



Preface

1st International Conference on Bioresource Technology for Bioenergy, Bioproducts & Environmental Sustainability (BIORESTEC)



With growing global interest in bioenergy, biobased product and environmental sustainability, the first International Conference on Bioresource Technology for Bioenergy, Bioproducts & Environmental Sustainability (BIORESTEC) was organized from October 23–26, 2016 in Sitges, Barcelona in Spain. The conference was organized in association with Elsevier's premier journal "Bioresource Technology" (BITE), with an aim to provide a shared forum for researchers, academicians, industries, and policymakers, to discuss the current state-of-the-art and the emerging trends in biotechnology, bioenergy, and biobased products. The 1st BIORESTEC conference received tremendous response from all over the globe with 754 abstracts submitted. The scientific committee consisted of 13 eminent scientists from 11 countries. The committee then screened and selected 54 abstracts for oral and 166 abstracts for poster presentations. Besides, there were 19 invited speakers from 14 countries. Apart from the scientific presentations, a workshop on "How to write a scientific paper and get published" was also organized for early career researchers by Elsevier.

This special issue of the journal contain 29 papers (all presented at the BIORESTEC conference) after peer-review process. These papers broadly cover areas such as biomass pretreatment, algal and lignocellulose biorefinery, biological waste treatment, white biotechnology and biomass policies, LCA and techno-economics and classified as below.

Biomass pre-treatment/fractionation

- Microalgae fractionation using steam explosion, dynamic and tangential cross-flow membrane filtration
- Impact of ultrasounds and high voltage electrical discharges on physico-chemical properties of rapeseed straw's lignin and pulps
- Enhancing enzymatic hydrolysis of coconut husk through *Pseudomonas aeruginosa* AP 029/GLVIIA rhamnolipid preparation
- The effect of surfactant-assisted ultrasound-ionic liquid pretreatment on the structure and fermentable sugar production of a water hyacinth
- Impact of wet aerobic pretreatments on cellulose accessibility and bacterial communities in rape straw

Thermo-chemical processing of biomass

- An experimental approach aiming the production of a gas mixture composed of hydrogen and methane from biomass steam gasification as natural gas substitute in industrial applications
- Microwave-enhanced pyrolysis of macroalgae and microalgae for syngas production
- Pyrolysis of agricultural biomass residues: comparative study of corn cob, wheat straw, rice straw and rice husk.

Algal biorefinery

- Nutrient utilization and oxygen production by *Chlorella vulgaris* in a hybrid membrane bioreactor and algal membrane photobioreactor system
- Bicarbonate-based cultivation of *Dunaliella salina* for enhancing carbon utilization efficiency
- Impact of different nitrogen sources on the growth of *Arthrospira* sp. PCC 8005 under batch and continuous cultivation - a biochemical, transcriptomic and proteomic profile
- Anaerobic co-digestion of microalgal biomass and wheat straw with and without thermo-alkaline pretreatment

Lignocellulose biorefinery

- Microreactor-based mixing strategy suppresses product inhibition to enhance sugar yields in enzymatic hydrolysis for cellulosic biofuel production
- Co-liquefaction of spent coffee grounds and lignocellulosic feedstocks
- Separation of saccharides from prehydrolysis liquor of lignocellulose to upgrade dissolving pulp mill into biorefinery platform
- Fed-batch operation for the synthesis of lactulose with *Aspergillus oryzae* β -galactosidase
- Enhanced simultaneous saccharification and fermentation of pretreated beech wood by in situ treatment with the white rot fungus *Irpex lacteus* in a membrane aerated biofilm reactor
- Enhanced volatile fatty acids production during anaerobic digestion of lignocellulosic biomass via micro-oxygenation

Biomass to fuels & chemicals (LCA & Technoeconomic assessment)

- Eco-efficiency assessment of farm-scaled biogas plants
- Evaluation of biochar amended biosolids co-composting to improve the nutrient transformation and its correlation as a function for the production of nutrient-rich compost
- Techno-economic assessment of catalytic gasification of biomass powders for methanol production

Biological wastes treatment/valorization

- Long-term performance of sediment microbial fuel cells with multiple anodes
- Esters production via carboxylates from anaerobic paper mill wastewater treatment
- Concurrent hydrogen production and phosphorus recovery in dual chamber microbial electrolysis cell
- Performance evaluation of the pilot scale upflow anaerobic sludge blanket - downflow hanging sponge system for natural rubber processing wastewater treatment in south Vietnam
- Effect of the reaction medium on the immobilization of nutrients in hydrochars obtained using sugarcane industry residues
- Catalytic valorization of starch-rich food waste into hydroxymethylfurfural (hmf): controlling relative kinetics for high productivity
- Effects of loading rate and temperature on anaerobic co-digestion of food waste and waste activated sludge in a high frequency feeding system, looking in particular at stability and efficiency
- Assisting cultivation of photosynthetic microorganisms by microbial fuel cells to enhance nutrients recovery from wastewater

We would like to thank delegates for their support to the inaugural edition of the Bioresource Technology conference, "BIORESTEC". We also thank all the authors of this special issue and the reviewers for their excellent contributions. We place on record our gratitude towards Prof. Ashok Pandey, the Editor-in-Chief of Bioresource Technology who was the guiding force behind the launch of BIOR-ESTEC conference as well as Ms. Marie Claire-Morley and Ms. Katherine Eve from Elsevier, who helped with the organization and Mr. Sankara Narayanan P., Journal Manager and entire publishing team of BITE for their cooperation in bringing out this special issue.

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