

Microbial catalysis in bioelectrochemical technologies: status quo, challenges and perspectives.

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Abstract

Over the past decade, microbial electrochemical technologies, originally developed from an interesting physiological phenomenon, have evolved from a rush of initiatives for sustainable bioelectricity generation to a multitude of specialized applications in very different areas. Genetic engineering of microbial biocatalysts for target bioelectrochemical applications like biosensing or bioremediation, as well as the discovery of entirely new bioelectrochemical processes such as microbial electrosynthesis of commodity chemicals, open up completely new possibilities. Where stands this technology today? And what are the general and specific challenges it faces not only scientifically but also for transition into commercial applications? This review intends to summarize the recent advances and provides a perspective on future developments.

Involved units

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