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BUILDING A SUSTAINABLE PLATFORM FOR THE PRODUCTION OF CHEMICALS AND ENERGY CARRIERS

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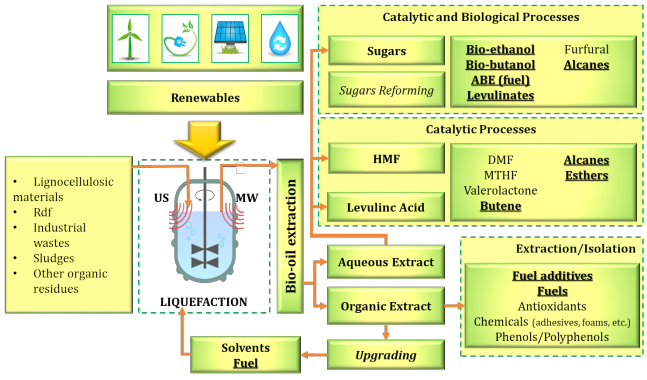
Facing of the sharp signs of the depletion of petroleum and its harmful effects and consequences in the environment, the R&D sector has started to explore solutions to reuse by-products and wastes, to restore them to produce materials and energy. Many may argue, but the call for new economic models and resources is getting louder. Is now the time to take the 'circular economy' concept one step further, preparing the ground for its full adoption. A new paradigm and economic models, involving greener processes and raw materials, are vital to assure the livability of the planet for the generations to come. Targeting a low-carbon economy, aimed by the European Commission, concepts such as bio-refineries, circular economy and neutral emission cycles plays a vital and crucial key role in the conversion of waste into valuable resources. In this scenario, underpinned by a transition to renewable energy sources and materials, our work is focused on the development and implementation of a technological platform for the production of chemicals/ biofuels by upgrading wastes and biomass. The critical process of the entire platform is the thermochemical liquefaction in polyhydric alcohols, which bio-oil will be valued by extracting some of its most chemically, industrially and economically interesting components being the remaining fractions used for the production of biofuels (fig1). The main results obtained so far will be disclosed and presented.



Schematic representation of a Technological Processes Platform for the Production of Alternative Energy Carriers

Biography

Rui Galhano dos Santos has graduated in Chemistry Degree at the University of Lisbon, Faculty of Sciences (Lisbon, Portugal) in 2006. He obtained his PhD in Jan' 2013 with the maximum qualification: Excellent (*Magna Cum Laude*). During this period, he was also awarded with several grants for his research in the Instituto Superior Técnico at Technical University of Lisbon (Lisbon, Portugal). He has published many articles in scientifically reputable journals and presented several oral/ invited communications in international scientific recognized symposia around the world. He is also Co-inventor in 4 patents. Presently, his studies are mainly focussed and involved the studies and development of new strategies to up-cycle biomass for the production of added-valuable chemicals and/or goods as well as for the productions for bio-fuels. In early 2016, he became a Permanent Member of CERENA-Centre for Natural Resources and the Environment.

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