SUCCESS STORY

FFoQSI/Strategic/Animal Species Austrian Competence Centre for Feed and Food Quality, Safety & Innovation/Strategic Innovations/Animal Species Differentiation

Programme: COMET – Competence Centers for Excellent Technologies

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KRISTINA GENSE IS THE FIRST FFOQSI INVENTOR!

GREATER FOOD SAFETY AND TRANSPARENCY: COMMERCIAL MARINE ANIMALS CAN BE IDENTIFIED AT SPECIES LEVEL USING DNA METABARCODING.

At the end of 2021, FFoQSI submitted its first patent application together with the project partner, thus Kristina Gense, the first FFoQSI inventor, was officially awarded an inventor's prize.

The patent aims to contribute to the safety of authentic food and will be important for people with allergies, intolerances, particular diets, and different religious faiths. Specifically, it can be used to identify various commercially available marine species via DNA meta-barcoding in raw and processed foods.

The invention arose from the Species Differentiation in Marine Animals Workpackage, which is concerned with the development and validation of a DNA (meta-) barcoding method for differentiating marine animals in food.

Various food scandals have shown that the ingredients in a food product are not always declared by the manufacturer on the label. Sufficient and correct labelling also supports food traceability and thus global movements to curb illegal fishing and protect endangered species. Insufficient or incorrect labels can further lead to products being overpriced, which is often the case with seafood. The causes for this problem range from translation errors to criminal activities, such as food adulteration.

The challenge was to find a suitable system for the identification of "seafood" (crustaceans and molluscs and products made from them) that (i) covers a large number of species simultaneously, (ii) allows unambiguous identification of individual species in raw and processed state and also (iii) has a high

sensitivity, which allows the detection of small quantities.

In the DNA metabarcoding assay developed within the scope of this work package, highly conserved DNA segments, which differ in the nucleotide sequence of each animal species, serve as a characteristic "barcode" and are sequenced for species assignment using a database. The approach falls within "Next Generation Sequencing".

The advantage of this assay is that the species of all animal classes that fall into the category of "seafood" according to the Austrian Food Code can be identified and analysed simultaneously, in raw and processed state.

Impact and effects

The assay developed will greatly facilitate and accelerate the control of seafood authenticity by food laboratories and control offices, while increasing overall transparency and safety.

Handover of the FFoQSI Inventor's Check to Kristina Gense. Jürgen Marchart (left) and Martin Wagner (right) congratulate the inventor. ©FFoQSI GmbH

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Project partner

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