Flavins mediate extracellular electron transfer in Gram-positive Bacillus megaterium strain LLD-1

Electrochemically active microorganisms are microbes which can transfer electrons from cell to extracellular electron acceptors such as minerals, contaminants, electrodes, etc., and these processes are defined as extracellular electron transfer. In this study, we isolated and identified a new electrochemically active strain of *Bacillus megaterium* strain LLD-1, and its extracellular electron transfer mechanism was demonstrated by cyclic voltammetry (CV), differential pulse voltammetry (DPV), HPLC, and chronoamperometric.

The CV and DPV showed that a redox peaks ascribing to membrane proteins was found in the strain LLD-1; another redox peaks observed in cell and supernatant were ascribed to flavins. 74% increment of voltage generation in LLD-1 inoculated microbial fuel cell (MFC) can be made by adding extra 0.1 μM flavins mixture solution.