C20: 5n3), docosapentaenoic (C22: 5n3), docosahexaenoic (C22: 6n3) (Table 2).

The fatty acid composition of the total lipids of the broiler chickens is characterized by a high content of unsaturated fatty acids (NLCs) as monoic (palmitooleic (C16:1) and oleic (C18: 1ω9)) and polyene (linoleic (C18: 2ω6) and linoleic (C18: 2ω6)). Linolenic (C18:3ω3), arachidonic (C20: 4ω6) and docosahexaenoic (C22: 6ω3)) acids (Table 2). In the general lipids of skeletal muscle of broiler chickens in the experimental group fed organic feed with the addition of postbiotic compared with the control group revealed a significant increase in the content of capric (0.05%), palmitoleic (0.51%) and linoleic acids. Feeding the broiler chickens with a preventive drug postbiotic leads to a slight increase in the total content of saturated PUFAs according to the control group (Table 2).

Table 2 – Fatty acid content (%) in broiler chickens of organic breeding, M±m; n=3

No	Fatty acids	Chicken meat of the experimental group (postbiotic)	Chicken meat of the control group	Organic chicken meat	Chicken meat from the retail network
1	C8: 0 (caprylic)	0.05±0.01	0.04±0.01	0.04±0.01	0.03±0.01
2	C10: 0 (capric)	0.24±0.02**	0.19±0.01	0.23±0.03**↑	0.06±0.01
3	C12: 0 (lauric)	0.06±0.01	0.06±0.01	0.07±0.03	0.10±0.01
4	C14: 0 (myristic)	0.63±0.02	0.60±0.01	0.56±0.07**↑	0.43±0.01
5	C15: 0 (pentadecanoic)	0.12±0.01	0.11±0.01	0.10±0.01	0.07±0.03
6	C16: 0 (palmitic)	25.22±0.09	26.10±0.07	24.92±1.25*↑	21.25±0.45
7	C16: 1 (palmitooleic)	2.95±0.03*	2.44±0.05	2.38±0.42*↑	1.34±0.03
8	C17: 0 (margarine)	0.07±0.01	0.06±0.01	0.06±0.02**↓	0.32±0.01
9	C18: 0 (stearic)	11.54±0.07	12.34±0.06	12.53±1.34*↑	5.10±0.20
10	C18: 1n9c (oleic)	31.85±0.07	32.36±0.07	31.26±2.70*↓	36.65±0.31
11	C18: 2n6c (linoleic) ω	22.94±0.06*	21.35±0.11	23.30±2.69*↓	33.09±0.42
12	C20: 0 (arachidic)	0.11±0.01	0.11±0.01	0.09±0.02	0.11±0.01
13	C18: 3n3 (linolenic)	0.08±0.01	0.07±0.01	0.07±0.01**↓	0.23±0.01
14	C20: 1n9 (eicosamonoene)	0.32±0.02	0.34±0.02	0.31±0.03**↓	0.39±0.08
15	C20: 3n6 (eicosatriene)	0.16±0.01	0.14±0.01	0.15±0.03	0.19±0.01
16	C20: 4n6 (eicosatetraene)	2.31±0.01	2.31±0.02	2.58±0.32*↑	0.32±0.01
17	C20: 5n3 (eicosapentaenoic)	0.22±0.01	0.19±0.01	0.21±0.02**↑	0.12±0.01
18	C24: 1 (nervonic)	0.14±0.01	0.16±0.01	0.12±0.02*	0.05±0.01
19	C22: 5n3 (docosapentaenoic)	0.42±0.01	0.42±0.01	0.43±0.03**↑	0.09±0.01
20	C22: 6n3 (docosahexaenoic)	0.62±0.01	0.66±0.01	0.59±0.06**↑	0.06±0.01

** – $P < 0.05$; ** – $P < 0.005$* respectively to the control group data

The physiological role of polyunsaturated fatty acids (PUFAs) in humans is that, as a structural component of cell membranes, they are involved in the implementation of many biochemical reactions. Therefore, providing sufficient intake of PUFAs with food, it is possible to successfully and purposefully correct most of the biochemical processes occurring in the human body. Unfortunately, there are currently no clearly established levels of consumption of omega-3 and omega-6 fatty acids. However, some medical studies have confirmed that excessive consumption of omega-6 fatty acids with respect to omega-3 acids may increase the risk of a number of diseases [15].

The diet of modern humans includes large amounts of omega-6s and insufficient amounts of omega-3s. The average ratio of omega-6 to omega-3 15:1 – 20:1 – that is, five times less than omega-3 fatty acids, which causes imbalance in metabolic processes, and can lead to diseases. The best ratio is 1-10:1. To solve this problem it is necessary to increase the proportion of omega-3s in relation to omega-6s in your diet by taking omega-3-rich foods [10].

By evaluating the final product (meat) by the above indicators, they found a difference in the content and ratio of omega 3 / omega 6 unsaturated fatty acids. In the meat of organic chickens, this ratio was better because omega 3 content was higher and omega 6 content was lower. That is, the exchange processes are more balanced. Although the ratio of 20.02: 1 (omega-3 / omega-6) is not ideal, however, for poultry meat that received neither fish products nor artificial sources of omega 3, the presence of Σω3 in the amount of 1.30% is a positive result. For comparison, in traditional broiler chickens, this figure was 0.50%. It should also be borne in mind that chickens for 81 days did not reach the slaughter weight, and therefore, for a longer growing period, an even better result is possible. Which has been proven in the following experiments on organic poultry.

The data in Table 2 indicate the enhanced conversion of linoleic acid into more saturated fatty acids in skeletal muscle of broiler chickens due to the effects of biologically active factors, in particular motions, present in organic poultry farming with compliance with welfare principles.

Analyzing the content of palmitic acid, it increased by 4.85% in organically grown broiler chickens compared to traditionally grown chickens (Fig. 1).

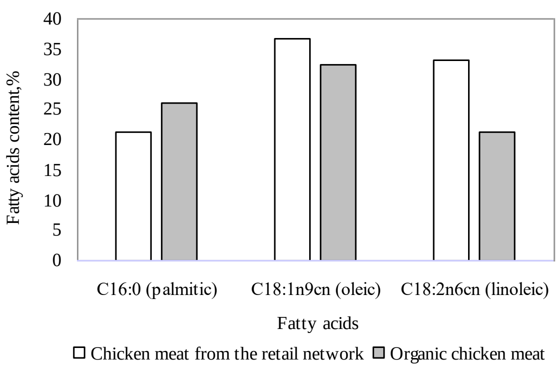

Fig. 1. Comparison of the most important fatty acids content in chicken meat

The content of oleic acid in the meat of organically grown broiler chickens, on the contrary, decreases by 4.31% compared to traditionally grown ones. Linoleic acid content also tended to reduce organically grown broiler chickens by 11.74%, compared to traditionally grown broiler chickens.

However, the fatty acid composition of the meat lipids of industrial broiler chickens differs from the similar rate of organic chickens with lower levels of saturated and higher unsaturated fatty acids. However, the polyunsaturated fatty acids of omega-6 and omega-3 in the meat of chickens of traditional cultivation are contained in an unsatisfactory ratio within 67:1. In organic chicken meat, this figure was 20:1 (Table 3).

Table 3 – Comparison of fatty acids content and their ratio in organic broiler chickens and traditional breeding chickens %, (n=3)

Fatty acids, %	Organic chicken meat	Retail network c hicken meat
Σ SFAs	38.60↑*	27.47
Σ UFAs	61.40↓*	72.53
Σ MUFA	34.07↓*	38.43
Σ PUFA	27.33↓**	33.78
Σ *ω3*	1.30↑*	0.50
Σ *ω6*	26.03↓*	33.60
Σ *ω9*	33.95↓**	38.38
SFas / UFas	0.63↑*	0.38
ω6/ω3	20.02	67.20

*$P < 0.05$; **$P < 0.005$ respectively to the chicken meat from the retail network

Traditional organic chicken meat has a significant decrease of 7.57% in omega-6 fatty acids and an increase of 0.8% in omega-3 fatty acids compared to retail chicken meat. The redistribution of fatty acids towards omega-3s can be explained by the gradual flow of nutrients into the body of birds during organic cultivation and the more balanced flow of plastic processes in tissues and organs. It may also be related to the positive effect of the motion and the higher oxygen saturation of the birds during the movement of the bird on open playgrounds.

Study of poultry meat fatty acid composition of organic poultry farming revealed a higher content of saturated fatty acids (Σ SFAs), while a slight decrease in the total content of unsaturated fatty acids (Σ UFAs) (Table 3). The amount of saturated fatty acids in the meat of chickens grown with organic technology is significantly increased by 11.13% compared to the meat of chickens from the retail network.

At the same time, the amount of unsaturated fatty acids significantly decreased by 11.13%, MUFA – by 4.36%, PUFA – by 6.45% compared to meat of chickens from retail trade.

The biological value of fat of broiler chickens obtained by organic production technology is characterized by high content of essential fatty acids (linoleic, linolenic, arachidonic), polyunsaturated fatty acids and increased content of omega-3 fatty acids.

Conclusion

There were no significant differences were observed compared to controls in the fatty acid composition of muscle tissue when added to the diet of broiler chickens postbiotic for the prevention of bacterial and mixed etiology. Because both groups of animals were kept to organic standards, the fat content of the meat was low and its fatty acid content was consistent with dietary meat. The skeletal muscle of broiler chickens fed organic feed with postbiotic supplementation showed a significant increase in capric content by 0.05%, palmitoleic by 0.51%, and linoleic acid by 1.59%, compared to the control group. Feeding broiler chickens with a preventive drug postbiotic leads to a slight increase in the total content of saturated PUFAs according to the control group. Organic chicken meat contains less fat by 3–5% compared to chicken meat from the retail network. In the meat of chickens grown by organic technology the amount of saturated fatty acids significantly increased by 11.13%, there is a significant decrease in omega-6 fatty acids by 7.57% and an increase in the amount of omega-3 fatty acids by 0.8% compared to chicken meat from the retail network. Therefore, the usefulness of organic chicken meat lies not only in the absence of residues of antibiotic substances, pesticides and herbicides, but also in its biological fullness and dietary properties.

Prospects for further research. In view of the results obtained, it is of interest to study the effect of postbiotic on the content of amino acids and vitamins in the muscles of broiler chickens grown organically.

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ПОРІВНЯННЯ ЖИРНОКИСЛОТНОГО СКЛАДУ М'ЯСА ОРГАНІЧНИХ ТА ТРАДИЦІЙНО ВИРОЩЕНИХ КУРЧАТ-БРОЙЛЕРІВ

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Анотація. У статті представлено результати дослідження жирнокислотного складу м'яса курчат-бройлерів, придбаного в роздрібній мережі, та м'яса курчат-бройлерів, що вирощені в умовах органічного господарства. Дослідні зразки порівнювали за показниками їхньої харчової цінності та якості. М'ясо курчат-бройлерів в роздрібну мережу надходить від господарств з традиційною (інтенсивною) технологічною картою. Напротивагу цьому, органічне вирощування птиці є екстенсивним. Для проведення досліду в умовах органічного господарства було сформовано 2 групи (контроль і дослід). У дослідній групі курчата-бройлери отримували з органічним кормом профілактичний препарат постбіотик. Для поглибленого вивчення механізмів його впливу на організм курчат та якість отриманої продукції, досліджували зміни жирнокислотного складу загальних ліпідів у скелетних м'язах та біохімічний склад м'язової тканини курчат. Значущих змін жирнокислотного складу м'яса, порівняно з контрольною групою птиці, не відзначено. Дещо збільшується вміст пальмітоолеїнової, лінолевої та каприлової кислот. Разом з тим, порівнюючи м'ясо курчат-бройлерів інтенсивного утримання з м'ясом органічних курчат, відмічено значно нижчий вміст жиру в м'ясі курчат органічного вирощування, як дослідної так і контрольної групи, що є позитивним щодо дієтичних властивостей такого м'яса. Встановлено підвищений вміст омега 3 жирних кислот у м'ясі органічних курчат-бройлерів та оптимальне співвідношення омега 3 до омега 6 жирних кислот. М'ясо органічних курчат містить меншу кількість жиру на 3–5% в порівнянні з м'ясом курчат отриманих з роздрібної мережі. У м'ясі курчат вирощених за органічною технологією сума насичених жирних кислот достовірно збільшується на 11.13%, спостерігається достовірне зменшення омега-6 жирних кислот на 7.57% та збільшення суми омега-3 жирних кислот на 0.8% порівняно з м'ясом курчат з роздрібної мережі. Отже, цінність м'яса органічних курчат полягає не лише у відсутності залишків антибіотичних речовин, пестицидів та гербіцидів, а ще й у його біологічній повноцінності та дієтичних властивостях.

Ключові слова: курчата-бройлери, жирні кислоти, органічне птахівництво.

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