

## A Recent Advance and Perspectives of Electrode Material in Microbial Fuel Cells

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### *Abstract*

In modern era, research on production of energy and bioremediation of toxic pollutant is a priority. Microbial fuel cells (MFCs) are friendly effective power vitality sources which can convert the chemical energy into electricity form in presence of biocatalyst and simultaneously remove the toxic pollutant from water resources without any environmental pollution. Limitations have braked the progress of MFC, including lower energy production, pollutant removal efficiency, electrode materials and incapability to design MFCs for industrial capacities. However, introduction of new innovative electrode materials has potential to develop the high-performance of MFCs. In this article, the developments and improvements of electrode materials to enhance the MFC performances are briefly summarized. Different classes of electrode

including both anode and cathode with several modification methods are reviewed and discussed. The continued research efforts on sevral type of materials for high-performance electrodes in order to achieve the MFCs performance at industrial-scale. This article gives a summary which is useful to decide the electrode material for future research to achieve high performance because still long-term stability is a challenge for scientific community. In conclusion, the future prospective, useful suggestions and modern challenges regarding MFCs are considered through several aspects to achieve the long-term stability task.

**Keywords:** Microbial Fuel Cell, Electrode, Anode, Cathode, Energy Production, Bioremediation of Pollutant

### *Biography*

Asim Ali Yaqoonb has completed his bachelor and Master at the age of 28 years from MUST University AJK Pakistan and currently doing PhD studies from School of Chemical Sciencece Universiti Sains Malaysia.