

Citation:

Akoto, E.; Ayisi, H.; Adjei, C.O.; King, G.E.; Charway, B.; Arthur-Asmah, J.; Livingstone, C.N.; Agbogli, H.; Asmah, R.H. (2025). Characterization of bioprocessing microbes in a sewage treatment plant in Accra, Ghana. *UHAS Research Conference*.

Characterization of bioprocessing microbes in a sewage treatment plant in Accra, Ghana

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Objectives:

Due to increasing urbanization and population growth, wastewater treatment is crucial for protecting public health and water resources. This study objective was to characterize the bioprocessing microbes present in the Sewage System Ghana Limited plant in Accra to understand their roles in wastewater treatment.

Methods:

This cross-sectional study involved collecting samples from the aerobic tanks of the treatment plant. Samples were cultured to obtain pure colonies, which were then identified using a series of biochemical tests and microscopy. Molecular analysis, including genomic DNA extraction, PCR amplification, and gel electrophoresis, was conducted to detect the 16S rRNA gene.

Results:

The dominant microbial species identified were *Bacillus* spp., *Klebsiella* spp., *Vibrio* spp., and *Proteus* spp. These microbes were confirmed to have metabolic activity through gas production during carbohydrate fermentation. The findings indicate that these species, known from literature to possess bioprocessing capabilities, play a significant role in the wastewater treatment process.

Conclusion:

The study successfully characterized the bioprocessing microbes in the sewage treatment plant, highlighting their importance in effective wastewater management. Further research is warranted to explore the capabilities of these organisms to engineer innovative and environmentally friendly wastewater treatment methods.

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