

Wastewater Resource Recovery and Biological Methods



Springer Water

Series Editor

Andrey G. Kostianoy, Russian Academy of Sciences, P. P. Shirshov Institute of Oceanology, Moscow, Russia

Editorial Board

Angela Carpenter, School of Earth and Environment, University of Leeds, Leeds, West Yorkshire, UK

Tamim Younos, Green Water-Infrastructure Academy, Blacksburg, VA, USA Andrea Scozzari, Institute of Information Science and Technologies (CNR-ISTI), National Research Council of Italy, Pisa, Italy

Stefano Vignudelli, CNR—Istituto di Biofisica, Pisa, Italy

Alexei Kouraev, LEGOS, Université de Toulouse, Toulouse Cedex 9, France

The book series Springer Water comprises a broad portfolio of multi- and interdisciplinary scientific books, aiming at researchers, students, and everyone interested in water-related science. The series includes peer-reviewed monographs, edited volumes, textbooks, and conference proceedings. Its volumes combine all kinds of water-related research areas, such as: the movement, distribution and quality of freshwater; water resources; the quality and pollution of water and its influence on health; the water industry including drinking water, wastewater, and desalination services and technologies; water history; as well as water management and the governmental, political, developmental, and ethical aspects of water. Pardeep Singh · Pramit Verma · Ravindra Pratap Singh Editors

Wastewater Resource Recovery and Biological Methods



Editors
Pardeep Singh
Department of Environmental Studies
PGDAV College, University of Delhi
New Dehli, Delhi, India

Ravindra Pratap Singh Department of Central Public Works New Delhi, Delhi, India Pramit Verma Institute of Environment and Sustainable Development Banaras Hindu University Varanasi, Uttar Pradesh, India

ISSN 2364-6934 ISSN 2364-8198 (electronic) Springer Water ISBN 978-3-031-40197-8 ISBN 978-3-031-40198-5 (eBook) https://doi.org/10.1007/978-3-031-40198-5

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2023

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Paper in this product is recyclable.

Contents

1	New Scope in the Field of Wastewater Treatment: Biopolymer Production and Its Uses Archna Kumar, Deepika, Kashika Kapoor, Tarkeshwar, and Kapinder	1
2	Recovery of Nutrients from Wastewater Ignacio Alejandro Pérez-Legaspi, Gustavo Emilio Santos-Medrano, Isidoro Rubio-Franchini, and Roberto Rico Martínez	17
3	Recent Update on the Recovery of Various Metals from Wastewater Isidoro Rubio-Franchini, Jesús Alvarado-Flores, and Roberto Rico Martínez	37
4	Chemical, Physical and Biological Techniques for Recovery of Heavy Metals from Wastewater Deeksha Ranjan	51
5	Heavy Metal Removal and Recovery: Sustainable and Efficient Approaches Nalini Singh Chauhan and Abhay Punia	87
6	Recovery of Various Metals from Industrial Wastewater by Biological Methods Ankita Ojha, Ankitendran Mishra, Dhanesh Tiwary, and Avinash Singh	125
7	Book—Resource Recovery from Wastewater Through Biological Methods Publisher—Springer Nature Jaspreet Kour, Arun Dev Singh, Shalini Dhiman, Tamanna Bhardwaj, Kamini Devi, Neerja Sharma, Isha Madaan, Amritpal Singh, Geetika Sirhindi, and Renu Bhardwaj	145

vi Contents

8	Physico-Chemical Pathways for Wastewater Effluents	173
9	Biofertilizers from Wastewater: Strategy to Check Water Pollution and Chemical Fertilizers in Agriculture Archna Kumar, Deepika, Kashika Kapoor, Tarkeshwar, and Kapinder	193
10	Wastewater into a Resource: Biofertilizers Anamika Roy, Mamun Mandal, Sujit Das, Randeep Rakwal, Ganesh Kumar Agrawal, and Abhijit Sarkar	211
11	Microalgae-Mediated Wastewater Treatment for Biofertilizer Production Indu Sharma, Sandeep, Raj Bala, Nakul Kundra, Tejinder Kaur, and Ashutosh Sharma	231
12	Book: "Resource Recovery from Wastewater Through Biological Methods" Biofertilizers from Wastewater Tamanna Bhardwaj, Kanika Khanna, Ravdeep Kaur, Upma, Pardeep Kumar, Jaspreet Kour, Kamini Devi, Neerja Sharma, Isha Madaan, Amrit Pal Singh, Geetika Sirhindi, Puja Ohri, and Renu Bhardwaj	249
13	Advancements in Microbial Fuel Cells Technology Neha Singh and Pallavi Agarwal	277
14	Microbial Fuel Cell and Wastewater Treatment Syed Mohsin Bukhari, Nimra Khalid, Shahbaz Ahmad, Khalil Ur Rehman, Shahla Andleeb, Javeria Asghar, Arshad Javid, Ali Hussain, and Waqas Ali	293
15	Advancement in Biodiesel Production Methodologies Using Different Feedstock Gyanendra Tripathi, Priyanka Dubey, Priyanka Yadav, Shakhnozakhon Salijonova, and Alvina Farooqui	323
16	Lipid Biomass to Biofuel Darshan Singh, Anuradha Bhardwaj, Divya Mathur, and Amar Kumar	343
17	Future Research on the Sustainable Utilization of Wastewater as Resources with Emphasis on Plastics Gustavo Emilio Santos-Medrano, Daniel Robles-Vargas, Ignacio Alejandro Pérez-Legaspi, and Roberto Rico-Martínez	373

SPRINGER LINK

= Menu

Search

🗀 Cart



Wastewater Resource Recovery and Biological Methods pp 323-341

Home > Wastewater Resource Recovery and Biological Methods > Chapter

Advancement in Biodiesel Production Methodologies Using Different Feedstock

<u>Gyanendra Tripathi, Priyanka Dubey, Priyanka Yadav,</u> <u>Shakhnozakhon Salijonova</u> & <u>Alvina Farooqui</u> □

Chapter | First Online: 21 October 2023

59 Accesses

Part of the <u>Springer Water</u> book series (SPWA)

Abstract

The overuse of fossil fuels due to industrialization is directly linked to the increase in greenhouse gases and global warming. These issues are affecting the stability/life of living organisms globally at alarming rates. This urges the demand for an alternative energy source that can replace natural fossil fuels. In a way, various biofuels have been explored like biomethane, biohydrogen, Biodiesels, bioethanol, etc. Out of these, biodiesel has gained the attention of scientists and researchers, who are continuously working to enhance its efficiency in terms of

Editors and Affiliations

Environmental Studies, University of Delhi, New Dehli, India

Pardeep Singh

Institute of Environment & Sustainable Development,,

Banaras Hindu University, Varanasi, Uttar Pradesh, India

Pramit Verma

Central Public Works Department, New Delhi, India

Ravindra Pratap Singh

Rights and permissions

Reprints and permissions

Copyright information

© 2023 The Author(s), under exclusive license to Springer Nature Switzerland AG

About this chapter

Cite this chapter

Tripathi, G., Dubey, P., Yadav, P., Salijonova, S., Farooqui, A. (2023). Advancement in Biodiesel Production Methodologies Using Different Feedstock. In: Singh, P., Verma, P., Singh, R.P. (eds) Wastewater Resource Recovery and Biological Methods. Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-031-40198-5_15

DOI	Published	Publisher Name			
https://doi.org/10.10	21 October 2023	Springer, Cham			
07/978-3-031-					
40198-5_15					
Print ISBN	Online ISBN	eBook Packages			
978-3-031-40197-8	978-3-031-40198-5	Earth and			

Environmental

<u>Science</u>

Earth and

Environmental

Science (R0)

Publish with us

Policies and ethics