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## MONITORING OF HIGH-LATITUDE MICROBIOTA AS AN OBJECTIVE PREDICTOR OF GLOBAL CLIMATE CHANGE, EPIDEMIOLOGICAL RISKS

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**M**icroorganisms clearly react to climate change. Microbial species can be indicators of anthropogenic impact on polar ecosystems. Global climate change may also affect the composition and structure of microbial communities in the Antarctic and the Arctic. Microbiological monitoring is very important for ensuring the transmission of pathogens, as well as assessing the epidemiological situation in the area of polar settlements. The purpose of this work is to study the microbial biogenesis of the polar zones and to show the role of microbiological monitoring as a predictor of risks associated with global, primarily, climate warming. Studies of microbiota in Antarctic ecosystems have been carried out since 1996 in water, soil, flora and fauna in the Antarctic coastal areas around the facilities of the Russian Antarctic Expedition. Psychrophilic bacteria (*Yersinia*) and other pathogens around were isolated. An annual sample was taken from the same habitat, which allowed investigating the dynamics of microbiota at the reference points. A variety of bacteriological, mycological studies, including molecular methods, were used. Microbiological monitoring showed an increase in 1.5-3 times microbiota of anthropogenic origin. Here the diversity of bacteria and fungi was significantly higher than in natural ecosystems. At the moment, our research priorities are related to the Arctic regions of Russia. Microbiological monitoring of birds inhabiting the territory surrounding the polar stations is being carried out to develop preventive and anti-epidemic measures related to climate warming. These studies form the basis of the concept of polar epidemiology with scientific justification for preventive and ant epidemic measures. The topic of climate research is very relevant for the biological and medical community. It is necessary to predict and respond to the challenges of the climate, which is one of the important epidemiological risks, in a timely manner.

### Biography

Alexander Panin is a Senior Lecturer of the Department of Microbiology of the Military Medical Academy. He is Specialist in medical support for the preparation of expeditions to the polar zones. He participated in 50 and 56 Russian Antarctic expeditions. He monitors the sanitary status of the objects of Russia in Antarctica. In a team of like-minded people, psychophiles – bacteria and micromycetes, living at low temperatures under extreme polar conditions, types of microorganisms of medical significance, are exploring. He has published more than 20 scientific articles in well-known journals, where observations on aspects of global warming are objectified. Microbiological monitoring is most informative in extreme zones of polar deserts as predictors of global warming and epidemiological risks of the emergence of infectious diseases of humans and animals. Studying symbiosis in cyanobacterial mats and in the polar microbiota. This allows us to objectify the risks of global climate disasters.

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