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Short Communication

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Enhanced *rhodococcus pyridinivorans* HR-1 anode performance by adding trehalose lipid in microbial fuel cell

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Abstract: In this study, a trehalose lipid was added to a *Rhodococcus pyridinivorans*-inoculated MFC to improve the power output by enhancing electron transfer. Upon trehalose lipid additions of different concentration from 0 to 20 mg/L, the maximum power density increased from 54.7 mW/m² to 324.4 mW/m² (5.93 times) while the corresponding current density was 3.66 times increased from 0.35 A/m² to 1.28 A/m². Cyclic voltammetry analysis revealed that the addition of trehalose lipid increased the electron transfer performance, while electrochemical impedance spectroscopy results proved a decrease in internal resistance. It was demonstrated that adding bio-surfactant in MFC was a novel way to enhance power output performance.

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