



Mycotwin

Worldwide Mycotoxin Management via
Co-Creation of Innovative Strategies

Newsletter 4

March 2024



WELCOME to the fourth release of MycoTWIN updates!

We are pleased to announce you the completion of the third year of the project and MycoTWIN activities continue at full speed.

We hope you enjoy reading the newsletter and invite you to check our website regularly, follow us on social media or contact us directly for more information.

Mycotwin continues to make progress in knowledge transfer, dissemination, and collaborative activities



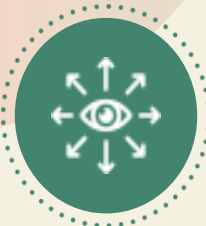
4 SHORT TERM ON-SITE TRAININGS



7 SUMMER SCHOOLS



6 TECHNICAL, 2 EXPERT VISITS



4 WORKSHOPS, 2 SEMINARS



2 OPEN DAYS, 5 INFO DAYS



Summer school 7 was held at CNR-ISPA

18-23 June 2023



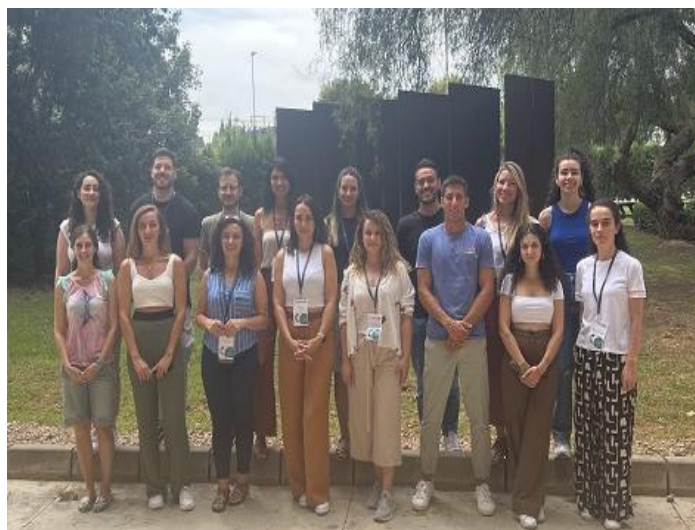
The 22nd International Fusarium Laboratory Workshop & MycoTWIN Summer School 7 on “Pre and post-harvest management for mycotoxins and toxigenic fungi minimization in Fusarium affected crops” was jointly organized by the National Research Council of Italy Institute of Sciences of Food Production (CNR-ISPA) and the International Society of Mycotoxicology in Bari (Italy) on 18-23 June 2023.



The workshop has been conducted by globally acknowledged Fusarium experts. The participants were introduced to standard morphological, genetic, and molecular biological techniques used to identify and characterize strains of Fusarium. Participants have learnt how to use morphological characters to identify the most common Fusarium species, make tests for vegetative compatibility groups and cross-fertility, extract, PCR amplify, and analyze DNA sequences. The majority of the duration was devoted to working with standard strains in the laboratory. In the activity, a total of 43 participants were involved including five young researchers selected from various institutions in Turkey, as well as participants from TUBITAK and University of Valencia.

Summer school 6 was held at UVEG

9-15 July 2023



The 6th Summer School, organized by the University of Valencia in Spain, highlighted a specific focus on the improve our knowledge on masked mycotoxins in food and feed through the application of liquid chromatography quadrupole time-of-flight mass spectrometry (LC-QToF-MS). Taking place from July 9 to 15, 2023, this event served as an opportunity for knowledge exchange and collaboration, attracting five young researchers from various Turkish institutions.



The main objective of the 6th Summer School was to provide young researchers with essential insights into LC-QToF-MS techniques and emerging methodologies for the analysis of masked mycotoxins. The participants received comprehensive training, covering diverse aspects such as extraction techniques for mycotoxins from wheat and corn products, the fundamentals of LC-QToF-MS analysis, and data interpretation. This training experience not only improved the participants' understanding of the LC-QToF-MS techniques but also provided them with practical skills to apply in their own research, thereby fostering their professional growth in the field.

Summer school 8 was held at UVEG

16-22 July 2023

The 8th summer school, hosted by the University of Valencia on "Employment of bioactive compounds of natural and microbial origin for the control of mycotoxigenic fungi in food and feed". Held from July 16 to 22, 2023, this event attracted the participation of five young researchers selected from a diverse Turkish universities and R&D facilities. Additionally, the attendance of researchers from TUBITAK promoted the international collaboration and knowledge share.



The focus of the 8th summer school was to train young researchers in the effective control of mycotoxigenic fungi growth in food and feed through biopreservation, employing secondary metabolites from microorganisms. Throughout the event, participants gained insights into the potential application of lactic acid bacteria (LAB) as significant biological additives in food, thanks to their Generally Recognized as Safe (GRAS) classification and potential for mycotoxin detoxification. Practical sessions provided hand-on learning experience where participants engaged in microbiological techniques. These exercises provided the participants with practical skills and knowledge.

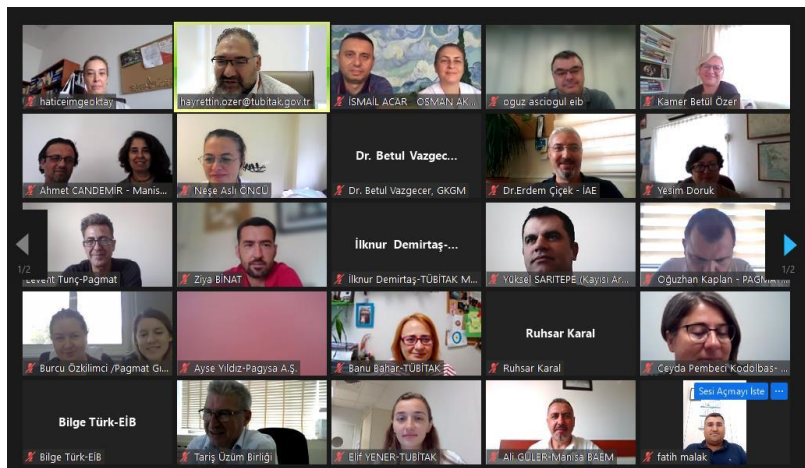


MycoTWIN national round table meetings on mycotoxin management in Türkiye's nut and dried fruit value chains

August 25 and 28, 2023



The MycoTWIN National Round Table Meetings, held virtually, addressed mycotoxin management in Türkiye's nut and dried fruit value chains. The first meeting, "Mycotoxin Management for Nut Value Chain in Türkiye," took place on August 25, 2023, followed by the second meeting, "Mycotoxin Management for Dried Fruit Value Chain in Türkiye," on August 28, 2023.



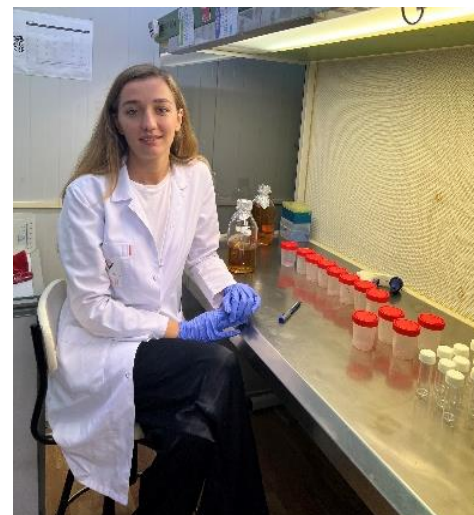
Beyond the researchers from TUBITAK MRC, a diverse group of participants, consisting of 27 experts in Meeting-1 and 39 experts in Meeting-2, were invited from different regions of Türkiye. These participants brought varied expertise in nuts and dried fruits, representing academia, industry (processors, chamber of commerce/exchange), ministry officials (decision-makers, regional directorates), and research institutes.

Participants engaged in collaborative efforts to identify existing risks requiring minimization, exploring potential risks associated with climate change, and proposing innovative strategies for risk elimination. The discussions aimed to create a comprehensive list of risks for each production stage, covering pre-drying, drying, processing, transport, packaging, and storing. The MycoTWIN National Round Table Meetings played an important role in encouraging strategic conversations and developing effective mycotoxin control strategies in Türkiye's nut and dried fruit sectors.

Short term on-site training 4 was held at UVEG

9 September-14 October 2023

A short-term visit on the subject of "GC-MS/MS Analysis of Mycotoxins in Cereals and Derivative Products and Risk Assessment Through the Deterministic Approach", took place at University of Valencia, Spain from September 9 to October 14, 2023.



Experts from UVEG provided valuable information and practical knowledge regarding mycotoxin analysis techniques employing the Gas Chromatography-Mass Spectrometry.



During this short-term training program, a key objective was to transfer knowledge to the project partners concerning mycotoxin extraction techniques from orange juices and peels, as well as the detection of mycotoxins using LC-MS/MS. This comprehensive training significantly enhanced the skills, expertise, and awareness of TUBITAK researchers Özlem Aslan and Elif Yener in the field of multi-mycotoxin analysis through advanced knowledge sharing.

The entire duration of the training proved highly beneficial for the young researchers, as it provided them with the opportunity to enhance their expertise, broaden their knowledge, and gain a deeper understanding of multi-mycotoxin determination.

2nd Expert visit to TUBITAK

18-21 December 2023

The 2nd expert, a key milestone within the Project, took place on visit scheduled as part of the project was held on December 18 to 21, 2023. Experts Annalisa De Girolamo and Vincenzo Lippolis from CNR-ISPAA, alongside Victor D'Opazo Taberner and Ana Moreno from UVEG. The purpose of the visit is to observe and evaluate the facilities and ongoing studies at TUBITAK.



The experts shared their current insights and updates in the field, and this interactive meeting provided TUBITAK researchers stay up do date on the recent developments. Hayrettin Özer shared an overview of TUBITAK MRC Life Sciences, including research themes, ongoing projects and the R&D infrastructure covering state-of-the-art facilities, laboratories and technological resources.

A significant attention was dedicated to discussions about the upcoming activities and milestones. Both the experts and the TUBITAK team actively engaged in the revision of the Project's roadmap aiming to ensure that it matched with the overall objectives and goals.



Furthermore, the topics covered during the 1st expert visit were thoroughly evaluated. This review was critical in improving strategy, addressing any identified issues, and enhancing CNR-ISPAA, UVEG, and TUBITAK collaboration activities. Overall, the expert visit not only provided an opportunity for knowledge exchange but also served as a platform for strategic planning and assessment.

Open day 1 and seminar 1 were hosted by TUBITAK

19 December 2023



1st open day with a seminar organized by TUBITAK, was important initiative to inform and engage interested stakeholders visiting the institution. This event has significance for raising awareness and creating new networking opportunities among stakeholders and third parties, including SMEs, researchers from universities and research bodies, analytical labs, and other participants.

The start of the 1st open day was marked by Hayrettin Özer's presentations, providing an overview of the MycoTWIN Project, TUBITAK MRC Life Sciences' research interests, current projects, and R&D infrastructure.



Following the informative introduction, the open day transitioned into a seminar session dedicated to the crucial theme of "Identification and Detection of Mycotoxigenic Fungi". The presentations, such as Victor's exploration of the "Bio-preservative potential of microorganisms isolated from red grape against fungi contaminants from this food" and Analisa's comprehensive overview on the "Detection of toxigenic filamentous fungi in foods," enriched the participants' knowledge in this specialized field. Participants had the opportunity to visit the Food Innovation Center's pilot plants. Overall, the first open day successfully combined academic insights with practical exposure, providing participants with a comprehensive and enriching experience.

Open day 2 and seminar 2 were held at TUBITAK

19 December 2023

2nd Open day with a seminar organized by TUBITAK, represents a pivotal initiative to inform and engage stakeholders visiting the institution. The open day serves as a platform to develop close relationships and networking opportunities with regional, national, and international stakeholders.

2nd open day started with Hayrettin Özer's welcome speech, an overview of the MycoTWIN Project along with a presentation on TUBITAK MRC Life Science's research goals, current activities, and R&D facilities.



By dedicating the seminar to "Rapid tests and advanced analysis techniques for mycotoxins," TUBITAK provided a valuable opportunity for participants to learn about the latest advancements in mycotoxin analysis techniques. Keynote speakers Vincenzo Lippolis from CNR-ISPA and Victor D'Opazo Taberner from UVEG shared knowledge on "Rapid tests and advanced analysis techniques for mycotoxins" and "Recent advances for screening of mycotoxins in agri-food products," respectively, added significant depth to the seminar.

Moreover, the open day provided participants with a unique opportunity to visit research laboratories at TUBITAK MRC Life Sciences. Overall, the 2nd open day succeeded in offering a comprehensive and enriching experience for all participants.



1st Workshop of TUBITAK

21 December 2023



1st workshop of TUBITAK was held on December 21, 2023 on "Management of Mycotoxigenic Fungi and Mycotoxins in Dried Fruits, Nuts, Cereals, and Spices". The event brought together a diverse group of experts, researchers, and professionals to discuss innovative approaches aimed at tackling the challenges posed by mycotoxins. The distinguished keynote speakers, including Bülent Kabak, Işıl Var, Levent Şen, Sinan Arslan, Betül Vazgeçer, İmge Oktay, and İlknur Demirtaş, covered a wide range of topics ranging from combatting mycotoxins in specific products to exploring the relationship between climate change and mycotoxins. The workshop not only provided a platform for knowledge exchange but also fostered discussions on innovative solutions to address the challenges posed by mycotoxins. We express our gratitude to the speakers and participants for their valuable contributions in making this workshop a success.



2nd Workshop of TUBITAK

22 December 2023

The 2nd workshop organized by TUBITAK, held on December 22, 2023, focused on the critical theme of "Identification of Mycotoxigenic Fungi and Detection of Mycotoxins; Advanced and Rapid Tests". The workshop offered keynote lectures by distinguished speakers, each delving into particular fields critical to mycotoxin management.



Bülent Kabak shared insights on the diagnosis and molecular characterization of fusarium species, Işılav Lavkor explored the molecular characterization of aflatoxigenic fungi and determination of aflatoxin biosynthesis genes, Esin Akçael discussed the present and future of rapid detection techniques, Cengiz Uldız provided updates on recent developments, Selçuk Uğurlu tackled mycotoxin management in the field, Taner Gökçen shared insights into LC-MS/MS method on mycotoxin detection, Cihan Kılıç presented on deep transfer learning approaches for mycotoxin determination, and Fatma Akçadağ emphasized the importance of external quality control for the determination of mycotoxins. TUBITAK expresses deep gratitude to the speakers and all participants for their invaluable efforts, which were critical in ensuring the workshop's resounding success.



Workshop 5 and Workshop 6 were held at UVEG

28-30 June 2023

The joint organization of MycoTWIN Workshop 5 and Workshop 6, along with the “1st International Workshop of the Spanish network on mycotoxins, toxigenic fungi and their decontamination processes” from June 28 to 30, 2023 at the University of Valencia, Faculty of Pharmacy.



MycoTWIN Workshop 5 - "Innovative Strategies for the Analysis of Mycotoxins in Food and Feed"

Participants engaged in discussions on the latest advancements in the analysis of mycotoxins in food and feed, exploring cutting-edge techniques and methodologies. The workshop provided a platform for experts to share insights into innovative analytical strategies, fostering a deeper understanding of the challenges and solutions in mycotoxin analysis.

MycoTWIN Workshop 6 - "Technological Approaches for the Management of Mycotoxins in Industry"

Participants explored innovative technological solutions for the effective management of mycotoxins in various industrial settings. The discussions ranged from detection methods to decontamination processes, providing a comprehensive overview of cutting-edge technologies. The workshop facilitated networking and collaboration opportunities, fostering connections between MycoTWIN and the Spanish Network. The exchange of ideas and expertise promises to contribute to future advancements in the field.



2nd Technical visit was held in Bursa, Türkiye

5 January 2023

2nd technical visit conducted on January 5, 2023 to Cargill in Bursa, Türkiye, was a significant milestone in fostering collaboration and addressing mycotoxin challenges faced by the company. During the event, Barış Özalp from Cargill and Hayrettin Özer from TUBITAK took the opportunity to introduce their organizations and share their recent studies.

Cargill, a global provider of food, agriculture, financial, and industrial products and services, demonstrated its commitment to sustainable practices and leveraging over 155 years of experience to support communities worldwide. The visit to Cargill provided TUBITAK with an opportunity to get firsthand knowledge on the factory's working environments, departments, and current business and production processes. This interactive experience provided a deep understanding of the operational and technological environment within Cargill.



The interaction between TUBITAK and Cargill during the visit moved beyond mere observation; it became a dynamic environment for exploring potential collaborations for finding innovative solutions to mycotoxin-related issues. As a whole, this exchange demonstrates TUBITAK and Cargill's strong dedication in developing technical innovation and fostering joint activities in the relevant areas.

3rd and 4th technical visits were held in Lausanne, and Uzwil, Switzerland

9-10 January 2023

3rd and 4th technical visits were organized to Integrative Food and Nutrition Center, Ecole Polytechnique Fédérale de Lausanne (EPFL) and Bühler AG, respectively.

EPFL-Integrative Food and Nutrition Center stands out as a center collaborating to develop new technologies to address global food issues. This center is focused on collaboration to generate solutions for significant challenges in food and nutrition. Natacha Nargornova from EPFL and Hayrettin Özer from TUBITAK shared their organizations and recent activities. Discussions explored various aspects of food safety, with a particular focus on mycotoxins.

On the other hand, Bühler's Grain and Food Solutions, one of its two business segments, ensures the safe and healthy production of food and feed. Yasemin Sharityar, Ilgın Ece Aepli, Ian Roberts from Bühler and Hayrettin Özer, Emel Önder Fırat, Kevser Betül Kalyon from TUBITAK discussed innovative solutions to food safety issues and potential collaborations. During the visit, discussions focused on Bühler's comprehensive approach to addressing mycotoxin challenges, covering various stages from grain handling to processing.

These interactive experiences facilitated the transfer of knowledge, encouraged networking opportunities, and allowed researchers to establish connections and exchange ideas.



5th Technical visit was held in Sakarya, Türkiye

26 April 2023



5th technical visit on 26 April 2023 took place to BALSU in Sakarya, Türkiye. During the visit, Emel Özengen from BALSU and Ceyda Pembeci from TUBITAK introduced their organizations and shared their most recent research activities. BALSU, with 45 years of experience in hazelnut processing, outlined its extensive supply chain stretching from Kocaeli to Artvin, emphasizing the objective of adding high value to hazelnuts. The company prioritizes sustainability, ensuring direct access to hazelnuts from the source through strategically located purchase centers. BALSU's agricultural team actively engages in sociological studies on sustainability and conducts agricultural experiments in pilot gardens.



Emel Özengen provided detailed information about the company's natural hazelnut production facility and stainless-steel crushing facility, built entirely within the business using internal resources. The MycoTWIN team had the opportunity to observe the working environments, departments, and current business processes of the factory, facilitating the exchange of technologies, exploration of potential collaborations, and sharing of information among stakeholders, including farmers and laboratories.

6th Technical visit was held in Valencia, Spain

11 October 2023

2nd technical visit was made on 11 October 2023 to the Font Salem in Valencia, Spain, which is the Spanish leader in private-label products and co-packing, specializing in different types of beer and a wide variety of still and sparkling soft drinks and water. The business, whose plants have IFS certification and manufacture over 800 million liters annually, provides food safety and quality control at every level of the production process with the goal of creating goods that are entirely safe. In this context, the significance of sample acceptance procedures was underlined and production procedures were mentioned.



During the event, Lara Manyes from UVEG, and Özlem Aslan from TUBITAK introduced their organizations and most recent research. TUBITAK had the opportunity to observe the working environments, departments, current business and production processes of the factory. In this way, it was a fruitful visit for transferring existing new technologies between countries, investigating possible collaborations and sharing the results obtained by the observers, including farmers and laboratories.

5th Info day was held in Kars, Türkiye

9 June 2023



Kars Provincial Directorate of Agriculture and Forestry, Kars Chamber of Commerce and Industry, Serhat Development Agency, and the Turkey Food Innovation Platform (TÜGİP) jointly organized a workshop in Kars on June 9, 2023, titled "Meeting Traditional Cheeses with the New Generation Consumer". The workshop addressed topics such as traditional cheeses throughout history, the current status and future expectations of local cheese producers, branding, and sustainability in dairy products.

MycoTWIN researcher Ceyda Pembeci Kodolbaş delivered an informative speech on "MycoTWIN Project, the Mold Issue and Mycotoxin Risk in Traditional Cheeses". She provided information on the goals, activities, and future steps of the MycoTWIN project, while encouraging the audience to participate in the project and the Türkiye Mycotoxin Platform.

6th Info day was held in Şanlıurfa, Türkiye

29 September 2023

TÜGİP and Şanlıurfa Chamber of Commerce and Industry, a workshop on "Traditional Products and Spices: Importance and Future" and MycoTWIN Information Day were organized in Şanlıurfa. The workshop, attended by academic, industry, and ministry stakeholders, addressed the significance of traditional products and spices from various perspectives.

Ceyda Pembeci Kodolbaş, a researcher from the MycoTWIN team, delivered an informative presentation on "MycoTWIN Project and Combating Aflatoxin in Spices". She enlightened the audience about the goals, activities, and future steps of the MycoTWIN project, motivating them to actively engage in both the project and the Türkiye Mycotoxin Platform.



MycoTWIN team joined Stakeholders' Innovation Days

5-6 October 2023



The "Stakeholders' Innovation Days" under the project SMART4ENV took place at TUBITAK MRC. This event brought together stakeholders, industry experts, policymakers, and researchers to discuss innovative solutions addressing environmental challenges. The program included updates and brainstorming sessions on the SMART4ENV, MycoTWIN, and PhenolAcTwin projects. Participants also showed great interest in visiting the TUGIP and Climate Change and Sustainability Laboratory infrastructures. Respected researchers delivered presentations on topics such as "Open Science and Horizon Europe in Turkey," "Responsible Research and Innovation," and "Definition of Intellectual Property Rights Management in Turkey." The second day, discussions on "Personalized nutrition" and "Sustainable Food Supply Security" were discussed with an interdisciplinary approach during the "Science Cafe" event. Additionally, stories of globally successful entrepreneurs were told in cooperation with innovative start-ups targeting novel technologies in the circular economy, sustainability in agriculture, and food systems.



MycoTWIN team joined SMART4ENV Workshop

6 April 2023

The "SWOT Study to Increase the Number of EU Projects and Coordinator Role of TUBITAK MAM under the project SMART4ENV took place on Thursday, 6th of April at TUBITAK MRC.



The event started with a series of interactive talks, providing perspectives on enhancing research management capacity and fostering international collaborations. The focus of the event was an internal workshop dedicated to conducting a SWOT analysis. This exercise aimed to identify strengths, weaknesses, opportunities, and threats, with the overarching goal of improving TUBITAK MRC involvement in international projects. The SWOT analysis supported strategic planning discussions, allowing participants to develop effective strategies for maximizing opportunities and restricting challenges in international collaborations and project coordination. Overall, the "SWOT Study" event served as a platform for valuable discussions, strategic planning, and collaborative efforts aimed at enhancing TUBITAK MAM's role in EU projects and international research initiatives.



7th IMEKO FOODS Conference was held in Paris, France

25-27 October 2023

On October 25-27, 2023, the 7th International IMEKOFOODS conference took place in Paris, France with a purpose of getting together scientists working on food related fields, such as food chemistry, nutrition, food safety, risk assessment, food authenticity, etc. Dr. Özlem Aslan from the TUBITAK project team participated in the conference presenting a poster on the topic of "Antimicrobial and antioxidant potential of natural extracts obtained by green technologies". In her study, she reviewed the current status and importance of green technologies, their application areas, and particularly their potential use in the control of bacteria and fungi.



Bureau International des Poids et Mesures' 22nd meeting of partners was held in Paris, France (Hybrid)

19-20 October 2023



İlknur Demirtaş, a researcher from TUBITAK, recently took part as a speaker in the 22nd meeting of partners organized by the Bureau International des Poids et Mesures' (International Bureau of Weights and Measures). İlknur highlighted the interconnected dynamics between climate change, fungal distribution, and mycotoxins.

She reviewed the current situation as well as strategies to be devised to ensure food safety in the face of evolving environmental conditions. Additionally, she shared the current activities held at TUBITAK and outlined works on food safety.

The MycoTWIN communication channels are open, join us!

If you like to learn more on objectives and activities of MycoTWIN project, go to <https://mycotwin.eu/> and also subscribe to our newsletter.

MycoTWIN is also on Twitter, LinkedIn, Facebook and Instagram.

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On behalf of all the project partners, we extend a sincere 'Thank You' for your interest in MycoTWIN, and we look forward to hearing from you either comments or contributions to our activities or on your own efforts in mycotoxin related science and technology.

Best wishes,

Dr. Hayrettin Özer and the MycoTWIN Communication Team

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