Enhancement of enzymatic fuel cell by modifying of chitosan dissolved in concentrated acetic acid solution

김동섭, 이자현, 최한석, 이주훈, 이수권, 이진영[1], 김승욱†
고려대학교; [1]상명대학교

Enzymatic fuel cell (EFC) is an attractive biological fuel cell using enzyme modified bioelectrode generating electricity from substrates. We developed bioelectrode containing electron transfer mediator for enzyme redox reaction, in (EFC). Chitosan has a role of electrospun from aqueous solution using acetic acid as a solvent while. Chitosan, a natural polymer, is considered to be a cheap source of membrane material. This concept is converted chemical energy into electrical energy. In this work, glucose oxidase (GOD) and laccase (Lac) were immobilized onto anode and cathode electrode, respectively to construct the glucose/O2 biological fuel cell. The effect of the concentration of acetic acid on electron transfer of EFC system with chitosan mediator was identified using cyclic voltametry. Finally, we obtained 0.567 V of the Cell's open circuit voltage and 1,198±8.2 μW/cm² of its maximum power density at 0.342 V.