

ASSESSMENT OF POSSIBILITIES OF SPREADING OF BIOAEROSOL FROM DIFFERENT TECHNOLOGICAL OBJECTS IN SMALL SEWAGE TREATMENT PLANTS

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Abstract

The Covid-19 pandemic increased the attention of the world community to air biocontamination. Sewage treatment plants (STPs) generate a bioaerosol during different technological operations. Research aimed to estimate the range of bioaerosol emission from different technological objects of 5 small STPs. Such knowledge is very important for risk assessment, monitoring programs and pollution limitation. The sedimentation method was used for the detection of mesophiles, psychrophiles, *Escherichia coli*, pigmented bacteria, *Streptococcus faecalis*, *Pseudomonas fluorescens*, and mold fungi. The highest level of psychrophiles and mold fungi (> 1000 cfu/m³) was detected in points located near activated sludge chambers, sludge thickening tanks, and secondary clarifiers. The mesophiles (>500 cfu/m³) and *E. coli* aren't a normal component of air microflora, but were detected in all measurement points, especially near a pump station (inflow), grit, activated sludge, sludge thickening chambers. At the points located at the leeward, the number of microorganisms was higher than in the windward. The research results indicate the necessity of constant monitoring of the STP impact on the air quality.

Keywords: Bacteria; bioaerosol; *E. coli*; Mesophiles; Microbiological air quality; Mold fungi; *P. fluorescens*; Psychrophiles; Sewage treatment plant; *S. faecalis*.