KAPITEL 6 / CHAPTER 6 [6]
SANITARY AND HYGIENIC CONDITION OF REFRIGERATORS AND SANITARY MEASURES FACILITIES FOR THE PRODUCTION AND SALE OF BROILER CHICKEN MEAT

DOI: 10.30890/2709-2313.2023-17-04-005

Introduction.

Operators of the broiler chicken meat market are obligated to comply with the requirements of legislation during the production and circulation of ecologically safe poultry meat.

According to the Law of Ukraine "On the Basic Principles and Requirements for the Safety and Quality of Food Products", it is necessary to carry out inspection checks on compliance with sanitary and hygienic requirements for the storage of meat of broiler chickens in refrigerating chambers at their production facilities, wholesale bases, supermarkets, as well as comply with the requirements of the new European regulation on food products, the Codex Alimentarius Commission, and also organize your work based on the risk assessment of sanitary food safety [1, 2].

In order to prevent violations of the sanitary-hygienic state of objects of cold storage facilities for the production and circulation of broiler chicken meat, knives and workers' hands, market operators must carry out appropriate risk-oriented control over microbiological hazards (*Listeria*, *S. aureus*, microscopic mushrooms) continued production [3], storage, sale of broiler chicken meat, which will guarantee a high level of hygiene and food safety, the effectiveness of the supply chain management system, a reduction in the number of audits by state institutions and partners, a reduction in the release of dangerous meat raw materials [4].

Determining the indicators of sanitary and microbiological control of refrigerating chambers, facilities at production and circulation facilities is relevant, because it prevents a negative impact on the safety and quality of the meat of slaughtered animals at the end of its storage and warns of harm to the health of the average consumer and makes it possible to prevent food poisoning and food poisoning [5, 6].

The microbiological safety of refrigerating chambers was assessed by visual inspection, ATP bioluminescence levels, indicator microorganisms *Escherichia coli* and *Staphylococcus aureus*, as well as the presence of *Listeria monocytogenes* and *Salmonell*a, which were isolated from the shelves, respectively in 17.9%, 12.6%, 59.5%, 32.5% [7, 8].

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In order to prevent and reduce the risk of food-borne diseases, an inspection of refrigerators was carried out by the PCR method, which showed that 51.7% of the samples were positive for pathogens: *L. monocytogenes* 41.6 %, *S. aureus* 5.5 %, *Salmonella spp.* 4.6 % [9].

This topic is quite relevant during the implementation of the *HACCP* system at the facilities of the food industry of Ukraine, so our research consisted in the comprehensive control of the sanitary and hygienic condition of refrigerating chambers under different temperature and humidity regimes and other objects for the storage and sale of broiler chicken meat in the final regulatory term of storage at facilities for their production and circulation.

6.1. Materials and methods of controlling sanitary and microbiological indicators

The purpose of the study was to establish indicators of the qualitative and quantitative composition of the microflora of the air, walls, floor, tables/counters, hangers of refrigerating chambers, knives, hands of workers during the production and circulation of meat for slaughter animals, as well as to establish microbiological indicators of the content of MAFAnM in meat broiler chickens stored in refrigerating chambers of different capacities. Tests on microbiological control of fingerprints and washings from state control objects were carried out at the meat production facilities of enterprise "Nasha Ryaba", wholesale base, supermarket "Silpo" of the Kyiv region in accordance with the requirements of the national standard DSTU ISO 18593:2006 "Microbiology of food products and fodder for animals. Microbiological analysis using prints and washings from surfaces".

Samples were taken from the air of refrigerating chambers: a meat processing facility, a wholesale base and a supermarket at a temperature of -2...-3 ºC for 10 days, where frozen carcasses of patrani broiler chickens were stored in consumer packaging; at a temperature of -12 ºC, where the carcasses of patrani broiler chickens were stored in consumer packaging for 8 months; at a temperature of -18 ºC where the carcasses of patrani broiler chickens were stored in consumer packaging for 12 months; from the shelves of the refrigerating open showcase at a temperature of 4±2 ºC for 5 days, where the meat of broiler chickens was sold.

Washes were also collected from the objects of refrigerating chambers: walls, floors, hangers of the meat processing plant and wholesale base, as well as from the hands of employees. In supermarkets - from tables, floors, walls, where consumer

packaging of broiler chicken carcasses took place, from the hands and knives of workers packing poultry meat carcasses. The volume of the studied air sample (m^3) in the refrigerating chambers of the meat processing plant was 134.21x102 m^3; wholesale base – 114.50x102 m^3; supermarket model – 3.78x102 m^3, refrigerated open supermarket shelf 1.20x10 m^3.

The aspiration method (Andersen's method) was used for air sampling in the refrigerating chambers of facilities for the production and circulation of meat for slaughter animals using the TRIO.BAS air sampler (Ukraine). About 100 dm3 of air was passed through the device for 1.5−2 minutes. An air stream through the holes of the device at a speed of 25 dm3/min touched the nutrient medium on the Petri dishes, using five sterile Petri dishes with agar continuously, for small refrigerating chambers − three Petri dishes. To study the total number of mold fungi, including cladosporia, Sabouraud's agar was used. Petri dishes with the selected samples were closed with lids and placed in a thermostat for cultivation: to determine the total microbial insemination - at a temperature of 30±1°C for 72±3 hours; to determine mold insemination at a temperature of (24−25)±1 ºC for 5 days. The first count of mold was carried out after 3 days, and for the final determination of the type of mold, the cultures in cups were examined for 5 days. Counting the number of colonies of mold fungi, including cladosporium (*Cladosporium herbarum*) in 1 m3 of air was carried out according to the generally accepted method.

Sampling of samples from facilities of production and circulation (tables/counters, walls, floor, knives, hands of workers) was carried out with sterile cotton-gauze swabs moistened with a sterile neutralizing solution. Areas of 10x10 cm^2 were thoroughly wiped with a swab and placed in test tubes. In the presence of dense impurities on the object, they were removed using a sterile scalpel and transferred to the same test tube. To determine the bacterial contamination of the objects, Saburo nutrient medium was used for incubating crops in a thermostat at a temperature of 22...24 ºC for 5...10 days. After that, the colonies of mold fungi were counted per 1 cm^2 of the experimental area according to the generally accepted method in accordance with DSTU ISO 7954:2006 "Microbiology of food products and animal feed. General guidelines for counting yeast and microscopic fungi. The technique of counting colonies cultivated at a temperature of 25°C".

Sanitary indicator microorganisms (MAFAnM content, coli titer, bacteria of the genus *Echerichia*, *Staphulococcus aureus*) and pathogenic (bacteria of the genus *Salmonella*, *Listeria monocytogenes*) were also determined at the facilities of production and circulation according to generally accepted methods according to national standards (DSTU ISO 4833 :2006 "Microbiology of food products and animal

feed. Horizontal method of counting microorganisms. Colony counting technique at +30 °C"; DSTU ISO 21528-1:2014 "Microbiology of food products and animal feed. Horizontal method of detection and counting of enterobacteria (Enterobacteriaceae). Part 1. Detection and counting by the NICH method with preliminary enrichment"; DSTU ISO 6888-1:2003 "Microbiology of food products and animal feed. Horizontal method of counting coagulase-positive staphylococci (Staphylococcus aureus and other species). Part 1. Method using Beard Parker's agar medium"; DSTU ISO 6579:2006 "Microbiology of food products and animal feed. Methods of detection of Salmonella spp."; DSTU ISO 11290-1:2003 "Microbiology of food products and animal feed. Horizontal method for detection and counting of Listeria monocytogenes. Part 1. Detection method") and Methodological instructions for sanitary and microbiological control of production and sales facilities subject to veterinary supervision [10].

The selection of washings from the surface of the meat of slaughtered animals, which was stored in the refrigerating chambers of production and circulation facilities, was carried out with a sterile swab in accordance with the requirements of the national standard DSTU ISO 17604:2014 "Microbiology of food products and animal feed. Sampling of animal carcasses for microbiological analysis". Determination of the content of MAFAnM on the meat surface of broiler chickens was carried out by washing off the surface of muscle tissue and preparing dilutions 1:10, 1:100, 1:1000, 1:10000, 1:100000, 1:1000000 in accordance with the requirements of the current DSTU ISO 6887-1:1999 "Microbiology of food and animal feed. Preparation of researched samples, initial suspension and tenfold dilutions for microbiological research. Part 1. General rules for preparation of initial suspension and tenfold suspensions. Later, 1 cm3 of each dilution was transferred to sterile Petri dishes and poured with meat-peptone agar melted and cooled to 55 ºC, followed by incubation of the crops in a thermostat at a temperature of 37 ºC for 48 hours.

The reliability of the conducted research is confirmed by the use of certified equipment, modern testing methods, and the application of statistical processing of the results.

6.2. Sanitary and microbiological control of air in refrigerating chambers at facilities for the production and circulation of broiler chicken carcasses

In order to identify the negative impact on the safety of the meat of slaughter animals during its storage and circulation, we conducted studies to study the bacterial

contamination of refrigerating chambers by the content of MAFAnM, mold fungi, including cladosporia. Our research established indicators of sanitary and microbiological air control of refrigerating chambers at facilities for the production and circulation of meat for slaughter animals at different temperatures (from 4±2 ºC to -12 ºC), relative air humidity (80, 88, 90 and 95 %), which was within the norm and for different periods of storage of broiler chicken carcasses - for 5, 10, 20 days, 8 months and 12 months of storage.

The results of sanitary and microbiological control of air pollution in refrigerating chambers at facilities for the production and circulation of broiler chicken carcasses are presented (table 1).

Table 1 − Indicators of sanitary and microbiological air control in refrigerating chambers at facilities for the production and circulation of broiler chicken carcasses, CFU/m^3, M±m, n=66

Number of tested air samples	Number of Petri dishes with Sabouraud's medium	Sanitary and microbiological indicators during loading and storage of poultry meat		
		MAFAnM content, CFU/m^3	average number of mold fungi CFU/m^3	including *Cladosporium herbarum*
Refrigeration chamber at the capacity for the production of broiler chicken meat at a temperature of -2...-3 ºC and a relative humidity of 90%				
10	60	(0.40±0.03)×10^2	5±2	–
Refrigeration chamber at the capacity for meat production of broiler chickens at a temperature of -12 ºC and a relative humidity of 95%				
10	50	(0.46±0.04)×10^2*	3±1	1
Refrigeration chamber at a wholesale base for storing meat of broiler chickens at a temperature of -12 ºC and a relative humidity of 95%				
10	60	(0.39±0.04)×10^2	2±1	–
Refrigeration chamber at the wholesale base for storing meat of broiler chickens at a temperature of -18 ºC and a relative humidity of 95%				
10	60	(0.32±0.03)×10^2	3±1	–
A refrigerating chamber at a wholesale base for storing meat of broiler chickens at a temperature of -2...-3 ºC and a relative humidity of 90%				
10	50	(1.06±0.05)×10^2***	8±1	1
A refrigerator in a supermarket for the sale of broiler chicken meat at a temperature of -6...-8 ºC and a relative humidity of 85%				
8	24	(0.63±0.07)×10^2	11.00±0,24	–
Refrigerated open showcase in a supermarket for the sale of broiler chicken carcasses at a temperature of 4±2 ºC and a relative humidity of 82%				
8	24	(1.44 ±0.06)×10^2***	63.00±1.02***	2±1

*Note. * – P≤0,05; *** – P≤0,001*

The highest content of MAFAnM in the air was in the refrigerating open showcase of the supermarket at a temperature of 4±2 ºC – (1.44 ±0.06)×10^2 CFU/m^3 ($p \leq 0.001$) for 5 days compared to the indicators of the content of MAFAnM in the refrigerating chamber in the supermarket for the sale of meat from slaughtered animals at a temperature of -6...-8 ºC for 20 days; and in the refrigerating chamber at the wholesale base for the storage of broiler chicken carcasses at temperatures of -2...-3 ºC – (1.06±0.05)×10^2 CFU/m^3 ($p \leq 0.001$) compared with the MAFAnM content indicators in the refrigerating chamber at capacity for meat production of broiler chickens at temperatures of -2...-3 ºC.

The lowest content of MAFAnM was determined in the refrigerating chamber at the wholesale base for the storage of meat of broiler chickens at a temperature of -18 ºC − (0.32±0.03)×10^2 CFU/m^3; in a refrigerating chamber at a wholesale base for storing meat of broiler chickens at a temperature of -12 ºC − (0.39±0.04)×10^2 CFU/m^3; in a refrigerating chamber at the capacity for meat production of broiler chickens at a temperature of -2...-3 ºC − (0.40±0.03)×10^2 CFU/m^3; in a refrigerating chamber at the capacity for meat production of broiler chickens at a temperature of -12 ºC − (0.46±0.04)×10^2 CFU/m^3. Exceeding the standards of MAFAnM content in the air (more than 200 CFU/m^3) was not established in the refrigerating chambers of the power plant, wholesale base and supermarket.

Analyzing the obtained data (Table 1), it can be concluded that thanks to the use of temperatures of -6...-8 ºC, -12 ºC and -18 ºC in the refrigerating chambers of the capacity for the production of meat for slaughter animals and the wholesale base, an improvement in the sanitary condition of refrigerating chambers has been achieved provided that the meat quality indicators of broiler chickens are maintained. And with the use of a temperature of 4±2 ºC in the refrigerating chambers in the supermarket, a satisfactory sanitary condition was observed. The content of mold fungi did not exceed the standards (100 CFU/m^3) and ranged from 2±1 to 63.00±1.02 CFU/m^3, including up to 2±1*Cladosporium herbarum.*

Veterinary medicine inspectors need to control the technological process of cooling the meat of broiler chickens for the presence of microscopic mold fungi in the air, especially cladosporium. Inspections should be carried out on the basis of risk assessment, they should prevent cross-contamination in the slaughterhouse and cold rooms, and the quality of meat inspection should be improved by introducing strict hygiene requirements at the farm level. *Cladosporia* are able to manifest their toxicogenic properties precisely at low temperature conditions of chilled meat, which can lead to poisoning of consumers during its consumption, sale or further storage, because such meat is contaminated with cladosporia through the air during temporary

storage in a cooling chamber [11].

6.3. Sanitary and microbiological indicators of washes from objects of refrigerating chambers and hands of workers

The research established the sanitary and microbiological indicators of washings from the objects of refrigerating chambers and the hands of workers (n=24) of facilities for the production and storage of meat of broiler chickens at different temperatures and relative humidity. It should be noted that at a temperature of -2...-3 °C in the refrigerating chamber of the meat production facility for slaughter animals, the highest content of MAFAnM with a high degree of probability was detected in washings from the floor − 4.37 times more ($p \leq 0.001$), walls − 2.21 times ($p \leq 0.001$) and vishal − 1.14 times more ($p \leq 0.001$) compared to the indicators in the refrigerating chamber at a temperature of -12 ºC. No probable difference in the content of MAFAnM in washings from workers' hands was found. Also, at a temperature of -2...-3 °C in the refrigerating chamber of the wholesale base for storing the meat of slaughtered animals, the highest content of MAFAnM with a high degree of probability was detected in washings from the floor − 3.66 times ($p \leq 0.001$) more, walls - 2 .02 times ($p \leq 0.001$) and vishal - 1.19 times more ($p \leq 0.001$) compared to the indicators from washing objects in a refrigerating chamber at a temperature of -12 °C. No significant difference was found in the content of MAFAnM in workers' hand washes, but a tendency to an increase of 1.07 and 1.18 times was observed compared to the indicators of MAFAnM content in workers' hand washes in the cold room at temperatures of -12 °C and -18 °C.

At temperatures of -12°C and -18°C in the refrigerating chamber from the objects and hands of workers at the facilities for the production and storage of slaughter meat, the value of the coli titer in the washing liquid was more than 1 (good sanitary condition), and at temperatures -2...-3 ºC was equal to 1 (satisfactory sanitary condition).

Using a temperature of 4±2 °C in the refrigerator of the supermarket, the highest content of MAFAnM with a high degree of probability was determined from washing objects, namely: from washing from the floor − $(1.83 \pm 0.06) \times 10^2$ CFU/cm^2, which in 3.07 times more ($p \leq 0.001$), walls – $(1.14 \pm 0.07) \times 10^2$ CFU/cm^2, which in 2.73 times more ($p \leq 0.001$), tables – $(1.49 \pm 0.05) \times 10^2$ CFU/cm^2, which is 4.78 times ($p \leq 0.001$), knives – $(4.10 \pm 0.12) \times 10^1$ CFU/cm^2, which is 1.42 times ($p \leq 0.001$) and from the hands of workers – $(8.23 \pm 0.11) \times 10^1$ CFU/cm2, which is 1.23 times more compared to the indicators of MAFAnM content from objects of the refrigerating chamber at

temperatures of -6...-8 °C.

At a temperature of -6...-8 °C in a refrigerating chamber from the objects of knives and hands of workers in supermarkets for the sale of poultry meat, the value of the coli titer in the washing liquid was 1 (satisfactory sanitary condition), and at a temperature of 4±2 °C − less than 1 (unsatisfactory sanitary condition).

The frequency of isolated test cultures from washings of facilities for the production and circulation of poultry meat, knives and workers' hands was determined by the number of samples and converted into a percentage of the total number of investigated samples.

At a temperature of -6...-8 ºC, bacteria of the genus Echerichia up to 12.7%, bacteria of the genus Salmonella up to 8.5%, bacteria of the genus *Staphulococcus aureus* up to 11, 3%, and at a temperature of 4±2 ºC in a refrigerating chamber from washes of objects, as well as knives and hands of workers − bacteria of the genus *Echerichia* up to 18.0%, bacteria of the genus *Salmonella* up to 14.2%, bacteria of the genus *Staphulococcus aureus* up to 17.1%.

At temperatures between -12 ºC and -18 ºC in cold storage at the poultry meat production facility, bacteria of the genus *Echerichia* were isolated from the washings of objects and hands of workers, respectively 11.2% and 10.2%, bacteria of the genus *Staphulococcus aureus*, respectively 3.4% and 1.3%, and at a temperature of -2...-3 ºC in a refrigerating chamber from washing objects and hands of workers - bacteria of the genus *Echerichia*, respectively 13.2% and 9.5%, bacteria of the genus Staphulococcus aureus, respectively 4.3% and 1.7% (from the floor and walls). Bacteria of the genus *Salmonella* were not detected.

At a temperature of -12 ºC, bacteria of the genus *Echerichia* were isolated up to 10.5% from the washings of objects and hands of workers in a refrigerating chamber at a wholesale base, bacteria of the genus *Salmonella* and *Staphulococcus aureus* were not detected; at a temperature of -2...-3 ºC in a refrigerating chamber from washing objects and workers' hands − bacteria of the genus *Echerichia* up to 11.7%, bacteria of the genus *Staphulococcus aureus* up to 10.1% (from the floor and walls). Bacteria of the genus *Salmonella* were not detected.

Bacteria of the genus *Listeria monocytogenes* were not detected from the washes of facilities in the refrigerating chambers of the facilities for the production and circulation of poultry meat, knives and hands of workers.

According to the confirmation of the inappropriate sanitary and hygienic condition of the refrigerators and other objects of the supermarket by these indicators of the selected test cultures, it is necessary to carry out thorough cleaning, as well as forced and repeated control of the quality of disinfection by veterinary medicine

inspectors.

Because this can lead to contamination of meat with killer bacteria of the genera *Echerichia*, *Salmonella* and *Staphulococcus aureus*, which is stored in refrigerators. The author [12] claims that a significant frequency of selected test cultures at the meat processing plant was escherichia (30% on the container, 25% on the floor, 16.75% tools, 15% on the lower part of the wall), staphylococci (70% on containers, 66.7% on the floor, 50% on tools).

6.4. Microbiological control of broiler chicken meat for storage and sale

Bacterial contamination of the meat of broiler chickens during its final normative storage period at production and circulation facilities during storage and sale in refrigerating chambers at different temperatures and relative air humidity was established (table 2).

Table 2 − MAFAnM content on the meat surface of broiler chickens stored in refrigerating chambers of different capacities, CFU/cm^2, M±m, n=5

Type of meat	Content of MAFAnM, CFU/cm^2 for meat storage of broiler chickens at different capacities	
Refrigeration chambers at broiler chicken meat production facilities		
Temperature and relative humidity	at a temperature of -12 ºC and a relative humidity of 95% for 8 months	at a temperature of -18 ºC and a relative humidity of 90% for 12 months
Meat of broiler chickens	(1.21±0.12) ×10^2	(1.03±0.06) ×10^2***
Refrigeration chambers at wholesale bases for storing meat of broiler chickens		
Temperature and relative humidity	за температури -2…-3 ºС та відносної вологості 95 % на 10 добу	температури -6…-8 ºС та відносної вологості 90 % на 20 добу
Meat of broiler chickens	(2.78±0.16) ×10^2	(1.65±0.13) ×10^2**
Refrigerators in supermarkets for the sale of broiler chicken meat		
Temperature and relative humidity	at temperatures of -6...-8 ºC and relative humidity of 85% for 20 days	at a temperature of 4±2 ºC and a relative humidity of 82% for 5 days
Meat of broiler chickens	(1.83±0.14) ×10^3	(3.17±0.18) ×10^3***

*Note. ** – P≤0,01; *** – P≤0,001*

At the meat production facilities of broiler chickens during refrigerated storage of poultry carcasses at a temperature of -12 ºC and relative humidity of 95% for 8 months and at a temperature of -18 ºC and relative humidity of 90% for 12 months, the content of MAFAnM on the surface of broiler chicken carcasses was within the normative parameters, respectively, – $(1.21\pm0.12)\times10^2$ and $(1.03\pm0.06)\times10^2$ CFU/cm^2 ($p\leq0.001$). And during refrigerated storage at wholesale bases at temperatures of -2...-3 ºC and relative humidity of 95% for 10 days and temperatures of -6...-8 ºC and relative humidity of 90% for 20 days, the content of MAFAnM on the surface of broiler chicken carcasses was slightly increased , but within the norms, respectively – $(2.78\pm0.16)\times10^2$ and $(1.65\pm0.13)\times10^2$ CFU/cm^2 ($P\leq0.01$); for sale in supermarkets of broiler chicken carcasses in refrigerating chambers at a temperature of -6...-8 ºC and a relative humidity of 85% for 20 days, the MAFAnM content was $(1.83\pm0.14)\times10^3$ CFU/cm^2, and at a temperature of 4± 2 ºC and relative humidity of 82% on the 5th day, this indicator increased by 1.73 times ($P\leq0.001$).

Scientists claim that the sanitary and hygienic condition of the air in refrigerating chambers at facilities for the production and circulation of broiler chicken meat has a direct impact on its storage time, its safety during subsequent sale, as well as the production of food products from it [13].

It should be noted that the safety and quality of broiler chicken meat largely depends on their storage conditions, that is, the sanitary and hygienic condition of refrigerating chambers and facilities for their production and circulation (storage and sale). Mold fungi are one of the etiological factors of microbial spoilage of food products during refrigerated storage, especially at temperatures in refrigerators from 5 ºC to -9 ºC. Mold growth stops or slows down at temperatures from -4 to -9 ºC, but certain types of mold fungi, such as Cladosporium and Tamnidium, can develop at these temperatures, causing a decrease in quality and spoilage of food products; mold fungi do not develop in refrigerating chambers at temperatures below [14].

Therefore, food market operators implementing the HACCP system on the basis of current *GMP*, *GHP* and *GLP* procedures must carry out sanitary and microbiological control of objects of refrigerating chambers (air, floor, tables/counters, walls, hangers) of meat production facilities, wholesale bases, supermarkets, as well as the knives and hands of workers, which will make it possible to create proper sanitary and hygienic conditions at these facilities, to prevent contamination of the meat of broiler chickens with microorganisms, its spoilage, and the occurrence of food toxic infections.

Conclusion.

The highest content of MAFAnM in the air was in the refrigerating open showcase of the supermarket at a temperature of 4±2 ºC – (1.44 ±0.06)×10^2 CFU/m^3 ($p \leq 0.001$) for 5 days compared to the indicators of the content of MAFAnM in the refrigerating chamber in the supermarket for the sale of meat from slaughtered animals at a temperature of -6...-8 ºC for 20 days; and in the refrigerating chamber at the wholesale base for the storage of broiler chicken carcasses at temperatures of -2...-3 ºC – (1.06±0.05)×10^2 CFU/m^3 ($p \leq 0.001$) compared with the MAFAnM content indicators in the refrigerating chamber at capacity for meat production of broiler chickens at temperatures of -2...-3 ºC.

At a temperature of 4±2 ºC in the refrigerator of a supermarket for 5 days and during cold storage at wholesale bases at a temperature of -2...-3 ºC and on the 10th day of sale, a directly proportional increase in the insemination of the surface of the meat of MAFAnM broiler chickens was noted, respectively: (3.17±0.18)×10^3 and (2.78±0.16)×10^2 CFU/cm^2.

At the facilities for the production and circulation of meat of broiler chickens, according to the indicators of the selected test cultures of bacteria of the genus Echerichia, Salmonella and Staphylococcus aureus, it is necessary to carry out risk-oriented control over the sanitary and hygienic condition of objects of refrigerating chambers, knives, hands of workers in order to prevent microbial insemination of meat, as well as to carry out forced and repeated control of the quality of disinfection by veterinary medicine inspectors to ensure a good sanitary condition of controlled objects.