



ISM-MYCORED
Workshop-Training Course
Detection techniques for mycotoxins and toxigenic fungi in the food chain

October 4-8, 2010 – Bari, Italy
Institute of Sciences of Food Production (ISPA)
National Research Council (CNR), Via Amendola 122/O

Organized by:
Angelo Visconti (AV) & Antonio F. Logrieco (AL)
ISPA – CNR, Bari Italy

Instructors

<i>Mycotoxin analysis</i>	<i>Fungal identification</i>
Rudolf Krska Austria (RK)	Zofia Kozakiewicz UK (ZK)
Veronica M. T. Lattanzio Italy (VL)	Jens F. Frisvad Denmark (JF)
Chris M. Maragos USA (CM)	Rolf Geisen Germany (RG)
Noan Nivarlet Belgium (NN)	John F. Leslie USA (JL)
Michelangelo Pascale Italy (MP)	Antonio Moretti Italy (AM)
Gordon Shephard S. Africa (GS)	Giuseppina Mulè Italy (GM)
Michele Solfrizzo Italy (MS)	Giancarlo Perrone Italy (GP)
Nancy Zabe USA (NZ)	Cees Waalwijk The Netherlands (CW)

Topics

- Lectures: overviews of major methods for mycotoxins/toxigenic fungi detection.
- Laboratory:
 - chemical/immunochemical analysis of major mycotoxins (aflatoxins, fumonisins, trichothecenes);
 - morphological identification of major toxigenic species of *Aspergillus*, *Penicillium* and *Fusarium*;
 - molecular techniques for identification and quantification of toxigenic fungi.

Web-site for registration: <http://www.ispa.cnr.it/training-course>

PROGRAMME

MONDAY, 4th October


8:00 – 8:15 – Welcome address (AV)

8:15 – 8:30 – Introduction to the course (AL)

8:30 – 9:15 – Overview on major toxigenic fungi and mycotoxins in plant disease (AL)

9.15 – 10.00 – Human and animal health effects and risk assessment of mycotoxins (GS)

10:00 - 10:15 – Coffee break

 10:15 – 11:45 – Mycotoxin analysis: an overview of various methodologies (RK)

11:15 – 11:45 – Taxonomy of toxigenic *Penicillium* (ZK)

11:45 – 12:30 – Taxonomy of toxigenic *Aspergillus* (ZK, GP)

12:30 – 13:15 – Chemotaxonomy in *Penicillium* & *Aspergillus* (JF)

13:15 – 14:30 - Lunch

14:30 – 18:30 – Laboratory (**Group A**)

Identification of *Penicillium* and *Aspergillus* toxigenic species occurring in cereals, grapes, and dried fruits (ZK, GP, JF)

14:30 – 18:30 – Laboratory (**Group B**)

Analysis of fumonisins in maize / deoxynivalenol in wheat / aflatoxins in pistachios - sample preparation, extraction, cleanup, HPLC determination (MS, GS, MP)


TUESDAY, 5th October

 8:30 – 9:30 – Sampling methods for mycotoxin analysis (GS)

 9:30 – 10:30 – Rapid methods for mycotoxin detection (CM)

10:30 - 11:00 – Coffee break

11:00 – 12:00 – Prevention strategies and HACCP plans for mycotoxins in food safety (GS)

 12:00 – 13:00 – Methods for isolation, identification and preservation of major toxigenic fungi (ZK)

13:00 – 14:30 - Lunch

14:30 – 18:30 – Laboratory (**Group B**)

Identification of *Penicillium* and *Aspergillus* toxigenic species occurring on cereals, grapes, and dried fruits (ZK, GP, JF)

14:30 – 18:30 – *Laboratory (Group A)*

Analysis of fumonisins in maize / deoxynivalenol in wheat / aflatoxins in pistachios - sample preparation, extraction, cleanup, HPLC determination (MS, GS, MP)

WEDNESDAY, 6th October

🌐 8:30 – 9:30 – Taxonomy of fumonisin-producing and related *Fusarium* species (JL)

9.30-10.15 – Taxonomy of trichothecene-producing *Fusarium* and other toxigenic species (AM)

10:00 – 10:15 – Coffee break

10.15 –11:30 –*Fusarium*: species concepts and sexual fertility (JL)

11:30 – 13:00 – *Laboratory (Group A)*

Identification of *Fusarium/Gibberella* toxigenic species from cereals (AL, AM, JL)

11:30 – 13:00 – *Laboratory (Group B)*

Rapid immunoassay methods for mycotoxin detection (NZ, NN, CM)

13:00 – 14:00 - Lunch

14:00 – 15:30 – *Laboratory: Group A and Group B* finish their practical experience

15:30 – 18:30 – *Laboratory (Group B)*

Identification of *Fusarium/Gibberella* toxigenic species from cereals (AL, AM, JL)

15:30 – 18:30 – *Laboratory (Group A)*

Rapid immunoassay methods for mycotoxin detection (NZ, NN, CM)

THURSDAY, 7th October

🌐 8:30 – 9.15 - Overview of molecular methods for the identification of toxigenic *Fusarium* species (CW)

9.15 – 10.00- Expression analysis of mycotoxins and microarray (RG)

10:00 – 18:00 – *Laboratory (Group A):*

Molecular training in fungal identification: DNA extraction from fungal strain/food matrices, real time PCR, multiplex and Sequencing (CW, GM)

10:00 – 18:00 – *Laboratory (Group B):*
Multi-mycotoxin analysis in maize - extraction, cleanup, LC-
MS/MS determination (MS, VL)
Deoxynivalenol in wheat by Fluorescence Polarization
Immunoassay (CM)

13:00 – 14:00 – Lunch

19:30 – Social Dinner

FRIDAY, 8th October


 8:30 – 9:30 – Mycotoxin legislation and performance criteria for analytical methods (AV)

9:30 – 18:00 – *Laboratory (Group B):*
Molecular training in fungal identification: DNA extraction from
fungal strain/food matrices, real time PCR , multiplex and
Sequencing (CW, GM)

9:30 – 18:00 – *Laboratory (Group A):*
Multi-mycotoxin analysis in maize - extraction, cleanup, LC-
MS/MS determination (MS, VL)
Deoxynivalenol in wheat by Fluorescence Polarization
Immunoassay (CM)

13:00 – 14:00 – Lunch

18:00 – 19:00 – Questionnaire to participants for course evaluation and general discussion.

 Web-learning sessions