FunShield4Med
SECURING FOOD

NEWSLETTER

Volume 1

The Project

FunShield4Med is a new Coordination and Support Action (CSA) at European level, funded by the Horizon Europe (HE) Programme. The aim of FunShield4Med project is to strengthen the scientific excellence and innovation capacity of the Institute of Technology of Agricultural Products (ITAP) of Hellenic Agricultural Organisation – DIMITRA (ELGO-DIMITRA) from Greece in the field of food safety against mycotoxigenic spoilage fungi and mycotoxins under climate change challenges.

Partners

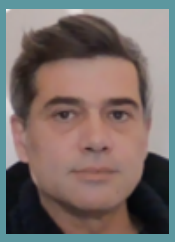
The strategic collaboration of advanced partners from Italy (University of Parma/Dept of Food and Drug), Spain (University of Lleida/Food Technology Dept), and UK (Cranfield University/Environment and Agrifood Theme), and an internationally-leading University from Greece (National Kapodistrian University of Athens/Dept. of Chemistry), all having international recognition in the area of mycotoxigenic fungi and mycotoxins contamination, will ensure the successful knowledge and expertise transfer.

ELGO - DIMITRA HELLENIC AGRICULTURAL ORGANIZATION - DIMITRA
National and Kapodistrian University of Athens
UNIVERSITÀ DI PARMA
Cranfield University
Universitat de Lleida

Figure 1: Members of the FunShield4Med after the 2nd Executive Board meeting (4/7/2023), Parma, Italy: from left to right, Dr M. Metafa (ELGO); Dr A. Nisiotou (ELGO); Prof. V. Sanchis (UdL); Dr D. Miliordos (ELGO); Prof. S. Marin (UdL); Prof. A. Medina (CU); Prof. C. Dall'Asta (UNIPR); Dr P. Natskoulis (ELGO); Prof. C. Proestos (NKUA); Prof. M. Dasenaki (NKUA); Dr C. Tassou (ELGO); Dr. L. Dellafiora (UNIPR).

This project has received funding from the European Union's Horizon Europe Research and Innovation FunShield4Med – HORIZON-WIDERA-2021-ACCESS-03Programme under Grant Agreement: 101079173 –

In this project Cranfield University has received funding from the UKRI Horizon Europe Guarantee Funding Programme in the UK



Dr P. Natskoulis (ELGO, COO)

A few words from our Coordinator

Mycotoxins contamination causes about 1 billion metric tons of food loss annually, presenting a serious decline in economic development and public health. Scientific development of last decades and climate change evolution has significantly strengthened the interest of scientists in the field of food contamination by mycotoxins. Our project, FunShield4Med, has as primary aim the reinforcement of my Institute's (ITAP) Research and Innovation (R&I) capacity, but has been structured accordingly to help securing EU consumers from mycotoxin contaminated imported goods. To help public understand the mycotoxins issue and engage them with our vision, the leaders of FunShield4Med project were asked to present you their opinions and experiences on the issue. Following we present our first interview with Prof. Chiara Dall' Asta, FunShield4Med Technical Manager, Leader for UNIPR, and member of FAO/WHO JEFCA.

Prof. C. Dall'Asta (UNIPR, TM)

Prof. Chiara Dall'Asta interview

Which are the main roles of your research group in FunShield4Med?

Our main role is to offer our expertise and training in advanced methods for mycotoxins analysis, mainly based on High Resolution Mass Spectrometry. In particular we will provide the consortium with our expertise in multi-mycotoxins analysis, covering both regulated and non-regulated mycotoxins, as well as modified mycotoxins. We are also responsible for a small research project among partners, focused on mycotoxins occurrence in Mediterranean commodities. In addition, we will provide expertise and training on computational methodologies to prioritize and support mycotoxins toxicological characterization.

What do you perceive as the future of Agri-food sector regarding the impact of climatic change in the presence of mycotoxins?

Climate change is seriously affecting fungal spread and mycotoxins occurrence worldwide. From one side, changing ecological conditions are leading to a change in the pattern of fungi (and therefore mycotoxins) occurring in crops. On the other side, crops – and mainly cereals – are often under the pressure of extreme weather events. Our industrial partners, mainly food processing business operators (FBOs), are quite concerned about the current scenario both in terms of food safety and food security. In addition, there's a growing awareness among FBOs on the urgency to find green solutions for non-compliant batches, to decrease losses in food/feed commodities and keep costs under control.

What are the potentials of the current project and the achievements to be accomplished?

In my opinion, partnering projects like FS4M may offer great opportunities to share knowledge and methodologies among groups active in the same fields, to circulate ideas and to ultimately boost creativity in our research field. Challenges in the climate change era can be faced only with a transdisciplinary approach, and this is even more important in the mycotoxins field, where disciplines like plant pathology, ecophysiology, agronomy, toxicology and chemistry should be merged under a system biology approach.

KICKOFF MEETING (13/12/2022)

The starting point of our journey, our kickoff meeting, was held with success in Athens, Greece on the 13th of December 2023, at the NKUA campus. All partners had the chance to meet, present their teams and plans, and discuss on FunShield4Med organization and implementation plan. Moreover, ELGO as Coordinator provided an overview of the overall aim and objective of the project. All partners concluded that FunShield4Med should strive to minimize exposure of consumer to mycotoxins and provide support in traceability of both emerging and modified forms of mycotoxins in staple food, considering the context of climate change scenarios as well.

Figure 2: Kickoff meeting in person, December 2023, NKUA campus, Athens

1ST OPEN DAY, ITAP CAMPUS, ATHENS, GREECE (28/04/2023)

Open days are a chance for the public to explore the facilities, exchange with the researchers of the institute, as well as to be informed about the field of interest and focusing of ITAP researchers and laboratories. During our 1st Open day, a group of Ilion's 1st Vocational High-school students visited ITAP premises, winery, and vineyard. Public and students were informed about Mycotoxins and Food Safety issues among others (History of the Institute, Activities etc.).

Figure 3: Lectures and tours at ITAP during 1st Open Day

IAFP'S EUROPEAN SYMPOSIUM, ABERDEEN (3-5/5/2023)

The International Association for Food Protection (IAFP) European Symposium has been shaping the future of food safety by providing a forum for the exchange of ideas with colleagues from across Europe working in industry, government, and academia. The Symposium is an excellent forum to gain knowledge about the latest developments and techniques in food science and safety. FunShield4Med participated with a poster on project's aim and overview and undertook promotion and networking actions.

Figure 4: Left, Prof. V. Valdramidis (NKUA) and Dr. P. Natskoulis (ELGO); Right, Dr. P. Natskoulis in front of project's poster.

1ST FUNSHIELD4MED SEMINAR AT ITAP CAMPUS, GREECE (16/5/2023)

Lectures of our 1st Seminar concerned on the identification of several forms of mycotoxins (parent, modified, masked, emerging), relevant EU legislation, and EFSA surveillance measures. Invited speaker was Prof. Chiara Dall'Asta (UNIPR), while the project was presented to public and ITAP personnel.

Figure 6: Audience of the 1st seminar

1ST FUNSHIELD4MED SUMMER SCHOOL, UNIPR CAMPUS, PARMA, ITALY (3-7/7/2023)

The 1st Summer School held with great success (25 participants) at UNIPR and among its subject were Food mycology; Mycotoxigenic fungi & mycotoxins; Chemometric and multivariate pattern recognition techniques; Computational methods in Toxicology; MS analysis – target & non-target screening approaches; Climate change & climate modelling; Basic principles of food sampling for mycotoxins; ELISA technique for Mycotoxins; Risk assessment; Mycotoxin mitigation strategies; Mycotoxigenic fungi biocontrol.

Figure 7: Professors and trainees after the end of the 1st day of 1st Workshop and 1st Summer School of project

1ST FUNSHIELD4MED WORKSHOP, UNIPR CAMPUS, PARMA, ITALY (3-4/7/2023)

The 1st Workshop (20 attendees) with subject "Computational Methods for Mycotoxins" included knowledge transfer on : New secondary metabolites of toxigenic fungi (masked, modified, emerging), Chemometric and multivariate pattern recognition techniques, Computational methods in Toxicology, and Case-studies on exposure assessment.

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COMING SOON - STAY TUNED!

Moving forward, the next step of the project is to conduct another round seminars, workshops, and trainings on the insights gained from the previous sessions in Greece and Italy. These activities will allow for continuing transfer of expertise among the members of the consortium and interested groups in the field mycotoxins in the food chain.

Funshield4Med 2nd Seminar at ITAP (21/07/2023)
The 2nd Seminar was organised with success during last June and will be presented with forthcoming events in our next 2nd FunShield4Med Newsletter, end of 2023. Its topic was Food Contaminants: Mycotoxins, Heterocyclic Amines, Polycyclic Aromatic Hydrocarbons, with invited speakers Prof. E. Öz and C. Öz from Ataturk University and Prof. C. Proestos and Prof. M. Dasenaki from NKUA.

Short-Term Staff Exchanges (October 2023)
The 1st secondment of ITAP personnel is going to take place during October of 2023 with destination the University of Leida. The subject of training will be on a clay-based adsorbent to prevent the release of mycotoxin AFB1 from aquafeed into a fish digestion system.

2nd FunShield4Med Workshop at NKUA (28-29/11/2023)
The 2nd Workshop is going to be organised at NKUA, Food Chemistry Laboratory with participation from UNIPR and CU partners.

10th Mikrobiokosmos International Conference at Larisa, Greece (30/11 - 2/12/2023)
FunShield4Med is proudly co-organising the 10th International Conference of Hellenic Scientific Society MikroBioKosmos (MBK).

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