

# RECENT ADVANCES IN BIOENVIRONMENTAL ENGINEERING

■ Suleyman A. Muyibi ■ Maan Alkhatib ■  
Mohd Ismail Abdulkarim ■ Md Zahangir Alam  
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# **Recent Advances in Bioenvironmental Engineering**

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## CONTENTS

<b>PREFACE</b>	iii
<b>CHAPTER 1</b> Pretreatment of Lignocellulosic Oil Palm Empty Fruit Bunch Wastes as Valuable Carbon Source for Production of Useful Cellulases Enzymes <i>Mohamed Ismail Abdul Karim, Faridah Yusof, Manisya Zauri Abd. Wahid And Md. Zahangir Alam</i>	1
<b>CHAPTER 2</b> Utilization of Cassava Peel as Animal Feed <i>Parveen Jamal, Tijani Iyabo Dasola Ruqayyah, Md Zahangir Alam And Mohamed Elwathig Saeed Mirghani</i>	35
<b>CHAPTER 3</b> Pervaporation Process: Separation of Bioethanol From Direct Fermentation of Cassava Starch <i>Md. Zahangir Alam, Nassereldeen A. Kabbashi And Salma Hawari</i>	52
<b>CHAPTER 4</b> Production of Selected Hydrolytic Enzymes from Agro-Residues <i>Hamzah Mohd. Salleh, Md. Zahangir Alam And Aliyu Salihu</i>	71
<b>CHAPTER 5</b> Kinetic Studies on Biodiesel Production from Crude Palm Oil <i>Nassereldeen Ahmed Kabbashi; Md Zahangir Alam, And Ashraf M. A. Al-Fusaiel</i>	98
<b>CHAPTER 6</b> Production of Process Water from Biologically Treated Palm Oil Mill Effluent (POME) Using Ultrafiltration Membrane <i>Mohammed S. Jami, Suleyman A. Myyibi, Mumirat A. Idris</i>	118
<b>CHAPTER 7</b> Speciation of Fast and Slow Biochemical Oxygen Demand <i>Zaki Zainudin, Norazah Abdul Rahma2, Norizan Abdullah</i>	154
<b>CHAPTER 8</b> Water Sampling and Testing for Nonpoint Source Pollution Load Estimation in Malaysia <i>Abdullah Al Mamun</i>	174
<b>INDEX</b>	198

## CHAPTER 7

### Speciation of Fast and Slow Biochemical Oxygen Demand

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#### **Introduction**

Biochemical Oxygen Demand (BOD) is a critical constituent used to measure the strength of organic pollution in water. Although new methodologies for organic quantification such as the Chemical Oxygen Demand (COD), Total Organic Carbon (TOC) tests and respirometry methodology have been introduced. The BOD method for determining organic strength is still preferred by the environmental community, despite its sometimes random and arbitrary results. The BOD test procedure dates back to early part of the 20<sup>th</sup> century by measuring dissolved oxygen (DO) depletion within a five-day period at a designated incubation temperature (Zainudin, 2008). The DO depletion is attributed to oxygen consumption (BOD) by microbial organisms present in the water column during the stabilization of biodegradable organic matter. This aspect of including the microbial population in the test is a feature not addressed in other modern methods for organic quantification (save perhaps respirometry) and is of significant importance for ambient water quality preservation proceedings, such as in the use of water quality models. Many macro and