

WORK PROGRAMME of EURL for

MYCOTOXINS & PLANT TOXINS

PERIOD: 2018

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INTRODUCTION

Legal functions and duties

The functions and duties of the EU Reference Laboratory are described in Article 94 of Regulation (EC) No 2017/625 of the European Parliament and of the Council of 7 April 2017 (Official Journal of the European Union L 95/I, 7.04.2017, pp 1-141).

The general objective of the Commission for the period 2018-2020 is “to contribute to a high level of protection for consumers and the environment while favouring competitiveness and the creation of jobs¹”. This general objective is elaborated in four operation objectives which are the foundation of the EURL work programme for 2018.

The EURL mycotoxins & plant toxins work programme is divided in 4 parts, linked to the five operation objectives (last objective not applicable). For each operational objective individual tasks have been formulated which are described in more detail for the one year period.

Structure work programme EURL mycotoxins & plant toxins based on Regulation (EU) 625/2017 article 94.

Regulation (EU) 625/2017 Art 94(2):

European Union reference laboratories designated in accordance with Article 93(1) shall be responsible for the following tasks insofar as they are included in the reference laboratories’ annual or multiannual work programmes that have been established in conformity with the objectives and priorities of the relevant work programmes adopted by the Commission in accordance with Article 36 of Regulation (EU) No 652/2014:

(taking into account Art 147 of (EU) 625/2017)

¹ Commission implementing decision of 24.7.2015 on the adoption of the work programme of the Commission for the years 2015 and 2016 and on the financing of the Union contribution to the European Union Reference Laboratories

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TO ENSURE AVAILABILITY AND USE OF HIGH QUALITY METHODS AND TO ENSURE HIGH QUALITY PERFORMANCE BY NRLs.

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.a Providing national reference laboratories with details and guidance on the methods of laboratory analysis, testing or diagnosis, including reference methods.*
- *Art. 94.2.b Providing reference materials to national reference laboratories*
- *Art. 94.2.c Coordinating the application by the national reference laboratories and, if necessary, by other official laboratories of the methods referred to in point (a), in particular, by organising regular inter-laboratory comparative testing or proficiency tests and by ensuring appropriate follow-up of such comparative testing or proficiency tests in accordance, where available, with internationally accepted protocols, and informing the Commission and the Member States of the results and follow-up to the inter-laboratory comparative testing or proficiency tests.*
- *Art. 94.2.l Where relevant for their area of competence, cooperate among themselves and with the Commission, as appropriate, to develop methods of analysis, testing or diagnosis of high standards.*

Sub-activity 1.01 *Providing national reference laboratories with details and guidance on the methods of laboratory analysis, testing or diagnosis, including reference methods (a)*

Sub-activity 1.1.1 *Updating the information on methods for the EURL mycotoxins & plant toxins website*

Objectives: The EURL website mycotoxins & plant toxins is designed and shaped to accommodate relevant information on analytical methods to the NRLs.

Description: Existing methods and validation reports from the previous EURL will be made available. Format for SOP and validation reports on EURL methods will be made. List of available CEN methods will be updated and placed on the website.

Expected Output: Website with index of methods and links to methods. SOP and validation reports of the developed methods in 2018 are online available. List of available CEN methods will be made available through website.

Duration: M3-M12

Sub-activity 1.1.2 *Data pool*

Objectives: Investigate the possible collaboration with the EURL-SRM pesticides on creation of a data base similar to the one existing in the pesticide EURL network.
<http://www.eurl-pesticides-datapool.eu/ReferenceLabs/EuReferenceLabs>

Description: To make use of existing experiences and tools as well as exploit synergy potentials, the EURL Mycotoxins & plant toxins and the EURL-SRM (CVUA Stuttgart) will jointly compare the infrastructure and the necessities of both EURL-networks. The aim of this project is to find out if both networks have similar requirements as regards the communication infrastructure within the individual EURL/NRL/OLs networks and the database structure for compound property data, mass spectrometric information, etc. If the outcome of this

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study is that the inclusion of the EURL Mycotoxins & plant toxins-network's requirements into EURL DataPool can be conducted at reasonable costs, the EURLs will contact COM for approval of this concept in work program 2019.

2018-Q3: Visit/discuss with CVUA Stuttgart.

Expected Output: List of pros & cons, go/no-go for further developing data pool for mycotoxins and plant toxins in collaboration with EURL-SRM.

Duration: M10-M11

Sub-activity 1.1.3 *Inventory NRL capabilities*

Objectives: Inventory of capabilities, i.e. accreditation, and analytical methods for mycotoxin and plant toxin analyses at NRLs.

Description: 2018-Q1 Develop questionnaire

2018-Q2 Develop on-line tool for questionnaire and ask NRLs for input

2018-Q3 Compile and summarise data collected

2018-Q4 Evaluate tool

Expected Output: Web based tool for initial inventory and future updates of capabilities of NRLs

Duration: M3-M12

Sub-activity 1.02 *Follow up on requests from NRLs for reference materials (b)*

Sub-activity 1.2.1 *Materials from previous EURL mycotoxins*

Objectives: Materials from previous EURL Mycotoxins, JRC Geel, registered and stored at RIKILT.

Description: Reference and other materials relevant to the EURL mycotoxins & plant toxins, as far as still available, will be transported from JRC in Geel to the EURL in Wageningen in 2018. The materials will be registered and stored according to the RIKILT Quality System in a way that the materials can always be traced to the origin. Depending on the information available on the materials, they can be used as reference material for QC purposes, or as source of materials for PTs.

Expected Output: (Reference) materials from Geel registered in RIKILT quality system.

Duration: M3-M12

Sub-activity 1.2.2 *Follow up on requests from NRLs for reference materials*

Objectives: Providing NRLs with reference materials upon request.

Description: EURL mycotoxins and plant toxins can distribute to NRLs left-over material from PTs or from collaborative testing as long as supply lasts and without a guarantee on the quality and analyte content of the materials. The remaining PT samples or sample material from collaborative trials will be properly registered and stored at the EURL and can be distributed to the NRLs. The material is not monitored for stability of the analyte and will be distributed as long as stock lasts.

Expected Output: Table with available QC materials present at EURL.

If available, provide NRLs with the QC materials.

Duration: M3-M12

Sub-activity 1.03 *Organisation of proficiency tests and follow-up of the results (c)*

Sub-activity 1.3.1 *Organisation of PTs*

Objectives: Organisation of 2 PTs for routine methods, of which one is extended with three metabolites.

Description: 1. EUPT 2018 MYCO: DON, 3-Ac-DON, 15-Ac-DON and DON-3-glucoside in a cereal-based matrix (food and feed).

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Matrix: given the low levels of DON metabolites in naturally contaminated materials available at short notice, it is foreseen that materials will have to be (over)spiked for this first PT. Feasibility of DON-3-glucoside depends on availability of material/costs of spiking standards.

Matrix treatment: freeze dried slurry.

Participants: Open for NRLs and OLS upon request by their NRL, about 60 sets will be prepared.

Contamination level: to be determined.

2018-Q1 March Materials slurried and tested for homogeneity.

2018-Q2 April Materials send to participants - 6 weeks' notice for reporting results.

2018-Q3 Sept Preparation of report.

2. EUPT 2018 PLANT: PAs in herbal preparations (food and feed).

Matrix: dry herbal mix material.

Participants: Open for NRLs and OLS upon request of their NRLs, about 60 sets will be prepared.

Contamination level: to be determined.

2018-Q2 May Materials prepared and tested for homogeneity.

2018-Q2 June Materials send to participants - 6 weeks' notice for reporting results.

2018-Q3 Oct Preparation of report.

Expected Output: Two PT reports

Duration: M3-M12

Sub-activity 1.3.2 *Follow-up and communication of the PT results*

Objectives: The follow-up protocol of the EU DG SANTÉ for proficiency testing needs to be implemented².

Description: The topic will be discussed during the workshop to create awareness at the partners. The guidance will be verified in 2019.

PTs will be discussed during annual workshop.

Expected Output: Presentation at annual workshop.

Duration: M10

Sub-activity 1.04 *Development and validation of analytical methods (I)*

Sub-activity 1.4.1 *Method development*

Objectives: To develop methods for new emerging risk compounds and/or methods for known compounds in different matrices.

Description: 1.4.1a. Method development conjugated mycotoxins

Main challenge in the field of mycotoxin analysis in food and feed is the availability of conjugated mycotoxin standards. These conjugates may contribute to the total exposure of the population.

2018-Q2&Q3 Purification of ZEN conjugates produced at RIKILT. Contact other research institutes on availability of conjugates, focus on conjugates of NIV, ZEN, T-2 toxin, HT-2 toxin and *Alternaria* toxins.

2018-Q4 Method development and validation of ZEN conjugates in cereals.

1.4.1b. Ergot alkaloids in complex consumer products

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Identification of problems with the analysis of ergot alkaloids in certain consumer products (such as bread). Effective work for problem solving could then be possibly undertaken in 2019.

2018-Q3-Q4 Inventory of problems related to ergot alkaloid analysis in complex food matrices.

1.4.1c. Method development pyrrolizidine alkaloids

The JECFA meeting on PAs in 2015 concluded that it is unclear what the relation is between total PAs, measured as necines, to the sum of specific PAs, measured from available standards.

2018-Q2-Q4 A LC-MS/MS-based analytical method will be developed for the most relevant necine bases (retronecine, retronecine-N-oxide, heliotridine, heliotridine-N-oxide). If possible, deuterated forms of these four necines will be ordered. The method will be validated in-house. The method will be tested on herbal samples including herbal teas. Samples available from former surveys will be selected that are known to be contaminated with PA containing plants. A comparison will be made between the PA-necine method and the established PA-standards method.

1.4.1d. PA databank

There is also a need for a databank based on LC-HR-MS to identify PA-containing weeds in herbal products.

2018-Q1-Q4 The PA databank based on LC-HR-MS that is under development at RIKILT will be improved and extended.

Expected Output: Collection of available mycotoxin conjugates.

Method of analysis for ZEN conjugates.

Description of problems with analysis of ergot alkaloids in certain consumer products and possible ways to address it.

Method of analysis for PA necines and data on how it compares to methods measuring the individual PAs using herbal samples.

Extension PA databank based on HR-LCMS.

Duration: M3-M12

Sub-activity 1.4.2 *Method maintenance*

Objectives: To update or extend analytical methods. This may involve: re-validation, extension with new matrices or additional toxins, lowering LOQs (triggered by e.g. EFSA opinions), investigate the potential and usefulness of new technologies.

Description: 1. Adapt an existing method to lower LOQs for DON, 3-Ac-DON, 15-Ac-DON, D3G as recommended by the EFSA opinion on DON [1], make it available to NRLs before the PT. Desired LOQs will be determined according to TDI, contribution of metabolites to the total and average cereal consumption.

2. Evaluate screening methods for ergot alkaloids: Make inventory of commercially available test kits. Test at least one test kit on a set of incurred samples and compare results to LC-MS/MS method.

2018-Q2 Carry out experiments.

Expected Output: Updated method to determine DON and related toxins at sufficiently low levels which will be made available to NRLs. Results of ergot screening methods presented at workshop.

Duration: M3-M6

TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO NRLs

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.d Coordinating practical arrangements necessary to apply new methods of laboratory analysis, testing or diagnosis, and informing national reference laboratories of advances in this field.*
- *Art. 94.2.e Conducting training courses for staff from national reference laboratories and, if needed, from other official laboratories, as well as of experts from third countries.*
- *Art. 94.2.g Providing information on relevant national, Union and international research activities to national reference laboratories.*

Sub-activity 2.01 Practical arrangements to apply methods, and inform NRLs (d)

Sub-activity 2.1.1 Website development and maintenance

Objectives: Provide information to NRLs necessary to apply new methods.

Description: The EURL mycotoxins & plant toxins website will be designed and maintained with continued efforts to further implement its use within the NRL/OL network. The EURL PT and scientific reports will be published on the website as a source of information for EURLs and NRLs. Content will be developed elsewhere in the programme.

Expected Output: Website with information available.

Duration: M3-M12

Sub-activity 2.1.2 Knowledge development

Objectives: Stay up-to-date with legislation and analytical developments in the area of mycotoxins and plant toxins analysis.

Description: Developments with respect to analytical methodology, (EU) legislation and the results of relevant scientific studies are monitored. In addition, information on prioritised 'new' mycotoxins, plant toxins or their conjugates/metabolites will be collected and used as input for future studies. Communication on issues of interest for NRLs will be through the annual workshop and the EURL website.

Literature will be monitored on the latest developments in the area of analytical chemistry on mycotoxins and plant toxins. The results of the review will be presented at the annual workshop.

Expected Output: Relevant EU legislation on mycotoxins and plant toxins available on website.

Presentation on latest developments in analysis of mycotoxins and plant toxins during annual workshop.

Duration: M9-M10

Sub-activity 2.1.3 Updating and publication of the list of NRLs

Objectives: To have an updated list of NRLs in the competence field of the EURL.

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Description: The existing list will be updated, verified and published on the website. Changes in institutes, contact names etc. will be updated. NRL are requested to check and update the information at the annual workshop during the workshop.

Expected Output: Up-to-date list of NRLs on mycotoxins and plant toxins in food and feed.

Duration: M10

Sub-activity 2.1.4 *Providing analytical assistance to NRLs*

Objectives: Assist NRLs with confirmatory analysis in case of technical problems or arbitration.

Description: Analyse samples from NRLs for confirmation when there are technical problems or when there is a dispute for arbitration.

Expected Output: results of analysis.

Duration: M3-M12

Sub-activity 2.02 *Training courses for staff (e)*

Objectives: One visit from NRL scientists to EURL RIKILT to be trained in an analytical method.

Description: Hands-on training for NRLs on analysis of mycotoxins or plant toxins for 4 days (Monday at noon till Friday at noon) at RIKILT. This training can be organised for a maximum of 6-10 persons and if a relevant topic is available.

2018-Q4 Training in November.

Prepare a table with EURL and commercially available training courses in the area of mycotoxins and plant toxins.

Expected Output: Training

Table with EURL and commercially available training courses.

Duration: M11, one week

Sub-activity 2.03 *Information to relevant national, Union and international research activities to NRLs (g)*

Sub-activity 2.3.1 *Organisation of workshop*

Objectives: To inform NRLs on new methods, new legislation and discuss work programmes and PTs.

Description: One representative of each member state and a selected number of representatives of third countries (one per country) meet at RIKILT for information exchange, discuss new topics in the area of mycotoxins and plant toxins and define the research and PT subjects for next year. Duration is 1 day (noon to noon).

Expected Output: Notes and action list of meeting and presentations.

Duration: M10

Sub-activity 2.3.2 *Missions to NRLs*

Objectives: Missions to NRLs in member states on request.

Description: Missions will be undertaken to specific NRLs on the basis of their individual needs, e.g. in order to discuss and evaluate the results of a proficiency test or analytical support. A visit will only be scheduled after email and teleconference discussions. The choice for 2018 will be based on the current progress in the NRLs in consultation with the Commission.

Expected Output: Visit report.

Duration: M5-M11

TO PROVIDE SCIENTIFIC AND TECHNICAL ASSISTANCE TO THE EUROPEAN COMMISSION AND OTHER ORGANISATIONS

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.f Providing scientific and technical assistance to the Commission within the scope of their mission.*
- *Art. 94.2.h Collaborating within the scope of their mission with laboratories in third countries and with the European Food Safety Authority (EFSA), the European Medicines Agency (EMA) and the European Centre for Disease Prevention and Control (ECDC).*
- *Art. 94.2.i Assisting actively in the diagnosis of outbreaks in Member States of foodborne, zoonotic or animal diseases, or of pests of plants, by carrying out confirmatory diagnosis, characterisation and taxonomic or epizootic studies on pathogen isolates or pest specimens.*

Sub-activity 3.01 *Technical and scientific assistance to the Commission (f)*

Sub-activity 3.1.1 *Advise on performance characteristics in Commission Regulation (EC) No 401/2006*

Objectives: Advise on revision of performance characteristics in Commission Regulation (EC) No 401/2006.

Description: Evaluate performance requirements (e.g. recovery, precision) for methods for mycotoxins as currently laid down in Commission Regulation (EC) No 401/2006 against actual performance of today's analytical capabilities. Collect raw data from PTs carried out by the EURL mycotoxins over the last 11 years, data from other PTs and collaborative studies (CEN) as far as possible. Use the data to prepare an advise on updating performance criteria for analytical methods for amending Commission Regulation (EC) No 401/2006 of 23 February 2006, laying down the methods of sampling and analysis for the official control of the levels of mycotoxins and plant toxins in foodstuffs.

2018-Q2: Collect performance data from PTs and collaborative studies and prepare the data for use.

2018-Q4: One meeting with experts to discuss the data and the use of the data for performance characteristics.

Expected Output: Data prepared for use and meeting notes.

Duration: M4-M11

Sub-activity 3.1.2 *Technical and scientific support to the Commission*

Objectives: Technical and scientific support to the Commission.

Description: Technical and scientific advice on analytical methods will be given to the Commission when requested.

Expected Output: Informal advice and attendance of expert meeting if requested.

Duration: M3-M12

Sub-activity 3.02 *Collaboration with laboratories in third countries, European and international organisations (h)*

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Sub-activity 3.2.1 Collaboration with third countries, European and international organisations

Objectives: Collaboration with European and international organisations.
Description: On the Commission request, collaborate with European and international organisations with regards to the analysis of mycotoxins and plant toxins. Organisations to be assisted can be EFSA, EMA, Eurachem, CEN, ISO, CODEX and Third Countries.
Expected Output: Notes on the advice given e.g. emails, or minutes of attended meetings.
Duration: M3-M12

Sub-activity 3.2.2 Participation in symposia workshops and seminars

Objectives: Dissemination of scientific results.
Description: Scientific assistance will be given to the organisation of the (biannual) World Mycotoxin Forum and the World Plant Toxin Forum. The work of the EURL Mycotoxins & plant toxins will be presented at these and other relevant fora.
Expected Output: Oral and/or poster presentation on scientific research performed within the EURL.
Duration: M3-M9

Sub-activity 3.03 To ensure a sound and efficient management of the EURL funding cycle

Sub-activity 3.3.1 EURL management

Objectives: Manage EURL mycotoxins & plant toxins.
Description: Management of the EURL will be conducted to timely report the scientific results according to the work programme and within the budget. Discuss scientific, planning or budget issues and amendments with the Commission as soon as they arise.
Expected Output: Timely and within budget delivery of results according to work programme.
Duration: M3-M12

Sub-activity 3.3.2 EURL Work programme

Objectives: Design the annual EURL work programme for 2019.
Description: Compilation of the annual work programme and budget forecast for 2019. Wishes and questions from NRLs and the Commission in the area of analysis will be inventoried during the annual workshop. The subjects will be discussed with the Commission and a work programme with corresponding budget forecast will be compiled.
Expected Output: Work Programme and budget forecast 2019 submitted in time.
Duration: M10

Sub-activity 3.3.3 EURL report and cost statement

Objectives: Prepare annual report 2018.
Description: Compilation of the results of the annual work programme and budget for 2018.
Expected output: EURL annual scientific report 2018 and cost statement 2018 in time.
Duration: M12

REAGENTS AND REFERENCE COLLECTIONS

Please, provided activities related to Regulation (EU) 2017/625:
(Number of Sub-activity boxes can be adjusted by EURL)

- *Art. 94.2.j Coordinating or performing tests for the verification of the quality of reagents and lots of reagents used for the diagnosis of foodborne, zoonotic or animal diseases and pests of plants.*
- *Art. 94.2.k Where relevant for their area of competence, establishing and maintaining:*
 - i. reference collections of pests of plants and/or reference strains of pathogenic agents;*
 - ii. reference collections of materials intended to come into contact with food used to calibrate analytical equipment and provide samples thereof to national reference laboratories;*
 - iii. up-to-date lists of available reference substances and reagents and of manufacturers and suppliers of such substances and reagents.*

Sub-activity 4.01 Up-to-date lists of available reference substances and reagents and of manufacturers and suppliers of such substances and reagents (kiii)

Objectives: Provide NRLs with up-to-date list of reference materials, and analytical standards that are commercially available or have been acquired by the EURL.

Description: Analytical standards, if present, relevant to the EURL mycotoxins & plant toxins will be transferred from JRC in Geel to RIKILT in Wageningen. The analytical standards will be registered and stored according to the RIKILT Quality System in a way that the materials can always be connected to the origin.

An inventory study will be carried out to provide details on reference materials and analytical standards available from the EURL and from commercial providers.

Expected Output: All materials registered in RIKILT analytical standards database.

Table with commercially available reference materials and analytical standards.

Duration: M3-M12

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REQUIREMENTS RELATED TO OTHER LEGISLATION

Please specify applicable legislation:
(Number of Sub-activity boxes can be adjusted)

Not applicable to the EURL mycotoxins & plant toxins

REMARKS

1. EFSA, *Risks to human and animal health related to the presence of deoxynivalenol and its acetylated and modified forms in food and feed*. EFSA Journal 2017;15(9):4718, 2017: p. pp. 345.