Aquatic Food Production – Safety & Quality (AQFood)

Title
Prediction of microbial interaction for improved safety management of ready-to-eat aquatic foods

Type of project and ECTS
30 ECTS M.Sc.-thesis-project within the AQFood programme

Short description
The aim of this project is to study the effect of aquatic food processing on microbial interaction between *Listeria monocytogenes* and lactic acid bacteria in different ready-to-eat aquatic foods in order to improve safety assessment and management.

Project description
Microbial interactions are important for the safety of various ready-to-eat aquatic foods, including marinated and smoked products. The important microbial interactions can be caused by production of inhibitory components and/or competition for nutrients. However, in most cases the more exact mechanisms behind microbial interactions in aquatic food are not known. As an example growth of the pathogen bacterium *L. monocytogenes* can be prevented by high concentrations of lactic acid bacteria and this phenomenon is an important reason why *L. monocytogenes* only rarely reach critical concentrations in e.g. cold-smoked and gravad salmon. These microbial interactions can be predicted and this is important for the safety assessment of the products. This project will evaluate the robustness of these predictions by studying how processing of different products, including the routes of contamination, can influence growth kinetics and interaction for *L. monocytogenes* and lactic acid bacteria. Furthermore, evaluation of mechanisms underlying the important microbial interactions can be studied. The project includes experimental studies with microbiological and chemical analysis of products, predictive modelling as well as safety assessment and management that take into account the determined effects of microbial interactions.

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Industry collaboration
This project is carried out in collaboration with Royal Greenland Seafood Ltd.