iCRAB

Pennotec, a new venture established under Pennog Ltd, are industrial bio-technologists who aim to advise and provide technology to assist businesses and operators in the conversion of manufacturing waste into a marketable resource.

Initially learning of the BEACON project via the BioComposites Centre at Bangor, Director Jonathan Hughes met with Business Development Manager (BDM), Selwyn Owen and Senior Scientist Joe Gallagher at the BEACON 2013 Annual Conference held in Llandudno in June, and later set up a formal meeting to discuss alternative techniques for the fermentation of crab waste. Discussions with the BEACON team during the Summer of 2013, resulted in the formation of a one month collaborative research and development project to identify innovative processing solutions. Pennotec approached BEACON with the initial idea of utilizing the products of grass sugar biorefining as a means of removing specific compounds from waste crab shell material.

Through the collaboration, BEACON positively demonstrated the capability to incorporate waste crab shell material into grass sugar biorefining. The results of the collaboration led to the successful application for a nine month feasibility study funded by the technology strategy board worth £126,003.

Washed, dried, and milled crab shell

The feasibility study named iCRAB (integrated Crab Rye grass Acid Biorefinery), investigates a biorefinery process which involves co-fermenting a readily available, agricultural biomass (high sugar forage grass), with food processing by-products to manufacture a combination of platform chemicals, such as those used in the production of bioplastics, and high value biological actives.

The innovative iCRAB project is looking to improve the economics of

... integrated Chitin Ryegrass Acid Biorefinery

both chitin extraction and lactic acid production by combining the two in a single biorefinery process. In the future, Pennotec hopes to market the waste valorisation expertise to other bio-waste producers through an expansion of the biorefinery technology developed during the iCRAB project to include the production of produce of other organic solvents. The iCRAB process could potentially act as a pre-digestion and extraction step for the recovery of high value actives prior to conventional biogas production.

Pennotec
Sustainable products & processes

Summary

Project Lead:
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Lead Institution:
Aberystwyth University

Company:
Pennotec

Sponsors:
Technology Strategy Board

Project Value:
Grant £126,003
Company Contribution £22,158

Total Project Value:
£148,161
+2 Employed

Project Duration:
9 months