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Title: Effects of Proton Exchange Membrane on the Performance and Microbial Community Composition of Air-Cathode Microbial Fuel Cells

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1 **Effects of Proton Exchange Membrane on the Performance and**
2 **Microbial Community Composition of Air-Cathode Microbial Fuel Cells**

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9 **Abstract**

10 This study investigated the effects of proton exchange membranes (PEMs) on

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Highlights

- The effect of PEM use on electricity and microbial community composition in air-cathode MFCs was evaluated.
- PEM use adversely affected maximum voltage production and COD removal rate.
- Total bacteria and *Geobacter* were more abundant in MFCs without a PEM compared to MFCs with a PEM.
- *Geobacter* was positively correlated with maximum power density.

PEM use was negatively correlated with *Geobacter* abundance.

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