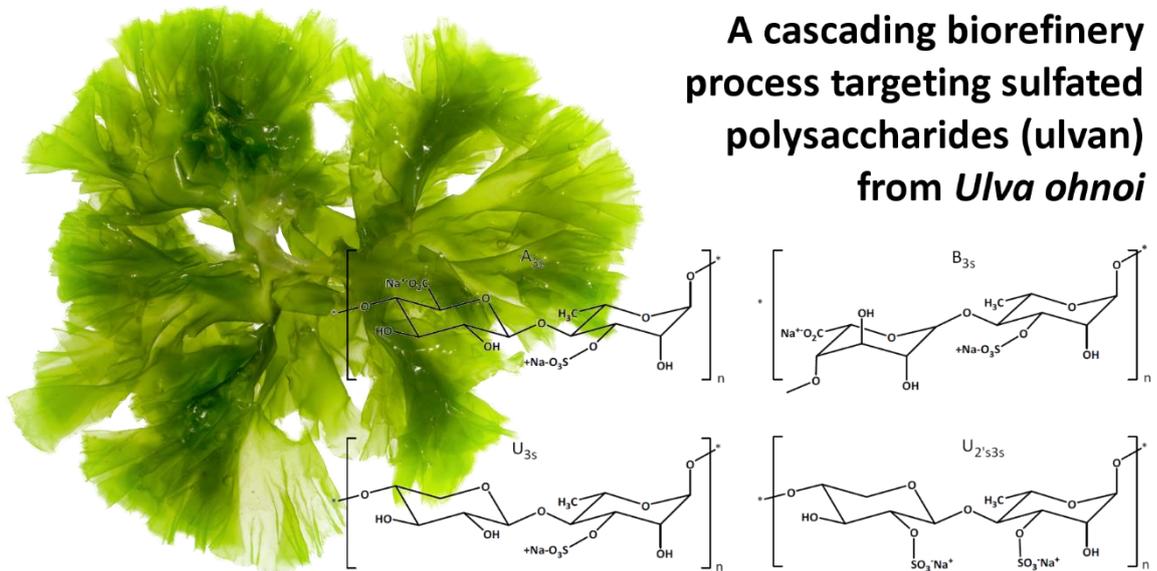


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A cascading biorefinery process targeting sulfated polysaccharides (ulvan) from *Ulva ohnoi*



James Cook University and MBD progress *Ulva* biorefinery

A team of researchers at James Cook University has just published a cascading “biorefinery” approach for the extraction of soluble sulphated polysaccharides – known as ulvans - from the green sea lettuce, *Ulva*. The technique is simple and robust with a view to commercial production for nutraceutical applications.

Ulva is ideal for cleaning up nutrient-rich waters, which is exactly what MBD has been doing at prawn and barramundi farms.

“Not only does the seaweed we grow remove nutrients from waste water that might otherwise place further burdens on Great Barrier Reef, but by enabling regulatory approvals to be granted MBD’s seaweed based bioremediation is now helping facilitate sustainable expansion of the aquaculture industry”, said Andrew Lawson, Managing Director at MBD.

After ten years of intensive work and a very significant financial investment at our JCU based Algae R&D Facility we’re now developing and building major aquaculture water bioremediation projects in Queensland and Vietnam – with expectations of producing *Ulva* from which ulvans can be extracted and applied to various commercial product applications”, he said.

MBD has just completed purchase of a major Queensland prawn producer, Pacific Reef Fisheries, including the land and permits to build a 259 hectare prawn farm near Bowen which will also produce large volumes of *Ulva* biomass.

“The challenge of deriving the best available range of commercial applications from all that seaweed was one of the key drivers in shaping the cascading biorefinery for the extraction of soluble sulphated polysaccharides”, explains Professor Rocky de Nys, co-author and research Project Leader at James Cook University.

“We expect to use some of the algae as additives in various animal feeds to boost immunity at inclusion levels as low as 1 to 5%. But we will also be able to extract more refined, powerful and valuable components such as the ulvans. We’ve also collaborated with The Ferrier Research Institute at the Victoria University of Wellington to have a detailed compositional characterisation undertaken”, Professor de Nys said.

It’s work that offers significant opportunity to a wide range of sophisticated manufacturers, according to MBD’s Product Development and Marketing Manager, Simon Lord. “A growing body of good science shows ulvans have excellent potential to benefit human health and nutrition as nutraceuticals to boost immunity, gut health, cardiovascular health, and potentially aid fat loss.

“We’ve seen the terrific success of fucoidans from brown seaweed, and carrageenans from red seaweed, so I’m confident the parallel of ulvans from green seaweed also has a bright future. With a long history of safe and healthy human consumption of sea lettuce, now combined with carefully controlled and sustainable on-land cultivation, we can deliver high quality, safe, and healthy food, feed, nutraceutical, and agricultural products”, Simon Lord said .

Headquartered in Melbourne, MBD comprises water bioremediation services and the production and sale of nutritional products for animal feeds, human food and dietary supplements, and plant nutrition. MBD owns Pacific Reef Fisheries, a subsidiary and leader in Australian prawn and cobia farming. The James Cook University Centre for Macroalgal Resources and Biotechnology, in Townsville, is a global leader in algal research. MBD and JCU Macro have a long-term partnership with the objective of translating innovative research into commercially viable and valuable products.

The original paper can be found here: [Algal Research](https://doi.org/10.1016/j.algal.2017.07.001) (DOI: 10.1016/j.algal.2017.07.001)

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