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Editorial

Editorial - Biorefinery: Fuels and Chemicals from Biomass

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Biomass comes from living organisms, such as plants and animals. It contains energy first derived from the sun. Plants absorb the sun's energy through photosynthesis and they convert carbon dioxide and water into nutrients (carbohydrates). The most common biomass materials used for energy are plants, wood, and waste, which are biomass feedstocks. Biomass is highly significant in a circular economy in terms of material products and the provision of energy. The global capacity of biomass energy from plants totaled 139 gigawatts in 2019 [1]. In addition to its abundance and viability, biomass offers many benefits. It captures waste products reducing the need of landfill capacity, tackles climate change reducing GHG emissions, helps decrease atmospheric CO2. As biomass has so many advantages, why is it not commercially exploited to generate chemicals and fuels through a Biorefinery approach? The use of biomass on a large scale is limited by the high energy requirements and high costs of the production process. These costs and high energy required to use the biomass is associated with its recalcitrance, which is mainly caused by the complexity and heterogeneity of biomass. The biomass recalcitrance limits the conversion of its main components (cellulose, hemicellulose and lignin), affecting the efficiencies of conversion technologies. Pre-treatment is a process that aims to reduce the biomass recalcitrance. A wide diversity of pre-treatment processes has been developed over the years, and its application depends on the type of biomass used. Many articles have been published over the last few years to find a pre-treatment process, as well bioreactors and downstream separation processes that could lead to the production of a high yield of bioproducts at a feasible cost. In addition to the pre-treatment step, logistic operations also increase the costs of a process using biomass. Other crucial challenges that need to be addressed in the development of sustainable biorefinery include the integration of the system with other industries; arranging a set of cost-effective waste materials as the feedstock; accommodating for fluctuating market demands and price volatility of products [2]. Despite all these challenges, the use of biomass is considered as a proper strategy for reconciling economic growth and environmental sustainability in the long term [3].

Bibliography

1. Sönnichsen N. "Bioenergy - power plant capacity worldwide" (2019).

2. Alibardi L., *et al.* "Organic waste biorefineries: Looking towards implementation". *Waste Management* 114 (2020): 274-286.

3. Singh N., *et al.* "Renewable Energy Development as a Driver of Economic Growth: Evidence from Multivariate Panel Data Analysis". *Sustainability* 11 (2019): 1-18.