We found a significant difference in the electrical conductivity of the control pond water and both the pond water with 100µL of added E.coli and 200µL of added E.coli. The electrical conductivity increased in both the pond water of 200µL and 100µL of added E.coli when compared to the control. Our results agreed with findings presented by Sedky that SOB in stream water increases the electrical conductivity and with organic matter in the water (2013). When SOBs were used to generate power with MFCs, lower energy outputs were observed which differed from our results (Xiao et al., 2021). This may be due to Xiao's study being sulfur driven after Xiao increased the salinity of the wastewaters which stopped fermentation unlike with our pond water which was optimal for the E.coli's growth.

Our results indicate that pond waters with added E.coli could be a possible effective water type to be treated in MFCs because the higher electrical conductivity output could produce higher energy outputs when used in MFCs for a clean bioenergy source. This is supported by cultures and microorganisms already present in wastewater, like our pond water, already being found as an effective bio-anode for MFCs (Hend et al., 2016). In addition, MFCs with electrogenic bacteria were found to contribute to the electrical current generation (Guotao et al., 2019) and in the high energy outputs of double chamber MFCs (Lee et al., 2016). Our pond water with E.coli could be useful in large-scale use of MFCs, such as wastewater treatment plants where MFCs are modeled to gain energy (Hiegemann et al., 2016). This is because a freshwater and seawater wastewater mix had the highest power outputs in MFCs (Karthikeyan et al., 2016), where the pond water could be utilized.

In our present experiment, we used 200µL and 100µL of added E.coli. In future studies, experiments could be conducted using a higher amount of E.coli to see whether the electrical conductivity continues to plateau like our experiment and what kind of effect higher amounts of

E.coli would have on pond water. Additionally, we only used E.coli which produced hydrogen sulfide. However, more information regarding other types of sulfates'effects on electrical conductivity is still needed in order to observe whether there is a bacteria that has higher electrical conductivity outputs and could be a better water treatment type for sustained use of MFCs.

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