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Assessment of Sludge-Based Microbial Fuel Cell Performance via Electrochemical Impedance Spectroscopy

Abstract

The effective, non-destructive method known as electrochemical impedance spectroscopy (EIS) can be a useful supplement to the methods currently being used to examine microbial fuel cells (MFCs). Its use in MFC research should be investigated further, such as in the examination of MFC internal resistance, electrode materials, catalyst coatings on electrodes and growth of biofilms. Specifically, this chapter details the application of EIS in comprehending electro-chemical processes involved in sludge-based MFC, the biological and/or abiotic variables that restrict power production, with the goal of comprehending and overcoming them.

Keywords

Impedance spectroscopy; Internal resistance; Microbial fuel cell; Sludge