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One Health concept and bacteriophages

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One Health concept, as a worldwide interdisciplinary strategy, targets the health issues linked to the increasing contacts between humans and animals, intensification and integration of agriculture and food production, expansion of international travel, bioterrorism threats, climate change, ecological stressors etc. Many infectious pathologies has been shared by humans and animals, some phytopathogenic bacteria can evolve as human opportunistic pathogens, the changing conditions in aquatic environments can trigger the development of more virulent strains of waterborne bacteria potentially pathogenic to humans. Bacterial viruses are widely spread in the biosphere, controlling the diversity and density of bacterial populations in various ecosystems. During up to 100 years history of phage research naturally occurring lytic phages have been found for majority of important pathogens of humans, animals and plants. This provides a viable resource for development of effective phage-based control strategy consistent with "One Health" approach. Emergence and re-emergence of life-threatening drug-resistant bacterial infections in the last two decades gave a new insight at the potential of bacteriophages as alternative to antibiotics, capable to eliminate or significantly reduce the use of chemical antimicrobials in various spheres of human activity. The presentation will cover the valuable experience in human phage therapy accumulated at the Eliava Institute of Bacteriophages as well as recent research developments aimed at phage application for control of bacterial diseases in livestock and aquaculture, for food safety and crop protection, also environmental decontamination.

Biography

Marina Tediashvili was graduated from Tbilisi State University, Georgia and conducted her PhD work at Eliava Institute of Bacteriophages in Tbilisi and Ivanovsky Institute of Virology in Moscow and awarded PhD degree by TSU in 1980. She has completed her Postdoctoral studies at Institute of Medical Enzymology in Moscow and Cancer Research Center in Tbilisi. She currently runs the Laboratory for Microbial Ecology. Her scientific interests are medical and environmental microbiology with main focus on phage research and phage therapy, development of biocontrol strategies of bacterial infections in humans, animals and plants. She is the Professor of Microbiology at the University of Georgia and Tvilidiani Medical University in Tbilisi.

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