



SEAMARK DELIVERABLE 4.2: Upscaling of fermentation processes and products

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Public summary of
confidential report

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Summary:

The SeaMark project has investigated and demonstrated commercial large-scale co-fermentation processes of different seaweeds and land grown plant material. The fermentation process was optimised in lab taking into consideration several parameters including fermentation time, temperature, moisture, and fermentation bacteria. Three types of seaweed *Saccharina latissima*, *Ascophyllum nodosum*, and *Ulva* sp. have been lactic acid solid-state pre-fermented before co-fermentation with other plant ingredients, such as rapeseed cake (RSC), faba beans, oats, etc. The fermentation process was evaluated by Aalborg University (AAU) and implemented in final food products by Fermentationexperts A/S (FEXP) with guidance and sensory evaluation from the industry.

The work included a description of the fermented ingredients incorporated into plant-based burgers, as breakfast cereal and in the baking industry. The final specifications of the fermented products were included in this report and a describing of the right consistency, mouthfeel, texture, taste, and appearance of the ingredients.

Finally, a clear strategy for product optimization, consumer acceptance, enhanced market success was evaluated to maximize the nutritional value of the fermented seaweed products. To comply the market and supplier demand of healthier food products, this work package address the fermentation of seaweed to be included in final food products to achieve the same beneficial health effects in humans as in animals (sow trial with increased health when fed fermented seaweed and rapeseed meal; unpublished data, 2020-2023).



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