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## Development of liquid chromatography-tandem mass spectrometry methods for the quantitation of *Anisakis simplex* proteins in fish

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Larvae of the parasite *Anisakis simplex* are present in many marine fish species used for food. They infect mostly the gut and liver organs but have also been shown to penetrate into the fish fillet. Thus, human health can be at risk, either by contracting anisakiasis through the consumption of live parasites in raw or under-cooked fish, or by sensitisation to anisakid proteins in processed food. Methods for the detection of anisakid larvae include visual techniques and PCR, and immunological assays for protein determination. Recently, mass spectrometry-based proteomics has been used for the characterisation of *A. simplex* proteins, preparing for the development of two quantitative liquid chromatography-tandem mass spectrometry methods in the present study. Both, the label-free semi-quantitative nLC-nESI-Orbitrap-MS/MS (MS1) and the heavy peptide-applying absolute-quantitative (AQUA) LC-TripleQ-MS/MS (MS2) use unique reporter peptides derived from anisakid hemoglobin and SXP/RAL-2 protein as analytes. Standard curves in buffer and in salmon matrix showed good linearity and sufficient sensitivity for the intended method use. Preliminary validation included the assessment of specificity, repeatability, reproducibility, and applicability to incurred and naturally-contaminated samples for both assays. By further optimisation and full validation the LC-MS/MS methods could be standardised and used as confirmative techniques for the detection of *A. simplex* protein in fish and products.

### Biography

Christiane Kruse Fæste has completed her PhD in biochemistry at the age of 28 from the Leibniz University in Hanover, Germany, and the Max-Planck Institute for Plant Breeding Research in Cologne, Germany. She has been working in Preclinical Pharmaceutical Industry and is now expert for xenobiotics metabolism, toxicokinetics, food allergy and proteomics in the Section of Chemistry and Toxicology of the Norwegian Veterinary Institute, Oslo, Norway. She is member of the Norwegian Committee for Food Safety (panel on contaminants), CEN (Food Allergens), AOAC (Food Allergens), EU-Research Executive Agency (Chemistry), ILSI (Allergens) and COST (Allergens). She has published 40 articles on food allergens and mycotoxin metabolism.

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