

Edited by: Debabrata Das

Microbial Fuel Cell: A bioelectrochemical system that converts waste to watts



Dr. Debabrata Das, Ph.D (IIT-Delhi), FIAHE, FNAE, FBRS, FAScT, FIE(I), is a senior professor and former MNRE Renewable Energy Chair Professor at the Indian Institute of Technology Kharagpur, India. He has made significant contributions on bioenergy production processes by applying fermentation technology. His area of research are gaseous fuels production from organic wastes; CO₂-sequestration, biodiesel production from microalgae; and electricity generation from microbial fuel cells.

Presently, he has the Google h-index of 43 for his research work. He has more than 140 research publications in peer-reviewed journals, has written two textbooks and one reference book and has contributed more than 23 chapters in books. He has been bestowed with IAHE Akira Mitsue award and Malaviya Memorial award for senior faculty for his contribution in hydrogen research. He is the Editor-in-Chief of *American Journal of Biomass and Bioenergy*. He is the member of the editorial board of several international journals.

About the Book

This book is a novel attempt at describing microbial fuel cell (MFC) as renewable energy source derived from organic wastes. Bioelectricity is usually produced through MFC in oxygen-deficient environment where a series of microorganisms convert the complex wastes to electrons via liquefaction through a cascade of enzymes in a bioelectrochemical process. A detailed description on MFC technology and their applications have been discussed in this book. The theories underlying the electron transfer mechanisms, the biochemistry and the microbiology involved, as well as the material characteristics of anode, cathode and the separator have been described in details. This book is aimed at a wide audience, mainly undergraduates, postgraduates, energy researchers, scientists in industries and research organizations, energy specialists, policy makers, and others who wish to know the MFCs and also wish to get abreast with the latest developments. Each chapter in the book begins with the fundamental explanation for general readers and ends with in-depth scientific details suitable for expert readers.



CAPITAL PUBLISHING COMPANY

www.capital-publishing.com



Microbial Fuel Cell: A bioelectrochemical system
that converts waste to watts

Edited by
Debabrata Das

Edited by
Debabrata Das

Microbial Fuel Cell: A bioelectrochemical system that converts waste to watts