

Insights: Publications

The use of electroactive halophilic bacteria for improvements and advancements in environmental high saline biosensing

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Halophilic bacteria are remarkable organisms that have evolved strategies to survive in high saline concentrations. These bacteria offer many advances for microbial-based biotechnologies and are commonly used for industrial processes such as compatible solute synthesis, biofuel production, and other microbial processes that occur in high saline environments. Using halophilic bacteria in electrochemical systems offers enhanced stability and applications in extreme environments where common electroactive microorganisms would not survive. Incorporating halophilic bacteria into microbial fuel cells has become of particular interest for renewable energy generation and self-powered biosensing since many wastewaters can contain fluctuating and high saline concentrations. In this perspective, we highlight the evolutionary mechanisms of halophilic microorganisms, review their application in microbial electrochemical sensing, and offer future perspectives and directions in using halophilic electroactive microorganisms for high saline biosensing.