



CHALMERS

Post harvest stabilisation of *Ulva fenestrata* and *Palmaria palmata*- *Does one method fit all?*

Seaweed Elevator Pitch –
Seagriculture EU 2026 conference
17th June Gothenburg

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Evaluation of different stabilisation methods — Effects on biochemical composition, sensory properties, texture, digestibility, and microbial quality.

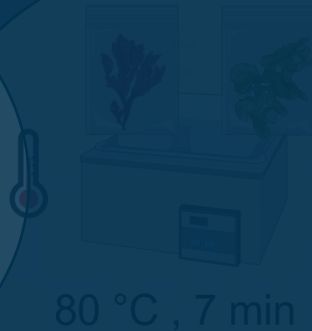


Sugar and salt Brining



- ✓ Low energy cost
- ✓ Technology available, previous knowledge in fish
- ✓ Easy scalability

Sous-vide Pasteurisation



- ✓ Easy scalability
- ✓ Previous done in for brown seaweed
- ✓ Inactivation of enzymes and microbiota

High pressure (HPP)



- ✓ Green technology
- ✓ Low temperatures possible while inactivating microbial growth and enzymes
- ✓ Not compromising nutrients i.e proteins

Fermentation



- ✓ LAB improve digestibility of proteins.
- ✓ Possibility to scale-up.
- ✓ Fermentation improve nutrient accessibility.

Oven – drying (air dry)

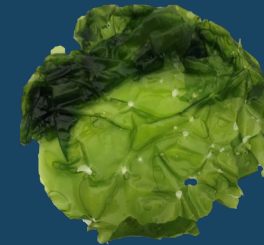


- ✓ Used as main stabilising method
- ✓ Low weight storage
- ✓ Low-cost transport

Summary

❑ Wet applications:

- ❑ **Brining** with 25% salt kept the **colour** and **texture** of *U. fenestrata* for 80 days.
- ❑ *P. palmata* maintained its colour and texture after HPP treatment for 57 days.
- ❑ **LAB** could be use to **ferment** *U.fenestrata* and may improve protein digestibility and accessibility of iron and iodine, although the effects are strain-specific.



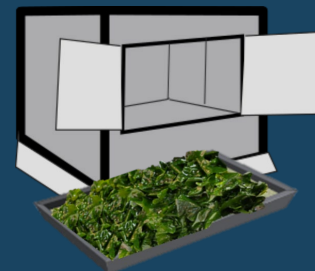
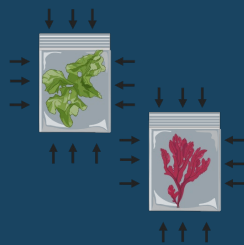
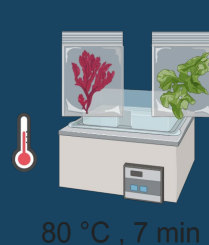
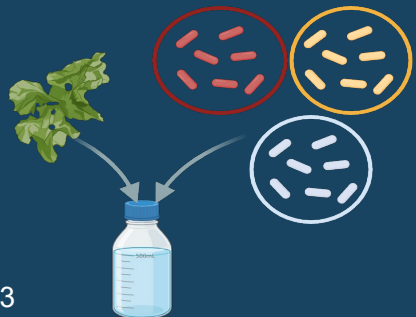
Brined *U. fenestrata* after 80 days in 25% salt-brine at 4°C

❑ Dry applications:

- ❑ Drying *U. fenestrata* at **40 °C** led to **colour loss** and **higher volatile** over time.
- ❑ Drying at **60 °C** **preserved colour** and **flavour** for at least 415 days.
- ❑ *U.fenestrata* rinsed in **AO** solution and dry 60 °C retained its **seaweed smell** and had **less volatiles** during storage.



Dry *U. fenestrata* after 180 days at room temperature



One method does not fit all applications





Ingrid Undeland (Supervisor)
Colleagues at FNS
Blå mat young researchers

Thanks !

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