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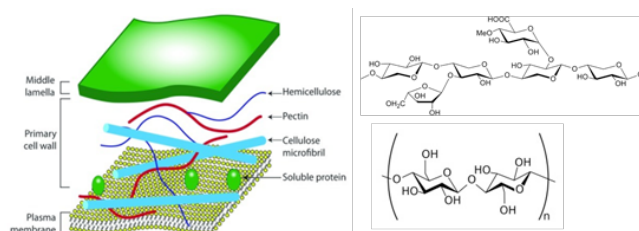
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Biofuel precursors by microwaves catalytic conversion of lignocellulosic agro-industrial wastes

Nowadays it is well-known fact that fossil fuels reserves are decreasing, and it entails on the one hand the increase of its price and in the other hand high emissions of CO₂ to the atmosphere. Lignocellulosic biomass is becoming recognised a great feedstock and carbon source to obtain biofuels precursors and value added chemicals. Our research group works on agro-food and lignocellulosic residues focusing on their carbohydrate contents. Carbohydrates are dehydrated in acidic medium at high temperature to obtain HMF and LA, which are interesting biofuel precursors.

This contribution is aimed to set the scene for a further development and promotion of sustainable food waste valorisation practises to different final products using green chemical technologies. Hence, the aim of this work is the study of the hydrolysis and dehydration of microcrystalline cellulose by microwave radiation using homogeneous and heterogeneous catalysis and different reaction systems. The optimal conditions obtained have been applied for the obtaining of HMF and LA, both of them well-known as

biofuel precursors, from some waste such as beer bagasse and melon rind. Thus, we have obtained good HMF and LA recoveries, calculated by quantitative NMR and we compare these results when the reactions carry out with conventional heating. For conclusion, this work has been able to obtain biofuel precursors from waste using a green and environmentally friendly energy such as microwave radiation. In addition, it has been developed different methods to obtain one precursor or another, using different pre-treatment and changing experimental conditions.



Components of the cell wall

Biography

Andres Moreno has received PhD degree in organic chemistry at University of Castilla-La Mancha, Spain in 1990. He worked as an Assistant Professor in organic chemistry in 1995. He also served as visiting professor at University of Oxford, "Green Chemistry Centre of Excellence of York" & University of Rome. In 2015, he obtained a Full Professor position by Spanish Educational Government.

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