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The Role of Ozone Pretreatment on Optimization of Membrane Bioreactor for Treatment of Oil Sands Process-Affected Water

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Highlights

- The role of ozone pretreatment on MBR optimization was explored.
- MBR performance benefited more from HRT adjustment after ozone pretreatment.
- Microorganisms in MBR for ozonated OSPW were more responsive to HRT adjustment.
- The dominating *Rhodocyclaceae* was positively correlated to NA removal.

Abstract

Previously, anoxic-aerobic membrane bioreactor (MBR) coupled with mild ozonation pretreatment has been applied to remove toxic naphthenic acids (NAs) in oil sands process-affected water (OSPW). To further improve MBR performance, the optimal operation conditions