



The German Federal Institute for Risk Assessment (BfR) is the national institute which prepares expert reports and opinions on questions of food, feed and chemical safety and consumer health protection in Germany on the basis of internationally recognised scientific assessment criteria. It advises the Federal Government and other institutions and interest groups in these areas. The BfR conducts its own research on topics that are closely linked to its assessment tasks. It is an institution with legal capacity within the portfolio of the Federal Ministry of Food and Agriculture (BMEL).

At BfR's Department for Food Safety within the National Reference Laboratory for Animal Protein in Feed there is an opening for a

Master Thesis

(also scalable to Bachelor Thesis, research training)

on the topic:

Determination of molecular weight distribution as well as species and tissue of origin in hydrolysates

According to the Commission Regulations 999/2001 and 142/2011, hydrolysed protein may – with certain restrictions – be fed to farmed animals. These restrictions refer to molecular weight as well as species and tissue origin of certain hydrolysed proteins. There are currently no methods available to official control regarding the mentioned parameters.

Therefore, the aim of this thesis is to establish, validate, and compare different analytical techniques (SDS-PAGE, size exclusion chromatography, mass spectrometry) for the analysis of protein hydrolysates.

Tasks:

- Establishing size exclusion chromatography on a modern HPLC and mass spectrometric top-down analysis on a modern high resolution mass spectrometer, learn already established SDS-PAGE protocol)
- Adapting sample preparation to analytical technique e. g. by varying solvent and temperature, solvent exchange, loading amount
- Writing method descriptions
- Analyzing various hydrolysates from our sample collection with all three established methods, adapt method description if necessary
- Validating and comparing the established techniques regarding e .g. accuracy, reproducibility, resolution
- Exploring acquisition and data analysis methods for species and tissue determination via mass spectrometric top-down analysis

Requirements:

- background in (bio-)chemistry or another related field (e. g. biology, toxicology, biotechnology, pharmacy)
- theoretical knowledge on protein and instrumental analysis is a prerequisite, hands-on experience in mass spectrometry, instrumental analysis and/or protein (bio-)chemical analysis is a plus
- very good written and spoken English language skills
- flexible, engaged, and self-organised way of working

We offer an excellently equipped laboratory environment, a cooperative research environment in an interdisciplinary and international team and comprehensive supervision.

Application process:

More detailed information is available from Dr. Uta M. Herfurth (Tel. +49 30 18412-25105). If you are interested, please apply via E-Mail to (uta.herfurth@bfr.bund.de) using the subject **“application thesis: hydrolysates”**. Please enclose your CV, a short letter of motivation, certificates / transcripts of records, and your desired time frame.

You will find more information on our homepage: www.bfr.bund.de/de/stellenanzeigen

The BfR welcomes applications from people of all nationalities. The BfR is an innovative scientific institute offering family-friendly working conditions, for which it was awarded the “audit berufundfamilie®” (work and family) certificate. The BfR guarantees equal career opportunities for women and men. In the case of equal suitability, severely disabled applicants will be given preferential consideration and are only required to have a minimum level of physical suitability.

