

Master's thesis proposal

Title: Promoting sustainability in food industry by valorization of marine side streams to protein ingredients

Credits: 30-60 ECTS

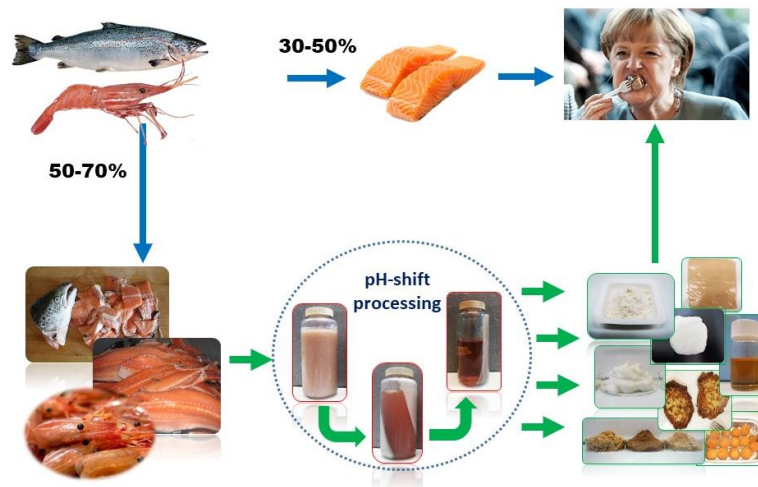
Starting date: Flexible

Contact information: khozaghi@chalmers.se or undeland@chalmers.se

-Possible chance for collaboration with industrial partners of project.

Project description:

Currently seafood processing industry is highly irresponsible and unsustainable by generating 50-70% by-products mainly used for low price ingredients like mink feed and fish meal or, are even wasted. This master project is part of a very large EU project called WASEABI aiming develop new value addition chains for seafood processing by-products. One of the challenges ahead of valorization of seafood by-products as a protein source is their sensitive nature causing their quick quality loss. This calls for finding proper handling techniques and innovative stabilization methods. This master project aims to evaluate effect employing innovative sorting and stabilization techniques on the upcycling efficiency and the quality of proteins produced from these alternative resources. One of the most important questions that needs to be addressed here is that how these modifications can affect structural, techno-functional and final product-forming capacity of the recovered proteins. This question will be targeted as cornerstone of this master project.



The main tasks of this master's project are:

1. Analysis of structural and functional properties of protein samples recovered with different methods from fish filleting by-products.
2. Prototype food product deployment from the recovered proteins.
3. Evaluation and/or analysis of data obtained from the previous steps.

Learning outcomes (what we expect you to learn from this master's project):

1. Knowledge on innovate methods for upcycling food wastes and improving food sustainability.
2. Understanding chemistry of proteins and its relationship with their food application.
3. Secondary and tertiary Structural analysis of proteins using techniques e.g. SDS-PAGE, FTIR, NMR, Scanning Electron Microscopy (SEM) and spectrophotometric methods.
4. Techno-functional analysis of proteins using rheometer, texture analyzer and ...
5. Hand on experience on prototype food product development.