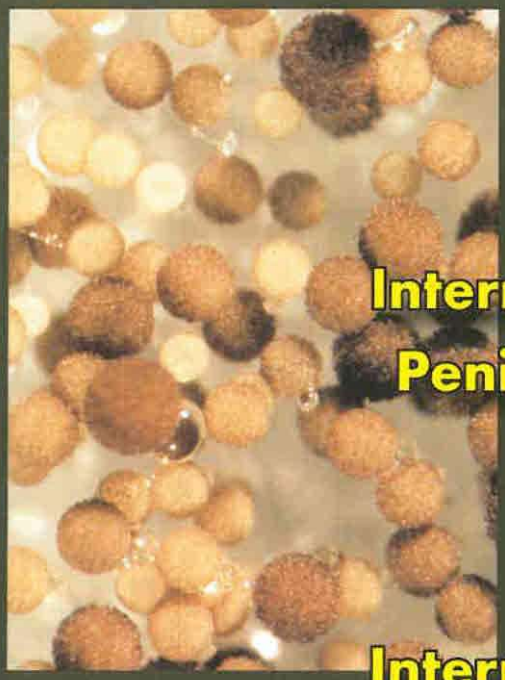
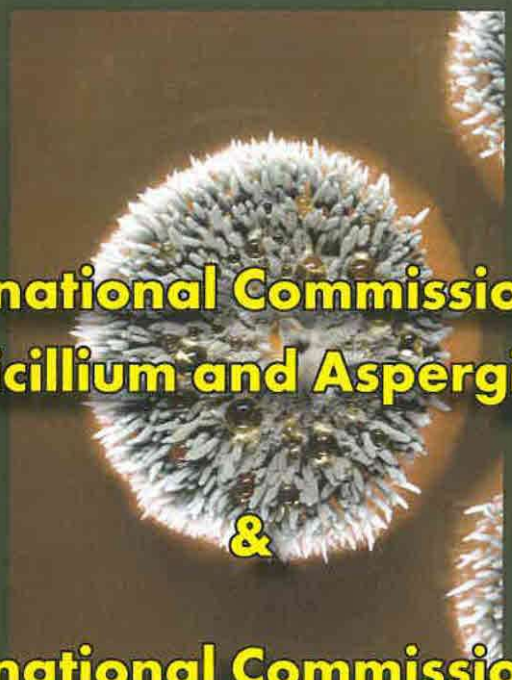
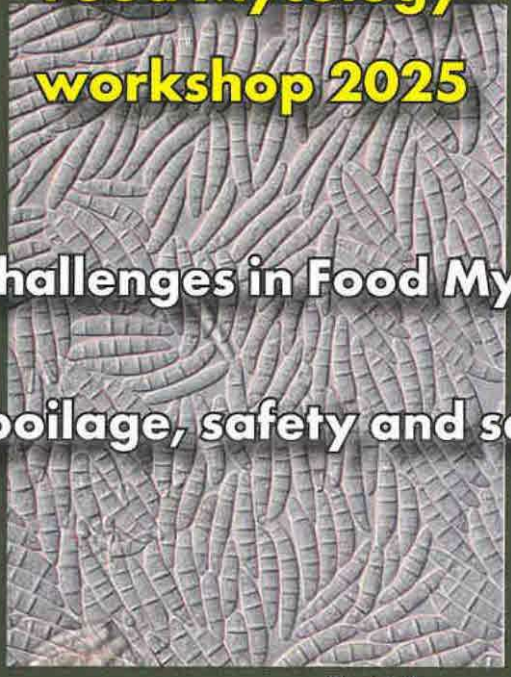




International Commission on Penicillium and Aspergillus

&

International Commission on Food Mycology

workshop 2025


Future challenges in Food Mycology –

food spoilage, safety and security

Programme and Abstracts



Utrecht, The Netherlands, 7-9 July 2025

International Commission on Food Mycology

&

International Commission on Penicillium and Aspergillus

workshop 2025

Future challenges in Food Mycology food spoilage, safety and security

Programme and Abstracts

Utrecht, The Netherlands, 7–9 July 2025

INTERNATIONAL COMMISSION ON FOOD MYCOLOGY

The commission is a COMCOF (Commissions, Committees and Federations) of the International Union of Microbiological Societies (IUMS) and established in 1990.

The aims of the Commission are:

- to improve and standardise methods for isolation, enumeration and identification of fungi in foods;
- to promote studies of the mycological ecology of foods and commodities;
- to interact with regulatory bodies, both national and international, concerning standards for mycological quality in foods and commodities;
- to support regional initiatives in this area. The Commission further aims to extend understanding of the principles and methodology of food mycology in the scientific community by publishing its findings, and by sponsoring meetings, specialist workshops, courses and sessions dealing with aspects of its work.

The first workshop on Methods for Mycological Examination of Food was organised in Boston, USA, in July 1984. After this successful meeting subsequent meetings were held in Baarn (1990), in Copenhagen (1994) near Uppsala (1998), Samsøe (2003), Key West (2007), Freising (2010, 2013, 2016 and 2019) and in Utrecht (2022).

Venue: Westerdijk Fungal Biodiversity Institute, Uppsalalaan 8, 3584CT Utrecht, The Netherlands

The eleventh International ICPA/ICFM workshop is organized by **Jos Houbraken** and **Rob Samson**

Sponsors

BCN Research Laboratories INC

IUMS The Global Voice of Microbiology

PROGRAMME ICPA/ICFM 2025

Sunday 6 July 2025

18.30 Get together at Hotel Biltsche Hoek, de Bilt, the Netherlands

Monday 7 July 2025
Westerdijk Fungal Biodiversity Institute, Utrecht

08.30 – 09.30 Registration

09.30 Welcome; Jos Houbraken & Rob Samson

09.45 Rob Samson Westerdijk Fungal Biodiversity Institute, the Netherlands

The International Commission on Food mycology (ICFM). Past, present and future.

Session 1: Food Spoilage Reduction – Preservatives. Chair Emilia Rico.

10.05 **Jan Dijksterhuis**, Westerdijk Fungal Biodiversity Institute, the Netherlands
Rethinking used and novel strategies to prevent food spoilage.
10.25 **Frank Segers**, Corbion, the Netherlands
The combined impact of organic acids and modified atmosphere on fungi resistant to modified atmosphere packaging.
10.45 **Mélanie Cadoret**, Univ Brest, France
Impact of UV and/or biocides on the inactivation of *Aspergillus brasiliensis* ATCC 16404.

11.05 Break

11.35 **Alex Grum-Grzhimaylo**, Westerdijk Fungal Biodiversity Institute, the Netherlands
Genetic basis and evolution of resistance to the polyene preservative natamycin.
11.55 **Petter Melin**, RISE Research Institutes of Sweden, Sweden
Practical use of weak acid preservatives in meat-analogues and other products.
12.15 **Roya Choupannejad**, Westerdijk Fungal Biodiversity Institute, the Netherlands
Natural antimicrobials for enhanced food bio-preservation.
12.35 **Siavash Atashgahi**, AB Mauri, the Netherlands
Natural preservation of bakery products.

13.00 Lunch

Session 2: Mycotoxin Contamination and Exposure Risk in Food. Chair Paul Dyer.

13.50 **Ana-Rosa Ballester**, Institute of Agrochemistry and Food Technology, Spain
Deciphering ochratoxin A biosynthesis and degradation in *Aspergillus niger*: functional insights from halogenase and ochratoxinase mutants.
14.10 **Andika Sidar**, Gadjah Mada University, Indonesia
Mycotoxins on Indonesian agricultural commodities: Challenges and mitigation approaches.
14.30 **Angel Medina-Vaya**, Cranfield University, UK
Towards climate change resilient biocontrol to avoid OTA contamination in Robusta coffee production.
14.50 **Monika Coton**, Univ Brest, France
How to evaluate mycotoxin exposure due to mouldy foods at the consumer level. A case study on *Alternaria* mycotoxins in tomatoes.

15.10 **Break**

15.30 **Myrsini Kakagianni**, Department of Food Science and Nutrition, School of Agriculture Sciences, University of Thessaly, 43100, Karditsa, Greece – [online]
Probabilistic assessment of deoxynivalenol (DON) exposure from pita bread consumption: A Greek population study.

15.50 **Paula Cristina Azevedo Rodrigues**, Instituto Politécnico de Braganca, Portugal
Toxigenic fungi from Mozambican maize, peanuts and rice: what is the associated risk?
16.10 **Sylvia Kalli**, Wageningen University & Research, the Netherlands
Expanding the mycotoxin horizon: Analytical approaches for fungal metabolites in lupins and forage grasses.
16.30 **Sofia Noemi Chulze**, CONICET-UNRC, Argentina
An increasing risk driven by climate change: Aflatoxins and the urgent need for biocontrol.

16.50 Posters

18.00 Dinner at Biltsche Hoek Hotel

Tuesday 8 July 2025

Session 3: Food Spoilage Reduction – Biocontrol and Processing. Chair Monika Coton

09.00 **Maodo Malick Cissé**, Cheikh Ahmadoul University of Touba, Senegal [online]
Evaluation of the antagonistic activity of indigenous *Trichoderma* species against *Colletotrichum gloeosporioides*, the fungal pathogen causing mango anthracnose in Senegal.
09.20 **Emilia Rico**, BCN Research Laboratories, USA
Heat-resistant moulds (HRM) spoilage of thermal-processed beverages: has anything changed in the last 35 years?
09.40 **Muhammad Ahmed Ihsan**, University of Malta, Malta
Antifungal properties of lactic acid bacteria isolated from Maltese sheep milk and cheese.
10.00 **Alicia Rodríguez**, University of Extremadura, Spain
Discovering the effect of two antagonistic yeasts on metabolites involved in aflatoxin biosynthesis of *Aspergillus flavus* in a dried fig-based medium

10.20 Break

11.00 **Diana Sousa**, CEB - Centre of Biological Engineering, University of Minho, Braga, Portugal [online]
Comparative heat activation and inactivation of *Talaromyces trachyspermus* ascospores inside and outside ascocarps.
11.20 **Miloslava Kavková**, Dairy Research Institute Ltd., Czech Republic
The antifungal activity of lactobacilli against spoilage fungi in milk, bakery and vegetable matrices.

Session 4: Fungi for Alternative Proteins and Food Fermentation. Chair Sofia Chulze.

11.40 **Alex James Pate**, University of Nottingham, UK
Meddling with mycoprotein - novel strain development of *Fusarium venenatum*.
12.00 **Eleni Kollia**, National and Kapodistrian University of Athens, Greece
Mycological fermentation of plant-based substrates for blue cheese analogue production.
12.20 **Asaph Kuria**, University of Nottingham, UK
Unravelling the enzymatic dynamics of mould-ripened Camembert and Brie cheese.
12.40 **Emmanuel Coton**, Univ Brest, France
Metabolite profile variability in *Penicillium roqueforti* populations: a footprint of ecological niche specialisation and domestication.

13.00 Lunch

Session 5: Ecological Insights into Fungal Communities and Mycotoxin Formation in Food. Chair Vasilis Valdramidis.

13.50 **Maria Laura Ramirez**, Instituto de Investigación en Micología y Micotoxicología, Argentina [online]
Aspergillus section *Nigri* and ochratoxin A accumulation in raisins: A comparative study of drying systems.
14.10 **Andrea Patriarca**, Cranfield University, UK
Ecophysiology of *Alternaria* strains from tomato producing AAL toxins.

14.30 **Marta Taniwaki**, Food Technology Institute (ITAL), Brazil.
Beyond the flavor: Assessing the risks and rewards of Brazilian artisanal cheese.
14.50 **Júlia Marquès**, Veterinary Faculty, Universitat Autònoma de Barcelona, Spain
Competitiveness study among black aspergilli strains.

15.10 Break

15.40 **Mahshid Saedi**, Westerdijk Fungal Biodiversity Institute, the Netherlands
Exploring the mycobiota and mycotoxin contamination in traditional Iranian foods.
16.00 **Marie Belair**, Univ Brest, France
Ecological niche shapes fungal communities from vine to wine and impacts FMA detection in wine.
16.20 **Su-lin Hedén (Leong)**, Swedish University of Agricultural Sciences, Sweden
Mycotoxin production by Penicillium species during refrigerated storage of plant-based analogues of cheese, fraiche and pâté.

17.00 ICFM commission board meeting (only for ICFM committee members)

Dinner at Stadskasteel Oudaen restaurant Utrecht centre (Oudegracht 99, 3511 AE Utrecht)

Wednesday 9 July 2025

Session 6: Guidelines and New Insights in the Identification of Mycotoxigenic Fungi. Chair Su-lin Hedén (Leong).

09.00 **Nazik Hussain**, Institute of Plant Sciences University of Sindh Jamshoro, Pakistan [online]
Morphological and molecular characterisation of *Alternaria alternata* from tomato Lycopersicon esculentum fruit
09.20 **Jens Christian Frisvad**, DTU - Bioengineering, Denmark
Chemistry and morphology are excellent for separating *Aspergillus oryzae* and *Aspergillus flavus*, but difficult to achieve using genome sequencing.
09.40 **Jos Houbraken**, Westerdijk Fungal Biodiversity Institute, the Netherlands
An update on *Aspergillus, Penicillium* and *Talaromyces* taxonomy.
10.00 **Ya Bin Zhou**, Westerdijk Fungal Biodiversity Institute, the Netherlands
Barcoding *Aspergillus, Penicillium* and *Talaromyces* strains from the CBS biobank.
10.20 **Ioanna Pyrri**, National and Kapodistrian University of Athens, Greece
Penicillium section *Brevicompacta*: new insights in taxonomy.

10.40 Break

Session 7: Methodology Development. Chair Angel Medina Vaya.

11.10 **Laura García Calvo**, Nofima AS, Norway
Whole Genome Sequencing of *Penicillium* spoilage mould from food producers.
11.30 **Kaitlyn Parra**, Veterinary Faculty, Universitat Autònoma de Barcelona, Spain
Development of a droplet digital PCR assay for population study of ochratoxigenic and non-ochratoxigenic *Aspergillus carbonarius* strains.
11.50 **Manuela Zadravec**, Croatian Veterinary Institute, Croatia
Challenges in sample preparation of *Alternaria, Cladosporium* and *Fusarium* species for MALDI TOF analyses.
12.10 **María A. Pavicich**, Ghent University, Belgium
Hyperspectral imaging for early fungal detection and prediction of mycotoxins in apples.

12.30 Closing of the workshop

13.00 Lunch

POSTERS

Alberto Martín, University of Extremadura, Spain
Study of *Alternaria alternata* on tomato agar by VOCs, mycotoxin and metabolomic analysis.

Bruna Sepúlveda, University of Minho, Braga, Portugal [online]
Isolation of filamentous fungi from beans, maize and peanuts from Cuanza Sul, Angola.

Dana Tančinová, Slovak University of Agriculture in Nitra, Slovakia
Ability of selected plant essential oils to inhibit cyclopiazonic acid production by *Penicillium commune* strains.

Elettra Berni, Stazione Sperimentale per l'Industria delle Conserve Alimentari-Fondazione di Ricerca – SSICA, Italy
Influence of reduced water activity on *Monascus ruber* heat- and sorbate-resistance.

Frank Segers, Corbion, the Netherlands
Predictive modeling for bread spoilage prevention: simplifying complex data.

Inês Mendonça, National Institute for Agrarian and Veterinary Research, Portugal [online]
Effectiveness of encapsulated lemon thyme and prince herb essential oils against *Stemphylium vesicarium* and *Alternaria* spp. isolated from Portuguese "Rocha" pear orchards.

Linda Mezule, Riga Technical University, Latvia
Enzymes from wood-decaying fungi as tools for waste hydrolysis.

Santiago Ruiz-Moyano, Universidad de Extremadura, Spain
Optimization of a HPLC-fluorescence method for quantification of fumonisins FB1 and FB2 in food matrices and synthetic culture media.

Simas Borkertas, Lithuanian Research Centre for Agriculture and Forestry, Lithuania
Fungal strains of industrial food by-products fermentation and its techniques for mycelium and food production.

Teresa Vale Dias, University of Minho, Braga, Portugal [online]
Fungal ecology along the production line of Portuguese goat cheese.

Zuzana **Barboráková**, Slovak University of Agriculture in Nitra, Slovakia
Ochratoxin A producers in green coffee beans.

Probabilistic assessment of deoxynivalenol (DON) exposure from pita bread consumption: a Greek population study

Myrsini Kakagianni[a], Emmanuella Magriplis[b], Antonis Zampelas[b,c], Sotiria Kotopoulou[c], and Vasilis Valdramidis[d,e]

[a]Department of Food Science and Nutrition, School of Agriculture Sciences, University of Thessaly, 43100, Karditsa, Greece; [b] Department of Food Science and Human Nutrition, School of Food and Nutritional Sciences, Agricultural University of Athens, Athens, Greece, [c] Hellenic Food Authority, Athens, Greece; [d] Department of Food Sciences and Nutrition, Faculty of Health Sciences, University of Malta, Msida, Malta; [e] Department of Chemistry, School of Sciences, National Kapodistrian University of Athens, Athens, Greece

Presenter: Myrsini Kakagianni

Flatbreads are a widely consumed food globally, but they may contain deoxynivalenol (DON), a common mycotoxin produced by Fusarium fungi. Due to its frequent presence in cereal-based foods and potential health risks, this study evaluated DON exposure in the Greek population through pita bread consumption using a probabilistic risk assessment approach. Data from 710 individuals of all age groups were obtained from the Hellenic National Nutrition and Health Survey (HNNHS), representing all regions of Greece. Based on EFSA reports, the mean DON contamination level for unleavened bread, crispbread, and rusk was 43.5 µg/day (median concentration). Food consumption and occurrence data were classified using EFSA's FoodEx2 system. Chronic dietary exposure was calculated by combining daily pita bread intake with mean DON levels, adjusted for body weight. The mean and 95th percentile exposures were derived using the ImproRisk model (V0.5.4). Results showed that DON exposure from pita bread did not exceed the tolerable daily intake (TDI: 1 µg/kg bw/day) for the Greek population. Toddlers, children, and adolescents exhibited the highest exposure levels, yet their Hazard Quotient (HQ) remained below 1, indicating no significant health concern. These findings suggest that DON contamination in Greek pita bread may pose minimal risk to both average and high consumers.

This work was supported by the European Union's Horizon 2020 research and innovation programme under Partnership for Research and Innovation in the Mediterranean Area Programme (PRIMA) [FLATBREADMINE Grant Agreement, No. 2031]. The HNNHS was co-funded by the European Union (European Social Fund) and Greece (Ministry of Health) under the Operational Program "Human Resources Development 2007–2013". The authors AZ and SK alone are responsible for the content and views expressed in this publication and they do not necessarily represent the decisions, policy, or views of the Hellenic Food Authority.

Toxigenic fungi from Mozambican maize, peanuts and rice: what is the associated risk?

Aritson Santos Tolentino[1], Ester Toco[1], Cláudio Matusse[1,2], Joana Santos[3,4], Armando Venâncio[3,4], João Bila[5,6], Custódia Macuamule[7], Paula Rodrigues[1,*]

1CIMO, LA SusTEC, Instituto Politécnico de Braganca, Campus de Santa Apolónia, 5300-253 Braganca, Portugal 2Department of Agriculture, College of Business and Entrepreneurship of Chibuto, UEM-Eduardo Mondlane University, Gaza 1200, Mozambique. 3CEB—Centre of Biological Engineering, University of Minho, 4710-057 Braga, Portugal 4LABBELS—Associate Laboratory, 4800-058 Guimarães, Portugal. Department of Crop Protection, Faculty of Agronomy and Forestry Engineering, UEM-Eduardo Mondlane University, Maputo 1102, Mozambique. Centre of Excellence in Agri-Food Systems and Nutrition (CE-AFSN), UEM-Eduardo Mondlane University, Maputo 1102, Mozambique. 7Department of Animal Production and Food Technology, Faculty of Veterinary, UEM-Eduardo Mondlane University, Maputo 1102, Mozambique

Presenter: Paula Rodrigues

Toxigenic fungi and mycotoxins are persistent contaminants in food, causing great economic losses, and when ingested, can result in acute or chronic poisoning. In Mozambique, these contaminations are frequent in basic foods, due to lack of knowledge, climatic conditions and improper storage, among other factors. This work aimed to evaluate the risk of contamination by toxigenic fungi of three important food crops from southern Mozambique: maize, rice and peanuts. To this end, contaminating fungi from samples of maize (14 samples), rice (13 samples) and peanut (12 samples) were isolated, identified and characterized for their mycotoxigenic ability. For each sample, 25 seeds were sown in Petri dishes containing DRBC medium. After an incubation of 5-7 days at 25 °C, fungi were isolated and grouped into morphotypes. Representative isolates were molecularly identified by Sanger sequencing of the ITS region, and CL, EF and BT genes. Isolates were characterized for mycotoxin production by LC-MS/MS. All peanut, rice and maize samples showed fungal contamination, with an average incidence per sample of 84 %, 58.5 % and 87 % for peanut, rice and maize, respectively. From the 347 isolated fungi, 24 genera were identified. The rice samples showed higher fungal diversity (18 genera) than the peanut samples (10 genera) and the maize samples (8 genera). The genus Aspergillus was dominant in all products (53 % of the total isolates), followed by Fusarium (10 %) and Penicillium (6 %). Aspergillus flavus (aflatoxin-producing species) was

detected in 91.7 % of the peanut samples, while in rice 46.2 % of the samples were contaminated and in maize 78.5 % of the samples were contaminated. Aspergillus niger (OTA-producing species) had lower expression in all crops. Penicillium citrinum (citrinin-producing species) was the most predominant species of the Penicillium genus in the samples (85 % of all Penicillium isolates), while in the Fusarium genus the predominant species was Fusarium verticillioides (fumonisin-producing species) (54.3 % of all Fusarium isolates), with a higher incidence in maize samples. Correlations will be established between toxigenic fungi incidence and mycotoxin contamination of samples. The high incidence of A. flavus in the samples agrees with the high level of aflatoxin contamination of these crops (Matusse et al. 2024), and strengthens the need for control strategies.

Reference:

Matusse C, Lucamba Z, Bila J, Macuamule C, Sampaio A, Afonso S, Venâncio A & Rodrigues P (2024). Aflatoxin Contamination of Various Staple Foods from Angola and Mozambique. *Toxins* 16(12): 516. doi.org/10.3390/toxins16120516

Acknowledgements. This work was supported by the Project FCT – AKDN-KHAN/541590696/2019- MYCOTOX-PAL-OP and by national funds through FCT/MCTES (PIDDAC): CIMO, UIDB/00690/2020 and UIDP/00690/2020; SusTEC, LA/P/0007/2020; CEB (UIDB/04469/2020); and LABBELS (LA/P/0029/2020).

EXPANDING THE MYCOTOXIN HORIZON: ANALYTICAL APPROACHES FOR FUNGAL METABOLITES IN LUPINS AND FORAGE GRASSES

Sylvia Kalli[1], Ilaria di Marco Pisciottano[1], Patrick Mulder[1], Martin Meijer[2], Jos Houbraken[2], Josipa Grzetic Martens[1]

[1]Wageningen Food Safety Research, Part of Wageningen University & Research, European Union Reference Laboratory plant toxins and mycotoxins, P.O. Box 230, 6700 AE, Wageningen, the Netherlands. [2]Westerdijk Fungal Biodiversity Institute, 3584 CT, Utrecht, the Netherlands

Presenter: Sylvia Kalli

The evolving landscape of food and feed production—driven by climate change, sustainability goals, and regulatory constraints—has led to increased interest in alternative crops such as lupins and safety of forage grasses. The novel food sources, while promising, are not immune to fungal contamination and associated mycotoxins, many of which remain under-characterized and unregulated. Phomopsins, produced by Diaporthe toxica, are a notable concern in lupins, that are rapidly gaining popularity in the global shift toward more climate-friendly protein sources. However, several congeners are lacking analytical standards and regulatory limits in Europe. Similarly, forage grasses can contain tremorgenic indole-diterpenes, ergot alkaloids, originating from fungal endophytes or environmental contaminants. These compounds present significant analytical challenges due to matrix complexity, low natural concentrations, heterogeneous distribution, and structural diversity.

Recent developments using targeted and high-resolution mass spectrometry have enabled the detection and semi-quantitative analysis of a wider range of mycotoxins in these matrices. Artificial contamination techniques and in vitro fungal incubations have supported the identification of novel phomopsin congeners, while multi-analyte LC-MS/MS methods have been validated for tremorgenic, ergot, alkaloids in grass-based feeds.

Initial occurrence surveys indicate sporadic but measurable contamination, underscoring the need for continued methodology improvements and monitoring. These findings highlight the relevance of expanding the research and analytical scope beyond regulated mycotoxins, particularly as non-traditional crops gain importance in the food and feed sectors and while the climate change brings yet unpredictable challenges for the future of food and feed safety.