
Introduction

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Biographical notes: Prof. Praveen Kumar is a postgraduate in Industrial-Biotechnology and undergraduate in Chemical-Engineering. His research area of interest includes the synthesis of value-added products and renewable energy from biomass and municipal-waste, purification-extraction of phytochemical compounds. He has published 37 papers, co-authored two books and a book chapter, he has done provisional registration for two Indian patents. He was the chair for first and second International Conference on Bioenergy, Environment and Sustainable Technologies (BEST2013-BEST2015) and organised various symposiums and conferences. He is a life-member in various professional societies includes BRSI, IICHE, IFIBiop, BigFin, ISTE, EWBIndia. Currently, he is serving as Management council member in BRSI.

Dr. B. Bharathiraja received PhD in Biochemical Engineering from Anna University, Chennai, India. He is working as an Associate Professor in the Department of Chemical Engineering, Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Chennai, Tamilnadu, India. His research interest includes the area of biofuels from biomass and municipal waste. He had published more than 52 publications in peer-reviewed journals and 2 books. He served as the Chief Editor of International Journal of Bioprocess Technology and International Journal of polymer science. He has become an International Scientific Advisory Committee member in “The 2012 Asian Biohydrogen and Bioproducts Symposium (ABBS)” conducted by Chongqing University, on November 9–12, 2012 in Chongqing, China. He has visited various countries including USA, China, and Bangladesh to attend various conferences. He has chaired sessions and delivered invited talks in various International conferences which include “BEST2013 and 2015 Tiruvannamalai India”. He is a Life Member in various professional societies which include Biotech Research Society of India (BRSI), Indian Institute of Chemical Engineering (IICHE), Biogas Forum of India (BigFin), Indian Society for Technical Education (ISTE), and European Federation of Biotechnology (EFB).

Increased concerns over depleting energy resources and its implacable effect on the environment is a big threat to humankind. Researchers have endeavoured to tackle this issue for the sake of future generations, and their findings should be shared with co-researchers in order to increase knowledge. To this end the Department of Biotechnology of Arunai Engineering College, Tiruvannamalai, Tamilnadu, India organised a four-day conference “2nd International Conference on Bioenergy, Environment and Sustainable Technologies (BEST2015)” from the 28th to 31st January 2015. Several papers on the conference theme were presented orally, the best of which were offered the chance to be

published in this special issue of the 'International Journal of Environment and Sustainable Development'. Twelve papers, in total, were accepted for publication after peer review.

A brief introduction of the special issue

The first paper by Saranya et al. discusses the reduction of hexavalent chromium exhausted from the paint industries by *Saraca indica* leaves. This manuscript gives an insight into the chromium reduction by gel entrapment method.

The second article is about the synthesis of iron oxide nanoparticles from the root extract of *Mimosa pudica*. Niraimathee et al. describe the route for green synthesis of this nanoparticle. Following this is the article of Sriharini et al., in which the authors optimise and study the biosorption of coomassie blue dye from synthetic effluent using *Pennisetum purpureum* biosorbent. The authors investigate the mechanism and rate controlling step of the biosorption.

The fourth article is by Anoop Raj and Muruganandham, who study the microbial growth and degradation kinetics of percholate by *Proteus sp.* From the results of the batch reactor studies, they suggest that the uptake of perchlorate by bacterium obeys zero order substrate utilising kinetic model.

In the next paper, Meenakshi et al. compare the corrosivity of *Pongamia pinnata* biodiesel on zinc and its alloy. The authors claim that the rate of corrosion is higher for zinc when compared to brass. Renganathan et al. study the adsorption potential of oil extracted marine algae *Padina gymnospora* for the removal of methylene blue. This study is an innovative approach to utilise the waste biomass for value added usage.

Following this is the article on domestic wastewater reuse by subsurface flow constructed wetland for construction purpose. Ramprasad and Moly attempted to reuse domestic wastewater for making concrete cubes and report that the quality of the cubes made using wastewater is almost the same as when cubes are made using normal water.

Subsequently, Rajesh et al. produce a report on isolation and identification of feather degrading bacteria from feather dumped soil. Their report concludes that the isolated organism is *Bacillus cereus*, which found application in dehairing in leather industry, enhanced drug delivery, the textile industry, the production of bio hydrogen, hydrolysis of prions and feed hydrosylates.

The next article is on biogas production from food waste co-digested with sewage treatment plant sludge using biochemical methane potential method. Padmavathi et al. report that the optimum biogas production was obtained from the ratio 1:2:1.

After that, Ruma et al. present a review on bio-photovoltaics and biohydrogen production through artificial photosynthesis. The authors discuss various issues corresponding to this area. The article by, Aishwarya and Baskaralingam study the performance evaluation of a sewage treatment plant installed in a residential building. They report that the pollutants are significantly reduced in the treatment plant.