



DIBANET

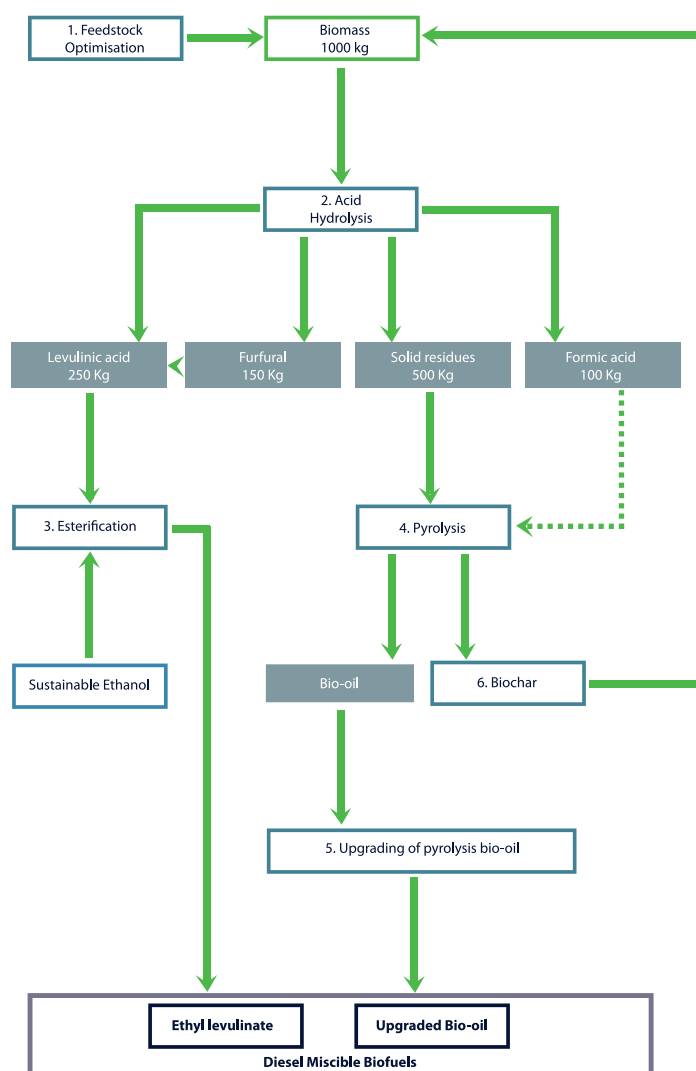
NEWSLETTER

March 2010



DIBANET–Development of Integrated Biomass Approaches Network

The increasing reliance on imported diesel fuels, in addition to annual increases in the quantities of organic wastes are threats to the EU and Latin America. DIBANET (Development of Integrated Biomass Approaches Network) a 42 month, € 3.73 M FP7 funded research project, coordinated by the University of Limerick, aims to combat these threats and help to eliminate diesel imports by developing novel technologies to produce sustainable diesel miscible biofuels (DMBs) from the wastes and residues of Europe and Latin America. DIBANET builds on the key, complementary, strengths of European and Latin American researchers and industries to advance this field. This global network of experts and researchers includes partners from Europe (Ireland, Denmark, Greece, Hungary, and the UK) and Latin America (Brazil, Argentina and Chile). This enhancement of co-operation will ensure that the whole process, from feedstock to process residues, is engineered for maximum efficiency. DIBANET will lead the way for sustainable large scale biofuel production by 2020, while avoiding land use impacts and resolving the problems of increasing organic waste levels.



DIBANET processes & products & their linkages

"DIBANET will improve the state of the art in the biorefining and pyrolysis of biomass in order to create sustainable second generation biofuels from wastes and residues that can be mixed with fossil diesel and used in a regular diesel engine, while complying with industry standards" stated Prof. Michael Hayes, DIBANET Project Coordinator.

"Traditional first generation biofuels, made from food crops such as maize and wheat, compete with food giving rise to food-vs.-fuel issues. DIBANET will produce second generation biofuels from wastes and biomass residues that do not compete with food crops. In focusing on the use of wastes as feedstocks for biofuel production DIBANET will also provide sustainable and economical alternatives to landfill and the incineration of wastes. Both of these processes are inefficient and produce significant greenhouse gas emissions with little returns", commented Prof. Hayes.

Biochar, resulting from pyrolysis of the wastes and of the residuals from biorefining processes, will be examined by DIBANET. Biochar is a stable form of carbon and can be utilised as a soil amendment enhancing biomass yields and sequestering carbon. This, excitingly, offers the potential for a carbon negative biofuel. In addition to state of the art science and technology, DIBANET also fosters cooperation and forms strong links between Europe and Latin America by the establishment of scholarships for Latin American students; two large brokerage events to engage all stakeholders; and a summer school for knowledge transfer. DIBANET will ensure that the outputs of the research are fully exploited to the maximum benefit of both regions, leading to a strong future relationship in trade and research.



DIBANET kick off meeting

The kick-off meeting took place at University of Limerick on July 9th 2009. The meeting was attended by members of the consortium and by the Project officer from the EU Commission, Mr. José Ruiz-Espi, Director General of Research in New Energy Sources and Renewable Energy. This meeting fostered co-operation as it allowed for face-to-face discussion and information exchange.

Members of the DIBANET consortium at the kick-off meeting at the University of Limerick.

DIBANET Website

Co-operation is enhanced through the DIBANET website www.dibanet.org, developed by Geonardo. The website is available in English, Portuguese and Spanish and has public and private (Partner only) sections. This ensures that, in addition to the core services (structure of the consortium, objectives, results, public deliverables etc.); links are established to databases, personnel profiles, and industrial platforms.

DIBANET Biomass Workshop

The participatory workshop for Biomass Sampling and Analysis took place at UL in December 2009. The workshop was attended by members of CTC and Unicamp, who are involved in identifying and analysing feedstocks that are suitable for DMB production. A report on the most suitable Latin American feedstocks for DMB production is in draft.

DIBANET process

A bench scale reactor system has been designed and assembled at UL. This will be used to convert biomass, by acid hydrolysis to DMBs and co-products and has the capacity to be modified. Work is ongoing at UBA and UFRJ to develop suitable catalysts for DMB production. In addition UFRJ has been carrying out an extensive review of the literature in order to identify suitable ionic liquids for the pre-treatment of biomass. The use of pre-treatment and catalytic techniques offers exciting potential in advancing the production of DMBs beyond the current state of the art.

In order to harness the full potential of the feedstock, the residues from the bench scale reactor will be pyrolysed to yield bio-oil, biochar and gases. Aston is currently examining the mechanisms and conditions involved in pyrolysis of acid-hydrolysis residues. Some initial experiments have been carried out on beech and



miscanthus samples. CERTH and UFRJ are working on the development of new catalysts for pyrolysis. Preliminary work is being carried out using miscanthus and bagasse. The use of such catalysts to optimise the pyrolysis of the residues will

advance the production of DMBs. In addition work on catalysts for bio-oil upgrading is under way at UBA and UFRJ.

In the coming year DIBANET aims to produce a chemical database which will contain all the data for the feedstocks analysed in DIBANET, and will describe the best practise for sourcing a biomass feedstock. In addition DIBANET will continue the optimisation of DMB production. A DIBANET contact database will be developed to allow interested parties to register. Also an EU Co-op day will be held, which will bring together scientific communities, industries and consumers from both regions to exchange experiences and raise public awareness. It will allow cooperation opportunities in the exploitation of DMB research activities. Parallel thematic workshops will be held and focus on technology transfer, sharing best practices, and advancing DMB technology.

For more information please visit our website www.dibanet.org or contact fp7dibanet@gmail.com
DIBANET is funded by the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 227248.

DIBANET PARTNERS & PEOPLE

COUNTRY	PARTNER	PERSONNEL	DIBANET ACTIVITIES	EMAIL ADDRESS
Ireland	University of Limerick (UL) Co-ordinator	Prof. Michael H.B. Hayes	Co-ordinator	michael.h.hayes@ul.ie
		Daniel Hayes	Feedstock analysis by HPAEC & NIR	daniel.hayes@ul.ie
		Corinna Byrne	Project management	fp7dibanet@gmail.com
		Dr. Donncha Haverty	Design and construction of reactor	donncha.haverty@ul.ie
UK	Aston University	Prof. Anthony Bridgwater	Pyrolysis	a.v.bridgwater@aston.ac.uk
		Dr. Daniel Nowakowski		d.j.nowakowski@aston.ac.uk
		Manisha Patel		patelm15@aston.ac.uk
Greece	Certh	Dr. Angelos Lappas	Catalytic pyrolysis	angel@cperi.certh.gr
Denmark	FOSS Analytical	Ronny Pradon	Online NIR analysis of feedstocks	rpn@foss.dk
Hungary	Geonardo Ltd	Balázs Bodó	Dissemination and exploitation	balazs.bodo@geonardo.com
		Nikoletta Balogh	Dissemination and exploitation	nikoletta.balogh@geonardo.com
Brazil	Centre of Sugarcane Technology (CTC)	Wokimar Teixeira Garcia	Feedstock selection & characterisation	wokimar@ctc.com.br
		Daiane Diehl		daiane@ctc.com.br
		Aparecido Roberto Alves		aparecido@ctc.com.br
Brazil	Federal University of Rio de Janeiro	Prof. Victor Teixeira da Silva	Pretreatment of biomass, Catalysis for acid hydrolysis, pyrolysis, and bio-oil upgrading	victor.teixeira@nucat.coppe.ufrj.br
Argentina	University of Buenos Aires	Prof. Graciela Baronetti	Solid acid catalysts for acid hydrolysis & esterification	baroneti@di.fcen.uba.ar grateba@yahoo.com.ar
Argentina	YPF SA	Jorge Maurino	Analysis of DMBs produced. Optimisation of the DIBANET process chain.	jmaurinom@ypf.com
		Fabain Sein		sseint@ypf.com
Brazil	EMBRAPA	Dr. Etelvino Novotny	NMR analysis of feedstocks & pyrolysis biochars.	etelvino.novotny@gmail.com
Chile	Fundacion Chile	Ana Maria Ruz	Whole systems approach to the assessment of DMBs and their potential	aruz@fundacionchile.cl
		Renato Sepulveda		rsepulveda@fundacionchile.cl
Brazil	University of Campinas	Prof. Marcia Ferreira	Feedstock selection & characterisation	marcia@iqm.unicamp.br
		Magale Rambo		magalirambo@yahoo.com.br
Ireland	Ecosphere Ltd	Margaret Daly	Process evaluation & optimisation. Networking	margaretmdaly@eircom.net