Practice Abstract

Identifying possible manipulations at all stages of the meat supply chain

Description

The meat supply chain is characterised by many stakeholders and a wide variety of products. It also exhibits several vulnerabilities to various kinds of manipulations. Past food scandals have highlighted the complexity of fighting food fraud in a supply chain that is highly dynamic and moves across many borders. The aim of the Watson meat pilot is to provide an analysis of various levels of vulnerability in the meat chain and to identify gaps in the food fraud vulnerability assessment. A key vulnerability in the prevention of food fraud is related to the development of analytical methods.

This pilot will therefore provide an overview of existing methods covering all possible manipulations at every stage of the supply chain. It will also develop and test a methodological framework to detect and prevent meat mislabelling. Furthermore, analytical tools such as mass spectrometry, NIR, DNA biochip, DNA barcoding and DNA metabarcoding will be developed or adapted to detect fraudulent practices.

The pilot tests include the substitution of beef with beef organs, the substitution of beef with other animal species, the mislabelling of grain-fed as grass-fed beef, and the addition of hydrolysate to poultry. Methods for highly sensitive, targeted High Performance Liquid Chromatography (HPLC), applications of Tandem Mass Spectrometry (MSMS) and non-targeted mass spectrometric fingerprinting by MALDI Time of Flight Mass Spectrometry (ToF MS) are currently being developed using defined test materials. The advantages and disadvantages of the different approaches will be evaluated as well as the suitability for different stakeholders and products along the meat chain. Most of the high-end methods are aimed at the food safety authorities as the main end-user for an expansion of their analytical portfolio, which will strengthen their ability to combat food fraud in the meat sector.

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Stakeholders

Food Industry
Food Safety Authorities
Policy Makers
Consumers
Academic and Research
Community
Industry Association
Trade Organizations
Technology and Data Analytics
Experts
Supply Chain Partners

Country

Germany

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A holistic frameWork with Anticounterfeit and inTelligence-based technologieS that will assist food chain stakehOlders in rapidly identifying and preveNting the spread of fraudulent practices

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About Watson

Watson is a 3-year project funded by the Horizon Europe programme, aimed at tackling fraudulent practices in the food supply chain. Our interdisciplinary consortium of 47 partners from 20 EU and non-EU countries is collaborating to develop a holistic traceability framework that integrates data-driven services, intelligence-based toolsets, and risk-estimation approaches, enabling food safety authorities to detect and prevent food fraud more effectively.

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