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Degradation of oxytetracycline under autotrophic nitrifying conditions in a membrane aerated biofilm reactor and community fingerprinting

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Highlights

- Membrane aerated biofilm reactor accomplished simultaneous nitrification and OTC oxidation.
- Fluxes of both pollutants increased significantly with an increase in their loading rates and O₂ pressure.
- OTC in the removed fraction were completely mineralized to end-products by the aerobic biofilm
- Molecular diversity within the biofilm changed depending on the OTC concentration

Abstract

Pharmaceuticals in waterbodies are a growing concern due to their extensive uses and adverse effects on aquatic life. Oxytetracycline (OTC) is one of tetracycline antibiotic group used for treatment of animals and humans. This study evaluates the simultaneous oxidation of OTC and ammonium under autotrophic nitrifying conditions by using a membrane aerated biofilm reactor (MABR) as it provides an appropriate environment for the antibiotic-degrading

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