## Contents

**Part I  General**

**Introduction to Biofuels** ................................................. 3  
Avinash Kumar Agarwal, Rashmi Avinash Agarwal, Tarun Gupta and Bhola Ram Gurjar

**Sustainable Production of Chemicals and Energy Fuel Precursors from Lignocellulosic Fractions** .................................. 7  
Bhumica Agarwal, Vivek Ahluwalia, Ashok Pandey, Rajender Singh Sangwan and Sasikumar Elumalai

**Microbial Electrochemical Platform: Biofactory with Diverse Applications** ......................................................... 35  
S. Venkata Mohan, G. Velvizhi and P. Chiranjeevi

**Biomass-Derived HMF Oxidation with Various Oxidants** .......... 51  
S. Saravanamurugan, Ashok Pandey and Rajender Singh Sangwan

**Hydrothermal Liquefaction of Lignocellulosic Biomass Components: Effect of Alkaline Catalyst** .......................... 69  
Rawel Singh, Bhavya B. Krishna and Thallada Bhaskar

**Pretreatment Strategies of Lignocellulosic Biomass Towards Ethanol Yield: Case Study of Pine Needles** ................. 85  
Sangeeta Negi

**Ultrasound-Assisted Biodiesel Synthesis: A Mechanistic Insight** 103  
Ritesh S. Malani, Arun Goyal and Vijayanand S. Moholkar

**Thermo-Chemical Ethanol Production from Agricultural Waste Through Polygeneration: Performance Assessment**  
**Through a Case Study** .......................................................... 137  
Kuntal Jana and Sudipta De
Microalgae Based Biofuel: Challenges and Opportunities ............... 157
Richa Katiyar, Amit Kumar and B.R. Gurjar

Surrogates for Biodiesel: Review and Challenges ...................... 177
Aditya Dilip Lele, Krishnasamy Anand and Krithika Narayanaswamy

Response Surface Methodology Based Multi-objective
Optimization of the Performance-Emission Profile
of a CI Engine Running on Ethanol in Blends with Diesel ............. 201
Probir Kumar Bose, Vijay Narayan Bodkhe, Bishop Deb Barma
and Rahul Banerjee

Effect of Alcohol Blending on Performance of Kerosene
Fuelled Four-Stroke Spark Ignition Genset .............................. 229
Mritunjay Shukla, Eshan Singh and Sunil Pathak
Biofuels
Technology, Challenges and Prospects
Agarwal, A.K.; Agarwal, R.A.; Gupta, T.; Gurjar, B.R. (Eds.)
2017, X, 245 p. 94 illus., Hardcover
ISBN: 978-981-10-3790-0