

The Methods of Immobilization of Laccase for Direct Transfer in an Enzymatic Fuel Cell

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Abstract : In this paper, we compare five methods of biological fuel cell fabrication by combining a *Shewanella oneidensis* microbial anode and a laccase-modified air-breathing cathode. As a result of biofuel cell laccase with graphite nanofibers, carbon surface (PAMAN) on the pt/hpg electrode, graphite sheets MWCNT and with (PG) and (MWCNT) showed, respectively. Describes methods for creating controllable and reproducible bio-anodes and demonstrates the versatility of hybrid biological fuel cells. The laccase-based biocathodes prepared either with the crude extract or with the purified enzyme can provide electrochemically active and stable biomaterials. The laccase-based biocathodes prepared either with the crude extract or with the purified enzyme can provide electrochemically active and stable biomaterials. When the device was fed with transdermal extracts, containing only 30 μ M of glucose, the average peak power was proportionally lower (0.004mW). The result of biofuel cell with graphite nanofibers showed the enzymatic fuel cell reaches 0.5 V at open circuit voltage with both, ethanol and methanol and the maximum current density observed for E2electrode was 228.94mAcm.

Keywords : enzymatic electrode, fuel cell, immobilization, laccase

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