Research in Food Safety

Booklet

Programme & Abstracts

Date	26th November 2019
9 : 00	Registration
9 : 30	Welcome *Patrick Hau (Commissaire du gouvernement à la qualité, à la fraude et à la sécurité alimentaire)*
9 : 40	Introduction of the Ministry of Consumer Protection *Ian Tewes (Ministry of Consumer Protection)*
9 : 50	Horizon 2020 R&I funding programme – opportunities & Luxinnovation support *Sanna Alaranta (Luxinnovation)*
10 : 00	Multi-residue analysis of pesticides in bee bread and pollen *Cédric Guignard, PhD (Luxembourg Institute for Science and Technology)*
10 : 25	The re-evaluation of sweeteners by the European Food Safety Authority (EFSA) *Federica Lodi, PhD (European Food Safety Authority)*
10 : 50	Research in a routine lab – problems and opportunities *Claude Schummer, PhD (Laboratoire National de Santé)*
11 : 15	Coffee and Networking Break
11 : 45	Titanium dioxide (E 171): update on EFSA's activities *Federica Lodi, PhD (European Food Safety Authority)*
12 : 10	Intestinal in vitro models as a valuable tool for hazard assessment of nanomaterials *Sébastien Cambier, PhD (Luxembourg Institute for Science and Technology)*
12 : 35	Determination of the composition of alcoholic beverages by gas chromatography-mass spectrometry: Implications for food safety *Alex Brito, PhD (Luxembourg Institute of Health)*
13 : 00	End

Presentations will be published on our website: https://gd.lu/6nLR2V

Presentations

Newsletter

Register for News about EFSA and the Luxembourgish Focal Point: https://gd.lu/8vhpQ1

Horizon 2020 R&I funding programme – opportunities & Luxinnovation support

Charles Betz, Phd – Charles.Betz@luxinnovation.lu
Sanna Alaranta – Sanna.Alaranta@luxinnovation.lu

Luxinnovation – www.luxinnovation.lu
European R&D and Innovation Support – www.horizon2020.lu

What is Horizon 2020

Horizon 2020 (H2020) is the main research, development and innovation funding scheme of the European Commission, with a budget of 75Bn €, running from 2014 until the end of 2020. Funding comes through different schemes, some of which are "top-down", thus defined calls to address a specific challenge judged of common interest, while other funding is "bottom-up" with no predefined topic. Horizon 2020 is open to all types of legal entities, ranging from academia, companies of all sizes, NGOs, end users, public administrations, and other stakeholders along the innovation value chain.

Generally, the top-down calls are collaborative projects, with the minimal criteria for a consortium of 3 different participants from 3 different member or associated states – however, the average consortium is much larger than that (10-20 partners). The bottom-up programmes, such as the ERC and the Marie Curie actions focus more on the career development, and can be interesting tools to fund PhD students, postdocs or high profile researchers.

Food research in Horizon 2020

One of the focal areas that the European Commission wants to address under Horizon 2020 is the so-called Societal Challenge 2 (SC2), which comprises food security, agriculture and bioeconomy topics with a cross-thematic focus on circularity and sustainability.

Two parts of the work programme for 2020 are particularly relevant: Sustainable food security (SFS) and Food and natural resources (FNR). The SFS call advocates for food system approaches to tackle the inherent links between ecosystems, food production, the food chain and consumer health and wellbeing. The call The FNR call aims to sustainably manage and use natural resources from land and sea; to ensure food and nutrition security, providing safe, healthy and nutritious diets; and to accelerate the transition from a fossil-based linear economy to a low emission, low-carbon circular economy and sustainable bio-based economy.

How Luxinnovation as the National Contact Point (NCP) for H2020 can help you?

If you are interested, the first step is to contact your NCP. We can help you to:

- Identify matching opportunities for your needs and ideas
- Training and support in proposal writing
- Help with consortium building
- Advice in legal and financial questions

Besides the personalised support, we can also represent your interests towards the design of future research and innovation priorities.

Horizon 2020 is entering its last year and we are involved in working towards the next framework programme, where input from Luxembourg is important in order to pass messages towards the European Commission to shape the priorities and calls of the programme. This is thus a unique opportunity for you to get involved and help shaping future opportunities.

Multi-residue analysis of pesticides in bee bread and pollen

Cédric Guignard, PhD
Cedric.Guignard@list.lu

Luxembourg Institute of Science and Technology - www.list.lu
Environmental Research & Innovation Department (ERIN)

Since the last decade, honey bees are subject to high losses in developed countries. Parasites and viruses, weather, changes in land use and exposure to pesticides have been identified as the main factors impacting bee health. Pesticides applied on crops can potentially contaminate pollen collected by bees. A part of the pollen is directly consumed, while another part is fermented and stored in the hives as bee bread.

Among the objectives of the present study were the development of an analytical method for the quantification of pesticides in pollen and bee bread, and the investigation of a potential relationship between the occurrence of pesticides in these matrices and the mortality of honey bee colonies in winter.

The main challenges of the analytical development were the complexity of the investigated matrices and to target the relevant pesticides in pollen and bee bread. A priority list of pesticides was established, based on scientific literature and authorised active substances in Luxemburgish crops. On the basis of this list of target pesticides, three complementary analytical methods were developed using Triple-Quadrupole LC-MS/MS (positive and negative modes) and GC-MS/MS. In addition, an extraction protocol, based on the QuEChERS method, has been optimized considering the matrices and pesticides of interest. The final methods allow the detection of 112 pesticides at the ppb level and have been applied on 85 bee bread and 154 pollen samples. Data were analysed statistically to investigate potential correlations between the colony mortality and the presence of individual or combined pesticides.

The re-evaluation of sweeteners by the European Food Safety Authority (EFSA)

Federica Lodi, PhD
Federica.Lodi@efsa.europa.eu

European Food Safety Authority (EFSA) - www.efsa.europa.eu
Food Ingredients and Packaging Unit (FIP)
Food Additives Team

This presentation aims at providing an overview on the current and future EFSA's work on the re-evaluation of sweeteners, and possible involvement of Member States.

According to Regulation (EC) No 1333/2008, all food additives permitted before 20 January 2009 should be subject to a new risk assessment by EFSA. The programme for the re-evaluation of approved food additives has been set up by Commission Regulation (EU) No 257/2010, which foresees that the re-evaluation of all approved sweeteners shall be completed by 31 December 2020.

In order to gather all information available, EFSA has launched calls for data to invite the interested business operators to submit all data available, which will be complemented with any relevant literature published since the latest opinions of the Scientific Committee on Food (SCF) or EFSA. To ensure impartiality and methodological rigour along the process, two protocols have been developed: one on the assessment of the hazard identification and characterisation of sweeteners, and the other one focussing on the exposure assessment.

In this presentation, the main features of the first protocol, summarising the different steps to be applied during the risk assessment, will be presented. Both protocols underwent a public consultation period and the comments received are considered in the finalisation of the protocols. For the implementation phase of these two protocols, the Working Group on sweeteners needs to be enlarged to evolve in a fully multidisciplinary working group with all areas of expertise covered. In this respect, EFSA would like to engage with Art 36 organisations, to attract more experts to be part of this Working Group, according to their expertise.

Research in a routine lab – problems and opportunities

Claude Schummer, PhD
Claude.Schummer@lns.etat.lu

Laboratoire National de Santé - www.lns.lu
Département des Laboratoires de Protection de la Santé
Service de surveillance alimentaire

Many actors including EURLs and ministries (via governmental conventions) are encouraging official control laboratories (OCLs) to develop research activities within their framework. In general, the concerned laboratories support this, as research activities allow staying « up to date » with scientific developments (new methods, new techniques, new findings, upcoming issues, etc) and getting familiar with new techniques (i.e. ASE, SPME, etc.). Furthermore, it allows acting pro-active and being ahead of upcoming issues, and the publication of the results in peer-reviewed journals increases the (national and international) reputation of the laboratory that thus becomes attractive for collaborations with (international) laboratories. However, routine activity is always first for an OCL and thus research activity is secondary and dependent on availability of scientists, technicians and financial resources. Participation in project calls is only a limited solution to increase the financial resources as these participations demand a huge implication in the project, advance planning over large periods (i.e. 1 year or more) and availability for detailed reporting to the stakeholders.

On the other hand, OCLs also have advantages over pure research labs when implementing research and development activities: one of the major problems of many research labs is the availability of samples. Routine laboratories have a constant arrival of routine samples, and many of them can be used for R&D activities, after anonymization. Furthermore, routine laboratories don't suffer the same pressure as research labs for publishing their results in high-ranked international peer-reviewed journals. Also, very often there is no streamlining of research topics in OCLs by the management, as long as the activity falls into the normal framework of the lab. This allows OCLs to be very innovative and investigate a priori non-promising tracks, as failing is not fatal and the survival of the lab doesn't depend on the research outcome.

The food control laboratory of LNS has found its way to integrate R&D into its laboratory activities without compromising the normal routine activities, a way comparable to practices in other OCLs and NRLs. These solutions will be presented and discussed during the presentation and illustrated with the latest R&D outcomes of the laboratory: the monitoring of PAHs in smoked teas and infusions, the doubling of peaks of Sudan dyes and thus the risk of false negatives, or the investigation of epimerization in ergot alkaloid analyses and the monitoring of ergot alkaloids in cereals produced in Luxembourg.

Titanium dioxide (E 171): update on EFSA's activities

Federica Lodi, PhD
Federica.Lodi@efsa.europa.eu

European Food Safety Authority (EFSA) - www.efsa.europa.eu
Food Ingredients and Packaging Unit (FIP)
Food Additives Team

The re-evaluation of titanium dioxide (TiO2, E 171) as a food additive was completed by the European Food Safety Authority (EFSA) Panel on Food Additives and Nutrient sources added to food (ANS) in 2016, concluding that the estimated dietary exposure to E 171 from its use as a food additive would not be of concern to human health. However, the need for further investigation (i.e. on the characterisation of the particle size distribution of E 171 as food additive and a dietary toxicological study) were recommended.

In 2018, EFSA published another opinion on four new publications (among which the Bettini et al., 2017) that became available since the publication of its 2016 opinion. In this opinion the ANS Panel concluded that, while work was ongoing to fill in the data gaps highlighted in its 2016 opinion, there was no need to revisit its previous conclusions. Based on the Bettini et al. findings, the previous recommendations for additional toxicity testing were broadened to investigate biomarkers for putative preneoplastic lesions in the colon. The study by Bettini et al. was already evaluated by The French Food Safety Agency (ANSES) in 2017, in close collaboration with EFSA, concluding that there was no need to reopen the EFSA opinion of 2016 on E 171. ANSES' recommendations in its 2019 opinion on E 171 confirmed the areas for further research identified by EFSA in its 2016 and 2018 scientific opinions.

The latest opinion by the EFSA Panel on Food Additives and Flavouring (FAF) (July 2019) assessed information about the characterisation of the particle size distribution of E 171 in order to amend the current EU specifications for this food additive, and while the uncertainties raised in previous assessments on the food additive remain valid, the FAF Panel did not find reason to revise EFSA's previous conclusions on the safety of titanium dioxide as a food additive in considering the characterisation of the particle size distribution. The ongoing toxicological study requested in 2016 will be submitted to EFSA around mid-2020.

Intestinal in vitro models as a valuable tool for hazard assessment of nanomaterials

Cambier Sebastien, PhD
Sebastien.Cambier@list.lu

Luxembourg Institute of Science and Technology - www.list.lu
Environmental Sustainability Assessment and Circularity Unit (SUSTAIN)
Environmental Health Group (EH)

Cell culture models containing more than one cell line have attracted increasing interest in recent years due to their higher relevance when compared to standard monolayer cultures. Intestinal co-culture models consisting of different clones of Caco-2 cells and mucous producing HT29-MTX cells are such a model for the intestine that have shown their applicability in many fields including food and feed.

The OECD develops and publishes technical guidelines (TG) on how to perform hazard assessment and currently an approved OECD project is developing a TG for in vitro intestinal models to be applied to nanomaterials.

Determination of the composition of alcoholic beverages by gas chromatography-mass spectrometry: Implications for food safety

Alex Brito, PhD
Alex.Brito@lih.lu

Luxembourg Institute of Health – www.lih.lu
Department of Population Health
NutriHealth Group

A gas chromatography-mass spectrometry (GC-MS) method was developed to characterize a variety of alcoholic beverages distributed for human consumption.

Natural constituents (i.e. phenylethyl alcohol, 4-hydroxybenzoate) found in beers and wines were profiled with the purpose to confirm the authenticity of the beverages. The presence of artificial flavors and preservatives (i.e. methyl anthranilate, triacetin) were studied in a variety of low and high quality beverages.Polluters produced during the manufacture such as esters of phthalic acids and squalene were studied, as well as the potential contamination depending on different packaged systems such as polyethylene terephthalate containers.

The present work will have a focused on the novel use of GC-MS profiles in beverage chemistry for food safety.

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Commissariat du gouvernement
à la qualité, à la fraude et
à la sécurité alimentaire

efsa European Food Safety Authority FOCAL POINT

Contact:

Luxembourgish Focal Point for EFSA

Commissariat du gouvernement à la qualité,
à la fraude et à la sécurité alimentaire

7A rue Thomas Edison , L-1445 Strassen
Tél. (+352) 247-75644
Fax (+352) 27 47 80 68

Focal.Point@alim.etat.lu