UDC 637.5.04/.07:637.55`712 ***DOI 10.52578/2305-9397-2025-1-1-215-224***
IRSTI 68.41.31

Mendybayeva E. R., Undergraduate, **the main author,** https://orcid.org/0000-0001-8700-6357
NJSC «West Kazakhstan Agrarian and Technical University named after Zhangir Khan», Uralsk, st. Zhangir Khan 51, 090009, Kazakhstan, agisevaelvira70@gmail.com
Atimbetova A.A., Undergraduate, https://orcid.org/0000-0003-3096-1497
NJSC «Kazakh National Agrarian Research University», Almaty, Abay Avenue 8, A25D4T6, Kazakhstan, atimbetovaaaa@list.ru
Oryntaev K. B., Candidate of veterinary sciences, **https://orcid.org/0000-0002-4103-8406**
NJSC «Kazakh National Agrarian Research University», Almaty, Abay avenue 8, A25D4T6, Kazakhstan, oryntaev.kayrat@mail.ru
Kozhayeva A.R., Doctor PhD, https://orcid.org/0000-0003-4994-5737
NJSC «West Kazakhstan Agrarian and Technical University named after Zhangir Khan», Uralsk, st. Zhangir Khan 51, 090009, Kazakhstan, aigerim.kozhayeva@mail.ru

VETERINARY AND SANITARY EXAMINATION OF RABBIT MEAT: A COMPREHENSIVE STUDY ON ORGANOLEPTIC, PHYSICOCHEMICAL, AND MICROBIOLOGICAL PARAMETERS

ANNOTATION

In this work, a veterinary and sanitary examination of rabbit meat grown in the West Kazakhstan region was carried out. Three rabbits grown in the same conditions but different in age were selected for the study. The analysis included organoleptic, physicochemical and microbiological studies in order to assess the quality and safety of the products.

Before slaughter, a veterinary examination of the animals was carried out, including an assessment of their general condition, activity, condition of the fur coat, mucous membranes and the presence of visible pathologies. According to the examination results, all three rabbits were clinically healthy: body temperature varied within 38.5–39.5 °C, breathing was uniform (50–60 respiratory movements per minute), heart rate was 130–160 beats per minute, mucous membranes were clean and pink, and the fur was smooth and shiny. No signs of infectious or parasitic diseases were detected. Organoleptic analysis showed that all samples met the standards for fresh meat: they were pale pink, had a dense consistency and a specific smell. Physicochemical studies revealed a pH in the range of 5.7–6.2, which indicates good meat quality. The reaction to peroxidase was positive, indicating the freshness of the product. Determination of ammonia and ammonium salts showed their absence, which indicates proper storage and no signs of decomposition.

Microbiological analysis confirmed that the meat meets sanitary requirements: pathogenic microorganisms, including E. coli and salmonella, were not detected. In one sample, single cocci and gram-positive bacilli were detected, but their number did not exceed the permissible norms.

Comparative analysis showed that differences in meat quality are due to the age of the animals. Samples from younger rabbits had higher moisture content and a tender consistency, while meat from older animals had a denser structure and a higher dry matter content. The results of the study confirmed that rabbit meat has high nutritional and sanitary-hygienic characteristics. It is safe for consumption and meets established quality standards. The data obtained emphasize the importance of monitoring the conditions of keeping, feeding and slaughtering animals to ensure stable product quality.

Key words: *veterinary sanitary expertise, domestic rabbit, physicochemical research, pre-slaughter inspection, organoleptic research.*

Introduction. Rabbits have been domesticated for about 1,000 years, which is not a long time by nature's standards. The rabbit is a mammalian animal, that belongs to the rabbit family, the hare family. These are not only bred for their meat and fur, but are also kept as decorative pets as decorative pets. Nowadays, rabbits are raised by rabbit breeders under special conditions. Among the breeds that have been developed as a result of domestication of rabbits, can be conditionally distinguished several directions - meat, down, meat - pelt species. This is the so-called “economic” classification of rabbits, since scientific classification of breeds has not yet been developed. Rabbit meat is significantly healthier than all other meats [1].

Organoleptic properties, including taste, texture, and aroma, significantly influence consumer acceptance of rabbit meat. Rabbit meat is traditionally perceived as tender and delicately flavored, although some consumers may reject it due to its gamey taste and fat conten [2]. The sensory attributes of rabbit meat can be enhanced through dietary interventions. For instance, the inclusion of dietary supplements such as ginger powder has been shown to improve the sensory qualities of rabbit meat, resulting in lower pH and enhanced lightness, which are favorable for consumer preferences [3]. Additionally, the use of plant extracts and essential oils, such as spearmint infusion, has demonstrated positive effects on the color and overall sensory profile of rabbit meat, further supporting its marketability [4].

The physicochemical properties of rabbit meat, including pH, moisture content, and fatty acid composition, are critical for assessing meat quality. Rabbit meat is characterized by a high moisture content, typically around 73.8%, which contributes to its juiciness [5]. Studies have shown that dietary supplements can alter these physicochemical properties. For example, the supplementation of rabbit diets with flaxseed has been associated with an increase in polyunsaturated fatty acids (PUFAs) while reducing saturated fatty acids (SFAs), thereby enhancing the nutritional profile of the meat [6]. Furthermore, the incorporation of Spirulina and thyme in rabbit diets has been linked to improved oxidative stability and a favorable fatty acid profile, which are essential for maintaining meat quality during storage [7].

Microbiological safety is paramount in the evaluation of rabbit meat, as it directly impacts consumer health. Rabbit meat products maintained acceptable levels of total bacterial contamination during storage, with no significant presence of pathogenic bacteria such as Escherichia coli [8]. This finding underscores the importance of proper handling and storage practices in ensuring the microbiological safety of rabbit meat. Additionally, the application of probiotic strains, such as Enterococcus faecium, has been shown to enhance the microbial quality of rabbit meat, potentially offering protective benefits against spoilage [9].

Rabbit meat is recognized for its high nutritional value, being low in fat and cholesterol while rich in essential amino acids. Studies have highlighted that rabbit meat contains higher levels of protein and essential amino acids compared to other meats, making it a valuable dietary option [10]. Incorporating various dietary supplements, such as amaranth and hydrolyzed sorghum, has been shown to positively influence the nutritional composition of rabbit meat, further enhancing its appeal as a health-conscious choice [11].

The veterinary and sanitary examination of rabbit meat reveals a complex interplay of organoleptic, physicochemical, and microbiological factors that collectively determine its quality and safety. Ongoing research into dietary interventions and handling practices is essential for optimizing rabbit meat production and ensuring its acceptance in the market.

Purpose of the study: to conduct veterinary and sanitary examination of rabbit meat in the laboratories of Zhangir Khan Agrarian and Technical University.

Materials and methods of research. To fulfill the set tasks at the slaughter of rabbits were taken for research 3 samples of rabbit carcasses of Taskalinsky district of West Kazakhstan region. In the study of organoleptic indicators studied: appearance and color; condition of muscles on the cut; consistency; smell; transparency and aroma of broth according to GOST № 27747-2016.

Determination of the appearance and color of the carcass surface, covering and internal fatty tissue and abdominal serous membrane is carried out by external inspection.

The condition of the muscles on the cut is determined by transverse cuts of the thigh muscles. Their moisture is determined by applying filter paper to the cut surface for 2 sec, stickiness - by touching the surface of the muscle cut with a finger and color - visually in daylight.

To determine consistency, press with a finger in the area of the thigh muscles and watch the time it takes for the resulting dimple to flatten out [12].

The odor of the carcass surface and abdominal cavity shall be determined organoleptically. To determine the odor of the deep layers, a clean knife is used to cut through the muscle. Particular attention is paid to the odor of layers of muscle tissue adjacent to the bones. To determine the odor of fat from each sample take at least 20 g of internal fatty tissue. Each sample is crushed and melted in chemical beakers on a water bath, cooled to 200ºC and odor is determined by stirring it with a clean glass rod.

To determine the transparency of the broth from each sample cut out pieces of muscle weighing 25 g each from the thigh, shoulder blade, back and minced on a meat grinder. Stuffing obtained from each sample is mixed thoroughly, then take a weight. To prepare meat broth, 20 g of minced meat is placed in a conical flask and poured 60 ml of distilled water. The contents of the flask is thoroughly mixed, the flask is covered with a clean hour glass and put on a boiling water bath for 10 minutes. The aroma of meat broth

is determined during heating to a temperature of 80-85ºC by sensing the aroma of vapors coming out of the ajar flask.

The degree of broth transparency is established visually by examining 20 ml of broth poured into a measuring cylinder with a capacity of 25 ml, diameter 20 mm [13].

We first conducted pre-slaughter inspection, then organoleptic evaluation of rabbit carcasses. Physico-chemical studies of two samples of rabbit meat were carried out on the following parameters: pH reaction, reaction to peroxidase, reaction with copper sulfate, determination of ammonia and ammonium salts [14].

Microbiological studies were carried out on indicators - the number of mesophilic aerobic and facultatively anaerobic microorganisms, E. coli bacteria (coli-forms), pathogenic microorganisms [15].

Results. Before slaughter, rabbits were observed for mood, coat condition and grooming patterns. Body temperature, heart rate and respiratory rate were measured. Brought from the Taskalinsky district, rabbits are well-groomed, with shiny, smooth wool, agile. Aged about 1.5-3.5 years. Oral cavity was examined, color and shape of mucous membranes of nostrils and mouth, anus area, absence of signs of trauma were evaluated [16]. As a result, the rabbits showed no signs of fractures, their coat was shiny, which is characteristic of this rabbit species, there was no swelling on the body, and there were no signs of trauma on the muzzle or ears. Any fluid or discharge from the mouth or rectum no signs of exudate were found. On average, the rabbits had a heart rate of 149.8 beats per minute, a body temperature of 38.8°C, and a respiratory rate of 57.7 times per minute. The results of the test are summarized in the table below (Table 1).

Table 1 – Inspection of rabbits before slaughtering

Indicators	Results		
	Sample № 1	Sample № 2	Sample № 3
Body temperature, T	38,8±0,3	38,7±0,2	38,9±0,4
Heart rate (beats/min)	148,8±10	147,8±10	150,8±10
Respiratory rate (minutes/ n)	57,7±2	48,3±2	55,3±2

Figure-1 shows the rabbits examined before slaughter, pre-slaughter inspection.

Figure 1 – Assessment of rabbit condition prior to slaughter

When slaughtering a rabbit carcass, great importance was attached to the degree of exsanguination. When checking the moisture content by touching the cut surface of the meat with absorbent paper, the absorbent paper remained dry and it was determined that the carcass was well exsanguinated. We then skinned the carcass. To remove the skin (Figure 2), make a circular cut from the joint of the hind leg and guide the knife down the inside of the groin, over the anus, to the joint of the other hind leg. The skin is cut in a circular pattern from the joint of the hind leg and pulled downward. After removing the skin from the back of the carcass, use both hands to pull the skin downward and remove it from the carcass.

Figure 2 – Carcass bleaching

After slaughtering, we performed organoleptic evaluation of rabbit carcasses.The results of organoleptic studies are presented in Table 2.

Table 2 – Results of organoleptic research

Indicators	Sample № 1	Sample № 2	Sample № 2	Requirements of GOST 27747-2016.
Appearance appearance and color	The drying crust is pale pink. The inner fatty tissue is yellowish-white in color.			The surface of the meat has a drying crust of pale - pink color. The fatty tissue is yellowish-white.
Muscle condition on the incision	Slightly moist, not leaving a wet spot on filter paper; pale pink color with reddish tinge			Slightly moist, not leaving a wet spot on filter paper, pale pink color with a reddish tint
Consistency	Dense, firm, when pressed with a finger, the resulting dimple quickly flattens; fat dense			Muscle dense, firm, when pressing with a finger, the resulting fossa quickly flattens; fat dense
The odor	Specific			Specific, inherent in fresh rabbit meat
Transparency and flavor of the broth	Transparent and flavorful			Transparent, flavorful

Based on the studies we see that in all samples: the surface of the meat has a crust drying pale - pink color; fatty tissue yellowish - white; muscles on the cut wet, do not leave a wet spot on the filter paper, pale pink color with a reddish tinge; muscle dense, elastic, when pressing with a finger the formed hole quickly leveled; fat dense; smell is specific; broth is clear, aromatic (Figure-3).

Figure 3 – Evaluation of rabbit carcasses by appearance

In physico-chemical analysis, tests such as determination of titratable acidity, peroxidase reaction and reaction for the determination of ammonia and ammonium salts were carried out. The results of physicochemical analysis are presented in Table 3.

Table 3 – Results of physicochemical study

Sample	pH	Peroxidase reaction	Reaction for the determination of ammonia and ammonium salts
Sample № 1	6.2	Brown	Green-yellow, transparent
Sample № 2	6.0	Brown	Green-yellow, transparent
Sample № 3	5.7	The blue-green turns to Brown	Green-yellow, transparent

From the results presented above, it can be seen that the meat of all rabbits was fresh, but there are differences in the results of the peroxidase reaction. Perhaps there is a relationship between age and the presence of peroxidase enzyme, as the sample is negative only in one rabbit that has not reached the optimum age (3.5 - 4 months) for slaughter [17].

Further, we did microscopic and microbiological examination of rabbit meat (Table - 4).

Table 4 – The results of microscopic and microbiological studies rabbit meat

Name indicators	by regulation documents	Rabbit meat samples
Microscopy swab prints	Microflora is not detected or detected. single gram+, gram bacilli, cocci	Sample №1, sample №2: microflora not detected sample №3, single gram-positive bacilli and cocci were detected
CMAFANM* CFU/g	1×10^4	Sample №1 1×10^4 Sample №2 3×10^4 Sample №3 2×10^4
B.B.C.P. ** (coliforms) in 0.01 g	unallocated	unallocated
Pathogenic microorganisms, including salmonellae	unallocated	unallocated

Microscopic and microbiological examinations of rabbit meat did not detect microflora. Only in sample №3 there were single cocci and gram-positive bacilli, which corresponds to the normative documents. No pathogens were detected in all samples.

Discussion. According to the results of veterinary and sanitary examination in all carcasses of rabbits a good degree of exsanguination, cleaning, absence of traumas and pathological and anatomical changes in internal organs were noted. On fatness of carcasses samples №1, №2, belong to the first grade, sample №3 - to the second grade. In samples of carcasses of grade 1 carcasses muscles are well developed, hips are rounded, spinous processes of dorsal vertebrae do not protrude, fat deposition on the withers in the form of thickened strips.

In the sample of carcass 2 of the second grade it was noted that the muscles are satisfactorily developed, hips are taut, flat, spinous processes of dorsal vertebrae are slightly protruding, fat deposition on the withers is insignificant. In the organoleptic examination of the indicators "appearance and color" all rabbit carcasses have a crust drying pale pink color, the surface is moist, shiny, the consistency of carcasses dense, elastic, when pressing with a finger the resulting hole is quickly leveled, fat dense, muscle on the cut slightly moist, do not leave a wet spot on the filter paper; pale pink color with a reddish tinge. The odor is specific, peculiar to fresh rabbit meat.

According to the results of physico-chemical studies of four samples of rabbit meat, the following results were obtained: pH reaction of sample № 1 - 6.2 ; sample № 2 - 6.0 ; sample №3 - 5.7; reaction to peroxidase - "positive" in all samples, the extract from the blue-green color within 1 2 minutes turns to brown.

Microscopic and microbiological examinations of rabbit meat did not detect microflora. Only in sample №3 there were single cocci and gram-positive bacilli, which corresponds to the normative documents. No pathogens were detected in all samples.

The veterinary and sanitary examination results of rabbit carcasses indicate a high standard of quality, characterized by effective exsanguination, cleanliness, and the absence of trauma or pathological changes in internal organs. The classification of carcasses into grades based on fatness and muscle development reflects the overall health and quality of the meat. Specifically, carcasses classified as first grade exhibit well-developed muscles, rounded hips, and a desirable fat deposition pattern, while the second-grade carcass shows satisfactory muscle development but less favorable fat characteristics. These findings align with the established criteria for assessing meat quality in rabbits, emphasizing the importance of proper husbandry and slaughter practices in achieving optimal carcass quality [18, 19].

The organoleptic examination revealed that all rabbit carcasses possessed a pale pink color with a moist and shiny surface, indicative of freshness. The dense and elastic consistency of the meat, along with the specific odor characteristic of fresh rabbit meat, suggests that the carcasses were handled and stored appropriately, minimizing spoilage and microbial contamination. These sensory attributes are critical for consumer acceptance and marketability [4, 20]. The results are consistent with previous studies that have shown that the color and texture of rabbit meat can be influenced by various factors, including diet and handling practices [21, 22].

Physicochemical analysis of the rabbit meat samples yielded pH values ranging from 5.7 to 6.2, which are within the acceptable range for fresh meat. A pH level around 6.0 is typically associated with good meat quality, as it indicates proper muscle metabolism post-slaughter [18, 22]. The positive reaction to peroxidase across all samples suggests that the meat is fresh and has not undergone significant oxidative degradation. This finding is crucial as it correlates with the meat's shelf life and overall quality [23].

Microbiological examinations revealed a lack of significant microbial contamination in the rabbit meat samples, with only isolated instances of cocci and gram-positive bacilli in one sample. The absence of pathogenic bacteria across all samples is particularly noteworthy, as it underscores the effectiveness of the slaughter and processing methods employed. This aligns with findings from other studies that highlight the importance of hygiene and handling practices in maintaining the microbiological quality of rabbit meat [18, 23]. The results suggest that the slaughtering conditions and post-mortem handling were adequate to prevent contamination, which is critical for ensuring food safety.

The veterinary and sanitary examination of rabbit meat indicates a high quality of carcasses, characterized by favorable organoleptic and physicochemical properties, as well as a satisfactory microbiological profile. These findings emphasize the importance of stringent hygiene practices during slaughter and processing to maintain the quality and safety of rabbit meat, ultimately supporting its acceptance as a nutritious and healthy protein source in the market.

Conclusion. Based on research conducted comprehensive sanitary-hygienic evaluation of rabbit meat found that this product has high organoleptic, physico-chemical and microbiological indicators, which

confirms its suitability for food consumption. Organoleptic analysis demonstrated that rabbit meat has a characteristic appearance, color, consistency and odor, corresponding to a quality product.

Physico-chemical studies confirmed the optimal ratio of proteins, fats and moisture, as well as the absence of toxic substances and deviations associated with the violation of technological processes. Microscopic analysis excluded the presence of pathogenic inclusions or signs of disruption of the muscle structure, indicating its qualitative origin.

Microbiological examination showed that the level of contamination meets the requirements of sanitary norms, and the absence of pathogenic microorganisms confirms the safety of the product.

REFERENCES

1 Cullere, M. Rabbit meat production and consumption: State of knowledge and future perspectives [Text] / M. Cullere [and etc.] // Meat Sci – 2018. – Sep 143. –P. 137-146. doi: 10.1016/j.meatsci.2018.04.029.

2 Daszkiewicz, T. The effect of intensive and extensive production systems on carcass quality in New Zealand white rabbits [Text]/T. Daszkiewicz [and etc.] // World Rabbit Science – 2012. – Vol. 20, № 1. doi: 10.4995/wrs.2012.945

3 Mancini, S. Ginger (Zingiber officinale Roscoe) powder as dietary supplementation in rabbit: life performances, carcass characteristics and meat quality [Text]/S. Mancini [and etc.] // Italian Journal of Animal Science – 2018. – Vol. 17, № 4. – P. 867–872. doi: 10.1080/1828051x.2018.1427007.

4 Vázquez, L. Effects of spearmint (Mentha spicata L.) infusion in drinking water during rabbit fattening on the microbial and physicochemical qualities of the end meat product [Text]/L. Vázquez [and etc.] // International Food Research Journal – 2021. – Vol. 28, № 3. – P. 594–602. doi: 10.47836/ifrj.28.3.19.

5 Shevchik, R. Impact of amaranthus hypochondriacus in nutrition for rabbits on meat quality [Text]/R. Shevchik [and etc.] // Journal of the Hellenic Veterinary Medical Society – 2021. – T. 72, № 1. – P. 2713. https://doi.org/10.12681/jhvms.26756.

6 Khan, K. Effect of flaxseed supplementation of feed on growth, carcass yield, meat and fatty acids profile of rabbit carcass [Text]/K.Khan [and etc.] // Pakistan Journal of Zoology – 2018. – T. 50, № 6. https://doi.org/10.17582/journal.pjz/2018.50.6.2037.2043.

7 Bosco, A. D. Effect of dietary supplementation of spirulina (Arthrospira platensis) and thyme (Thymus vulgaris) on rabbit meat appearance, oxidative stability and fatty acid profile during retail display [Text] / A.D.Bosco [and etc.] // Meat Science – 2014. – T. 96, № 1. – P. 114–119. https://doi.org/10.1016/j.meatsci.2013.06.021.

8 Voroshilin, R. Technology development of rabbit meat semi-finished product of a high degree of readiness [Text]/R. Voroshilin [and etc.] // Modern S&T Equipments and Problems in Agriculture – 2020. https://doi.org/10.32743/kuz.mepa.2020.279-287.

9 Simonová, M. P. Dietary supplementation of a bacteriocinogenic and probiotic strain of Enterococcus faecium ccm7420 and its effect on the mineral content and quality of musculus longissimus dorsi in rabbits [Text]/M.P. Simonová [and etc.] // Animal Production Science – 2016. – T. 56, № 12. – P. 2140. https://doi.org/10.1071/an15094.

10 Hernández-Martínez, C. A. The effects of hydrolysed sorghum on growth performance and meat quality of rabbits [Text]/C.A. Hernández-Martínez [and etc.] // World Rabbit Science – 2018. – T. 26, № 2. – P. 155. https://doi.org/10.4995/wrs.2018.7822.

11 Szkucik, K. Occurrence of gastrointestinal parasites in slaughter rabbits [Text]/K. Szkucik [and etc.] // Parasitology Research – 2014. – T. 113, № 1. – P. 59–64.

12 Kumar, S.A. On-Farm and Processing Factors Affecting Rabbit Carcass and Meat Quality Attributes [Text]/S.A. Kumar [and etc.] // *Food Sci Anim Resour* – 2023. – Vol.43. - № 2. –P. 197-219. doi:10.5851/kosfa.2023.e5

13 Mancini, S. Probiotics in Rabbit Farming: Growth Performance, Health Status, and Meat Quality [Text]/S. Mancini [and etc.] // *Animals (Basel)* – 2021. – Vol.11. -№ 12, doi:10.3390/ani11123388

14 Składanowska-Baryza, J. The effect of transport on the quality of rabbit meat [Text] / J. Składanowska-Baryza [and etc.] // Anim Sci J – 2018. - Apr;89(4). -P. 713-721. doi: 10.1111/asj.12966.

15 Cesari, V. Environmental impact of rabbit meat: The effect of production efficiency [Text]/V. Cesari [and etc.] // Meat Sci – 2018. - Nov;145. -P. 447-454. doi: 10.1016/j.meatsci.2018.07.011.

16 Li S. Rabbit meat production and processing in China [Text]/S. Li [and etc.] // *Meat Sci* – 2018. –145. –P. 320-328. doi:10.1016/j.meatsci.2018.06.037

17 Nakyinsige, K. Bleeding efficiency and meat oxidative stability and microbiological quality of New Zealand white rabbits subjected to halal slaughter without stunning and gas stun-killing [Text] / K. Nakyinsige [and etc.] // Asian-Australasian Journal of Animal Sciences – 2014. – Т. 27, № 3. – P. 406–413. https://doi.org/10.5713/ajas.2013.13437.

18 Apata, E. S. Effect of stunning methods on quality of rabbit carcass and meat [Text] / E.S. Apata [and etc.] // Nigerian Journal of Animal Production – 2020. – Т. 40, № 2. – P. 229–236. https://doi.org/10.51791/njap.v40i2.1132.

19 Petracci, M. Rabbit meat processing: historical perspective to future directions [Text] / M. Petracci [and etc.] // World Rabbit Science – 2013. – Т. 21, № 4. https://doi.org/10.4995/wrs.2013.1329.

20 Kone, A. P. N. Effects of plant extracts and essential oils as feed supplements on quality and microbial traits of rabbit meat [Text] / A. P. N. Kone [and etc.] // World Rabbit Science – 2016. – Т. 24, № 2. – P. 107. https://doi.org/10.4995/wrs.2016.3665.

21 Cwiková, O. Evaluation of rabbit meat microbiota from the viewpoint of marketing method [Text] / O. Cwiková [and etc.] // Potravinarstvo Slovak Journal of Food Sciences – 2017. – Т. 11, № 1. – P. 391–397. https://doi.org/10.5219/764.

22 Kačániová, M. Anti-salmonella activity of Thymus serpyllum essential oil in sous vide cook–chill rabbit meat [Text] / M.Kačániová [and etc.] // Foods – 2024. – Т. 13, № 2. – P. 200. https://doi.org/10.3390/foods13020200.

ТҮЙІН

Бұл мақалады Батыс Қазақстан облысында өсірілген қоян етіне ветеринариялық-санитариялық сараптама жүргізілді. Зерттеуге бірдей жағдайда өсірілген, бірақ жасы әртүрлі үш қоян таңдалды. Талдау өнімнің сапасы мен қауіпсіздігін бағалау үшін органолептикалық, физика-химиялық және микробиологиялық зерттеулерді қамтиды.

Сояр алдында қояндардың жалпы жағдайын, белсенділігін, жүнінің, шырышты қабаттарының жағдайын және көрінетін патологиялардың бар-жоғын бағалауды қамтитын ветеринариялық тексеру жұмыстары жүргізілді. Союға дейінгі қарап тексергенде үш қоян да клиникалық сау болып шықты: дене қызуы 38,5–39,5°C аралығында ауытқиды, тыныс алуы біркелкі (минутына 50–60 тыныс), жүрек соғысы минутына 130–160 рет, шырышты қабаттары таза және қызғылт түсті, жүні тегіс және жылтыр болды. Жұқпалы немесе паразиттік аурулардың белгілері анықталған жоқ.

Органолептикалық талдау барлық үлгілердің жаңа піскен ет стандарттарына сәйкес келетінін көрсетті: олар бозғылт қызғылт түсті, тығыз консистенциялы және ерекше иісі болды. Физико-химиялық зерттеулер pH 5,7-6,2 диапазонында көрсетті, бұл жақсы ет сапасын көрсетеді. Пероксидаза реакциясы оң болды, бұл өнімнің балғындығын көрсетеді. Аммиак пен аммоний тұздарын анықтау олардың жоқтығын көрсетті, бұл дұрыс сақтауды және ыдырау белгілерінің жоқтығын көрсетеді.

Микробиологиялық талдау еттің санитарлық талаптарға сәйкестігін растады: патогенді микроорганизмдер, соның ішінде ішек таяқшасы мен сальмонелла анықталмады. Бір үлгіде дара кокктар мен грамоң таяқшалар анықталды, бірақ олардың саны рұқсат етілген шектен аспады.

Салыстырмалы талдау ет сапасының айырмашылығы қояндардың жасына байланысты екенін көрсетті. Жас қояндардың сынамаларының ылғалдылығы жоғары және жұмсақ құрылымды болды, ал кәрі қоян етінің құрылымы тығызырақ және құрғақ зат мөлшері жоғары болды.

Зерттеу нәтижелері қоян етінің жоғары тағамдық және санитарлық-гигиеналық сипаттамалары бар екенін растады. Ол тұтынуға қауіпсіз және белгіленген сапа стандарттарына сәйкес келеді. Нәтижелер өнімдердің тұрақты сапасын қамтамасыз ету үшін жануарлардың әл-ауқатын, азықтандыру және сою жағдайларын бақылаудың маңыздылығын көрсетеді.

РЕЗЮМЕ

В данной статье проведена ветеринарно-санитарная экспертиза мяса кролика, выращенного в Западно-Казахстанской области. Для исследования было отобрано три кролика, выращенных в одинаковых условиях, но различавшихся по возрасту. Анализ включал органолептические, физико-химические и микробиологические исследования с целью оценки качества и безопасности продукции.

Перед убоем был проведен ветеринарный осмотр животных, включающий оценку их общего состояния, активности, состояния шерстного покрова, слизистых оболочек и наличия видимых патологий. По результатам осмотра все три кролика были клинически здоровы: температура тела варьировалась в пределах 38,5–39,5°C, дыхание было равномерным (50–60 дыхательных движений

в минуту), частота сердечных сокращений составляла 130–160 ударов в минуту, слизистые оболочки были чистыми и розовыми, а шерстный покров – гладким и блестящим. Признаков инфекционных или паразитарных заболеваний выявлено не было.

Органолептический анализ показал, что все образцы соответствовали стандартам свежего мяса: имели бледно-розовый цвет, плотную консистенцию и специфический запах. Физико-химические исследования выявили pH в диапазоне 5,7–6,2, что свидетельствует о хорошем качестве мяса. Реакция на пероксидазу была положительной, указывая на свежесть продукта. Определение аммиака и аммонийных солей показало их отсутствие, что свидетельствует о правильном хранении и отсутствии признаков разложения.

Микробиологический анализ подтвердил соответствие мяса санитарным требованиям: патогенные микроорганизмы, включая кишечную палочку и сальмонеллы, не были обнаружены. В одном образце выявлены единичные кокки и грамположительные бациллы, но их количество не превышало допустимые нормы.

Сравнительный анализ показал, что различия в качестве мяса обусловлены возрастом животных. Образцы от более молодых кроликов отличались более высокой влажностью и нежной консистенцией, тогда как мясо старших животных имело более плотную структуру и повышенное содержание сухих веществ.

Результаты исследования подтвердили, что мясо кролика обладает высокими пищевыми и санитарно-гигиеническими характеристиками. Оно является безопасным для потребления и соответствует установленным стандартам качества. Полученные данные подчеркивают важность контроля условий содержания, кормления и забоя животных для обеспечения стабильного качества продукции.