

CONffIDENCE: Contaminants in food and feed: Inexpensive detection for control of exposure



CONFFIDENCE NEWS

May 2012 - Issue 8

In the spotlight

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Please feel free to distribute this 8th e-Newsletter to other interested parties. Dear stakeholder,

News from the CONffIDENCE project The CONffIDENCE project team is proud to present the 8th edition of the CONffIDENCE e-newsletter. In this newsletter you will find recent developments in the CONfflDENCE project and related information in the area of contaminants in food and feed.

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Best regards,

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CONffIDENCE coordinator

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In the spotlight



CONFIDENCE: Next end users workshops

In order to specifically target end users, workshops will be organized by each cluster: organic pollutants, veterinary pharmaceuticals, heavy metals, biotoxins. These workshops aim to present the achievements of the CONffIDENCE partnership for each cluster of workpackages to the stakeholders, allowing them to become familiar with the newly developed methods and their applicability in the food and feed chain. More information on those 4 events can be found in the upcoming events section of this newsletter.





4th Annual meeting of the CONffIDENCE project in March 2012

The fourth annual meeting, hosted by Unisensor/CER/CRA-W, was held on $21^{\rm st}$ and $22^{\rm nd}$ of March 2012 in Belgium.

The Plenary meeting of the Consortium was held on Wednesday 21st of March in Liège and was co-chaired by the Coordinator of the project, Dr. Jacob de Jong and the assistant coordinator Dr. Stefan van Leeuwen. It was attended by 31 researchers from the CONfflDENCE partners, 3 members of the Advisory Board and 1 representative of the DG Research and Innovation of the European Commission. During this meeting the Work package leaders presented the fourth year (up to Month 46 of the project) activities and achievements in the nine RTD Work packages for organic pollutants, veterinary pharmaceuticals, heavy metals and biotoxins and in the Dissemination Work package. Moreover, there was a session about validation of screening methods.

In the late afternoon of Day 1 a visit was organised to the laboratories and animal facilities of CONffIDENCE partner CER.

On day two, Thursday 22nd of March, there were two sessions of parallel WP meetings. During these meetings the status and progress of the work of the individual Work packages were discussed in detail. Finally, there was a Project Management Board (PMB) meeting, Advisory Board (AB) meeting and a combined PMB-AB meeting where the progress of the individual WPs and dissemination activities was discussed.

In the afternoon of Day 2 an excursion was organised to visit the laboratories of CONffIDENCE partner Unisensor.

The coordination of CONffIDENCE thanks the 3 project partners, in particular Unisensor, for their hospitality in organising these meetings and excursions.





CONffIDENCE: 3rd Open Day at RAFA 2011

During the 5th International Symposium on Recent Advances in Food Analysis (RAFA 2011), held from 1-4th November 2011 in Prague Czech Republic, the CONffIDENCE project held its 3rd Open Day together with a poster session. The Open Day with the title "Rapid tests for contaminants" was organized on Thursday the 3rd of November. During the RAFA 2011 oral sessions 6 and 7 entitled Rapid methods I and II respectively, the CONffIDENCE results were presented through 5 oral presentations, giving an overview of CONffIDENCE, the industrial needs regarding rapid tests for contaminants, and key results obtained thus far for persistent organic pollutants (POP's), heavy metals and alkaloids. In the afternoon, a poster session was held where 24 posters and 7 demonstration activities regarding the CONffIDENCE outputs were presented by various project members. The combination of posters, demonstration activities and oral presentations proved to be effective in generating interest and stimulating discussions with the audience. Approximately 150 participants attended to the Open Day.



A full report and overview of the lectures and posters presented during this open day can be found on the CONfflDENCE internet site.

Read more about RAFA 2011...





BSc education modules in October 2011

On 4 and 11 October 2011, the course on Rapid methods, which was jointly organised by the CAH Dronten University of Applied Sciences and the FP7-project CONffIDENCE, was held at the CAH Dronten University in Dronten, The Netherlands. The course was an integral part of quality modules for Bsc students at CAH Dronten University.

The course was attended by 26 International students and 49 Dutch students, together representing 11 different countries, and having quite a different background ranging from Food Safety Management, Food Chain Management and Food Business.

The 2 day intensive course comprised theoretical and technical aspects on mycotoxins and plant toxins given by leading specialists in the field, involved in the CONffIDENCE project.

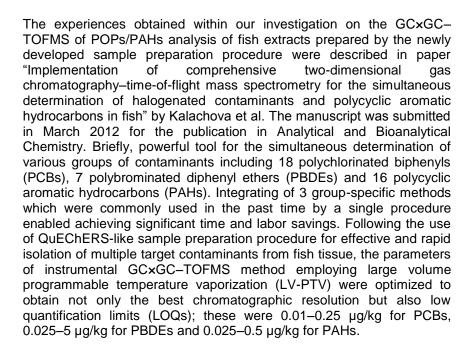
Read more about this course...

News from the CONffIDENCE project

Developing detection methods for organic pollutants; POPs, PFCs, Pesticides

At the RAFA (Recent Advances in Food Analysis) 2011 symposium in Prague, Czech Republic, two lectures on the complimentary approaches applicable for analysis of halogenated POPs and PAHs in food and feed were presented by young scientists working within this WP: (i) K. Kalachova – High throughput GC–MS/MS analysis of BFRs (Including emerging compounds) in fish/seafood and (ii) A. Meimaridou – Multiplex screening of persistent organic pollutants in fish using spectrally encoded microspheres.

Read more about the conference....



For the last few months, in close cooperation with two work packages WP1b and WP3 dealing with other groups of pollutants represented by perfluorinated compounds (PFCs) and heavy metals, a joint monitoring survey focused on these different groups of pollutants in fish samples has been planned. Various fish (trout, cod, salmon, tuna, pangas, etc.) together with mussels species form different European countries (Czech Republic, Denmark, Spain) have been collected; currently analyses using new methods previously developed and validated within the WP1 cluster are ongoing. The data will be available in next few months.

Within WP1a not only halogenated pollutants, but also content and composition of polyunsaturated fatty acids (PUFAs) is determined to assess the risk-benefit models of POPs and PUFAs occurring in fish. For this purpose, DART technique (Direct Analysis in Real Time) enabling rapid lipids profiling is applied for the first time.



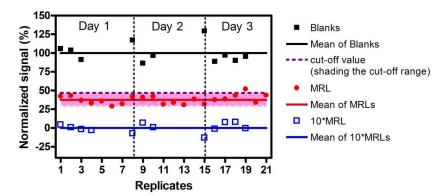
The 2nd interlaboratory study followed the "1st round interlaboratory study on PFCs analysis in food" focused on the perfluorinated compounds, especially perfluoroctane sulfonic acid (L-PFOS), perfluoroctanoic acid (PFOA) and perfluoroctane sulfonamide (FOSA) in milk and fish muscle samples. Within the 2nd round, the scope of the samples was enlarged and fish muscle, fish feed and milk samples were analysed. The samples were examined using the analytical method developed and validated within the frame of WP1b CONffIDENCE.

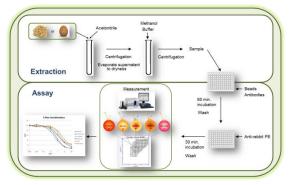
Read more on PFCs study...

Regarding the pesticides (WP1c), a multiplex immuno-based assay has been validated for simultaneous detection of the desiccant paraquat in cereals, besides the mycotoxin DON (included for demonstrating feasibility of electrochemistry-based multiplex detection). An acidic extract was diluted and incubated with immunoreagents. Final detection was done by measuring the current in an electrochemical cell. The target levels of 0.02 mg paraquat/kg and 0.75 mg DON/kg could adequately and consistently be distinguished from blanks (see opposite Figure as example for paraquat) demonstrating the applicability for compliance testing in real samples. A small interlab study of the sensor method is in progress.

A survey for occurrence of residues of paraquat and diquat was initiated which included potatoes, cereals and dry pulses at target commodities. At this stage, the instrumental reference method (LC-MS/MS) was used for the analysis. Diquat was detected at trace levels (< 0.01 mg/kg) in potatoes and up to 0.11 mg/kg in dry pulses (lentils). More samples will be analysed this year, both with the reference method and the screening assay.

Performance of immunoassay for detection of paraquat in cereals (MRL = 0.02 mg/kg)





Developing detection methods for Veterinary Pharmaceuticals: Coccidiostats, Antibiotics

Regarding coccidiostats (WP2a), the single-laboratory validation of the five-plex flow cytometry-based immunoassay was completed for the six selected coccidiostats (nicarbazin, diclazuril, salinomycin, narasin, lasalocid and monensin) at the newly set maximum coccidostats' levels in feed and eggs. In summary, the method appears to be fit for the purpose of differentiating blank samples from samples containing nicarbazin, diclazuril, salinomycin, narasin, lasalocid and monensin at MRL in eggs and from samples containing nicarbazin, salinomycin, narasin, lasalocid and monensin at ML in laying hens feed.

In order to perform a full validation of this new assay, a collaborative trial was launched in February 2012. The study is currently being conducted on different egg and feed materials. The deadline for the study has been set in June 2012.

Latest results from WP2a will be presented and discussed at the <u>EuroResidues VII conference</u> in May 2012 and at the <u>stakeholder event</u> (WP2a and WP2b cluster workshop) organised in combination.

Read more on coccidiostats...



Regarding WP2b, the multiplex dipstick protocols (lab-based and field test formats) and the Readsensor® method for detecting antibiotics in honey were successfully transferred from Unisensor to FERA. The single-laboratory validation (of the lab-based format), was completed in accordance with 2002/657/EC in November 2012. The detection limits were as follows: sulfathiazole and ciprofloxacin at 25 μ g/kg, tylosin at 10 μ g/kg and chloramphenicol 5 μ g/kg. An inter-laboratory validation (ILV), of the multiplex assay (lab-based format), was undertaken in February/March 2012 by 7 different laboratories (from Belgium, The Netherlands, France and the UK). The statistical evaluation is currently under way, but the preliminary interpretation of the results is promising.

Further progress on simplifying the field test format has been made; a 'proof of principle' single laboratory validation of this format is under way. A proto-type kit has been presented/ demonstrated at the annual bee-inspector conference organised by the National Bee Unit (29/03/12, FERA). The kit was well received and the inspectors have agreed to test/validate the kit in the 'field', during the honey flow season 2012.

Read more on the presentation...

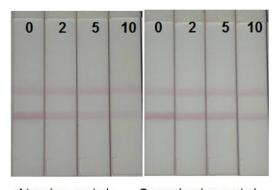
7000 6000 H 50 50 MeHg Siganl intensity (cps 4000 3000 iHg 2000 1000 0 6 Time (min)

HPLC-ICPMS chromatogram with separation of inorganic mercury (iHg) and methylmercury (MeHg) in a fish muscle sample

Developing detection methods for Heavy Metals

Regarding heavy metals (WP3), the first results on methylmercury in marine feed and seafood has now been obtained using the HPLC-ICPMS methodology developed within the CONffIDENCE project. The marine feed samples comprised both complete feed, fish silage and fish meal and were from the Danish feed surveillance programme. Concentration levels up to 0.125 mg/kg were obtained, which is below the EU maximum level for total mercury at 0.2 mg/kg. Furthermore, the method has also been applied to a range of seafood samples collected from various locations in Europe. This survey is coordinated together with WP1a and WP1b and will also include determination of inorganic arsenic (WP3) and other contaminants (WP1). The results will provide valuable input to ongoing risk-benefit analysis of seafood intake in the EU. In the near future both methods developed in WP3 will be collaboratively tested with the participation of several European food and feed laboratories. Prior to the collaborative trials several training sessions for the participating laboratories have been planned.

The method for determination of inorganic arsenic in marine samples by SPE HG-AAS developed in CONffIDENCE will in the following period be tested for its capability to determine inorganic arsenic in rice. This is of high interest, due to ongoing discussions in the EU regarding potential future maximum levels on inorganic arsenic in rice and rice products. The method developed in CONffIDENCE may be a future candidate method for control of the maximum level in rice.



Atropine ng/ml

Scopolamine ng/ml

of tropane alkaloids in feed extracts



Demonstration of NIR hyperspectral method to determine ergot in grains at an industrial setting

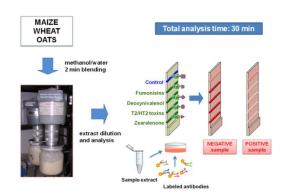
Developing detection methods for Biotoxins: Alkaloids, **Marine Biotoxins, Mycotoxins**

Regarding alkaloids (WP4a), progress has been made in the development of dipstick methodologies. For the dipstick sensor to determine tropane alkaloids, the work is currently focusing on testing the methodology, developed by Unisensor, with extracts of various feedstuffs at RIKILT (see figure opposite). This activity will be followed by limited scale interlaboratory validation to derive its performance characteristics in practice. For the dipstick sensor to determine ergot alkaloids, the work currently focuses on the rounding off of a dipstick method to determine ergotamine, ergocristine and ergometrine, 3 Results of dipstick analyses for the determination important representatives of the larger family of ergot alkaloids. The initially targeted dipstick format to determine pyrrolizidine alkaloids has been replaced by an ELISA format targeted to the determination of heliotrine, monocrotaline, jacobine and lycopsamine, which are considered to be representative of the many pyrrolizidine alkaloids occurring in nature.

> In addition the activities with the development of the hyperspectral imaging method to detect ergot in grains has been successfully rounded off with testing and demonstrating the system at an industrial site (see figure opposite). The work with the NIR hyperspectral method to determine ergot in grains has been finalized, published (Food Additives and Contaminants, 2012) demonstrated and presented at the CONFIDENCE open day in the framework of the RAFA 2011 conference. Relevant presentation and demonstration about these methodologies will be presented at the conference WMFmeetsIUPAC, Rotterdam, the Netherlands (See upcoming events).

In the CONffIDENCE project, the drive to find an alternative method for animal based testing for all marine biotoxins in the development of a the multiplex biosensor assay for marine biotoxins (WP4b) was presented at the Recent Advances in Food and Feed Analysis in Prague in November 2011 also demonstrating the achievements of the project to date in its ability to analyse three regulated groups of toxins and the emerging toxin palytoxin. The development of a rapid screening assay for tetrodotoxin was also presented as part of the CONffIDENCE project as an emerging toxin to European waters.

Read more about this conference...



Regarding Mycotoxins (WP4c), multiplex dipstick immunoassays for the semi-quantitative analysis of major *Fusarium* toxins (zearalenone, T-2 and HT-2 toxins, deoxynivalenol and fumonisins) at levels close to EU regulatory limits have been developed and applied to cereals, cereal food and feeds. A manuscript describing method development and application to naturally contaminated wheat, oats and maize has been published (Lattanzio et al. 2012, Analytica Chimica Acta, 718:99-108).





After in-house validation according to a "single-laboratory validation design" elaborated within the project, the kit (**4Mycosensor**) has been recenlty launched on the market. A one-day Symposium on Mycotoxin Analysis, MYCODAY, has been organized by Unisensor, with the participation of scientific experts, aimed at introducing stakeholders to the problem of mycotoxin contamination and reviewing analytical methods to detect mycotoxins. A demonstration of 4Mycosensor has also been organized within the symposium.



Impact demonstration, i.e. the application of multiplex dipstick immunoassays at farm level, is in progress at NUTRECO facilities. Training of personnel on sample preparation and dipstick use has been completed. The expected result is a draft proposal for placing the new tests in an adapted HACCP plan for mycotoxin monitoring at farm level.

Read more on the Mycotoxin Analytical Symposium...

News from other projects

4th FEED SAFETY INTERNATIONAL CONFERENCE 2012

It is our pleasure to invite you to the 4th International FEED SAFETY Conference. During the past decade, due to the BSE and dioxin crises and other feed related incidents, the crucial role of feed safety in food safety has become more and more obvious. This led to the enforcement of regulations, increased activities in the feed sector to safeguard feed safety, establishment of risk assessment systems and international cooperation to improve detection capabilities. The 4th International FEED SAFETY Conference is organized to present the state of the art and to discuss future challenges. This conference is organized by the China Agricultural University (CAU), Beijing, China in collaboration with the Walloon Agricultural Research Centre (CRA-W), Gembloux, Belgium, the Institute of Food Safety (RIKILT), Wageningen, The Netherlands and the Queen's University of Belfast (QUB), Belfast, UK. Former FEED SAFETY Conferences were organized in 2004 and 2007 in Namur (Belgium) and in Wageningen (The Netherlands) in 2009 in the framework of different EC projects. We hope to welcome you in September 2012 and we look forward to a great conference in Beijing.

Read more about this conference...

Upcoming Events

CONFIDENCE cluster 1 workshop and 8th ANNUAL LC/MS/MS WORKSHOP ON ENVIRONMENTAL APPLICATIONS AND FOOD SAFETY

2 - 4 July 2012

This Workshop will be held in Barcelona in Spain. It will be structured in two main sessions covering environmental and food analysis. This workshop is intended to be an informal venue that encourages an exchange of the latest information and ideas on challenges and advances in LC/MS/MS applications among scientists from academia, governmental agencies and industry.

The WP1 cluster meeting will be scheduled on July 3, 2012, within this LC-MS/MS workshop.

Read more about this workshop...

For registration to the CONffIDENCE cluster 1 workshop...

















CONffIDENCE cluster 2 workshop and EURORESIDUE VII

14 - 16 May 2012

The EuroResidue Conferences are organized to cover all aspects concerning residues of veterinary drugs such as analytical techniques, pharmacological and toxicological studies, registration and regulation and others. The EuroResidue VII will be held at Egmond aan Zee in The Netherlands on 14-16 May 2012. Special emphasis will be laid upon recent developments with respect to the detection and determination of drug residues in any analytical matrix. During this conference a separate session will be devoted to CONffIDENCE accomplishments in the areas of coccidiostats and antibiotics. This workshop will be held on 16th May 2012.

For registration to the CONffIDENCE cluster 2 workshop...

Read more about the EURORESIDUE conference...





CONFIDENCE cluster 3 workshop and EURL-Heavy metals annual meeting

20 September 2012

In September, a stakeholder workshop of cluster 3 will be held at the annual meeting at the EURL for Heavy Metals in Feed and Food. The meeting will take place in Brussels, Belgium and organized by CONffIDENCE partner IRMM in Geel, Belgium.

Read more about this workshop...

CONFIDENCE cluster 4 workshop, 7th
CONFERENCE OF THE WORLD
MYCOTOXIN FORUM and THE XIIIth IUPAC
INTERNATIONAL SYMPOSIUM ON
MYCOTOXINS AND PHYCOTOXINS

05 - 09 November 2012

The 7th Conference of The World Mycotoxin Forum® and the XIIIth IUPAC International Symposium on Mycotoxins and Phycotoxins will be jointly organized. This unique combined event, WMF meets IUPAC, will build on the success of the previous conferences which





were held separately all over the world. WMF meets IUPAC will take place in Rotterdam, the Netherlands, on 5-9 November 2012. During this conference a separate will be devoted to CONFFIDENCE session accomplishments in the areas of mycotoxins, marine biotoxins and alkaloids followed by demonstrations. This workshop will be held on 8th November 2012. The provisional programme (with working titles) of this workshop is a follows:

CONffIDENCE session Thursday 8th November 2012, 10.30-12.30, followed by "workshop-lunch"

Chairs: Chris Elliott & Hans van Egmond

- Chairs introduction into CONffIDENCE and the Biotoxins Cluster - Chris Elliott, QUB.
- 2. Preparation and characterisation of antibodies against selected natural toxins Anne-Catherine Huet, CER.
- 3. Dipstick methodology for the multiplex screening of 4 Fusarium mycotoxins Veronica Lattanzio, ISPA.
- The near infrared hyperspectral imaging methodology as a control tool for the detection of contaminants in cereals—Philippe Vermeulen, CRA-W.
- 5. Development of an SPR multiplex analysis method for marine biotoxins Katrina Campbell, QUB.
- 6. Wrap-up and introduction of the workshop-part Hans van Egmond, RIKILT.

Workshop-lunch from approx. 12.30-14.00

- Demonstration of multiplex dipstick methodology for mycotoxins and tropane alkaloids – Noan Nivarlet, Unisensor.
- 8. Demonstration of NIR methodology for the determination of ergot in grains Philippe Vermeulen, CRA-W.

Read more about this WMF-IUPAC conference ...

BIOSENSORS 2012

15 - 18 May 2012

Biosensors 2012 is a three-day event, organized by Elsevier in association with Biosensors & Bioelectronics, consisting of daily plenary presentations followed by parallel sessions comprising a rigorously refereed selection of submitted papers.

Read more about the conference...



MycoRed

MYCORED TRAINING 2012

28 May - 8 June 2012

We are pleased to announce two relevant appointments for training in the mycotoxin field: the course "Detection techniques for mycotoxins in the food chain" and the"Fusarium Laboratory Workshop", that will be held both in Bari, Italy in June 2012. The training course, from May 28 to June 1, aims to demonstrate and transfer to young researchers and students traditional methods and new chemical and immunological systems for rapid, robust and user-friendly analysis of mycotoxins in the food chain. The course will be held mainly in the laboratory for practical learning. The Fusarium Laboratory Workshop, from 3 to 8 June, instructed by international Fusarium experts, aims to introduce participants to standard morphological, genetic and molecular biological techniques used to identify and characterize strains of Fusarium, to use morphological characters to identify the most common Fusarium species, and learn practical tecniques for testing and extraction. More than half of the time will be spent in the laboratory working with standard strains. Students may bring some of their own strains.

Read more about those events...



09 - 13 June 2012

The Analytical Section of the Norwegian Chemical Society invites scientists and users of science to this sixth Nordic Conference on Plasma Spectrochemistry. The aim of the conference is to provide a forum to encourage the exchange of ideas and knowledge about recent developments and state-of-the-art knowledge in main areas of analytical plasma spectrochemistry (ICP-OES, ICPMS and related techniques). This is a fine opportunity to share and discuss recent experiences and to be scientifically updated through a number of short courses given by international leading specialists in typical Norwegian informal surroundings.

Read more about this conference... or contact Jens J. Sloth [jjsl@food.dtu.dk] (member of the scientic committee).





1st EUROPEAN WORKSHOP ON AMBIENT MASS SPECTROMETRY AND RELATED MASS SPECTROMETRY-BASE TECHNIQUES IN FOOD/NATURAL PRODUCTS CONTROL

18 - 20 June 2012

Following the successful EU projects (BioCop & CONffIDENCE) dissemination workshop on Application of ambient mass spectrometry for rapid analysis of food contaminants/residues held in 2010, the Institute of Chemical Technology (ICT), Prague & RIKILT, Wageningen are organizing on June, 18°C20, 2012 a RAFA associated workshop dedicated to all laboratories concerned with food / natural products analysis. The mission of this Workshop is to introduce challenging innovations in ambient mass spectrometry©\based measurements and, last but not least, bring together all current and future users

Read more about this workshop...

BEHAVIOUR OF PESTICIDES IN AIR, SOIL AND WATER

25 - 26 June 2012

Highlights

Regulatory issues
Environmental fate and exposure – soil and water
aspects

Risk assessment and mitigation

Read more about this conference...

EPRW 2012

25 - 28 June 2012

The European Pesticide Residue Workshop (EPRW) is the premier European meeting for the presentation and discussion of the latest concepts and developments in the field of pesticide residues in food and drink. The first workshop was held in The Netherlands in 1996. Since then it has been held every second year. The 9th edition of the EPRW expects 450 participants afield from commercial and governmental laboratories, from public authorities and regulatory bodies, from food production, distribution and wholesale representing many countries around the world. The objective of this workshop is to exchange information and experience about the latest concepts and developments in the field and bring together people from all different sectors. The scientific programme will include plenary lectures, oral and poster presentations, exhibitions as well as discussions and vendor sessions.

Read more about this conference...







MYCORED NORTH AMERICA 2012

24 - 28 June 2012

Carleton University will host MYCORED NORTH AMERICA 2012. The conference will include keynote lectures by international experts, oral presentations posters sessions, discussion group sessions.

Read more about this conference...

4th INTERNATIONAL FEEDSAFETY CONFERENCE – METHODS AND CHALLENGES

11 – 13 September 2012



Read more about this conference...



CHEMICAL REACTIONS IN FOODS VII – CRF 2012

14-16 November 2012

This event continues the successful series of meetings held in Prague in 1992–2009. In line with the series, the theme of our conference is new knowledge on chemical reactions during the processing and storage of foods. We hope the conference will be an excellent opportunity to demonstrate the importance of such knowledge in our papers, discussions and personal communications. The conference programme will be tailored to provide a lot of opportunities for you to network as well as explore the latest results of the food chemistry community.

Read more about this event...



This work is funded by the European Commission, under the FP7 Food Quality and Safety Priority, within the framework of the Collaborative Project CONfflDENCE – 211326 – entitled "Contaminants in Food and Feed: Inexpensive DEtection for Control of Exposure". This project is carried out by a consortium coordinated by RIKILT – Institute of Food Safety (NL) and includes 17 partners. The information reflects the authors views, the European Commission is not liable for any use of the information contained therein.

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