Insights: Publications

Investigating the Electroactivity of Salinivibrio sp. EAGSL, through Electroanalytical Techniques and Genomic Insights

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Microbial electrochemical technologies are becoming an interest for the electrochemical community due to their possible applications in wastewater treatment, biosensing, biosynthesis, and bioenergy. Fundamental to these technologies is the use of electroactive microorganisms as bioelectrocatalysts. Recent studies have aimed to elucidate electron transfer strategies of electroactive microorganisms, with a keen interest in extremophilic bacteria due to their enhanced survivability in variable and extreme conditions, making them a better candidate for use in microbial electrochemical technologies. Recently, the species Salinivibrio sp. EAGSL was isolated from the Great Salt Lake, Utah, for its anodic respiration capabilities. In this work, electroanalytical techniques offer the primary information regarding the electroactive mechanisms of Salinivibrio sp. EAGSL. Additionally, measuring the current production over time shows electricity production over 3 days. Fundamental insights from the recently determined genome sequence offer possible explanations and mechanisms of this behavior and other metabolisms of interest for microbial electrochemistry. By elucidating the extracellular electron transfer pathways of Salinivibrio sp. EAGSL, the pairing of electroanalytical and genomic methods can provide a framework of study for other novel electroactive species.