

# Liquid Chromatography and Mycotoxin Winter school



**nmisa**  
training centre

Liquid chromatography (LC) is becoming an increasingly popular separation method in organic analysis. New generation synthetic compounds, including many pesticides and pharmaceuticals are larger, less volatile, and more polar, making LC the preferred separation technique. Additionally, a large variety of detectors can be used in combination with LC separation.

Mycotoxins are strictly regulated due to their severe toxicity. They are complex analytes to analyse as a result of their varying chemistries and their presence in a variety of matrices including for example, grains, grain products, feed, fruits and juices, root vegetables, coffee, wine and nuts. Mycotoxin determination is therefore not only a critical measurement capability on the continent, but an ideal model to develop expertise in liquid chromatography. The course will provide hands on training on the extraction and analysis of mycotoxins using different extraction techniques, different LC conditions and different LC detectors.

The aim of this course is to provide analysts with tools and practical experience to confidently **extract, analyse and quantify compounds of interest by liquid chromatography.**

Limited space available,  
maximum of ten  
participants - register now!

JOIN OUR LIQUID  
CHROMATOGRAPHY  
JOURNEY THROUGH  
MYCOTOXIN ANALYSIS

How to ensure the quality of  
your analysis.

27 May – 07 June 2024

An informative workshop aimed  
at LC analysts from beginners to  
advanced users - we will have  
something for you.



**AFRIMETS**  
Intra-Africa Metrology System  
Système Intra-Africain de Métrologie



The AFRIMETS initiative supported by



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on +27 12 947 2780 for more information.

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# WEEK 1

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
<ul style="list-style-type: none"><li>• Registration and coffee</li><li>• Welcome, meet and greet, logistics</li><li>• Laboratory Tour</li><li>• Lunch</li><li>• Introduction to the correct use of and best weighing practice</li></ul>	<ul style="list-style-type: none"><li>• Care and effective use of pipettes</li><li>• Volatility and density considerations</li><li>• Lunch</li><li>• Overview of Mycotoxin MRLs and method performance criteria (LOD, LOQ, LOL, recovery, %RSD)</li><li>• Typical sample preparation approaches</li><li>• Method development</li></ul>	<ul style="list-style-type: none"><li>• Workflow for the determination of AFM1 in milk powder</li><li>• General chemical calculations required for preparation of calibration solutions</li><li>• Lunch</li><li>• Calculating the dilution factor</li><li>• Preparation of stock solutions (gravimetric)</li></ul>	<ul style="list-style-type: none"><li>• Preparation of AFM1 calibration series</li><li>• Preparation of solvents for LC analysis</li><li>• Mobile phase considerations</li><li>• Lunch</li><li>• Setting up the LC</li><li>• Inlet method optimisation – improving separation, gradient vs isocratic, effect of sample solvent etc)</li></ul>	<ul style="list-style-type: none"><li>• Extraction of milk samples by immunoaffinity clean-up</li><li>• Lunch</li><li>• Preparing the sample list, inlet method and detector</li><li>• Run calibration curves and extracted samples</li></ul>



## Finding a course that is right for you

The NMISA Training Centre is committed to building measurement capacity in Africa. The centre has a number of courses that may meet your training needs, from personnel at the beginning of their careers to those wanting to develop advanced skills. Please visit our website [www.nmisa.org](http://www.nmisa.org) for more information or contact us at [training@nmisa.org](mailto:training@nmisa.org) or call +27 12 947 2461.

## We are with you every step of the way

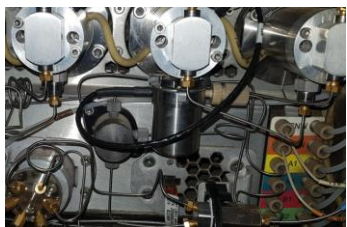
- The NMISA provides an extensive suit of products and services to meet your laboratory's needs. This includes but is not limited to consultation services that spans the entire lifetime of your laboratory from design to implementation.
- Training in method development; validation and uncertainty.
- Providing calibration, proficiency testing and reference materials to assist your laboratory in meeting quality control and assurance objectives.



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# WEEK 2



## DAY 1

- Theory of chromatography - Understanding separation, column and solvent selection and considerations
- Instrument processing of AFM1 experiment data – using software to provide the results
- Lunch
- Generating calibration curves and calculating recoveries for the AFM1 experiment in Excel

## DAY 2

- Overview and workflow of a multi-mycotoxin in maize method
- Preparation of multi-mycotoxin stocks
- Preparation of multi mycotoxin calibration curves (volumetric)
- Lunch
- Preparation of extraction reagents
- Extraction of maize/feed samples

## DAY 3

- Setting up instrument – Understanding LC-MS/MS
- Clean-up and transfer of maize/feed samples
- Run multi mycotoxin extractions (LC-MS/MS – evaluate QC runs)
- Lunch
- Overview and workflow of Ochratoxin-A in wine, fruit, or juice method

## DAY 4

- Processing LC-MS/MS data and
- Evaluation of QC data
- Instrument troubleshooting (system pressure, baseline, ghost peaks, RT etc)
- Lunch
- Processing multi – mycotoxin data in excel
- Overview and workflow of aflatoxins in peanuts extraction and analysis

## DAY 5

- Method validation – what needs to go into the validation report
- Questions and discussion
- Lunch
- Course evaluation
- Close

### Finding Proficiency Tests that suit your needs

The NMISA is an ISO/IEC 17043 accredited proficiency testing service provider with accreditation in the following fields: Food Testing (chemical additives, residues, and nutritional content); Water Testing (Chemical contaminants and residues) and Forensic Testing (forensic level alcohol, forensic preservatives and breath alcohol).

### We are with you every step of the way

To support your measurement quality control and quality assurance objectives, the NMISA has released several reference materials and certified reference materials. These materials where possible originate from within the African Continent, to ensure compatibility with the samples routinely measured in your laboratory. Reference materials currently available include mycotoxins (analytical standards as well as naturally incurred materials such as maize flour and peanut slurry), forensic blood alcohol analysis analytical standards, matrix materials for nutritional content, nutritional and toxic elements as well as pesticides. Please visit our on-line store for available products and pricing [www.store.nmisa.org](http://www.store.nmisa.org)



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