

*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>
<b>Rudolf Krska</b> Austria (RK)	<b>Zofia Kozakiewicz</b> UK (ZK)
<b>Veronica M. T. Lattanzio</b> Italy (VL)	<b>Jens F. Frisvad</b> Denmark (JF)
<b>Chris M. Maragos</b> USA (CM)	<b>Rolf Geisen</b> Germany (RG)
<b>Noan Nivarlet</b> Belgium (NN)	<b>John F. Leslie</b> USA (JL)
<b>Michelangelo Pascale</b> Italy (MP)	<b>Antonio Moretti</b> Italy (AM)
<b>Gordon Shephard</b> S. Africa (GS)	<b>Giuseppina Mulè</b> Italy (GM)
<b>Michele Solfrizzo</b> Italy (MS)	<b>Giancarlo Perrone</b> Italy (GP)
<b>Nancy Zabe</b> USA (NZ)	<b>Cees Waalwijk</b> 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, 4<sup>th</sup> 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, 5<sup>th</sup> 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, 6<sup>th</sup> 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, 7<sup>th</sup> 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**

<b>FRIDAY, 8<sup>th</sup> October</b>
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 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