



„PHAGE TREATMENT AND WETLAND TECHNOLOGY AS INTERVENTION STRATEGY TO PREVENT DISSEMINATION OF ANTIBIOTIC RESISTANCE IN SURFACE WATERS” - A PROJECT LAUNCH IN LOW-MIDDLE INCOME COUNTRIES OF EASTERN EUROPE

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Introduction. Antimicrobial resistance is a widespread and tough challenge, if not impossible, to limit by biological, physical or geographical barriers. This is the reason behind the "One Health" approach, which guides all rules and research plans on antimicrobial resistance worldwide. The abusive and excessive use of antimicrobials in human medicine, veterinary practices, agriculture and aquaculture has traditionally been considered the main reason for the global spread of antimicrobial resistance. The purpose was to assess the epidemiological risk of wastewater as a source of antimicrobial-resistant bacteria concerning public health, focusing on low- and middle-income Eastern European countries.

Material and methods. To achieve this goal, the development of a secure, cost-effective and sustainable technology has been planned, which could easily be introduced in low- and middle-income countries. There have been outlined the following steps: mapping the consumption of antimicrobial emulsions at the national level (primary, cross-sectional study, complete sampling, based on imported data and centralized public acquirement of medicines); research regarding the knowledge, attitudes and practices of the population on antimicrobial resistance (primary, cross-sectional, descriptive study); qualitative and descriptive evaluation of barriers to reduce the phenomenon of antimicrobial resistance by the healthcare services; research regarding the knowledge, attitudes and practices in human and veterinary healthcare on antimicrobial resistance (primary, cross-sectional, descriptive study); screening and investigation of the microbial resistance mechanisms to the strains isolated from patients with infectious pathological processes (preclinical study); analysis of the specific features and sampling of the Constructed Wetlands in Orhei (preclinical study). The Ethics Committee of Ministry of Health of RM positively approved the *Research PhageLand*.

Results. The obtained results of this research will contribute to a better understanding of the involved factors that are generating the broadening of antimicrobial resistance and how they influence the transmission among different hosts (bacteria, animals and humans). Moreover, it can also have a major impact to the engineering field and wastewater management companies by expanding the range of tools with sophisticated technologies, designed to reduce the risk of transmitting antimicrobial resistance in wastewater and improve sewerage practices.

Conclusions. The effective use of knowledge and practices in the worldwide fight against antimicrobial resistance, providing useful data, applicable knowledge, efficient, environmentally friendly and cost-effective protocols and technologies, which can be scaled, implemented and used at the European and international levels with no economic or geographical obstacles.

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