



Editorial

We are very proud to announce the first issue of the *Biofuel Research Journal* (BRJ); a new open access online and completely free-of-charge journal dedicated to problems related to fundamentals, applications, processing, and management of biofuels technologies.

Air pollution is increasing worldwide and conventional sources of energy i.e. fossil fuels are depleting rapidly. Hence, the need for progressive replacement of petroleum-derived fuels with renewable energy resources including biofuel is already crystal clear. Biofuels have been paid a great deal of attention not only because of their renewable and eco-friendly nature but also owing to their applicability in the transportation sector. The fact that as much as 80% of air pollution in cities and towns is caused by the transportation sector further underlines the need to call for widespread application of biofuel. It is predicted that the urbanization will continue to happen around the world as more people move from the rural to urban areas. However, the newly-established biofuel industry still faces a vast number of challenges. For instance, the use of first generation biofuels has generated a lot of controversy, mainly due to their impact on the global food markets and on food security, especially with regards to the most vulnerable regions of the world economy. It is important to note that currently about 1% (14 million hectares) of the world's available arable land is being used for the production of biofuels which provides less than 1% of the global transport demands. It is obvious that increasing that share to anywhere near 100% is impractical owing to the severe impact on the world's food supply and the large areas of production land required. The second generation biofuels comprise of fuels produced from the whole plant tissue, including energy crops or agricultural residues, forest harvesting residues or wood processing waste. The problem with this generation is the current lack of efficient technologies for commercial exploitation of wastes as source for biofuel production. This has nearly pushed this category off the table due to its to-date non-economic features. On such basis, integrated research strategy could be regarded as a promising approach in economizing biofuel production from biomass worldwide. This would require taking advantage of various branches of science which are not directly related to Biofuel-to-Biomass research arena such as genetic engineering, nanotechnology, solar-assisted technologies, advanced combustion sciences, agricultural technologies, biotechnologies, membrane separation technologies, pure and applied chemistry and so on.

By applying fundamental principles of the above-mentioned branches of science, BRJ is specifically geared towards scientific communities highly committed to advancing research in the field of biofuels technologies and sciences with the primary goal to develop and optimize alternative sustainable technologies.

Novel, advanced, and integrated biofuels processing and hybrid systems are areas of central scientific concern while new materials/strains/membranes/catalysts are required in order to establish new efficient processes for the economic production of biofuels. BRJ puts strong emphasis on the detailed understanding of fundamental physical, chemical and biological processes, which are essential for the development/optimization of existing and/or new production technologies. Zero-discharge strategies is one of the most important parameters in the effort of making the biofuels production cycle environmentally-sustainable. The Journal openly asks for research dedicated to enhance energy and water balance in an encroaching era of climatic changes with increasing deal of stress on energy and water resources.

The zero-discharge approach seeks to increase the efficiency of a process, thereby reducing the amount of pollutants generated. In the same way, green chemistry is aimed at designing chemical products and processes that decrease or eliminate the use or generation of hazardous materials to prevent the release of pollutants into the environment. These concept are also expected to have a major role to play in protecting the environment and hence constitute part of the main focus of this Journal.

Advances in nanotechnology and nanomaterial synthesis could offer new solutions to many of the presently-faced challenges in the field. Nanotechnology-enabled processes facilitates biofuels production and purification using nanocatalysts, nanocomposite materials, and nanostructured membranes while lead to the efficient use of raw materials and reduction of the emission of unwanted compounds to minimum. In this context, BRJ welcomes contributions on cutting-edge technologies such as nanotechnologies as well as clean technologies which deal with biofuels production and purification, as well as water-energy balance improvements.

Furthermore, we encourage studies involving energy audit for biofuels production plants. Articles with a focus on promotion of biofuels applications in the developing world for indigenous development are of high priority for the Journal as well.

Manuscripts sent to the Journal are expected to be of high scientific quality and merit. We call for studies that will engage worldwide discourse and ignite the interest of academics across all fields to explore new ways of keeping our planet clean and healthy for future generations.

We are pleased to highlight that BRJ has been overwhelmed with submissions since its launch, and is currently receiving over 100 manuscripts monthly. The editorial board would like to extend their sincere appreciation to the scientific community, both the authors and the reviewers, for their kind support. The board seeks the continuous support of the scientific community to make BRJ one of the most successful journals in the field of renewable energy and in particular biofuels and biomass.

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