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ENVIRONMENTAL MONITORING OF THE WATER MICROBIOME IN THE MOUNTAIN AREA OF TRANSCARPATHIA

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Significant number of unauthorized landfills, 60% of them are concentrated near water bodies, in particular the river. The conducted studies allow us to compare the results of water analyzes taken in the area located upstream of the stream, directly near the landfill and downstream of the stream.





- The spring water of the mountainous part of Transcarpathia has a favorable sanitary-biological regime, hydrochemical and microbiological indicators, oxygen regime (over 100% oxygen saturation), a low degree of saprobity. Water is often potable, so it is used for drinking. However, permanent pollution negatively affects aquatic ecosystems as a whole. The results of a microbiological study of water microbiota showed that water microorganisms are very sensitive to pollution.

Runoff from agricultural and pasture lands, landfills, and urban areas is an important source of surface and groundwater pollution. Gram-positive bacteria of the genus *Staphylococcus* range from the most polluted area (Feresok) to the least polluted (Steryshory) within: 3.89 thousand CFU/ml of water, downstream 7.35 thousand CFU/ml of water. Sterishor upstream of the studied area -0.63 thousand CFU/ml of water, in the place near the landfill 0.33 thousand CFU/ml of water, downstream 0.12 thousand CFU/ml of water. Studies conducted using the ENDO medium for the isolation of enterobacteria indicate an increase in the number of enterobacteria.



However, sensitivity to oxygen limits the habitat of many pathogenic microorganisms, in particular clostridia. Therefore, growing and dividing clostridia cannot be detected in the air-saturated surface layers of lakes and rivers or on the surface of organic material and soil. However, Clostridium spores are most likely present in these environments and will germinate when oxygen is depleted and appropriate nutrients are present. In particular, the number of Gram-positive bacteria of the genus Clostridium is the highest recorded in the most polluted areas.



The results of a microbiological study of water microbiota indicate the presence of a large number of pathogenic microorganisms directly in landfill sites and downstream. Monitoring of microbiological indicators allows to assess the negative impact of contaminated areas on microbiological groups of spring water, especially in places near landfills and downstream. This can be caused by leachate, which in large quantities enters natural bodies of water from landfills during rainfall.





*THANK YOU
FOR YOUR ATTENTION.*

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