Microbial Fuel Cell (MFC) Technology and Scale up Factors in a Sri Lankan Context

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Abstract

MFC systems are generally robust systems that can operate on variable feedstock and are usually capable of oxidizing the organic substrates completely to carbon dioxide and water. This paper discuss about scaling up factors of the MFC addressing each and every major component of the cell. Experimental results on lab scale MFC using cow dung have included and recent advances in this technology along with current uses and other potential applications are also identified in this paper.

1. Introduction

A MFC consists of a biological anode and an oxidizing electrode which are coupled electrically by a proton-conducting membrane. The anode is usually in contact with an anaerobic environment and is used directly to oxidize the organic substrate into carbon dioxide and water. An oxidizing electrode is typically placed in aerobic conditions where the electrons produced at the anode are transferred through an external circuit to a cathode, regenerating the oxidizing agent.