Removal of potentially toxic elements in cultivated *Alaria esculenta* and *Saccharina latissima*

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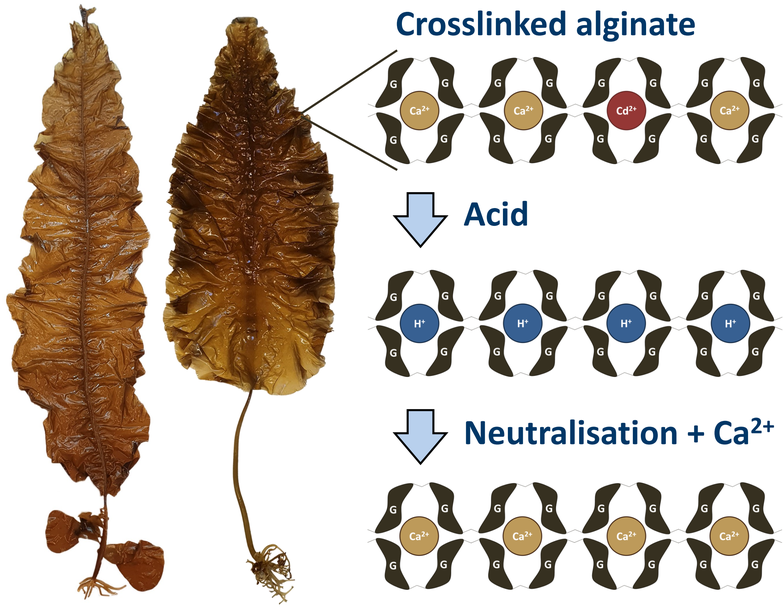
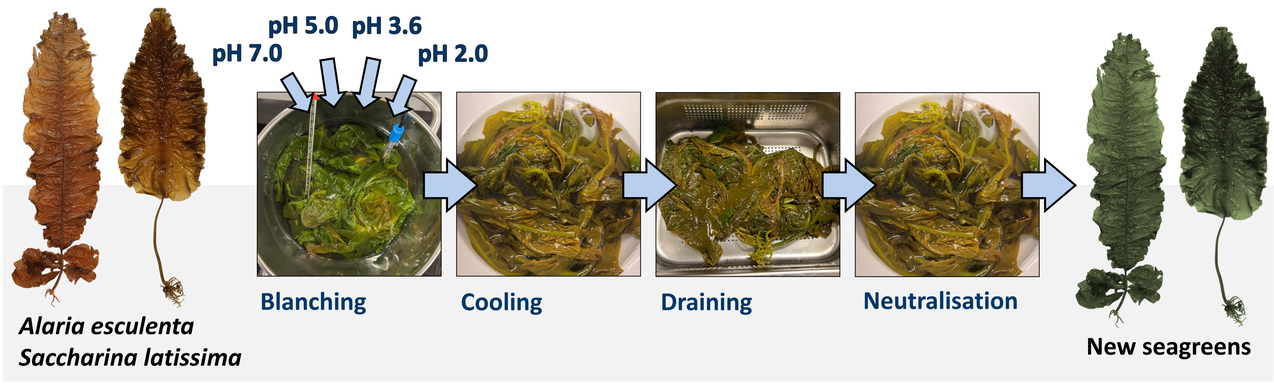
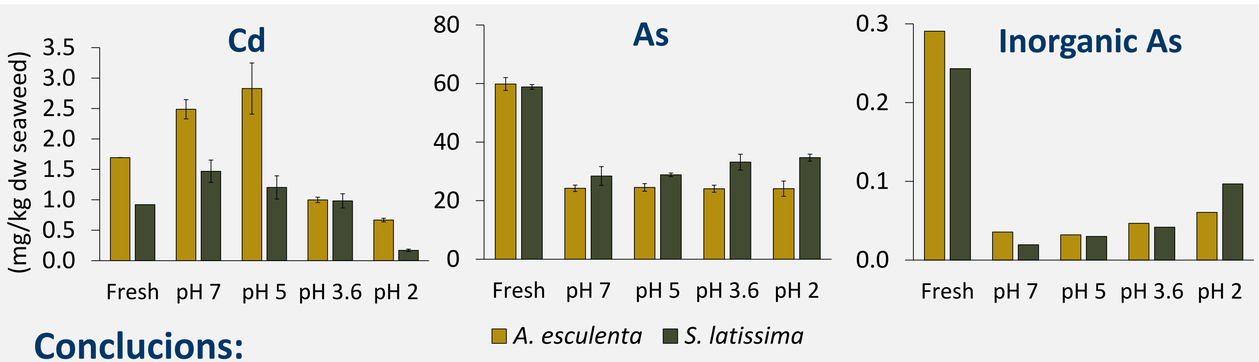
Seaweed as food and feed has great potential, due to its diversity of nutritional and bioactive compounds. However, high levels of **cadmium (Cd)**, **arsenic (As)** and **iodine (I)** limit daily consumption. Up to 90% of the iodine can be removed by blanching the seaweed in fresh water at 80°C for 2 minutes, but Cd concentration increases in this process. Alginate is the main structural component in brown algae, providing rigidity and flexibility. Alginates consist of 1 → 4 linked β-D-mannuronic acid (M) and α-L-guluronic acid (G), organised in homopolymeric M- and G-blocks, and alternating MG-blocks. Divalent cations, such as Ca^{2+} and Cd^{2+}, crosslink two stretches of G-blocks, and form flexible hydrogels within the algal thallus.







Conclucions:

Cadmium is removed during acidic blanching when pH < pK_a (Alginate)

In *S. latissima*, acidic blanching at pH 2 reduces cadmium levels to below the EU maximum limit for feed (0.5 mg/kg dry weight)

Alginate extraction is avoided in the process – The new seagreens keep texture

Total arsenic and inorganic arsenic is also removed during blanching

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