ABSTRACT

of the dissertation work of Azizov Khudaibergen Alimbaevich on the topic "The impact of a multicomponent phytopreparation on the indicators of nonspecific resistance of the body and the therapeutic efficiency for bronchitis in lambs", submitted for the degree of Doctor of Philosophy (PhD) in the educational program 8D09101-Veterinary Medicine.

The relevance of the topic. Diseases of the respiratory system of young farm animals are characterized by widespread prevalence and high morbidity. The economic damage caused by these diseases is caused by the death of animals, forced slaughter, the cost of veterinary measures and a sharp decrease in the productivity of the affected animal. Diseases of the respiratory system of lambs are widespread in all countries of the world and cause major economic damage to livestock due to a decrease in live weight and growth of animals and an increase in their mortality.

Diseases of the respiratory system in terms of their breadth, mortality, forced slaughter, and weight loss predominate compared to other diseases. 80-100% of young animals are often affected by these diseases, and mortality can reach 55% or more, which, in turn, can lead to a decrease in the economic efficiency of the industry by up to 20-30%. Currently, many methods and antibacterial drugs are widely used in veterinary practice for the treatment of respiratory diseases of animals. Their main disadvantage is that prolonged use of drugs leads to the formation of a large number of resistant strains of microorganisms, as well as their unjustified use reduces immunity, contributes to the occurrence of dysbiosis and increased resistance of microorganisms, as well as reducing the therapeutic effectiveness of the drugs used.

Therefore, currently, in order to further develop animal husbandry, the development and practical implementation of the most effective and safe medicines for the treatment of respiratory diseases of young animals is required. More than 30% of medicines used in modern clinical medical practice are obtained from herbal raw materials. Phytopreparations are used for all socially significant diseases, including cardiovascular, oncological, infectious, gastrointestinal, etc., and unfortunately, they are still underused in veterinary medicine. Therefore, the development of new herbal preparations with minimal side effects, which have not only pronounced antimicrobial effects, but also anti-inflammatory and immunomodulatory effects, is a very urgent task.

As a result of these properties, preparations made from medicinal plant raw materials become relatively safe. In addition, they have high pharmacotherapeutic efficacy, as they have high biological activity. Unlike synthetic drugs, which are often addictive, herbal drugs have high bioavailability due to their proximity to the human and animal body. Preparations of different plants combine well with each other, they can often enhance the effect of each other (the phenomenon of synergism). Therefore, their multicomponent (multicomponent) drugs will have a more pronounced positive clinical and therapeutic effect, and may also allow for maximum pharmacotherapeutic effect.

Despite the large number of antimicrobial drugs used in the treatment of respiratory diseases, this problem is still relevant. Therefore, preparations made from local medicinal plant raw materials with medicinal properties are important in the prevention and treatment of respiratory diseases of lambs, including bronchitis. Their composition is rich in components with pronounced anti-inflammatory, antiseptic, antipyretic, expectorant, immunomodulatory and antibacterial properties, and they are also environmentally friendly, biologically safe and cost-effective drugs.

Taking into account the above, currently the practical use of polycomponent phytopreparations with high medicinal properties is one of the urgent issues for the treatment of respiratory diseases of young animals.

The main purpose of the work: scientific substantiation of the effect of a polycomponent phytopreparation made from local medicinal plant raw materials on body resistance and therapeutic efficacy in lambs with bronchitis.

To achieve this goal, **the following tasks were set**:

1. Development of polycomponent phytopreparations from local medicinal plant raw materials and determination of their pharmaco-toxicological, microbiological properties and optimal doses;
2. To study the effect of polycomponent phytopreparations on the dynamics of humoral immunity and nonspecific body resistance in lambs with bronchitis;
3. To study the effect of polycomponent phytopreparations on the dynamics of cellular immunity and nonspecific body resistance in lambs with bronchitis;
4. To find out the comparative therapeutic and preventive effectiveness of polycomponent phytopreparations in respiratory diseases of lambs.

Research results. According to the developed technologies, polycomponent phytopreparations were made from local medicinal plant raw materials and their pharmaco-toxicological, microbiological properties and optimal doses were determined; phytopreparations belong to hazard class IV according to the degree of toxicity (low-risk substances); administration of phytopreparations in maximum doses to laboratory animals does not cause acute, cumulative, or chronic intoxication; it has been revealed that long-term use does not adversely affect internal organs and tissues, the morphological and biochemical composition of blood has no local irritating, allergic effects; it has been proven that phytopreparations have a pronounced antimicrobial effect against pathogenic bacteria St. aureus (1/80) E. coli (1/40); it has been established that the optimal dose for a multicomponent extract is 2.5 ml/kg, for complex medicine - 5.0 ml/ kg.

As a result of the studies, immunodeficiency conditions were revealed in lambs with bronchitis: there was a decrease in the concentration of T-, B-lymphocytes - by 30.2-33.3%; phagocytic activity of neutrophils (FAN) - by 23.2-50.9%; IgG - by 30.1%, lysozyme activity – by 38.8; bactericidal activity –by 36.9%; polycomponent phytopreparations in optimal doses contribute to the restoration of clinical parameters (temperature, pulse, respiration) of lambs with bronchitis to physiological norms 5-6 days earlier than in the control group; They have a stimulating effect on humoral

immunity indicators: concentrations of lysozyme, bactericidal, complementary, and β-lysine activity relative to the control group increase by an average of 22.5-36.0%; immunoglobulins–by 25.5-27.8%; total protein–by 14.9-16.5%; albumins-by 21.5%; γ-globulins-by 28.9%; erythrocytes-by 17.6%; leukocytes-17.6%; leukocytes-18.8%; erythrocyte sedimentation rate –by 23.4%; segmented neutrophils-by 10.3%; monocytes-up to 43.7%.

Based on the research data obtained, it was found that polycomponent phytopreparations have a stimulating effect on the indicators of cellular immunity of nonspecific body resistance of lambs with bronchitis, so compared with the control group, the concentrations of T and B lymphocytes increase by 37.2%, 26.6%, respectively; PHAN according to the spontaneous test-up to 31.2%, according to the induced test - up to 36.0%; white blood cells- by 23.9%. The indicators increase significantly relative to the background data: T and B lymphocytes - up to 54.5; 34.4%; PHAN on spontaneous test-up to 37.3%, induced test-up to 58.2%; white blood cells are up to -31.3%.

It was found that polycomponent phytopreparations have a therapeutic and prophylactic effect against respiratory diseases of lambs: the efficacy rate from the use of complex medicine was 96.7%, from the polycomponent extract - 100%, and in the control group the indicator was only 80.0%; the therapeutic effectiveness from the use of decoctions and tinctures was 96.7%, and in the comparative control group - 76.7%; the duration of the disease was reduced by 3-4 days; the average daily and absolute weight gain rates of 25 g and 2.3 kg, respectively, were higher; a more pronounced therapeutic effectiveness was found from the use of a polycomponent extract, where the therapeutic effectiveness was 100%, in the control group 80%; shortens the treatment period to 3-5 days; the average daily and absolute weight gain rates were 28.5 g and 2.73 kg more, respectively, than in the control group; the use of polycomponent phytopreparations is economically beneficial, the economic effectiveness of the application extract per 1 head. it amounted to 5.21 tg, and from the use of a complex medicine-4.36 tg.

The scientific novelty of the work. Based on the developed technology, polycomponent phytopreparations from the following local medicinal plants were manufactured in the scientific laboratory of the department: St. John's wort, sage, marshmallow, elecampane; pharmacological, toxicological, microbiological, immunological properties and optimal doses of polycomponent phytopreparations were determined for the first time; the effect of polycomponent phytopreparations on the dynamics of morphological and immunological parameters of lambs with bronchitis was studied for the first time; Comparative therapeutic and preventive efficacy of polycomponent phytopreparations in respiratory diseases of lambs has been revealed (utility model patent No. 9878 dated 12/06/2024, methodological recommendation, Almaty, 2025).

The practical significance of the work. According to the data obtained on the basis of scientific and production work, it has been proven that the polycomponent

phytopreparations used have a stimulating effect on the indicators of humoral and cellular immunity of lambs with bronchitis; they have high therapeutic and preventive effectiveness in respiratory diseases and are recommended for use in household conditions.

The results of the dissertation work can be included in the curricula of students and undergraduates enrolled in the veterinary education program, students of advanced training courses for veterinarians and applied to farms.

The main issues recommended for protection:

1. Manufacturing technology, toxicological parameters, microbiological properties, optimal doses of polycomponent phytopreparations;
2. The effect of polycomponent phytopreparations on the dynamics of humoral immunity and nonspecific body resistance in lambs with bronchitis;
3. The effect of polycomponent phytopreparations on the dynamics of cellular immunity and nonspecific body resistance in lambs with bronchitis;
4. Comparative therapeutic and prophylactic efficacy of polycomponent phytopreparations in respiratory diseases of lambs.

Personal contribution of the applicant. In accordance with the goals and objectives set for the dissertation topic, the applicant personally performed pharmaco-toxicological, microbiological, morphological, immunological studies and scientific and practical work in economic conditions, and some materials according to the instructions of scientific consultants.

The research work on the dissertation was carried out in the laboratory of the Kazakh-Japanese Innovation Center at KazNAIU, the educational and scientific laboratory of the Department of Pharmacology and Pathology of Animals, the biochemical and Immunological laboratory of the University of Warmia-Masuria (Poland), in the academies of the veterinary clinic and animal vivarium, as well as some pharmacological studies performed in the laboratory of the department "Pharmaceutical Technologies" of the Kazakh National Medical University. Scientific and production experiments were carried out in private farms of the Yenbekshikazakh and Zhambyl districts of the Almaty region.

In the course of his research, he participated in several international scientific and practical conferences, made presentations, published scientific articles in domestic and foreign publications, received a patent for a utility model, received certificates on the introduction of research results into production and the educational process, and developed methodological recommendations.

Approbation of the work. The research results were reported and discussed at the meetings of the department, international scientific and practical conferences: International Scientific and Practical Conference. "The state and prospects of development of veterinary medicine and animal husbandry of the Republic of Kazakhstan", dedicated to the 80th akad. NAS RK, Doctor of Historical Sciences, professor T. Saiduldina (Almaty, 15-16.03.2023); III-International NAS RK Forum "Dialogue of Young Scientists: Science talks" (Almaty, 26-27.10.2023); International

Scientific and Practical Conference "XXI Science: "Current issues, problems and Prospects" (Dushanbe, Tajikistan, 12/15/2023); International Scientific and Practical Conference. "Achievements and prospects for the development of veterinary therapy in the new Uzbekistan", dedicated to the 105th anniversary of Doctor of Veterinary Sciences, Professor H.Z.Ibragimov (Samarkand, Uzbekistan, 15-16.12.2023); "Science and Education: A New Time", International Scientific Journal, No. 5 (Astana, 2024); Interd. scientific and practical conference "Actual problems of treatment and prevention of diseases of young animals", dedicated to the 100th anniversary of the Vitebsk State Veterinary Academy. medicine (Vitebsk, Belarus, 4-6.10.2024).

The volume and structure of the dissertation work. The thesis consists of 156 pages. Its content consists of an introduction, a review of the literature, materials and research methods, research results, analysis of research results, conclusions, practical recommendations and additional materials. The thesis contains 25 tables, 23 figures, and 12 photographs. The list of references consists of 227 titles, including 59 sources in a foreign language.