

Effect of pH-shift processing on *in vitro* digestibility and Caco-2 cell bioavailability of sea lettuce proteins

Background/introduction/summary

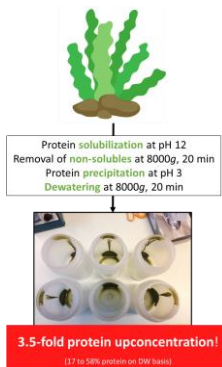
Consumption of **alternative protein sources** is forecasted to grow by an annual rate of 9 % until 2054! [1]

Seaweed is a promising protein source, but natural **protein level still relatively low**, calling for protein concentrating techniques...also, the **nutritional quality** of seaweed proteins can be influenced by the presence of **antinutrients** e.g. fibers and phenols [2-3]

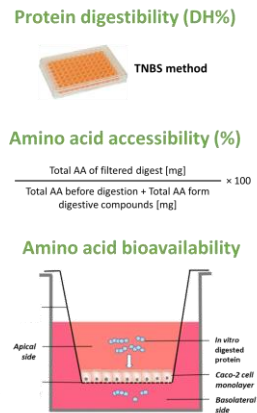


Hypotheses: Structural disintegration and partial removal of antinutritional factors during the pH-shift processing will increase the digestibility, accessibility, and bioavailability of seaweed proteins

Materials and Methods

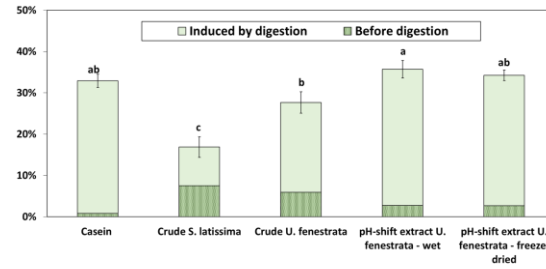


In vitro GI digestion



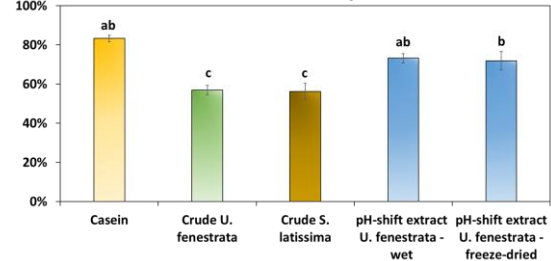
Results

Digestibility (DH%)



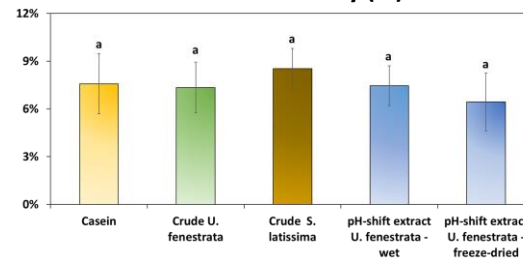
pH-shift processing improved the digestibility of *U. fenestrata* proteins ($p < 0.05$)

Accessibility (%)



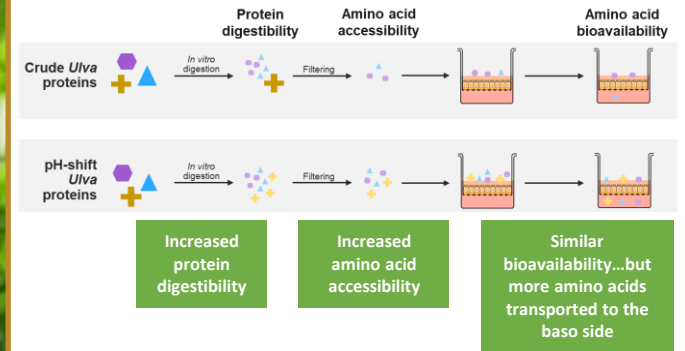
pH-shift protein extracts presented higher amino acid accessibility than crude *U. fenestrata* ($p < 0.05$)

Bioavailability (%)



The accessible fraction of crude seaweeds and pH-shift extracts was as bioavailable as casein

Conclusions



Reference

- [1] Probst, L., Frideres, L., Pedersen, B., & Amato, F. (2015)
- [2] S. M. Tibbetts, J. E. Milley, and S. P. Lall (2016)
- [3] J. Fleurence, M. Morançais, and J. Dumay (2017)

Acknowledgements



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