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Welcome to the third and final edition of the MultiCoop Newsletter. As this project has just finished, we want to thank everyone for their hard work in delivering some fantastic results contributing to assessment of food and feed safety.

MultiCoop is a European three-year “Twinning” project that has been built to implement activities in a multidisciplinary approach for a comprehensive assessment of food and feed safety, that will help in enhancing a research potential of both of staff involved and particularly institution from a widening country.

The MultiCoop consortium consisting of 3 partners from 3 countries has considerable complementary expertise in various aspects of a food and feed safety assessment enabling strengthening cooperation and establishing a novel platform for common research activities.

The aim of this final newsletter is to provide you with a brief summary of the project and update you on the project results. We hope you find the newsletter useful.

Please contact us at multicoop@vscht.cz with any suggestions for improvement.

On behalf of MultiCoop project partners, coordination team VSCHT, Prague, Czech Republic

MultiCoop IN A NUTSHELL:

Key facts:

Horizon 2020 Project

Type of action:
CSA, TWINNING

Acronym:

MultiCoop

Duration:

36 months
January 2016 – December 2018

Co-ordinator:

Jana Hajslova
**University of Chemistry and Technology, Prague
Czech Republic**

Website:

www.multicoop.eu

MultiCoop is aimed at promoting new opportunities for participating partners ([University of Chemistry and Technology, Prague, Czech Republic](#) (VSCHT); [Queen's University Belfast, UK](#) (QUB); and [University of Natural Resources and Life Sciences, Vienna, Austria](#) (BOKU / IFA-Tulln) by a development of levels of excellence and expertise of all three institutions in the field of a comprehensive food and feed safety assessment. A major focus will be in enhancing the range of competences of VSCHT.

The main interests for a substantial knowledge transfer are innovation in the field of analytical chemistry incorporating a holistic analytical approach for analytical methods for targeted analysis of contaminants and health beneficial compounds, analytical approaches for non-targeted screening and metabolomic fingerprinting/profiling, and methods for identification of important metabolomic markers. Furthermore, interests in fit-for-purpose methods for the assessment of currently unknown risks resulting from the presence of mixtures of chemical contaminants in food and feed and novel approaches used in bioprospecting, a new tool for uncovering important natural resources for improving health, are included.

Our strategy is the delivery of knowledge transfer from partners with the greatest experience and expertise in a particular field to those whose needs are the greatest. A substantial benefit for this effective knowledge transfer is that a partial overlap of partners' competencies exists, which will allow for a smooth implementation of the knowledge gained by the particular partner institution.

PROJECT ACTIVITIES:



NEWS from the Training activities:

Training activities are one of the key pillars of a knowledge transfer among the project partners and are designed based on their research needs in order to maximize gain in different fields of expertise.

(i) In 2018, **training activities** continued and were focused on:

- Application of metabolomics in food / feed analysis
- Application of infrared spectroscopy for food authentication
- Application of ion mobility in food analysis
- Untargeted metabolomic analysis of chicken samples using the DART-HRMS
- Advanced mass spectrometric techniques in the analysis of emerging anabolic drugs
- High Content Analysis
- Analysis of bio-hazards in foods
- ISO 17025 accreditation process

Gaining new knowledge or deepening knowledge in respective field of expertise, improving skills, strengthening ability for planning of experimental design of running projects were the major achievements of these trainings, resulting also in the professional development of all trainees both in science & technology activities and soft skills.

(ii) In addition, QUB established a **Massive Open Online Course (MOOC)** on the platform Future Learn on the topic **“Tackling global food safety”**; it was designed as a 3-week course. The MOOC introduced students into food fraud and authenticity, food contamination, and how these issues impact food safety and consumers’ health. In particular, it presented state-of-the-art methods currently available and applied to identify food fraud and various hazards, providing also insights into the technical challenges and regulatory requirements to ensure that food is safe.

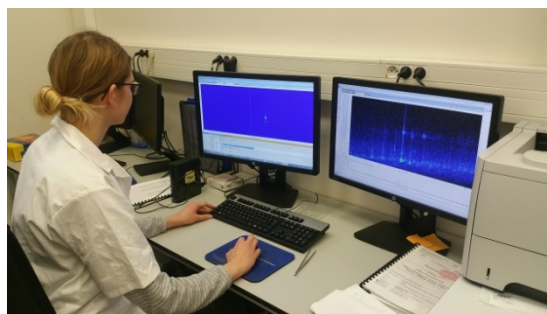
(iii) **Integration workshops** served as a platform to discuss research interests, challenges and outlook between young and senior researchers, as well as between different institutions, disciplines and technical capabilities. Three training workshops were organised:

- **Food Integrity: Defining and Understanding the Challenges** by QUB in Belfast, UK, 13-14 February 2018
- **Detection, control and reduction of chemical contaminants along the food chain** by BOKU in Tulln, Austria, 6 July 2018
- **Support of young scientists in their research project proposals ideas** by VSCHT in Prague, Czech Republic, 26 Nov 2018

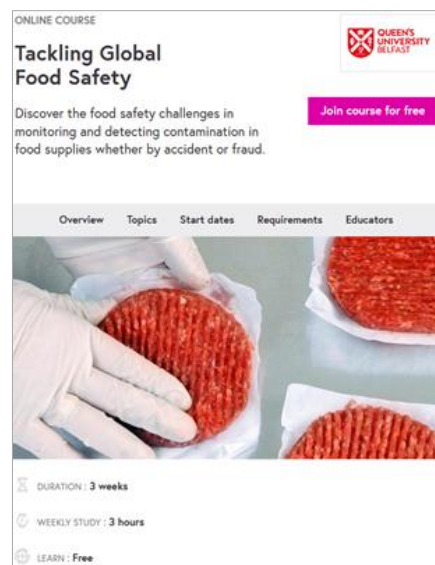
With the overarching topic of food integrity and its relevance and challenges for food safety, the scene was set at QUB for current research needs. Presenting the technical aspects at BOKU showed how research-derived data informs risk managers and risk assessments, thus contributing to safer food. These insights, as well as other cooperative training sessions, provided the stimulus for students to define their research interest for new student’s project proposals at VSCHT. Eventually, six project ideas were presented at the final integration workshop, which will be pursued and mentored in upcoming funding calls.



Group photo from training school “Challenges in food and feed safety research” organised by VSCHT (November 2018)



Training on advanced mass spectrometric techniques in the analysis of emerging drugs (Prague, February 2018)



Screenshot of e-learning tool developed by QUB at an online course platform

(iv) In 2018, second **training school** on **„Challenges in food and feed safety research: Advanced analytical strategies for various analyte/matrix combinations for food and feed safety assessment and cumulative risk assessment of food and feed toxicants“** was organised by VSCHT in Prague, Czech Republic on 27-29 November 2018. It was attended by more than 50 participants from QUB, BOKU, VSCHT and provided insights into the quality assessment and control, step by step strategies for instrumental analytical methods development in food and feed safety assessment, analytical approaches for food authentication, data analysis and challenges in mycotoxins analysis. Finally, young researcher from all MultiCoop partners presented their results in a dedicated session on case studies about analytical strategies in food and feed safety control.

NEWS from the Dissemination activities:

MultiCoop led several sessions at major international events on comprehensive assessment of food and feed safety, including cumulative risk assessment of food and feed toxicants:

(i) 2 sessions on theme **“Human exposure to chemical cocktails in food”** on 30 May 2018 at [ASSET 2018 Summit on Global Food Integrity](#) Belfast, UK (organised by QUB)

The main aims of these sessions were to gain a better understanding of human exposure to multiple chemicals present in foods which will lead to formulation of a call for action to develop new ways of assessing the risks to the human health from these exposures and possible routes for mitigation.

Senior rapporteur feedback – session ["Can chemicals in foods be decontaminated"](#)

Panel discussed innovations in technologies that could be used during feed and food processing to reduce/remove a range of chemicals from the food supply system.

Senior rapporteur feedback – session ["Techniques to quantify the risk"](#)

Panel discussed current and emerging techniques to help quantify the potential human health risks which included analytical and toxicological approaches.

(ii) 1 session at **Mycotoxin Summer Talks 2018** on 6 July 2018, Tulln, Austria (organised by BOKU).

Program offered series of lectures on strategies to control mycotoxins in the food chain, challenges on development of multi-class methods for natural and anthropogenic contaminants in complex compound feeds, new analytical tools for mycotoxins analysis, and the assessment of combined toxicity of natural toxins.



ASSET 2018, panel discussion at session Techniques to quantify risk



Mycotoxin Summer Talks 2018, group picture

Series of new MultiCoop papers published:

- Julie Meneely, Jana Hajslova, Rudolf Krška, Christopher Elliott: [Assessing the combined toxicity of the natural toxins, aflatoxin B1, fumonisin B1 and microcystin-LR by high content analysis](#). Food and Chemical Toxicology (2018) Volume 121:527-540.
- Lucie Drabova, Gerardo Alvarez-Rivera, Marie Suchanova, Dana Schusterova, Jana Pulkrabova, Monika Tomaniova, Vladimir Kocourek, Olivier Chevallier, Christopher Elliott, Jana Hajslova: [Food fraud on oregano: pesticide residues as adulteration markers](#). Food Chemistry (2019) Volume 276:726-734.
- Monika Jiru, Milena Stranska-Zachariasova, Zbynek Dzuman, Kamila Hurkova, Monika Tomaniova, Radim Stepan, Petr Cuhra, Jana Hajslova: [Analysis of phosphodiesterase type 5 inhibitors as possible adulterants of botanical-based dietary supplements: extensive survey of preparations available at the Czech market](#). Journal of Pharmaceutical and Biomedical Analysis (2019) Volume 164:713-724.
- Vít Kosek, Leos Uttl, Monika Jiru, Connor Black, Olivier Chevallier, Monika Tomaniova, Christopher T. Elliott, Jana Hajslova: [Ambient mass spectrometry based on REIMS for the rapid detection of adulteration of minced meats by the use of a range of additives](#). Food Control (2018), in press.
- Ewa Wielogorska, Mark Mooney, Mari Eskola, Chibundu Ezekiel, Milena Stranska, Rudolf Krška, Chris Elliott. [Occurrence and Human Health Impacts of Exposure to Mycotoxins in Somalia](#). Journal of Agriculture and Food Chemistry (2019) 67(7):2052-2060.
- Oluwaseun T. Ojuri, Chibundu N. Ezekiel, Mari K. Eskola, Bojan Sarkanj, Akinola D. Babalola, Michael Sulyok, Jana Hajslova, Christopher T. Elliott, Rudolf Krška: [Mycotoxin co-exposures in infants and young children consuming household- and industrially-processed complementary foods in Nigeria and risk management advice](#). Food Control (2019) 98:312-322.
- Chibundu N. Ezekiel, Kolawole I. Ayeni, Obinna T. Ezeokoli, Michael Sulyok, Deidre A. van Wyk, Oluwapelumi A. Oyedele, Oluwatosin M. Akinyemi, Ihuoma E. Chibuzor-Onyema, Rasheed A. Adeleke, Cyril C. Nwangburuka, Jana Hajslova, Christopher T. Elliott, Rudolf Krška: [High-Throughput Sequence Analyses of Bacterial Communities and Multimycotoxin Profiling During Processing of Different Formulations of Kunu, A Traditional Beverage](#). Frontiers in Microbiology (2018) 9:3282.
- Oluwaseun T Ojuri, Chibundu N Ezekiel, Michael Sulyok, Obinna T Ezeokoli, luwapelumi A Oyedele, Kolawole I Ayeni, Mari K Eskola, Bojan sarkanj, Jana Hajšlová, Rasheed A Adeleke, Cyril C Nwangburuka, Christopher T Elliott, Rudolf Krška: [Assessing the mycotoxicological risk from consumption of complementary foods by infants and young children in Nigeria](#). Food and Chemical Toxicology (2018) Volume 121:37-50.



NEWS from the activities on Strengthening cooperation and scientific strategy:

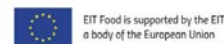
To strengthen cooperation amongst the project partners and formulate a scientific strategy for further common research activities, and in particular increase the research and innovation potential of the partner from the widening country, all project partners have worked closely together to identify possible areas of future research based on the expertise within the consortium and by identifying gaps in research related to food and feed safety, quality and integrity. In addition, through their contacts, the consortium has investigated what networking opportunities exist to establish collaboration with industry, SMEs and national and international projects.

NEWS on new common research projects undertaken by members of the MultiCoop consortium:

Volumetric preservation technologies for food quality improvement by retention of sensitive and mitigation of neoformed compounds (volTECH), supported by the CORNET (Collective Research Networking) and funded by the Czech Ministry of industry and trade, combining national and regional programmes for international collective research for the benefit of SMEs and Austrian Research Promotion Agency. Project is aimed at:

- (i) Comprehensive assessment of the quality and safety of food intermediates/products processed using “mild” technologies, high pressure pasteurization (HPP), ohmic heating (OH) and pulsed electric field (PEF), for sensory assessment, preservation of nutritionally important, sensitive constituents, as well as the reduction of undesirable substances;
- (ii) Monitoring chemical and sensorial changes during the processing process to optimize the conditions of the technology used;
- (iii) Assessment and comparison with conventional technologies to demonstrate the added value of products produced using “mild” technologies.

EIT Food (European Knowledge and Innovation Community (KIC), part of European Institute of Innovation and Technology)



In 2018, VSCHT has received status of the **EIT Food Hub in the Czech Republic** and this position has been renewed also for years 2019-2020. These activities are supported within the **EIT Food Regional Innovation Scheme** (RIS). The RIS is implemented via formalised collaboration with a local entity functioning as an EIT Hub, an ‘interaction point’ between EIT Food and local actors which helps disseminate the knowledge and know-how of the EIT Community.

Contact us:

Do you wish to receive information about MultiCoop follow-up activities? Do you wish to cooperate with us?

Please **Contact us** [here](#) or **Sign up for our newsletter** [here](#).



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Dates for diary & Networking activities:

1st GHI World Congress on Food Safety and Security

24-28 March 2019, Leiden, The Netherlands

3rd International Conference on Food and Nutritional Sciences

5-16 April 2019, Paris, France

6th International Conference on Food Security and Nutrition (ICFSN 2019)

8-10 April 2019, Barcelona, Spain

XX. EUROFOODCHEM

17-19 June 2019, Porto, Portugal

133rd AOAC Annual Meeting & Exposition

8-11 September 2019, Denver, Colorado, USA

11th World Mycotoxin Forum

14-16 October 2019, Belfast, UK

9th International Symposium on Recent Advances in Food Analysis (RAFA 2019)

5-9 November 2019, Prague, Czech Republic

33rd EFOST International Conference 2019

12-14 November 2019, Rotterdam, The Netherlands

We hope you have found this e-Newsletter interesting and informative. We would welcome your views on any of the issues covered. Please contact us at multicoop@vscht.cz with any suggestions for improvement.

Please feel free to distribute this MultiCoop e-Newsletter to other interested parties.

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