Advanced Food Analysis (AFA)

28 January – 1 February 2013

Wageningen, The Netherlands

AFA course was organised by the Graduate School VLAG, in cooperation with Food Chemistry (Wageningen University), Organic Chemistry (Wageningen University) and the EC 7th FP project QSAFFE.

The course was aimed at PhD students and young researchers working in the field of food research and scientists from industries involved in food analysis.

The program of the course was focused on several (advanced) techniques and applications (to be) used in food analysis and discussion of their potential and pitfalls. It consisted of presentations by international experts in the field, an excursion in UNILEVER Research (Vlaardingen) and social events. Course topics were advanced sample handling, chromatography and electrophoresis, spectroscopy, spectrometry, imaging, bioanalytical techniques, biosensors, omics technologies, data handling and chemometrics, and validation and legislation. These advanced analytical tools were discussed in relation to state-of-the-art food analysis issues such as residues and contaminants, authenticity and traceability, flavours and odours, processing and packaging contaminants, biotoxins, allergens, novel and organic foods and supplements.

For more information on the course content and program see Appendices I and II.

The AFA course was well attended by nearly 70 people, including 5 young researchers from the QSAFFE consortium. They represented food industry, testing laboratories, academia and SME's from 16 countries of Europe (Belgium, Bulgaria, Czech Republic, Estonia, Finland, Germany, Italy, Lithuania, Netherlands, Norway, Slovenia, Spain, Switzerland and United Kingdom) and also non-European countries (Cameroon, South Africa).

QSAFFE actively participated also in the program of the AFA course. Three representatives of the project, experts in the field (Prof. C.E Elliott, Queen’s University Belfast, Northern Ireland; Prof. J. Hajsova, Institute of Chemical Technology, Prague, Czech Republic; Dr. Juan Antonio Fernandez Pierna, Walloon Agricultural Research Centre, Gembloux, Belgium) gave lectures on sample preparation challenge in food analysis, near infrared imaging approaches to food analysis, simplified and advanced functional binding assays in food analysis and the biotoxin challenge in food analysis.
Quality and SAFety of Feeds and Food for Europe

Photo of AFA course participants, lecturers and organizers

Appendix I
Flyer on Advanced Food Analysis course

Appendix II
Program of Advanced Food Analysis course
Introduction

Background
Knowledge about analytical techniques in food analysis is essential in the field of food science and technology. Developments are quite fast and open new ways to look at the composition of foods or changes of specific constituents as well as to the characteristics and performance of food ingredients and final products. Food scientists and technologists active in food research institutes and food industry need to be aware of new techniques and new strategies to evaluate their research on foodstuffs. The course will focus on several (advanced) techniques and applications (to be) used in food analysis and their potential and pitfalls will be discussed.

Target group
The course is aimed at PhD students and young researchers working in the field of food research and scientists from industries involved in food analysis.

Course contents

Course aim
After the course, participants should have a detailed knowledge of the state of the art of the most important analytical methods, their possibilities and their application in complex food systems. The course is aimed at PhD students and young researchers working in the field of food research and scientists from industries involved in food analysis.

Course design
The course will be composed of lectures while the participants are also requested to present a poster of their own work within the field of food analysis. Although attention will be paid to recent developments in analytical chemistry, the analysis of complex foodstuffs will be the central theme of this course. Following a key lecture on a specific technique, some cases will be discussed demonstrating the potential and pitfalls for a certain class of foods or food components. In addition, an excursion will be organized to one of Europe’s largest research facilities in food science and nutrition, illustrating the need of using multidisciplinary approaches to study and to understand food performance.

Programme topics

- Sample preparation
- Gas chromatography
- HPLC
- Capillary electrophoresis
- Spectroscopy
- Mass spectrometry
- NMR
Near infrared imaging approaches
Electronic noses and tongues in flavour analysis
Simplified and advanced functional binding assays
Whole cell bioassay approaches
Authenticity and traceability
The biotoxin challenge
Food microstructure analysis
Macromolecular food analysis: proteins, phenolics, oligo- and polysaccharides, lipids
The potential of transcriptomics and proteomics
The potential of metabolomics
The data handling challenge
Interactive food analysis seminar

Programme
The programme can be downloaded here in pdf.

Organisation

Course coordinators

- Dr. H.A. Schols, Food Chemistry, WU
- Prof. M.W.F. Nielen, Organic Chemistry, Chair Detection of Chemical Food Contaminants, WU
- Mrs. C.H.L. Doeswijk, Graduate School VLAG

Other faculty

- Prof. A.M. Hermansson, Chalmers University of Technology, Göteborg
- Dr. H. Lingeman, Vrije Universiteit Amsterdam
- Dr. L.A.P. Hoogenboom, RIKILT, Wageningen
- Dr. J.G.J. Mol, RIKILT, Wageningen
- Dr. S. van Ruth, RIKILT, Wageningen
- Dr. W. Th. Kok, University of Amsterdam
- Prof. C. Sandström, Swedish University of Agricultural Science, Uppsala
- Dr. M. Steinhaus, German Research Center for Food Chemistry
- Prof. J. Hajšlová, Institute of Chemical Technology, Prague
- Prof. C.E Elliott, Queen's University Belfast
- Dr. Juan Antonio Fernández Pierna (Walloon Agricultural Research Centre, Gembloux)
- Dr. P.A. Wierenga, Wageningen University
- Dr. J.P. Vincken, Wageningen University
- Dr. G. Dervilly-Pinell, LABERCA, ONIRIS, Nantes
- Prof. P. Sandra, Ghent University
- Prof. W.M.A. Niessen, Hyphen MassSpec

General information

Date & duration
5 days, 28 January - 1 February 2013.

Study load
The study load of this course is 1.4 ECTS credits. Participants will receive 0.6 ECTS extra when presenting a poster.

Language
The course will be conducted in English.

Location & accommodation
The course venue is Conference Centre Hof van Wageningen (www.hofvanwageningen.nl). The town of Wageningen is 5 km from Ede-Wageningen railway station, with transport options being taxi or bus. Ede-Wageningen railway station is about one and a half hours from Amsterdam Schiphol Airport. For train schedules visit: www.ns.nl.

A number of hotel rooms have been block booked at the Hof van Wageningen for course participants, but only until 10 December 2012. Accommodation costs are € 75,- (single room; bed & breakfast) or € 92,- (double room; bed & breakfast) per night. Hotel reservation is handled by Hof van Wageningen. Participants have to book their own hotel rooms at their own risk and expense.
room by sending an email to: info@hofvanwageningen.nl. Please mention booking code FA13.

Contact information
More information concerning the course can be obtained from Dr. H.A. Schols (Henk.Schols@wur.nl).
For organisational matters please contact Mrs. C.H.L. Doeswijk, phone: +31-317-485143 (Chantal.Doeswijk@wur.nl).

Registration & course fee

The number of participants to the course is limited to 50.

The course is fully booked. Registration is still possible, but you will be placed on a waiting list.

Please register by completing the course registration form.
Note: to be able to fill in the course registration form, you need an account. To create an account, please click the link above. Don’t forget to fill in the course registration form after creating your account.

The final registration date is 15 December 2012. You will be notified before 20 December 2012 on acceptance of your registration and you will be sent instructions for payment, and further information.

The course fee (which includes materials, coffee/tea during breaks, lunches and one dinner but does not cover accommodation) depends on the participant's affiliation:

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry / For-Profit</td>
<td>€ 1800</td>
</tr>
<tr>
<td>University staff / Non-Profit organisations</td>
<td>€ 750</td>
</tr>
<tr>
<td>PhD students</td>
<td>€ 450</td>
</tr>
<tr>
<td>VLAG PhD students</td>
<td>€ 200</td>
</tr>
</tbody>
</table>

Cancellations may be made free of charge until 15 December 2012. After this date the charge will be 25 % of the fee paid or due. Substitutions may be made at any time.

Photos

Click on the photos (courses 2002 and 2010) to enlarge them.
PROGRAMME
VLAG International Course
Advanced Food Analysis
28 January-1 February 2013

MONDAY JANUARY 28, 2013
10.00  Registration with coffee and tea in the lounge (near reception)
10.30  Opening, welcome and introduction
11.00  HPLC in food analysis – basics.
  Dr Henk Lingeman (Free University of Amsterdam)
12.00  Molecular sensory science 1: Causally linking aroma and taste to sensory active key
  molecules
  Dr Martin Steinhaus (German Research Center for Food Chemistry)
13.00  lunch
14.00  The sample preparation challenge in food analysis.
  Prof Jana Hajšlová (ICT, Prague)
15.00  Advanced HPLC in food analysis.
  Dr Henk Lingeman (Free University of Amsterdam)
16.00  break and group photo
16.30  Molecular sensory science 2: Using key odorants and tastants as powerful tool to improve
  food flavour through optimization of processing
  Dr Martin Steinhaus (German Research Center for Food Chemistry)
17.30  Spectroscopy in food analysis.
  Dr Peter Wierenga (WU)
18.30  end of day

TUESDAY JANUARY 29, 2013
09.00  From basic to advanced mass spectrometry in food analysis 1.
  Prof Wilfried Niessen (Hyphen MassSpec Consultancy)
10.00  Importance of food microstructure.
  Dr Albert Jurgens (TNO, Zeist)
11.00  break
11.30  Poster session 1 (Wolfswaardzaal)
12.30  lunch
13.30  Capillary electrophoresis: theory and applications.
  Dr Wim Kok (University of Amsterdam)
14.30  From basic to advanced mass spectrometry in food analysis 2.
  Prof Wilfried Niessen (Hyphen MassSpec Consultancy)
15.30  break
16.00  Microstructure analysis of relevance for food systems.
  Dr Albert Jurgens (TNO, Zeist)
17.00  Authenticity and traceability in food analysis.
  Prof Saskia. van Ruth (RIKILT, Wageningen UR)
18.30  Course dinner at Restaurant King’s Garden (next to central bus station)

WEDNESDAY JANUARY 30, 2013
09.00  Near infrared imaging approaches to food analysis.
  Dr Juan Antonio Fernández Pierna (CRAW, Belgium)
10.00  Gas chromatography in food analysis – basics.
  Prof Pat Sandra (Ghent University)
11.00  break
11.30 Simplified and advanced functional binding assays in food analysis.
   Prof Chris Elliott (QUB, Belfast)
12.30 lunch
13.30 The basics of NMR in structural studies of small molecules and biopolymers (NMR basic).
   Prof Corine Sandström (Swedish University Agricultural Sciences, Uppsala)
14.30 Gas chromatography techniques in food adulteration and fraud.
   Prof Pat Sandra (Ghent University)
15.30 break
16.00 The biotoxin challenge in food analysis.
   Prof Chris Elliott (QUB, Belfast)
17.00 Advanced NMR methods in studies of small molecules and biopolymers (NMR advanced).
   Prof Corine Sandström (Swedish University Agricultural Sciences, Uppsala)
18.00-19.00 Get together – Poster session 2 (Wolfswaardzaal)

THURSDAY JANUARY 31, 2013
08.30 Macromolecular food analysis: proteins.
   Dr Peter Wierenga (WU)
09.20 Macromolecular food analysis: phenolics.
   Dr Jean-Paul Vincken (WU)
10.10 break
10.40 Macromolecular food analysis: oligo- and polysaccharides.
   Dr Henk Schols (WU)
11.40 Departure for excursion, lunch in bus, wear your badge!!!

Visit to: UNILEVER Research, Vlaardingen

   Food analysis in industry.
   Prof Hans-Gerd Janssen (Unilever Research)
   Analytical lab visits
20.15 Back in Wageningen

FRIDAY FEBRUARY 1, 2013
09.00 The potential of transcriptomics and proteomics in food analysis.
   Dr Gaud Dervilly-Pinel (LABERCA, Nantes)
10.00 Interactive seminar on food analysis
   Dr Hans Mol & Prof Michel Nielen (RIKILT, Wageningen UR)
11.00 break
11.30 Continuation interactive seminar on food analysis
12.30 The potential of metabolomics in food analysis.
   Dr Gaud Dervilly-Pinel (LABERCA, Nantes)
13.30 Closure with announcement poster prizes
13.45 farewell lunch