

mers consisting of monosaccharide residues (mainly glucose), having linear structure molecules with  $\beta$ -(1→3)-glycoside bond types or branched with  $\beta$ -(1→6)-glycoside bonds in the side chains. They are components of the cell walls of basidiomycetes and are more often found in the form of polysaccharide-protein complexes (glycoproteins). To the  $\beta$ -D-glucans, polysaccharides of fungi *Lentinus edodes*, *Schizophyllum commune*, *Ganoderma lucidum*, *Poria cocos*, *Coriolanus* and *Crestinum* (*Trametes versicolor*) grifron-D from *Grifola frondosa*. They have proven immunostimulatory and antitumor activities, low toxicity, have successfully passed clinical trials and are widely used in countries of South-East Asia for the treatment of oncological and chronic infectious diseases with immunodeficiencies [3, 4].

To date, there is a sufficient amount of work devoted to the study of the structure and biological activity of various polysaccharides of many species of basidiomycetes, but there is no stepwise description of the activation of the immune response under their influence [5].

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### BACTERIAL PATHOGENS OF HUNTING WATERFOWL AS THE FACTOR OF THE REDUCTION OF THEIR NUMBERS IN BELARUS

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It is presented the material on the ecological significance of bacteriocarrier in waterfowl for epizootic well-being in the territory of the Republic of Belarus. The emphasis was placed on the need for further research into the factors and mechanisms of transmission of bacterial pathogens infections among hunting birds.

*Keywords:* bacteriosis, infectious diseases, pathology, epizootic, hunting, waterfowl.

For many infectious diseases of hunting animal species, including waterfowl, bacteriocarrier is the main ecological form which provides the existence and transmission of the pathogen in nature.

The peculiarities of the geographical location of the territory of Belarus make it imperative to raise the issue of preserving epizootic well-being in general, and among hunting waterfowl, in particular, there is a constant threat of infection.

The next diseases can be identified from a large list of diseases of bacterial etiology that affect waterfowl: salmonella, streptococcosis, pasteurellosis, listeriosis, influenza, colibacteriosis and others. We do not exclude the possibility of entering into the territory of Belarus especially dangerous diseases which are common to agricultural and wild animals, and which previously were not registered in our country. This is one of the sides of the relevance of scientific research in this direction.

As is known, many species of wild waterfowl serve as a reservoir and source of infections. The disease can occur in a pronounced clinical form, as well as in the form of asymptomatic carriage, which is quite common in the wild. For example, the most important source of infection in salmonellosis is waterfowl, especially mallard, the infection of which, according to our studies, can reach 40%. Such carrier animals are the most dangerous for humans. Pathogens of infections, including salmonella, are not capable of causing disease in animals who have a high resistance of the organism, however with a decrease in resistance, pathogens permeate from the intestine

into the blood, causing sepsis. Infection of people occurs with the use of infected meat that has not undergone veterinary and sanitary expertise. In this case, infectious diseases, carriers of which are hunting waterfowl birds, can manifest themselves as severe intoxication.

The threat of bacterial infections will exist as long as there is a carrier in nature. Since pathogens of infectious diseases are biological objects, for them, as for all living things, to keep themselves as a species is the most important thing. And this means that bacterio- and virus-carrier will always accompany life of macroorganisms.

It is necessary to implement a large-scale implementation of veterinary-sanitary and economic measures for the prevention of bacterial transport in nature.

A wide range of pathogens of bacterial diseases, carriers of which are waterfowl, allows us to talk about the need for further and more in-depth study of this process.

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### DEVELOPMENT OF GUIDELINES FOR ROUTINE QUALITY CONTROL ACTIVITIES FOR A NEW GENERATION OF MEDICAL LINEAR ACCELERATORS

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The purpose of developing these new guidelines is the increased demand for automation and acceleration of quality control procedures.

*Keywords:* automation of measurement, medical linear accelerators.

For quality assurance of the high-tech radiotherapy techniques using modern medical linear accelerators the main goal to achieve is to maximize precision of the high radiation doses delivery to the volume of the tumor. To achieve this goal, it is necessary to guarantee high accuracy of each stage of radiation treatment.

Due to the introduction to the clinical practice of the radiotherapy department's modern and more complex medical equipment, it is necessary to develop the new comprehensive guidelines for routine quality control activities for a new generation of medical linear accelerators.

A detailed description of the methods for quality control of medical linear accelerators is contained in the regulatory document "Methods for assessing the characteristics of radiation treatment of cancer patients in high-tech irradiation on medical accelerators of electrons." This protocol contains a list of the characteristics and parameters to be monitored as well as the procedures for providing the tests.

To improve the abovementioned protocol for a new generation of medical linear accelerator quality control it is necessary to introduce the availability of applications and tools for automatic quality control of linear accelerator characteristics. Automation of the process significantly reduces the time spent on performing standard quality control procedures.

A new method for routine quality control of the medical linear accelerator will greatly accelerate the process of assessing the quality of radiation treatment, but at the same time, the highest accuracy had to be met. Measurements and evaluation of parameters, when performing automatic quality control procedures for the characteristics of the radiotherapy equipment should be carried out with the highest possible attention paid.

The purpose of developing these new guidelines is the increased demand for automation and acceleration of quality control procedures. Conducting an assessment of the characteristics of radiation treatment should not depend on the subjective opinion of one particular specialist. Automation of measurement and subsequent results evaluation gives a possibility to eliminate random errors and decreases the human factor influence.