

Topic: Microbial communities

Title: **STRUCTURE OF MICROBIAL COMMUNITIES IN ACTIVATED SLUDGE AFTER ADDITION OF DIFFERENT CAROBN SOURCES.**

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Text: **Background.** Utilization of external carbon sources is widely spread practice in wastewater treatment plants to enhance denitrification rates and thus improve nitrogen removal. But use of commercial products such as methanol greatly claim costs of operation, therefore there is a need to find alternative and cheap substitutes. Waste materials from distilling industry seem to be very promising. Knowledge about the impact of this type of carbon sources on microbial communities allows to improve processes efficiency.

Objectives. The main aim of the research was to analyze the influence of different carbon sources application on the structure of microbial communities creating activated sludge.

Methods. Experiment was provided in two laboratory-scale sequencing bath reactor (SBR). Methanol and fusel oils were provided as an external carbon sources. The structure of microbial communities was investigated using polymerase chain reaction (PCR) and denaturing gradient gel electrophoresis (DGGE).

Conclusions. The results do not show any significant effect of either methanol or fusel oils on the growth of microorganisms. There were no major changes of bacterial populations in both reactors. The observed changes in the rate of denitrification were linked rather with the modification of enzyme activity of the entire microbial consortium than as a result of selection processes. Based on this study, we can conclude that waste materials from distillery industry seem to be attractive alternative for conventional carbon sources. The obtained results will be helpful in the planning a pilot-scale experiment in the next part of the project.

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