



SEAMARK DELIVERABLE 2.3: SCALING AND OPTIMISATION OF PRE- TREATMENT METHODS TO BRING DOWN COST

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The SeaMark partners aimed to optimise storage conditions for harvested kelp biomass to produce value-added products like alginate, fucoidan, food fibers, material fibers, and animal feed. The goal is to achieve successful lactic acid bacteria fermentation or acid treatment stabilisation with a low pH level to inhibit degradation of the biomass until further processed.

The study tested various preservatives, including sodium benzoate, potassium sorbate, sorbic acid, citric acid, salt, ascorbic acid, and a control with no preservative. The results showed promising effects when using acids for stabilization, providing the best microbial control. Salt was found to be the lowest-cost option. Additionally, washing, molasses, and inoculum played a significant role in the final result and preservation.

Challenges include the need for effective storage solutions for offshore cultivation and large-scale harvesting to maintain biomass quality until processing. Future trials will focus on optimising preservative concentrations, conducting anaerobic storage trials, and further microbial and chemical composition analysis. Cost optimisation will prioritise low-cost, food-grade preservatives for scaling up. The trials provided valuable insights into effective preservation techniques and highlighted the importance of specific treatments in optimising the fermentation process. Future work will refine these methods to enhance the production of value-added products from kelp.



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