UDC 637.5’65:615.2/.3

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CHEMICAL COMPOSITION OF MEAT OF CHICKENS-BROILERS AFTER APPLICATION OF SPECIMEN DANOXAN-50

The purpose. To determine chemical composition and calorie worth of meat of chickens-broilers after application of specimen danoxan-50 in pectoral muscles and muscles of a femur. **Methods.** Clinical, chromatographic, mathematical-and-statistical. **Results.** Reliable augmentation of indexes of weight fraction of dry matter (P<0,05), indexes of weight fraction of protein and moisture (P<0,05), trend to augmentation of indexes of weight fraction of fat and ash of pectoral muscles of test groups in comparison with analogous indexes of pectoral muscles of control groups of chickens-broilersis determined. **Conclusions.** The trend to decrease of value of indexes of weight fraction of dry matter and protein, to augmentation of value of indexes of weight fraction of fat and ash of muscles of a femur of test groups in comparison with analogous indexes of muscles of a femur of control groups of chickens-broilers is determined.

Key words: chemical composition, calorie worth, chickens-broilers, danoxan-50.

Intensive development of poultry farming necessitates the invention of new forms of medical care and drugs [1, 2]. We use antibiotics to which microorganisms become resistance widely [3, 4]..

Danoksan-50 is a new drug that belongs to a number of antibiotics Fluoroquinolones. Determination of chemical composition and calorie values of meat of broiler chickens after antibiotics - is a priority of scientists, doctors and manufacturers [5, 6].

The purpose of research - the purpose of our work was to determine the chemical composition and calorie values of meat of broiler chickens in pectoral muscles and hip muscles after use Danoksan-50**.**

Materials and methods of research. The study was conducted at the vivarium of the Research Department of "BIOTESTLAB", at the Ukrainian

laboratory of quality and safety of APC and at the National University of Life and Environmental Sciences of Ukraine.

Materials of research are broiler chickens meat (red and white muscle), laboratory scales, syringes with a volume 2 ml, ethanol 60-70%, table preparation, preparation scissors, packets with lock. Liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) method for the determination of essential and nonessential amino acids was established.

Broilers were divided into two groups (experimental and control), 30 fowl in the group of American cross "Cobb-500." Experimental group of broilers were drank the drug Danoksan-50 at a dose of 0,1 ml/kg body weight for 5 days. Control group of broilers were drank purified water. Broilers were scored 6 birds with each of 24, 48, 72, 96 and 120 hours after the last administration.

When working with animal we used "The European Convention for the Protection of vertebrate animals used for experimental and scientific purposes"

The overall chemical composition of meat (pectoral muscle and thigh muscle group) of broilers, including moisture content [7] fat [8] protein [9] determined by approved methods. Mass fraction of dry matter, ash and calorie meat determined by methods described Zhytenkom P. et al. [10].

Results. Chemical composition and caloric value meat broiler presented in Table 1.2.

Table 1.

Chemical composition and caloric value of white meat broiler (M±n; n=6)

Index	slaughter hour after the last use of the drug									
	24		48		72		96		120	
	experimental group	control group	experimental group	control group	experimental group	control group	experimental group	control group	experimental group	control group
moisture, %	73,51±3,27	75,33 ±2,71	74,99 ±5,32	75,34 ±3,95	73,94 ±3,97	75,55 ±4,39	73,00 ±2,73	74,47 ±7,33	74,48 ±1,94	74,59 ±6,12
fat, %	1,39 ±1,78	1,50± 1,98	0,84± 0,73	1,44± 0,57	1,44± 0,95	1,50± 1,07	1,13± 0,67	1,16± 1,12	1,64± 1,72	1,65± 0,23
ash, %	1,05 ±0,97	1,14± 1,25	0,37± 0,96	1,06± 0,42	1,04± 0,55	1,15± 1,11	1,00± 0,73	1,02± 0,43	1,09± 0,67	1,20± 0,34
protein**, %**	24,06±1,20	24,8± 8,52	23,39 ±2,31	23,88 ±7,43	24,06 ±5,29	24,39 ±4,97	24,06 ±10,5	24,42 ±12,7	24,06 ±8,28	24,6± 4,37
dry matter, %	26,49±2,69	24,67 ±9,21	25,01 ±3,52	24,66 ±8,59	26,06 ±4,71	24,45 ±8,09	27,00 ±9,09	25,53 ±4,49	25,52 ±3,06	25,41 ±9,23

We determined reduce of mass fraction of moisture, fat, ash, protein in the pectoral muscle of experimental groups broiler chickens compared with control groups and increased the mass fraction of dry matter.

So we found that the moisture in the pectoral muscles of poultry experimental groups decreased compared with the control groups at 24, 48, 72, 96 and 120 hours of slaughter to 2.42%, 0.47%, 2.13%, 1, 98% and 0.14% respectively.

The fat content in the pectoral muscles of broiler chickens of experimental groups compared with control at 24, 48, 72, 96 and 120 hours of slaughter decreased by 7.24%, 41.64%, 4.30%, 2.76% and 0.85% respectively.

The ash content reflects the mineral content of meat. We discovered decrease of the ash content in the pectoral muscles of broiler chickens of experimental group compared to control after 24 hours of slaughter - 7.69%, 48 hour face - 65.07%, 72 hours of slaughter - 9,57%, 96 hours of slaughter - 1.35% and up to 120 hours of slaughter - 8.94%.

We analysed of protein content in the pectoral muscles of broiler chickens and observed that decrease of protein content in experimental groups compared to controls was at 24, 48, 72, 96 and 120 hours of slaughter to 3,00%, 2,07%, 1,34%, 1,48% and 2,18% respectively.

We established that the mass fraction of dry matter in the pectoral muscles of broiler chickens of experimental group increased compared with control groups at 24, 48, 72, 96 and 120 hours of face to 7,38%, 1,42%, 6,58% 5,77% and 0,42% respectively.

Table 2

Chemical composition and caloric value of red meat broiler (M±n; n=6)

Index	slaughter hour after the last use of the drug									
	24		48		72		96		120	
	experimental group	control group	experimental group	control group	experimental group	control group	experimental group	control group	experimental group	control group
moisture, %	76,87±1,02	75,48±10,7	75,97±0,97	75,92±1,51	74,99±2,17	74,64±6,32	75,92±3,07	74,52±1,09	75,17±4,55	75,08±1,07
fat, %	3,38±2,18	3,55±4,67	3,40±3,11	3,43±1,32	3,66±1,98	3,94±1,78	3,33±3,12	3,44±2,11	4,03±3,13	4,03±1,12

ash, %	1,08 ±3,3 4	1,10± 7,36	1,01± 5,25	1,07± 0,97	1,03± 1,79	1,08± 0,55	1,09± 2,17	1,17± 3,13	1,19± 1,71	1,20± 0,23
protein**, %**	24,5 0±4, 50	24,47± 7,39	24,68 ±7,39	24,4± 8,14	24,42 ±1,60	24,34 ±3,37	24,99 ±1,22	24,62 ±4,15	24,12 ±0,29	24,1± 4,85
dry matter, %	23,1 3±5, 66	24,52± 13,42	24,03 ±9,53	24,08 ±9,35	25,01 ±1,41	25,36 ±2,39	24,08 ±3,27	25,48 ±5,17	24,83 ±1,13	24,92 ±6,31

We found an increase in moisture and decrease the mass fraction of solids in the muscles of the thigh of experimental groups compared with control at 24, 48, 72, 96 and 120 hours after slaughter..

Also reliably we detected decrease content of protein and increase the percentage of fat and ash of thigh muscle of control groups compared with the experimental.

The moisture content in experimental groups increased compared with control groups at 24, 48, 72, 96 and 120 hours of slaughter at 1.85%, 0.06%, 0.48%, 1.87% and 0.12% in accordance.

The protein in thigh muscles reliably increased in experimental groups of broilers compared to control groups at 24, 48, 72, 96 and 120 hours of slaughter by 0.14%, 1.13%, 0.36% 1.52% and 0.10% respectively.

Fat content and ash in the thigh muscle of broiler chickens research groups decreased compared with fat and ash in the control groups at 24, 48, 72, 96 and 120 hours of slaughter. The difference between the content Fat content research and control groups was 4.79%, 1.02%, 7.14%, 3.21% and 0.05%. The ash in control groups of broiler chickens in the thigh muscles was more than in experimental group to 1.96%, 5.42%, 4.88%, 6.53% and 0.67% respectively.

We determined increase the moisture in the muscles of the thigh and reduction in the pectoral muscles of broiler chickens of experimental group compared with the muscles of broiler chickens control groups.

Reliably established decrease in fat mass fraction of ash and hip muscles and thoracic broiler chickens of experimental groups compared to controls at 24, 48, 72, 96 and 120 hours of slaughter.

The protein of white muscles of broiler increased and the protein of red muscles of broiler decreased in experimental groups compared with control groups.

Established that the moisture increase brought about reduced dry matter in the thigh muscle in control and experimental groups compared to the pectoral muscle in control and experimental groups of broiler chickens. The moisture in the muscles of the thigh research groups broiler chickens was higher than the pectoral muscles to 42.30% in control groups - 0.09%. Dry matter thigh muscle of broiler chickens experimental group was less than in the pectoral muscles to 6.92% in the control groups - 0.28%.

We determined that the content of the mass fraction of fat in the thigh muscles of experimental and control groups of broiler chickens was dominated the mass fraction of fat in the pectoral muscles to 192.43% and 153.36% respectively.

Analysis of ash and protein content in muscles of hips and thoracic muscles showed the opposite trend in experimental and control groups. The mass fraction of ash in the muscles of the thigh research groups was lower than in pectoral muscle at 85.65% and the mass fraction of ash in the thigh muscle control groups was greater than in pectoral muscle in 1.05 %.

Mass fraction of protein in the muscles of the thigh of experimental groups was greater than the similar value of pectoral muscle by 0.02% and less than in control by 0.15%.

Thus, the drug Danoksan-50 at a dose of 0.1 ml / kg of live weight broiler for 5 days improves the quality of white muscle compared to control due to increase in the mass fraction of dry matter. At the same time antibiotic affects bad on the quality of thigh muscles compared to control, as evidenced by the reduction of the mass fraction of dry matter.

Using the drug Danoksan-50 for 5 days protein content reduced in thigh muscle, fat and ash content increased compared to controls.

In white muscle after antibiotic use decreases the mass fraction of fat, ash and protein compared to controls.

Conclusions

Thus, the drug Danoksan-50 at a dose of 0.1 ml / kg of live weight broiler for 5 days improves the quality of white muscle compared to control because mass fraction of dry matter increased.

At the same time antibiotic made the harm of the quality of thigh muscles compared to control, as evidenced by the reduction of the mass fraction of dry matter.

Using the drug Danoksan-50 for 5 days we obtain reduced the protein content in thigh muscle and increased fat and ash compared to controls.

In white muscle after antibiotic use decreases the mass fraction of fat, ash and protein compared to controls.

Bibliography

1. Bovkun G. Prebioticheskaja dobavka k racionu cypljat/G. Bovkun//Pticevodstvo. – 2004. – № 6. – S. 11–15.
2. Bujarov V. Otkorm brojlerov: raznye sroki i parametry/V. Bujarov//Pticevodstvo. – 2004. – № 11. – S. 2–4.
3. Savenko I. V. Perspektivi vikoristannja mikrobnih poverhnevo-aktivnih rechovin u sil's'komu gospodarstvi i medicini/I. V. Savenko//Biotechnology and microbiology. – 2014. № 8
4. Leonchik Ja. V. Osnovnye aspekty jeffektivnosti primenenija antibiotikov/Ja. V. Leonchik.//Suchasna vet. medicina : nauk.-prakt. zhurn. dlja specialistiv vet. medicini. – 2007. – №3. – S. 42–46.
5. Aziza M. A. Principles of Antimicrobial Therapy/Aziza.//Cairo Universiti. – 2007.
6. Heitzman J. Danofloxacin/Heitzman//Residues of some veterinary drugs in animals and foods. – 1997.

7. Produkty mjasnye. Metody opredelenija vlagi: GOST 9793–74. – [Dejstvujushhij ot 2010–02–25].– Moskva : Standartinform, 2010. – 7 s. – (Mezhgosudarstvennyj standart).
8. Mjaso i mjasnye produkty. Metody opredelenija zhira: GOST 23042–86. – [Dejstvujushhij ot 2010–02–25]. – Moskva : Standartinform, 2010. – 6 s. – (Mezhgosudarstvennyj standart).
9. Mjaso i mjasnye produkty. Metody opredelenija belka: GOST 25011–85. – [Dejstvujushhij ot 2010–02–25]. – Moskva : Standartinform, 2010. – 7 s. – (Mezhgosudarstvennyj standart).
10. Veterinarno-sanitarnaja jekspertiza produktov zhivotnovodstva/[P. V. Zhitenko, M. F. Borovkov, V. A. Makarov ta in.]. – Moskva: Agropromizdat, 1989. – 367 s.