

Newsletter

Issue 1, 2024

BLUEWAYSE

blue ways to a sustainable Europe

ADVANCING SUSTAINABLE BLUE BIO-ECONOMY SOLUTIONS

The BLUEWAYSE consortium continues to deliver exciting progress as we develop next-generation, low-energy biorefinery technologies that transform marine resources into high-value, health-promoting and circular economy-based products. Here are some of the latest highlights from our work.

Microalgae cultivation & biorefinery innovations

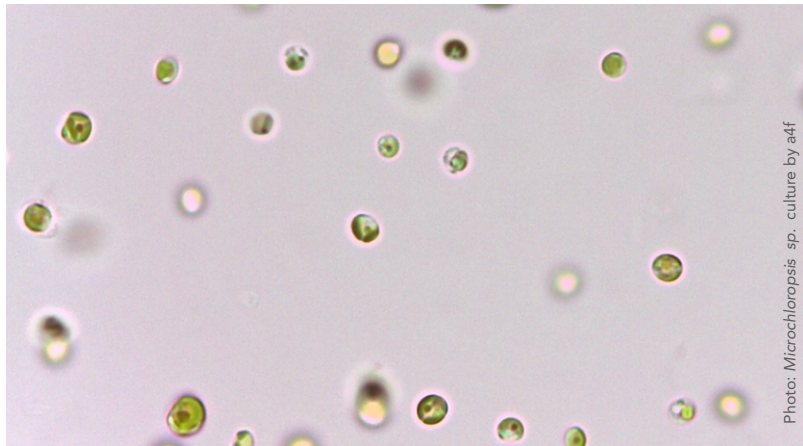


Photo: Microchloropsis sp. culture by a4f

Fish processing wash water and filtrates rich in micronutrients are being evaluated as sustainable culture media for *Microchloropsis sp.* Microalgal biomass has been successfully fractionated, with bioactive components characterised *in vitro*. Cutting-edge green extraction methods (PEF, Ultrasound, SC-CO₂, PLE) have yielded promising bioactive fractions with strong functionality potential.



Photo: Test cultures of Microchloropsis sp. by a4f

Transforming aquaculture & fisheries sidestreams

We successfully produced high-quality protein hydrolysates from salmon heads and cod backbones at both laboratory and pilot scale. Using advanced membranes, we reduced salt and ash content, while increasing protein levels.



Photo: Microfiltration unit by Nofima

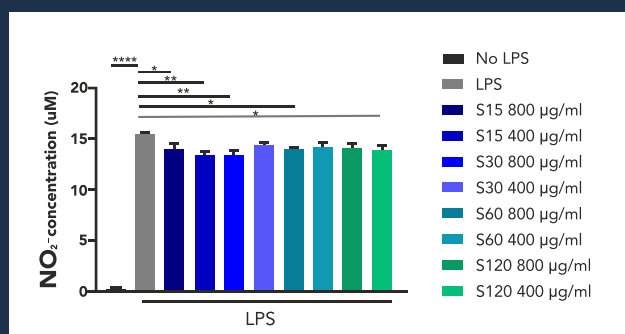
Senior researchers at the Aquafeed Technology Center of Nofima, Kamaljit Moirangthem (left) and Tone Aspevik (right).

Different cut-off nanofiltration membranes performed well, improving flavour, purity, and bioactive potential of fish hydrolysates.



Photo: Nofima

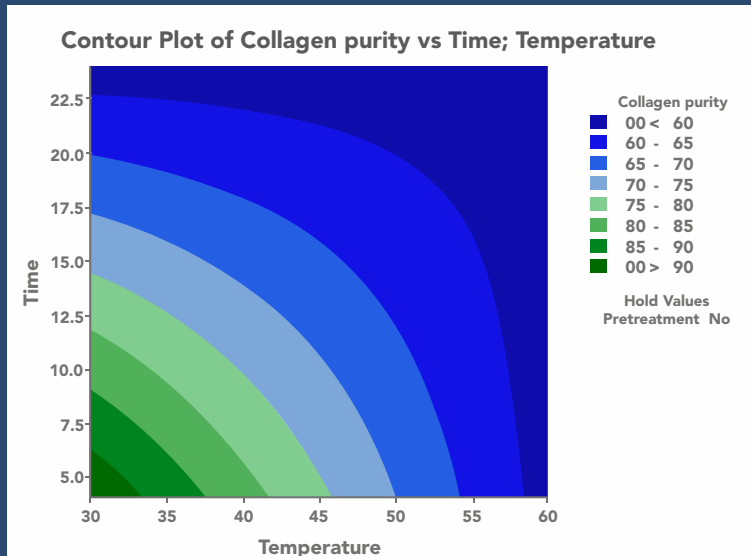
All produced fractions have been fully characterized for their chemical composition and bioactivity, most of which showed anti-inflammatory effects.



Pro-inflammatory NO₂ production suppression in cell culture by different salmon hydrolysates (figure: University of Crete).

Fish bone utilization in novel biomaterial applications

Laboratory methods for extracting calcium phosphates (CaP) and collagen (Col) from fishbones are completed by CNR, paving the way for novel biomaterial applications. Bone CaP was tested as SPF booster in sunscreens, an application that can add innovation in full utilization of fisheries biomass and eco-friendly CaP for cosmetic



formulations. The simultaneous extraction of Col and CaP from salmon bones through alkaline hydrolysis was studied using a Design of Experiment (DoE) approach to identify the most significant process variables and maximise mineral yield (CaP), organic yield (Col), and collagen purity.



Embarking together: kick-off meeting

Project coordinator Katerina Kousoulaki and EU-Project Manager Anne Risbråthe, both from Nofima, participated at the «Embarking together» kick-off meeting of funded projects (2023 Joint Call) of the Sustainable Blue Economy Partnership in Madrid, 25-26 September 2024.

There were 59 participants from the funding agencies and the 19 funded projects of the first SBEP call.

After the meeting there was time for a visit to the Prado museum and Plaza mayor.



List of Publications and other dissemination produced by the project - Open Access

UVEG-Scientific article Liu, Y., Berrada, H., Pallarés, N., Marti-Quijal, F. J., Castagnini, J. M., & Barba, F. J. (2024). Comprehensive analysis of oils and remaining solid matrices from supercritical fluid extraction of salmon side streams: Fatty acids, bioactive peptides, minerals, and heavy metals. *LWT*, 214. <https://doi.org/10.1016/j.lwt.2024.117116>

Nofima-Poster BLUE WAY to a Sustainable Europe, Embarking together, SBEP kick-off meeting, Brussels February, 2024

Funded by



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