

CuanTec – a new force in the fight against food waste

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Credit: University of Strathclyde, Glasgow

The University of Strathclyde's proud track record of innovation with impact continues in the form of CuanTec, a start-up company with a positive and practical solution to the disposal of seafood waste, which exacts a heavy cost, both financially and environmentally.

Food spoilage costs the seafood sector £60 million annually in Scotland alone, while food sent to landfill produces environmentally harmful gases such as methane and ammonia.

CuanTec's initial mission is to retrieve the inedible parts of shellfish – and, specifically, a biopolymer they contain known as chitosan - and convert them into durable, antimicrobial, biodegradable food packaging for seafood.

It was the initial brainchild of Dr Ryan Taylor, an analytical chemist and alumnus of Strathclyde Institute of Pharmacy and Biomedical Sciences, who is now CuanTec's Chief Operating Officer. He received support in establishing the company from his alma mater through the Strathclyde Entrepreneurs Fund, which invests in business ventures by the University community.

He has been joined at CuanTec by Chief Executive Officer Dr Cait Murray-Green, who gained a PhD in Crystallography and has varied and extensive experience in molecular modelling, computational chemistry, product management, sales and business development.

The company is now rapidly developing after securing equity investment from the Scottish Investment Bank and the Strathclyde-hosted Gabriel Investments, plus Scottish Enterprise innovation grant funding for a feasibility study. The funding has enabled the company to open its laboratory at MediCity in North Lanarkshire.

Dr Murray-Green said: "Chitosan is the second most prolific biopolymer

in the world and is known to have biodegradable and antimicrobial properties. It's highly versatile and is used in a wide range of industries including herbicides and pesticides."

"What we're working on is preventing it going to landfill and putting it back into use. We see that as a real opportunity and a way of contributing to the [circular economy](#).

"There's enough chitosan in shellfish alone for the whole world to use chitosan-based food packaging – current petroleum based versions are not recyclable but a chitosan-based product will be biodegradable and can be disposed of, along with food scraps, into composting.

"Scotland can be a leader in this area, with a large fishing industry and, for example, a high langoustine population in the North Atlantic - we are working with fisheries and seafood processors. We are also aware of allergies to seafood and our products will be tested to ensure no rogue allergen is present in them."

The packaging developed by CuanTec will be made of starch-based biopolymers, and mixed with chitosan. Chitosan production at present is not commercially available in the UK and traditional chemical methods are energy intensive and not environmentally friendly.

The methods the company uses will eliminate costly production and waste management processes, which make it difficult for chitosan products to be manufactured in Europe with conventional systems.

CuanTec aims to expand into packaging for other foodstuffs in the future and also has the potential to explore applications in medicine and healthcare. It intends to support the extension of its activities through the recruitment of sponsors and a crowdfunding campaign.

"Products based on chitosans could potentially be useful in dealing with oil spillages and other types of pollution," said Dr Murray-Green.

"We are looking to work with industry on this and are developing novel, useful, innovative products to create jobs and for a healthier environment."

Wendy Hanson, Innovation Team Leader at Scottish Enterprise said:
"CuanTec is doing something hugely innovative that could disrupt the market, while making excellent use of a Circular Economy approach to exploit waste products from the fisheries industry.

"We support and encourage exactly this kind of business innovation as it leads directly to new products and services that meet customer needs and open up entirely new sources of revenue for companies.

"CuanTec is a great example of a start-up embracing innovation to drive its future global growth and we wish it every success."

Provided by University of Strathclyde, Glasgow

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