

TURNING SEAWEED INTO VALUE

Sustainable fucoidan extraction from invasive kelp (*Undaria pinnatifida*)

RESEARCH QUESTION

How can fucoidan be sustainably extracted from *Undaria pinnatifida* using low-energy, eco-friendly methods suitable for Pacific Island countries?

WHY THIS MATTERS!

- Pacific island countries rely on exporting low value raw marine resources.
- Limited energy, infrastructure, and technology restrict local processing
- Invasive seaweed like sargassum is abundant but underutilized
- Opportunity to create high-value bioactive products sustainably

HOW THE RESEARCH WAS DONE

- Collected *Undaria pinnatifida*
- Compare three extraction methods

Water extraction

Deep Eutectic Solvent (DES)

Chemical solvents

- Measured fucoidan yield, extraction cost & energy used

KEY FINDINGS

- DES creates lower energy consumption compared to traditional methods
- More suitable for small-scale off-grid applications
- Strong potential for sustainable industry development

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Unlocking the power of marine bioactives to support Pacific communities and preserve our oceans

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OTĀKOU WHAKAIHU WAKA



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What is Fucoidan?

Fucoidan is a sulphated polysaccharide found in brown seaweed, known for its anti-inflammatory, antiviral, anticoagulant, and antioxidant properties.

Quirky Fact

Undaria pinnatifida may be invading New Zealand's coast, but this "ocean intruder" could actually be a hidden goldmine for future medicine and superfood nutrition!

Empowering Pacific communities to turn local marine resources into sustainable livelihood