

## **Effect of interaction between microbial fluid and electrode on performance**

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For the electrode reaction controlled by electron transfer, the electrode material has a great influence on the reaction rate. In terms of the material's conductivity, the reaction rate of the MFC will be improved by the high electron conductivity of the anode and the cathode. About the electrode area, as the electrode reaction is carried out at the electrode-solution interface, the reaction rate will be proportional to the electrode area, so a high surface area of the electrode development is extremely important. In addition, the metal surface modification, in order to develop a corrosion-resistant and highly collectible metal electrode modification is also an important research topic.

Electrodes of the Microbial fuel cell whether used in sewage treatment plants or marine rivers or lakes, the purpose of the production of electricity will be associated with the behavior of the fluid. Fluid behavior for the system efficiency and electrode usefulness would have a great impact. In this study, we focused on the interaction of microfluidic fluids with multi-morphological metal electrodes in the system. Through the observation of fluid mechanics and numerical simulation, we hope to understand the interaction between fluid and electrode, understand the interaction between bacteria and electrodes.