

## Mohamed Fathi Abdallah, Ph.D.

Postdoc Researcher F.R.S-FNRS mandate



### Contact Information

Human Biology and Toxicology

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### Research Interest

My current research is centered on understanding the health risks associated with natural toxins and emerging environmental contaminants in food. This is done by applying LC-MS/MS methods for quantification of natural toxins such as mycotoxins and cyanotoxins. Also, through the use of intestinal and hepatic *in vitro* models, I investigate the effects of these toxins as a mixture and their interactions with micro- and nanoplastics. This interdisciplinary approach bridges food toxicology and human health, facilitating a comprehensive understanding of complex challenges.

### Current Positions

F.R.S-FNRS Postdoc	- [10/2023–Now] Department of Human Biology and Toxicology, Université de Mons, Belgium.
Advisory Expert	- [11/2023–11/2028] The Food Quality and Safety Control Innovation Team, Institute of Food Science and Technology, Chinese Academy of Agricultural Sciences, Beijing, China
Voluntary Postdoc	- [10/2023–Now] Department of Food Technology, Safety & Health, Faculty of Bioscience Engineering, Ghent University, Belgium.

### Memberships

10/2023	- <b>Board member</b> of the European Society of Toxicology <i>In Vitro</i> (ESTIV). Early Career Section (Leader). <a href="https://www.estiv.org/estiv-board/">https://www.estiv.org/estiv-board/</a>
10/2022	- <b>Expert group member</b> , Food Contaminant section, ILSI Europe. Current Project: Approaches to Facilitate Application Prioritization of Natural Toxins for Risk Management. <a href="https://ilsi.eu/scientific-activities/food-safety/food-contaminants/">https://ilsi.eu/scientific-activities/food-safety/food-contaminants/</a>

### Previous Positions

Postdoc	- [10/2020–09/2023] Microbial Toxins, Virulence and Toxicity Research Group, Department of Food Technology, Safety & Health, Faculty of Bioscience Engineering, Ghent University, Belgium.
Researcher	- [04/2020–09/2020] Food Safety Department, Teagasc Food Research Centre, Ashtown, Dublin, Ireland.

### Education & Professional Preparation

PhD	- [08/2016–05/2020] Pharmaceutical Sciences, Centre of Excellence in Mycotoxicology and Public Health, Ghent University, Belgium.
MSc	- [09/2013–04/2016] Pharmaceutical Sciences (MSc, Toxicology), Hacettepe University, Türkiye.
Visiting Researcher	- [09/2015–03/2016] Thesis project, Center for Analytical Chemistry, Institute of Bioanalytics and Agro-Metabolomics, Universität für Bodenkultur Wien, Tulln, Austria.
Research Intern	- [09/2014–12/2014] Student Mobility for Placement, <i>IfADo</i> Institute, Dortmund, Germany.
BVSc	- [09/2007–07/2011] Veterinary Medical Sciences, Assiut University, Egypt.

## Fellowships, Travel Grants, and Awards

### Fellowships

- 09/2023 - **Postdoctoral Fellowship**-F.R.S-FNRS mandate, [University of Mons, Belgium]. [Research grant number 40010538 for three-years 10/2023- 09/2026].
- 06/2020 - **Postdoctoral Mandate**-Special Research Fund (BOF) [Ghent University, Belgium]. [Research grant number BOF20/PDO/032 for three-years 10/2020- 09/2023].
- 08/2020 - **Marie Curie Research Leaders 2025-Postdoc Fellowship**. Programme for developing the Next Generation of Agri-Food Research Leaders, Austria/Ireland [granted, but excused/declined the grant].
- 08/2016 - **PhD Fellowship** for four years [Ghent University, Belgium].
- 09/2015 - **Erasmus+** Student Mobility for Studies, Center for Analytical Chemistry, Universität für Bodenkultur Wien [Tulln, Austria].
- 09/2014 - **Erasmus+** Student Mobility for Placement, *IfADo* Institute [Dortmund, Germany].
- 09/2012 - **Turkish Government Scholarship** for Master's degree [Ankara, Türkiye].

### Travel Grants

- 2023 - National Demonstration Base for Talent Introduction Grant (17,000 RMB) to visit the Institute of Food Science and Technology, Chinese Academy of Agricultural Sciences, Beijing, **China**.
- 2023 - Conference Travel Award (€500) Faculty of Bioscience Engineering-UGent to attend the 44th Mycotoxin-Workshop, Celle (at Hannover), **Germany**.
- 2022 - Workshop Travel Award from the Research Foundation - Flanders (FWO) to attend the Applied *In Vitro* Toxicology Course, **Luxembourg**.
- 2022 - Conference Travel Award (€500) Faculty of Bioscience Engineering-UGent to attend the XVIth International Congress of Toxicology (ICT 2022), Maastricht, **the Netherlands**.
- 2018 - Conference Travel Award (€1,000) Faculty of Pharmaceutical Sciences-UGent to attend the 2nd International MycoKey Conference, Wuhan, **China**.
- 2017 - Conference Travel Award (€750) Faculty of Pharmaceutical Sciences-UGent to attend the 3rd International Mass Spectrometry School, Dubrovnik, **Croatia**.

### Scientific Awards

- 2022 - **Best Oral Presentation** from Toxins journal (Fungi & Mycotoxins in Climate Change Symposium, Croatia).
- 2019 - **Young Scientist Winner** [Invited speaker★] (Eurachem Workshop, Estonia).
- 2018 - **Best Poster Award** from Toxins journal (2<sup>nd</sup> African Symposium on Mycotoxicology, Kenya).

### Funded Projects

- 2024 - Research Project (2024-2025): Optimizing a "one-plate method" for a high throughput toxicity Screening (€5,000), funded by UMONS Research Institute for Health Sciences and Technology (Action Kangaroo) [role:- **main researcher and budget holder★**].
- 2023 - Research project (2023-2026): Genotoxicity of microplastics project (TL 1101990,66) funded by Istanbul Universiteit, Türkiye. [role:- international collaborator].
- 2023 - Postdoc Mandate Project (2023-2026): AF-CYSTIN-TOX project, funded by the Fund for Scientific Research (F.R.S.-FNRS), Belgium. [role:- **main researcher and budget holder★**].
- 2021 - Research project (2021-2022): AF-CYS Milk project (€11,000 ) funded by VLIRUOS Global Minds - UGENT Grant. [role:- **main researcher and budget holder★**].
- 2021 - Research project (2021-2023). CYANTIR project. Funded by FPS Health, Food Chain Safety and Environment. [role:- collaborator-member of UGENT team].
- 2021 - Horizon 2020 research(2021-2025). Grant agreement ID: 965173 IMPTOX project (€6 104 823). [role:- collaborator - member of UGENT team].
- 2020 - Postdoc Mandate Project (2020-2023): MICRO-TOX project, funded by The Special Research Fund (BOF), Ghent University. [role:- **main researcher and budget holder★**].
- 2018 - Research project (2018-2019) MYCOSUGAR project funded by VLIRUOS Global Minds-UGENT (€11,000). [role:- **main researcher★**].

## Memberships & Other Scientific Activities

### Member of the following Scientific Societies

- 2024 - Member of the Society of Toxicology.
- 2023 - **Board member** of the European Society of Toxicology *In Vitro* (ESTIV). Early Career Section.
- 2022 - **Expert group member**, Food Contaminant section, ILSI Europe
- 2022 - Member of the Society for Mycotoxin Research.
- 2020 - Member of the International Society of Mycotoxicology.

### Organizer & Host

- 2024 - **Member of the organizing and scientific committee** of The 22<sup>nd</sup> International ESTIV Congress, Prague, Czech Republic.
- 2017 - Member of the organizing team of The 1<sup>st</sup> MycoKey International Conference, Ghent, Belgium.

### Guest Editor

- 2023 - Toxins Journal [Special Issue "Current Research on Mycotoxins in Food and Feed: From Detection and Unravelling of Toxicity to Control"]. Submission deadline 31 December 2023.
- Frontiers in Veterinary Science Journal [Special Issue "Environmental Contaminants and Animal Health: Analysis, Toxicity, and Mitigation"]. Submission deadline 30 August 2022.
- 2022 - Frontiers in Veterinary Science Journal [Special Issue "Environmental Contaminants and Animal Health: Analysis, Toxicity, and Mitigation"]. Submission deadline 30 August 2022.

### Reviewer

- Journal of Hazardous Materials; Toxicon; Toxins; Metabolites; Food Processing and Preservation; Regulatory Toxicology and Pharmacology; Mycotoxin Research journal ; Environmental International; Science of the Total Environment; Food Chemistry; Food Control

## Scientific Output

### Summary

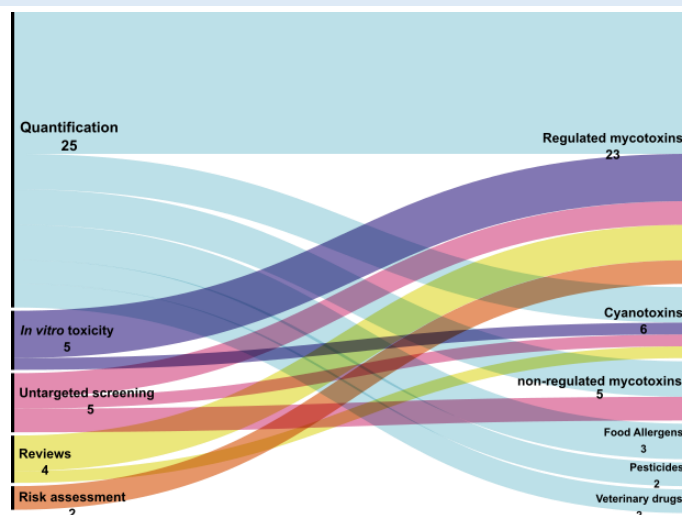
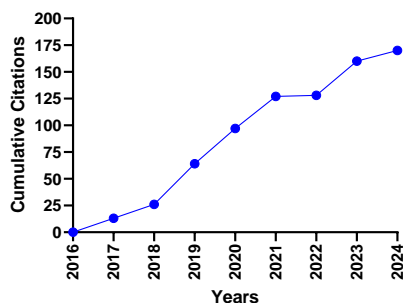
Total = 40 (until 10/10/2024)

First author: 15

Corresponding author: 12

Last author: 2

Times cited: Over 800 with H-Index: 14



Google Scholar link <https://scholar.google.com/citations?user=05FfukgAAAAJ&hl=en>

### Selected Research Articles (19 papers)

- 19) **MF Abdallah\***, JM Recote, C Van Camp, WHR Van Hassel, L Pedroni, L Dellafiora, J Masquelier, A Rajkovic. Potential (co-)contamination of dairy milk with AFM1 and MC-LR and their synergistic interaction in inducing mitochondrial dysfunction in HepG2 cells. Food and Chemical Toxicology Journal. <https://doi.org/10.1016/j.fct.2024.114907>.
- 18) WHR Van Hassel, **MF Abdallah**, MG Velasquez, C Miles, I Samdal, J Masquelier, A Rajkovic (2024). Experimental accumulation and depuration kinetics and natural occurrence of microcystin-LR in basil (*Ocimum basilicum* L.). Environmental Pollution, 123715.
- 17) GB Gonzales, D Khatiwada, M Rios, S Pletts, **MF Abdallah**, S Hussain, AB Petersen. Alternative ingredient for Lipid Nutritional Supplements (LNS) and RUTF: Risks and Opportunities. Nutrition Supply Forum 2023 – UNICEF-WHO.
- 16) K Aghebatbinyeganeh, M Movassa, **MF Abdallah** (2024). Seasonal variation and risk assessment of exposure to aflatoxin M1 in milk, yoghurt, and cheese samples from Ilam and Lorestan Provinces of Iran. J. Food Compos. Anal. 128, 106083
- 15) C Van Camp, W Van Hassel, **MF Abdallah**, J Masquelier (2023). Simultaneous Detection and Quantification of Aflatoxin M1, Eight Microcystin Congeners and Nodularin in Dairy Milk by LC-MS/MS. Chemosensors, 2023, 11(10), 511.
- 14) X Chen, **MF Abdallah**, C Grootaert, F Van Nieuwerburgh, A Rajkovic (2023). New insights into the combined toxicity of aflatoxin B1 and fumonisin B1 in HepG2 cells using Seahorse respirometry analysis and RNA transcriptome sequencing. Environment International, 107945.

- 13) Y Tian, **MF Abdallah**, M De Boevre, K Audenaert, C Wang, S De Saeger, A Wu (2023). Deciphering *Alternaria* metabolic responses in microbial confrontation via an integrated mass spectrometric targeted and non-targeted strategy. *Food Chemistry*, 134694. doi: 10.1016/j.foodchem.2022.134694.
- 12) H Zhang, Y Li, **MF Abdallah**, H Tan, J Li, S Liu, R Zhang, F Sun, Y Li, S Yang (2023). Novel one-point calibration strategy for high-throughput quantitation of microcystins in freshwater using LC-MS/MS. *Sci. Total Environ.*, 159345. doi: 10.1016/j.scitotenv.2022.159345.
- 11) F Sun, P Wu, **MF Abdallah**, H Tan, Y Li, S Yang (2023). One sample multi-point calibration curve as a novel approach for quantitative LC-MS analysis: the quantitation of six aflatoxins in milk and oat-based milk as an example. *Food Chemistry*, 135593. doi: 10.1016/j.foodchem.2023.135593.
- 10) X Chen, **MF Abdallah**, C Grootaert, A Rajkovic (2022). Bioenergetic status of the intestinal and hepatic cells after short term exposure to fumonisin B1 and aflatoxin B1. *Int. J. Mol. Sci.*, 23 (13), 6945.
- 9) I Vanhoutte, C De Tender, K Demeyere, **MF Abdallah**, et al., (2021). Bacterial Enrichment Cultures Biotransform the Mycotoxin Deoxynivalenol into a Novel Metabolite Toxic to Plant and Porcine Cells. *Toxins*, 13 (8), 552.
- 8) L De Colli, K De Ruyck, **MF Abdallah**, J Finnan, E Mullins, et al. (2021). Natural co-occurrence of multiple mycotoxins in unprocessed oats grown in Ireland with various production systems. *Toxins*, 13 (3), 188.
- 7) MF Abdallah\*, K Audenaert, SD Saeger, J Houbraken (2020). Revisiting an *Aspergillus flavus* Strain Isolated from an Egyptian Sugarcane Field in 1930. *Microorganisms*, 8 (11), 1633.
- 6) **MF Abdallah\***, K Audenaert, L Lust, et al., (2020). Risk characterization and quantification of mycotoxins and their producing fungi in sugarcane juice: A neglected problem in a widely-consumed traditional beverage. *Food Control*, 108, 106811.
- 5) **MF Abdallah\***, G Girgin, T Baydar (2019). Mycotoxin detection in maize, commercial feed, and raw dairy milk samples from Assiut City, Egypt. *Veterinary Sciences*, 6 (2), 57.
- 3) **MF Abdallah\***, R Krska, M Sulyok (2018). Occurrence of Ochratoxins, Fumonisin B2, Aflatoxins (B1 and B2), and Other Secondary Fungal Metabolites in Dried Date Palm Fruits from Egypt: A Mini-Survey. *J. Food Sci.*, 83 (2), 559-564.
- 2) **MF Abdallah**, G Girgin, T Baydar, R Krska, M Sulyok (2017). Occurrence of multiple mycotoxins and other fungal metabolites in animal feed and maize samples from Egypt using LC-MS/MS. *J. Sci. Food Agric.*, 97 (13), 4419-4428.
- 1) **MF Abdallah**, R Krska, M Sulyok (2016). Mycotoxin contamination in sugarcane grass and juice: first report on detection of multiple mycotoxins and exposure assessment for aflatoxins B1 and G1 in humans. *Toxins*, 8 (11), 343.

#### Selected Review Articles

- 4) K Aghebatbinyeganeh, **MF Abdallah\***, (2024). Overview of regional mycotoxin contamination in Iranian food. *Food and Humanity Journal*.
- 3) **MF Abdallah\***, M Gado, D Abdelsadek, et al., (2024). Mycotoxin contamination in the Arab world: Highlighting the main knowledge gaps and the current legislation. *Mycotoxin Research* 40 (1), 19-44.
- 2) X Chen, **MF Abdallah**, X Chen, A Rajkovic (2023). Current Knowledge of Individual and Combined Toxicities of Aflatoxin B1 and Fumonisin B1 *In Vitro*. *Toxins* 15 (11), 653.
- 1) **MF Abdallah\***, WHR Van Hassel, M Andjelkovic, A Wilmotte, A Rajkovic (2021). Cyanotoxins and Food Contamination in Developing Countries: Review of Their Types, Toxicity, Analysis, Occurrence and Mitigation Strategies. *Toxins*, 13 (11), 786.

#### Editorial Letters

- 3) **MF Abdallah\***, S Yang and E Varga (2024) Editorial on the Special Issue "Research on Mycotoxins in Food and Feed: From Detection and Unravelling of Toxicity to Control". *Toxins Journal*.
- 2) **MF Abdallah\***, W Xu and A Abdeen (2022) Editorial: Environmental contaminants and animal health: Analysis, toxicity, and mitigation. *Front. Vet. Sci.* 9:1102836.
- 1) **MF Abdallah\***, M De Boevre, K Audenaert, G Haesaert, S De Saeger (2018). Highlight report: Mycotoxins as food contaminants in Africa—challenges and perspectives. *Archives of Toxicology*, 92 (6), 2151-2152.

#### Oral and Poster Presentations (selection)

- 10) **MF Abdallah**. Mycotoxin contamination in the Arab world. The 18<sup>th</sup> Dubai International Food Safety Conference (DIFSC) 2024, October 20<sup>th</sup> – 23<sup>rd</sup>, Dubai, UAE (*Invited speaker*★).
- 9) **MF Abdallah**, JM Recote, C Van Camp, WHR Van Hassel, J Masquelier, A Rajkovic. Microcystin-LR and aflatoxin M1 contamination in dairy milk samples and their combined in vitro hepatotoxicity. The 57<sup>th</sup> Congress of the European Societies of Toxicology (EUROTOX) 2023, September 10<sup>th</sup>-13<sup>th</sup>, Ljubljana, Slovenia (Poster).
- 8) **MF Abdallah**, C Grootaert, A Rajkovic. Subtoxic doses of polystyrene nanoplastics and microcystin-LR affect the bioenergetic status of Caco-2 and HepG2 cells. XVII<sup>th</sup> International Congress of Toxicology 2022, September 18<sup>th</sup>-21<sup>st</sup>, the Netherlands (Poster).
- 7) **MF Abdallah**, B Gonzales, G Haesaert, K Audenaert, S De Saeger. Fungal endophyte exo-metabolites alter the morphology and metabolome of the plant pathogen *Fusarium graminearum*: an LC-MS based metabolomics approach to unravel the biocontrol effect. European RFMF-Metabomeeting 2020, January 22<sup>nd</sup>-24<sup>th</sup>, Toulouse, France (Poster).

6) **MF Abdallah**, B Gonzales, G Haesaert, K Audenaert, S De Saeger. LC-MS based metabolomics study to unravel the biocontrol effect of fungal endophytes against the plant pathogen *Fusarium graminearum*. Scottish Metabolomics Network symposium 2019, November 13<sup>th</sup>-15<sup>th</sup>, Glasgow, Scotland, UK (Oral).

5) **MF Abdallah**, G Haesaert, K Audenaert, S De Saeger. Biodiversity of mycotoxigenic fungi and their secondary metabolites in sugarcane juice. Food- and airborne fungi : challenges for food safety and supply. 2019, June 03<sup>rd</sup>- 05<sup>th</sup>, Freising, Germany (Oral).

4) **MF Abdallah**, G Haesaert, K Audenaert, S De Saeger. The use of high resolution mass spectrometric dereplication as a chemical approach for fungal identification and classification. Eurachem; Scientific workshop on Validation of targeted and non-targeted methods of analysis. 2019, May 20<sup>th</sup>- 21<sup>th</sup>, Tartu, Estonia (Oral) [**Awarded ★**].

3) **MF Abdallah**, S Landschoot, M De Boevre, S De Saeger, G Haesaert and K Audenaert. Biogenic volatile compounds (BVOCs) produced by fungal endophytes reduce zearalenone (ZEN) and trichothecenes produced by *Fusarium graminearum*. MycoKey, 2<sup>nd</sup> International conference. 2018, September 15<sup>th</sup>- 18<sup>th</sup>, Wuhan, China (Oral).

2) **MF Abdallah**, L. Lust, G. Haesaert, K. Audenaert, S. De Saeger and M. De Boevre. Dietary exposure to mycotoxins through the consumption of sugar cane juice in Egypt: The forgotten beverage. 2nd African Symposium on Mycotoxicology. 2018, June 24<sup>th</sup> – 27<sup>th</sup>, Mombasa, Kenya (Poster).

1) **MF Abdallah**, K Audenaert, M De Boevre, S De Saeger, G Haesaert and. Elucidation of the mode of action of new biological control agents against fusarium mycotoxins production using Q-TOF LC/MS. The 3<sup>rd</sup> International Mass Spectrometry School (IMSS). 2017, July 02<sup>nd</sup> – 08<sup>th</sup>, Dubrovnik, Croatia (Poster).

### Teaching Interest and Supervision Experience

**Teaching Interests:** Food Safety Course: Basic principles of food safety – assessing the risks linked to food contaminants – proposing strategies to ensure food safety throughout the food chain. This includes: **1)** Standards and food safety: applying food safety standards and risk management procedures; **2)** Toxic risks linked to food contaminants: assessing the risks associated with food contaminants; and **3)** Analysis of toxic contaminants in food: Recent advances using LC-MS/MS. In addition, **4)** Teaching the participation in a congress or symposium in the field of toxicology: effective communication on toxicology issues with different audiences.

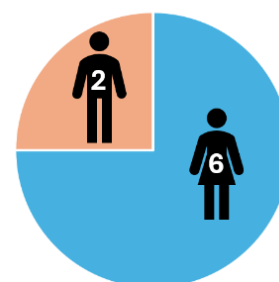
#### Supervision Experience:

1. Lab Tutor: Four Master's degree students (Centre of Excellence in Mycotoxicology and Public Health, Ghent University, Belgium).
2. Guided one PhD student (Department of Food Technology, Safety & Health, Faculty of Bioscience Engineering, Ghent University, Belgium)
3. Official co-promoter: Three Master's degree students (Department of Food Technology, Safety & Health, Faculty of Bioscience Engineering, Ghent University, Belgium)

#### Current Students:

- 1- Official co-promoter of three PhD students (two at University of Mons, Belgium and one at University of Biskra, Biskra, Algeria).

Mentored students



### Soft skills

I successfully completed 13 different courses through the Postdoc Talent Management Training (UGENT), which is tailor-made program to support postdoc in their professional and career development. 1) Stress management: how to prevent and reduce stress; 2) Agile leadership skills for postdoctoral researchers; 3) Career design Part 1: explore yourself; 4) Career design Part 2: explore the labor market; 5) Career design Part 3: brand yourself; 6) Storytelling: how to communicate with impact; 7) Creativity: how to get more creative ideas; 8) Positive Focus: how to boost your professional confidence; 9) Time management: how to grow your personal effectiveness; 10) Handling your fear of failure: how to reach your full potential; 11) How to grow your network with purpose; 12) Collaborating in a competitive environment; 13) Pitching communicate with impact.

### Current International collaboration and networking (based on running projects and publications)

- 1) Ghent University, Belgium; 2) University of Parma, Italy; 3) Sciensano, Belgium; 4) University of Veterinary Medicine Vienna, Austria; 5) University of Vienna, Austria; 6) Institute of Food Science and Technology, Beijing, PR China; 7) Institute for Agri-Food Standards and Testing Technology, Shanghai, PR China; 8) Istanbul University, Türkiye.

### References

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