

ABSTRACT

of the dissertation work on the topic "Innovative diagnosis and treatment strategies of foot rot infection of cattle" proposed for the degree of Doctor of Philosophy (PhD) to Torekhanov Meroy Aibynovich according to the training program 8D09101 - "Veterinary Medicine".

The relevance of scientific research. The relevance of scientific research. To solve the food program, drastic changes in economic relations are needed, combined with the acceleration of scientific and technological progress in the social transformation of the village. The development of the agro-industrial complex of the country should be carried out on the basis of various types of management of livestock complexes, peasant farms with an independent solution of the main issues of production and sale of agricultural products.

Livestock workers are faced with the task of providing the population with high-quality products in publicly available quantities and reducing its imports. A big obstacle is the presence of infectious diseases among farm animals, one of which is currently necrobacteriosis, a disease that carries high costs associated with reduced productivity, premature destruction of animals and antiepidemiological measures. The reason is that diseases are associated with the prevention and treatment of animals, dirty slaughter of animals, loss of productivity and other costs of disease eradication measures.

Necrobacteriosis of cattle is an infectious disease manifested by purulent inflammation and necrotic lesion of many organs and tissues of the body. Diseases of the hooves and hooves of cattle cause significant economic damage to small livestock farms, as well as large specialized farms. The cost of treatment, loss of milk, meat, especially affects the formation and reproduction. When the hooves are deformed, the dairy productivity of the cow decreases to 14-50%, about 17% of 100 sick animals remain infertile.

Geographically, necrobacteriosis of cattle is widespread on all continents, regardless of age and breed, in all countries, including Kazakhstan, which is often engaged in highly developed animal husbandry, as well as in countries near and far abroad. In addition, in recent years there has been a tendency to exacerbate the epizootic situation of necrobacteriosis, which is due to the complication of the economic and technological conditions of animal husbandry.

Despite the significant sufficiency of developed and widely used therapeutic and prophylactic methods and remedies against necrobacteriosis of cattle, most of them do not fully satisfy veterinarians in practical terms due to many negative aspects. For example, for the treatment and prevention of necrobacteriosis-affected legs and hooves, antiseptic agents and disinfectant baths are used, the use of which takes a relatively long time and in most cases does not give positive results.

Meanwhile, the use of antibiotics for the disease does not completely solve this problem due to the different sensitivity and rapid production of antibiotic

resistance of the pathogen of necrobacteriosis and associated microbes. In addition, the haphazard use of antibiotics has an immunosuppressive effect on the animal body.

The facts are summarized, indicating that unilateral preventive measures do not give enough positive results, therefore they cannot be considered completely perfect. In the conditions of the market of formative veterinary products in the country, it is economically advantageous to develop and produce domestic therapeutic and prophylactic agents against purulent - necrotic lesions of cattle hooves that meet all the requirements of veterinary practice. Based on the above, it is possible to conclude with full confidence about the relevance of the chosen research direction.

Nowadays in many cattle farms of the Republic of Kazakhstan, often detects diseases of the extremities from animals and during diagnosis often finding *Fusobacterium necrophorum*. Bovine necrobacteriosis is an infectious disease manifested by purulent inflammation and necrotic lesions of many organs and tissues of the body.

Geographically, necrobacteriosis of cattle, regardless of age and breed, is widespread on all continents, in all countries of the near and far abroad, where animal husbandry is developed, Kazakhstan is no exception. In addition, in recent years, there has been a tendency to exacerbate the epizootic situation of necrobacteriosis, which is associated with the development of economic and technological conditions for animal husbandry.

Despite a large number of therapeutic and prophylactic methods and remedies developed and widely used against bovine necrobacteriosis, most of them do not fully satisfy veterinarians from a practical point of view due to many negative aspects. For example, using of antiseptics and disinfectant baths for the treatment and prevention of feet and hooves affected by necrobacteriosis requires a comparatively long time and in most cases does not give positive results.

In recent decades, in veterinary medicine and medicine, probiotic preparations have been increasingly used to effectively combat various pathological processes caused or aggravated by small microflora to form optimally balanced microbiocenoses to maintain homeostasis of the body.

In this regard, the development of a biological method against necrobacteriosis of cattle using lactic acid bacteria is a new scientific direction and has a great relevance.

Due to the fact that necrobacteriosis is widespread among various animal species in many countries of the world, the development of an alternative method of controlling animal diseases is a great importance not only at the national but also at the international level. The use of biologically safe probiotic preparations and cellular, i.e. histological study of their effect on the body are becoming a priority task in the field of animal husbandry in Kazakhstan and has great scientific, theoretical and especially applied importance.

In foreign, CIS and domestic literature, as well as in articles of journals registered in the Scopus and Web of Science databases, there are rather contradictory views on the disease, while has been written not enough about pathological morphological and histological changes.

In this regard, we believe that the relevance of comprehensive studies of this infectious disease is an undoubted production necessity.

Purpose and objectives of the research work. The main goal is the express diagnosis of bovine necrobacteriosis using modern technologies and the histological study of its effect on the regeneration of damaged tissues after treatment with the domestic probiotic drug Lactobacterin-TK. To achieve this goal, we have set ourselves the following objectives:

- determination of the dynamics of the spread of the disease in the Almaty region;
- study of clinical and morphological features of the course of the disease;
- determination of the causative agent of bovine necrobacteriosis;
- determination of the main pathomorphological changes occurring in the internal organs during necrobacteriosis of cattle;
- histological examination of intracellular and tissue changes characteristic of the disease;
- study of the effect of "Lactobacterin-TK" on pathogenic microflora isolated from affected areas of cattle in laboratory conditions;
- histological study of the therapeutic effect of the domestic probiotic drug "Lactobacterin-TK" on necrobacteriosis of cattle and the effect of the drug on the regeneration of skin and muscle tissue of the legs.

Scientific novelty. For the first time in the Almaty region, the diagnosis of necrobacteriosis of cattle using innovative technologies, treatment with the use of the domestic probiotic drug "Lactobacterin-TK" and histological study of the effect of the drug on the skin and muscle tissue of animals were carried out.

Main issues presented to the defence. 1. Study of the epizootic situation on necrobacteriosis of cattle in economic entities of Almaty region of the Republic of Kazakhstan;

2. Main clinical signs characteristic of the disease;
3. Indication and determination of the type affiliation of the causative agent of cattle necrobacteriosis;
4. Main pathomorphological changes occurring in internal organs in bovine necrobacteriosis;
5. Histological examination of cellular and tissue changes that occurred in the internal organs during the disease;
6. Study of the effect of lactic acid bacteria preparation "Lactobacterin-TK" on pathogenic microflora isolated from the affected areas of cattle in laboratory conditions;

7. Study of the therapeutic effect of Lactobacterin-TK in bovine necrobacteriosis;

8. Histological control of the effect of Lactobacterin-TK on the regeneration of damaged tissues in cattle necrobacteriosis;

Theoretical and practical significance of the work. As a result of the study of bovine necrobacteriosis in some livestock farms of the Almaty region, we carried out epizootological, clinical features, pathological, microbiological, histological studies of necrobacteriosis of cattle in the Almaty region. Histologically examined the mechanism of action of the probiotic drug "Lactobacterin-TK", as well as the effect on tissue regeneration. On the basis of these informations have been created scientific recommendations for the practical application of clinical, pathomorphological and modern methods of express diagnostics of cattle necrobacteriosis on agro-industrial complexes and farms: "Pathological and anatomical assessment of animals Necrobacteriosis", "On the use of the probiotic "Lactobacterin-TK" in cattle necrobacteriosis", "Pathological morphology of animal necrobacteriosis". The results of the study can be used in writing textbooks and educational materials on the disciplines "Pathological and anatomical diagnosis of necrobacteriosis of animals", "Comparative Pathomorphology of Diseases of Productive Animals". The results of the study can be used in writing textbooks and educational materials in the disciplines "Pathological anatomy of animals", "Comparative pathomorphology of diseases of productive animals", as well as when conducting lectures, laboratory and practical classes for students of the veterinary faculty of agricultural universities and for the purpose of diagnosing and treating necrobacteriosis on farms.

Personal contribution of the author. A dissertation is a completed research work performed personally by the author and meets the requirements for dissertations for the degree of Doctor of Philosophy of the Ministry of Higher Education and Science of the Republic of Kazakhstan. Publication of the results of the research in the dissertation under the name of the author, photographic materials and conclusions is confirmed by the received copyright certificates, which determine the accuracy and reliability of the results of the work, and confirm that the experimental work was carried out independently.

Approbation of the work. Results and main provisions of the dissertation: considered at the scientific extended meeting of the Department of Biological Safety (September 24, 2019, Protocol No. 2) and the Faculty of Veterinary Medicine (October 12, 2019, Protocol No. 2) of KazNARU, presented at the scientific and practical conferences "Global science and innovations 2023: CENTRAL ASIA" and "Science and education in the modern world: challenges of the XXI century".

Publication of a research paper. There are 10 scientific publications with co-authors based on the materials of the dissertation, including 3 articles in journals registered in the databases Scopus, Web of Science; 2 articles in the collections of international scientific and practical conferences; 1 article in an international

independent scientific journal, 3 scientific and methodological recommendations and 1 copyright certificate.

Scope and structure of the dissertation.The dissertation was carried out according to a generally accepted model. The content consists of an introduction, a review of the literature, research materials and methods, an analysis of individual research results, a conclusion, practical recommendations and additional materials. In addition, it contains a list of references, including 94 titles. The thesis was written on 119 pages, contains 5 tables, 63 figures and 3 diagrams, formatted according to the required standards.