



CONFIDENCE

Contaminants in food and feed: inexpensive detection for control of exposure

The Challenge

One of the major concerns of European governments, food producers and consumers is the presence of chemical contaminants in food and feed that may be harmful to our health. Consequently, Regulatory Authorities and the food/ feed industries spend large amounts on tests to ensure product safety. Many of the currently used tests are complicated, time-consuming and expensive, making it difficult to intervene and take corrective actions during the food production process. There is therefore an urgent need for validated screening tools that are simple, inexpensive, rapid and able to detect as many contaminants in parallel as possible.

Project Objective

Safer food through rapid and cost-efficient tests for chemical contaminants in the food chain

The CONFIDENCE project aims indeed to further improve food safety in Europe by the development of faster and more cost-efficient methods for the detection of a wide range of chemical contaminants in different food and feed commodities. These methods will not only save precious time in ever faster production cycles, but will also permit more food/ feed samples to be monitored due to the lower cost per test. In combination with the broadened spectrum of detectable residues and contaminants the CONFIDENCE project will significantly increase food safety in Europe.

Key Points

- To develop and validate new, simplified, inexpensive detection methods for chemical contaminants from farm to fork.
- To provide long-term solutions to the monitoring of persistent organic pollutants, perfluorinated compounds, pesticides, veterinary pharmaceuticals, heavy metals and biotoxins in high-risks products such as fish/shellfish, fish feed, cereals, cereal-based feed, potatoes, vegetables, honey, dairy products, eggs and meat.
- To contribute to validation of predictive hazard behaviour models.
- To disseminate and provide training of new detection methods to all relevant stakeholders, to advance technology exploitation.



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EATiP *Thematic Area of Relevance*

TA1: Product Quality, Consumer Safety and Health

TA2: Technology and Systems

TA3: Managing the Biological Lifecycle

TA4: Sustainable Feed Production

TA5: Integration with the Environment

TA6: Knowledge Management

TA7: Aquatic Animal Health and Welfare

TA8: Socio-Economics and Management

Key Words

Food processing, food safety, contaminants, food and feed, monitoring

Project Information

Contract number:

211326

Contract type:

Large-scale integrating project

Research area:

KBBE - Detecting contaminants in the food and feed chain

Duration:

48 months (01/05/2008–30/04/2012)

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Key New Knowledge Expected

New Technologies

- Rapid and cost-efficient tests will be developed and validated for detecting chemical contaminants in meat, eggs, fish and fish feed, cereal based food/feed and vegetables.
- Long term solutions will be provided for the monitoring of persistent organic pollutants, perfluorinated compounds, pesticides, veterinary pharmaceuticals, heavy metals and biotoxins.
- Information and training of the developed methods
- Impact demonstration. The developed technologies will be applied to a variety of samples thus allowing exposure assessments and creation of occurrence data bases.

Potential Impacts



SME

- Simple, fast, inexpensive multiplex screening assays (multi-analyte multi-class detection) that are fully validated for use by industry and enforcement laboratories will greatly benefit both the industry and the Regulatory Authorities, speeding up processes and reducing costs.
- Food safety: The project will deliver scientific-technical solutions for the monitoring and enforcement of food safety. It will contribute to exposure assessment through international surveys and to the setting of regulatory limits for emerging contaminants through toxicological assessments.



Knowledge Transfer:

- Dissemination of the results amongst the key stakeholders: scientific community, end-users and consumers
- Training workshops for governmental, agricultural and industrial end-users
- Education modules and training courses for under- and postgraduate students
- Publications in the scientific press
- Presentations at international conferences
- Open days and workshops for stakeholder organisations
- The new knowledge generated will be widely disseminated contributing to the monitoring and enforcement of food safety at all levels.

Related Publications/Projects

- Vilariño N., Fonfria E.S., Molgó J., Aráoz R. and Botana L.M. (2009). Detection of Gymnodimine-A and 13-Desmethyl C Spirolide Phycotoxins by Fluorescence Polarization. *Analytical Chemistry*, **81**, 2708-2714.
- Cagide E, Louzao M.C., Espiña B., Vieytes, M.R., Jaen D., Maman L., Yasumoto T. and Botana (2009). Production of Functionally Active Palytoxin-like Compounds by Mediterranean *Ostreopsis cf. siamensis*. *Cellular Physiology Biochemistry*, **23**, 431-440.
- Meimaridou A., Haasnoot W., Noteboom L., Mintzas D., Pulkrabova J., Drabova L., Kalachova K., Hajslova J. and Nielen M. W.F. (2010). Color encoded particle-based flow cytometric immunoassay for Polycyclic Aromatic Hydrocarbons in Food. *Analytica Chimica Acta*, **672** (1-2) 9-14.
- Hedegaard R.V. and Sloth J.J (2010). Heavy metal speciation in feed: why and how? *Biotechnology, Agronomy, Society and Environment*, in press.
- Vermeulen Ph., Fernández Pierna J.A., Dardenne P. and Baeten V. (2010). Detection of ergot bodies in cereals by NIRS and hyperspectral NIR imaging. *NIRS 2009 Proceedings*, in press.

For a full list please visit the website!

Related projects : AQUAMAX