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IMPROVING THE EFFECTIVENESS OF THE PROCEDURE FOR CONTROLLING ANTIBIOTICS IN MILK AND DAIRY PRODUCTS

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Annotation: Organic substances of milk during storage under the influence of a number of factors undergo a number of complex changes in composition and properties with the formation of new chemical compounds that dramatically change the nutritional value, normal appearance, taste and smell of the product. Regulation of biochemical and microbiological processes during the storage and processing of milk is an important area of the dairy industry. The purpose of the experiment is to identify the nature of the differentiated effect of antibiotics on the chemical composition, microbiological indicators and technological properties of raw milk and fermented milk products.

Keywords: milk, taste and smell of the product, antibiotics, microbiological indicators, technological properties, fermented milk products.

Relevance of the topic: One of the priority areas of the dairy industry is the production of milk that meets sanitary and hygienic standards and the requirements of processing enterprises. The solution of this problem is important from the point of view of ensuring the safe and nutritious nutrition of people. The relevance of our research lies in the fact that antibiotics are of particular danger in milk not only for humans, but also create a serious problem for the dairy industry, since they can disrupt the production process by inhibiting the starter microflora. This leads to serious financial losses.

For the first time, the nature of the differentiated effect of penicillin and levomycetin on microorganisms and the chemical composition of milk and fermented milk products was studied at different periods and temperatures of storage.

The revealed patterns of the impact of various antibiotics, on the one hand, will make it possible to directly influence the quality and safety indicators of milk and dairy products, control their production processes, and on the other hand, they are necessary to correct the requirements of regulations and state standards in the field of milk production and processing.

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The aim of the study is to improve the efficiency of the procedure for controlling antibiotics in milk and dairy products by developing and implementing a system for multi-stage verification of dairy raw materials for their production.

In accordance with the goal, the following **tasks** are being solved that determine the structure of the work:

- conduct an analytical review of the literature on the use of antibiotics in agriculture, methods for their measurement and ways to reduce the amount of antibiotics in milk;
- analyze the legislative and regulatory framework in terms of regulation and control of antibiotics in milk and dairy products;
- to monitor the presence of antibiotics in milk in an industrial enterprise. Differentiate the causes of contamination of milk and dairy products with antibiotics. Substantiate antibiotic control points;
- systematize existing methods for measuring antibiotics in milk and conduct a comparative analysis of methods based on them. Justify the feasibility of applying specific methods for each control point;
- develop a procedure for confirming the metrological characteristics of qualitative methods for measuring antibiotics using test kits;
- conduct a comprehensive analysis of test kits and develop a procedure for selecting a test kit for each control point;
- to develop a system for multi-stage control of antibiotics in milk and dairy products.

The scientific novelty of the research is as follows:

- the causes of contamination of milk and dairy products with antibiotics were differentiated using a cause-and-effect diagram;
- a mathematical model has been developed for assessing the factors of contamination of milk and dairy products using a tree-like scheme;
- scientifically substantiated control points of antibiotics, taking into account the calculated weight coefficients;
- the expediency of the integrated use of microbiological, enzyme immunoassay and physico-chemical methods for the control of raw milk and dairy products at selected control points is substantiated.

The practical significance of the study is:

- a system of documents has been developed regarding the control of antibiotics in milk and dairy products operating on the territory of the Republic of Uzbekistan;
- a procedure was designed to confirm the metrological characteristics (sensitivity) of qualitative methods for measuring antibiotics using test kits;
- a questionnaire and an expert assessment scale were developed to identify the level of significance of indicators characterizing test kits;
- the procedure for their selection was designed for each of the points of control of antibiotics in milk, taking into account the results of a comprehensive analysis of test kits;
- a system for multi-stage control of antibiotics in milk and dairy products has been developed;
- a systematization of qualitative methods for the determination of antibiotics in milk and dairy products was carried out.

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Milk productivity and the quality of raw milk are affected by many factors, both internal and external. It is possible to increase the level of milk yield and quality characteristics of milk only with the right combination of these factors in the process of economic use of lactating cows. At the same time, it should be taken into account that individual phases of lactation are characterized by a better use of dietary components with a lower consumption of nutrients (T.K. Teziev and others, 2015).

It is known that the initial period of lactation is the most critical. At the same time, the peak of lactation

is accompanied by an increase in the need for energy in cows. This period is accompanied by a shortage of energy and protein, since the level of feed intake lags behind the necessary energy requirement for milk production. The lack of energy is compensated for by the energy fat reserves of the body, the value of which is determined by the fatness of the animals. Currently, in the production of milk, they strive to maintain the composition of the diet at all stages of lactation, which subsequently leads to a decrease in productive qualities and live weight of cows in the first period of lactation. The live weight of cows is restored only by the final stage of lactation due to the overconsumption of concentrated feed (T.K. Teziev, K.E. Khutiev, 1970; T.K. Teziev and others, 1997; T.K. Teziev, and others, 1998 ; V.Kh. Temiraev and others, 2013).

Influence of differentiated feeding of cows during the lactation period on productivity, milk quality and live weight.

So, in his studies, T.K. Teziyev et al. (2015) found that animals with differentiated feeding spent much less reserves of their body at the height of the lactation period on milk secretion than their peers in the control groups. That is, if cows are subjected to increased feeding during the lactation period, then the level of milk yield for the entire lactation period increases. The authors found that the mass fraction of fat and protein in the milk of animals of all experimental groups changed during lactation. Thus, the superiority of cows of the experimental group over analogues of the control group on average per lactation in terms of fat concentration in milk was 0.11%, in terms of the mass fraction of milk protein - 0.17%. The amount of fat and protein in milk changed similarly to the dynamics of fat and protein content. At the same time, the difference in the quantitative data of fat and protein was determined to a greater extent by the difference in natural milk yield.

Another factor affecting milk productivity is the quality of milking. Raising a good cow starts from the day she is born. Subsequently, already heifers, they begin to accustom the animal to machine milking. The results of studies by numerous scientists confirm the statement that the level of milk production is directly dependent on the degree of development of the glandular tissue of the udder (I.V. Mironova, R.S. Zainukov, 2008; N.P. Sudarev, 2008).

According to V. Ivanov et al. (2011), one of the main zootechnical factors is the quality of feed. As a rule, feeding cows with silage with a moisture content of more than 75% leads to a deterioration in milk quality. Such a silage mass contains organic acids: butyric, beta-hydroxybutyric, a high content of acetoacetic acid is noted. The resulting milk acquires the smell of acetone and 3-4 hours after milking, its acidity rises above 21°T, that is, the milk becomes unsuitable for further processing.

A significant role in obtaining high-quality milk is played by the level of trace elements selenium, iodine and zinc in feed (L.V. Gurkina and others, 2009).

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An important factor in the production of high-quality milk is compliance with veterinary and sanitary requirements on farms.

In a number of livestock buildings, there is a violation of the microclimate parameters: excess levels of ammonia, hydrogen sulfide, carbon dioxide. Harmful gaseous compounds on farms with manual milking are absorbed by milk, which acquires a specific smell (V. Ivanov and others, 2011; V.Iu. Mamchenko, 2015).

It is necessary to take into account the period of lactation. Milk obtained for the first time 7 days after calving (colostrum) and in the last decade before launch is not advisable to use for the production of dairy products, since the use of such raw milk spoils the taste of the product (V. Ivanov and others, 2011).

Conclusion.

Supplying the population of Uzbekistan with dairy products of its own production determines the food

independence of the country, which depends on the development of the national agro-industrial complex. At the same time, an important role is played by the possibility of increasing the productivity of animals with the lowest production costs.

The use of a wide range of feed additives in the composition of diets replenishes the diets of animals with elements and reduces the cost of dairy production.

The most promising for use in animal husbandry are energy supplements, the action of which is aimed at maintaining the energy balance of highly productive cows during the most stressful periods.

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