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ANALYSIS OF MICROBIAL COMMUNITY IN MICROBIAL FUEL CELL SYSTEM

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Background
Microbial fuel cells (MFCs), although firstly described in the XIX century, are currently in the early stages of research and are emerging technology. MFCs are a type of biological fuel system that converts chemical energy into electricity using catalysts such as microorganisms. They are considered an eco-friendly method because, at the same time, they can remove pollutants and generate energy that can be used for various purposes.

Objectives
The aim of this study was to analyse microbial community present in a sample of river sediment used in MFC processes.

Methods
The following groups’ of total microorganisms represented in the river sediment were determined: total chemoorganoheterotrophs (TC), total anaerobic chemoorganoheterotrophs (TAC), sulphate-reducing bacteria (SRB), yeast and molds (YM) and hydrocarbon degrading bacteria (HD).

Results
The most represented group of microorganisms present in the sediment belongs to aerobic bacteria. Their role is related to the processes that operate on the cathode part of the MFC system. Anaerobic and sulfate-reducing bacteria were present in slightly smaller numbers and processes of their metabolism were contributing to the functioning of the anode compartment. Knowing the complexity of the processes occurring in the MFCs, it is not surprising that various groups were present in significant number.