MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	15/09/2021

Part A. PERSONAL INFORMATION

First and Family name	Belén Patiño Álvarez		
Social Security, Passport, ID number	50177212K	Age	51
Researcher numbers	Researcher ID	K-1825-2014	
	Orcid code	http://orcid.org/0000-0001-8568-9270	

A.1. Current position

Name of University/Institution	University Complutense		
Department	Genetics, Physiology and Microbiology		
Address and Country	José Antonio Novais, 12. 28045-Madrid		
Phone number	0034913944966	E-mail	belenp@ucm.es
Current position	Profesora Titular (full professor) Acreditada a Catedrática	From	14/12/2010
Espec. cód. UNESCO	2414; 241406, 310803,310802,310805,330990		
Palabras clave	Mycotoxins, molecular detection, control, food microbiology		

A.2. Education

PhD	University	Year
Biology (microbiology)	Complutense	1999

A.3. JCR articles, h Index, thesis supervised…

Sexennia of research: 4 last period 2011-2016 awarded on 19 June 2017**.**
Thesis Supervised in the last 10 years: 4, two of them with European mention and one of them extraordinary doctorate award.
Total citations for the past 5 years: 855 average citations/year: 171 Total citations: 1719
Total publications in first quartile (Q1): 32
Index h: 24

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

My research activity has developed mainly in two lines of research: the first line the detection, identification and control of mycotoxin-producing fungi (mainly belonging to the genus *Aspergillus, Penicillium* and *Fusarium*) related to the agro-food industries due to their importance in the contamination of raw materials and derivatives and their repercussion on human and animal health. A second line developed mainly in the PhD period is focused on the study of host-pathogen interactions, in the model system: *Fusarium*-tomato, focused on the degrading proteins of the cell walls of the fungus: their biochemical characterization, their genetic control and their functional role in pathogenesis.
In the first line is the framework of the project we are applying for and my work has focused on developing methods for early detection of the fungi that produce these toxins to prevent their entry into the food chain, to know better the routes of synthesis of different mycotoxins, and to develop alternative control methods to fungicides. I have always worked with funding (2 European projects, 10 national, 8 from the Community of Madrid and 4 from the Complutense University), being in two of them PI. The researches derived from these projects have been published in 41 articles in international impact journals, most of them Q1 and 9 in other scientific journals, as well as 15 book chapters. The results have also been shown in more than 100 congresses between international and national. They have also been materialized in 2 national patents. Likewise, in the line of mycotoxins I have supervised 4 doctoral thesis, 2 of them with European mention, obtaining one of them in addition the

extraordinary award of doctorate. I am currently supervising other thesis. The research groups in which I have worked have always been multidisciplinary, bringing together researchers from different branches of biology, as well as from different national or foreign research centers. This has made possible a 2-year Postdoctoral stay in Bari and several short stays in other national and international research centers. I have also collaborated with different companies in carrying out specific analyses and scientific and technical advice, as well as in carrying out scientific reports. I have also participated in 14 articles 83.

Part C. RELEVANT MERITS

C.1. Publications (including books)

- Gómez-Albarrán, C; Melguizo, C.; Patiño, B.; Vázquez, C.;Gil-Serna, J. Diversity of Mycobiota in Spanish Grape Berries and Selection of Hanseniaspora uvarum U1 to Prevent Mycotoxin Contamination. Toxins 2021,13, 649.
- Gil-Serna, J.; Vázquez, C.; Patiño, B. The Genomic Regions That Contain Ochratoxin A Biosynthetic genes widely differ in Aspergillus Section Circumdati Species. Toxins 2020,12, 754.
- Gil-Serna, J.; Vázquez, C.; Patiño, B. Mycotoxins in Functional Beverages: A Review. Beverages 2020, 6, 52.
- García-Díaz, M.; Gil-Serna, J.; Patiño, B.; García-Cela, E.; Magan, N.; Medina, Á. Assessment of the Effect of Satureja montana and Origanum virens Essential Oils on Aspergillus flavus Growth and Aflatoxin Production at Different Water Activities. Toxins 2020, 12, 142.
- Gil-Serna, J., Vázquez, C. & Patiño, B. Genetic regulation of aflatoxin, ochratoxin A, trichothecene, and fumonisin biosynthesis: A review. Int Microbiol 23, 89–96 (2020). https://doi.org/10.1007/s10123-019-00084-2
- García-Díaz, M.; Gil-Serna, J.; Vázquez, C.; Botia, M.N.; Patiño, B. A Comprehensive Study on the Occurrence of Mycotoxins and Their Producing Fungi during the Maize Production Cycle in Spain. Microorganisms 2020, 8, 141.
- García-Díaz, M.; Patiño, B.; Vázquez, C.; Gil-Serna, J. A Novel Niosome-Encapsulated Essential Oil Formulation to Prevent Aspergillus flavus Growth and Aflatoxin Contamination of Maize Grains During Storage. Toxins 2019, 11, 646.
- Gil-Serna, J., García-Díaz, M., Vázquez C .and Patiño, B. Significance of Aspergillus niger aggregate species as contaminants of food products in Spain regarding their occurrence and their ability to produce mycotoxins. Food Microbiology. 82: 240-248 (2019).
- Patiño, B., Vázquez, C., Manning JM., Roncero MIG., Córdoba-Cañero D., Di Pietro A. and Martínez-Del-Pozo Á. Characterization of a novel cysteine-rich antifungal protein from *Fusarium graminearum* with activity against maize fungal pathogens. International journal of food microbiology. 283:45-51 (2018)
- Gil-Serna, J., Vázquez C., González-Jaén, M.T. and Patiño, B. Wine Contamination with Ochratoxins: A Review. Beverages. 4:6 (2018**)**
- Gil-Serna, J.,García-Díaz, M., González-Jaén, M.T., Vázquez C. and Patiño, B. Description of an orthologous cluster of ochratoxin A biosynthetic genes in *Aspergillus* and *Penicillium* species. A comparative analysis. International Journal of food Microbiology. 268:35-43 (2018)
- Gil-Serna, J., Patiño, B. and Vázquez, C. *Control biológico con microorganismos antagónicos para reducir la contaminación por micotoxinas.* In: De Cal, A., Melgarejo, P. Control Biológico de Enfermedades Postcosecha. Phytoma. Spain. Pp. 243-249. (2017)
- Peltomaa, R., Vaghini, S., Patiño, B., Benito-Peña, E and Moreno-Bondi, M.C. Species-specific optical genosensors for the detection of mycotoxigenic Fusarium fungi in food samples. Analytica Chimica Acta. 935:231-238 (2016)
- - Gil-Serna, J., Vázquez, C., González-Jaén, M.T. and Patiño, B. Clustered array of ochratoxin A biosynthetic genes in Aspergillus steynii and their expression patterns in permissive conditions.International Journal of Food Microbiology. 214:102-108 (2015)
- Gil-Serna, J., Patiño, B., Cotés, L.,González-Jaén, M.T. and Vázquez, C. *Aspergillus steynii* and Aspergillus westerdijkiae as potential risk of OTA contamination in food products in warm climates. Food Microbiology. 46:168-175. (2015)

- Gil-Serna, J.,Vázquez, C., García-Sandino, F., Márquez, A., González-Jaén, M.T and Patiño, B. Evaluation of growth and ochratoxin A production by *Aspergillus steynii* and *Aspergillus westerdijkiae* in green-coffee based medium. Food Research International. 61: 127-131(2014)
- Gil-Serna, J., Vázquez, C., Gonzaléz-Jaén., M.T, and Patiño, B. *Mycotoxins: Toxicology.* In: Batt, C., Tortorello, M.L. (Eds.). Encyclopedia of Food Microbiology, vol 2. Elsevier Ltd, Academic Press. UK. Pp. 887-892. (2014)
- Gil-Serna, J., Mateo, E., González-Jaén, M.T., Jiménez, M., Vázquez, C. and Patiño B. Contamination of barley seeds with *Fusarium* species and their toxins in Spain: an integrated approach. Food additives and Contaminants. 30: 372-380. (2013)
- Gil-Serna, J., Patiño, B ., Cortés, L., Gonzaléz-Jaén., M.T., and Vázquez, C. Mechanisms involved in reduction of ochratoxin A produced by *Aspergillus westerdijkiae* using *Debaryomyces hansenii* CYC 1244.International Journal of Food Microbiology. 151: 113-118 (2011)
- Sardiñas, N., Vázquez, C., Gil-Serna, J., Gonzaléz-Jaén., M.T and Patiño, B. Specific detection and quantification of *Aspergillus flavus* and *Aspergillus parasiticus* in wheat flour by SYBR® Green quantitative PCR. International Journal of Food Microbiology. 145:121-125. (2011)
- Gil-Serna, J., Vázquez, C., Sardiñas, N., Gonzaléz-Jaén., M.T and Patiño, B. Revision of ochratoxin a production capacity by the main species of Aspergillus section circumdati. *Aspergillus steynii* revealed as the main risk of OTA contamination. Food Control. 22: 343-345 (2011).
- Sardiñas, N., Vázquez, C., Gil-Serna, J., Gonzaléz-Jaén., M.T y Patiño, B. Specific detection of *Aspergillus parasiticus* in wheat flour by a highly sensitive PCR assay. Food Additives and Contaminants. 27: 853-858 (2010)
- Gil-Serna, J., Vázquez, C., Sardiñas, N., Gonzaléz-Jaén., M.T y Patiño, B. Discrimination of the main Ochratoxin A-producing species in *Aspergillus* section Circumdati by specific PCR assays. International Journal of Food Microbiology. 136: 83-87 (2009)
- González-Salgado, M.T., Patiño, B.,Gil-Serna, J., Vázquez, C. and Gonzaléz-Jaén., M.T.Specific detection of *Aspergillus carbonarius* by SYBRsGreen and TaqMans quantitative PCR assays based on the multicopy ITS2 region of the rRNAgene. FEMS Microbiology Letters. 295: 57-66 (2009)
- Gil-Serna, J., González-Salgado, A., Gonzaléz-Jaén., M.T. Vázquez, C. and Patiño, B. ITS-based detection and quantification of *Aspergillus ochraceus* and *Aspergillus westerdijkiae* in grapes and green coffee beans by real-time quantitative PCR. International Journal of Food Microbiology 131:162-177 (2009)

C.2. Research projects and grants

-Search for the main responsible agent for contamination by type A trichothecenes in Spain and comparison with the European scenario (Ref. PR65/19-22428). Financially supported by: Comunidad de Madrid (41.000). July 2020 - June 2022. PI: Jéssica Gil Serna. Complutense University Madrid.

- Risk assessment of mycotoxins in organic crops and development of novel control strategies based on CRISPR-CAS9, probiotic bacteria and bioactive packaging. (RTI2018-097593-B-C21) Financially supported by Ministerio de Ciencia Innovación y Universidades (211.750 Euros). January 2019- December 2022. PI Belén Patiño. Complutense University Madrid.

- A proposal committed to quality and safety of Spanish cereals: sustainable strategies to detect and reduce emerging fungi and mycotoxin risk. (Ref: AGL2014-53928-C2-2-R). Financially supported by Ministerio de Economía y Competitividad (187.550 euros). January 2015 – December 2018. PI: Mª Teresa González-Jaén and Belén Patiño. Complutense University Madrid.

- Characterization and comparative genomic analysis of pathogenicity in the fungus *Colletotrichum graminicola*. (Ref: SA165U13). Financially supported by Comunidad de

Castilla León (34.992,00 euros). January 2013 – December 2016. PI: Michael Thon. Salamanca University

- Climate change and new food habits: new scenarios challenging Food Safety Objectives for mycotoxin risk in Spain (Ref: AGL2010-22182-C04-01/ALI). Financially supported by Ministerio Ciencia y Tecnología (70.000 euros). January 2010 – December 2013. PI: Mª Teresa González-Jaén Complutense University Madrid

- Mold and yeast of interest in agrofood (GR58/08). Financially supported by Complutense University-Santander Central Hispano (14.400 euros) January 2009 – December 2010. PI: Covadonga Vázquez Estévez Complutense University Madrid

- Simultaneous occurrence of mycotoxins in food. Potential and real hazard assessment. (Ref: AGL2007-66416-C05-2/ALI). Financially supported by Ministerio de Educación y Ciencia (100.000 euros) January 2007 – December 2010. PI: Mª Teresa González-Jaén Complutense University Madrid

C.3. Contracts

Efecto de las prácticas agrícolas sobre la microbiota del suelo y su relación con las especies productoras de micotoxinas. Caracterización de posibles agentes de control biológico en suelo (Ref PR2006_19/01). Financially supported cátedra Agrobank de Caixabank (12.350 Euros) Febrero 2020- noviembre 2020. PI: Belén Patiño.

Efecto de Agrocid sobre la viabilidad de Enterococcus faecium (Ref: 221-2019). Financially supported EVONIK NUTRITION & CARE GMBH (1.250,00 Euros). PI: Belén Patiño

Effect of ECOBIOL (*B. amyloliquefaciens*) on aflatoxins (Ref. 4155981, 49/2016). Financially supported by NOREL SL. February 2016 – March 2016. PI: Belén Patiño. Universidad Complutense de Madrid.

Quantification of the effect of ECOBIOL on aflatoxins and designing a selective medium for *Bacillus amyloliquefaciens*. (Ref. 4156017, 126/2016). Financially supported by NOREL SL. April 2016 – August 2016. PI: Belén Patiño. Universidad Complutense de Madrid.

Genetic identification of plant varieties. Financially supported by Special new fruit licensing mediterraneo, S.L (27.120,28 euros). April 2010 - March 2011. PI: Mª Teresa González-Jaén Complutense University.

C.4. Patents

C.5 PROJECT EVALUATOR

I participate as evaluator for the ANEP and the national agency of scientific and technological promotion of Argentina

C.6 Thesis and final master project supervised

Thesis:

Dr. Amaia Gonzalez Salgado. Diagnosis and control of ochratoxin A producing *Aspergillus* species. (2009). Sobresaliente *cum laude*. European doctorate. Current work: Nestle Suiza

Dr. Jéssica Gil Serna. Ochratoxin A production in the main species of *Aspergillus circumdati* section. Study of the genes involved. Methods of detection and control. (2011). Sobresaliente *cum laude*. European doctorate. Doctoral Award. Current work: University Complutense.

Dr. María Arias Martin. Risks and benefits of Bt maize insect resistant (MON810) in Spain. (2016). Sobresaliente *cum laude*. Current work: CSIC

Marta García Díaz. Detección de especies potencialmente toxígenas de Aspergillus y Fusarium en maíz y avena. Diseño de nuevas estrategias sostenibles para su control (2021). Sobresaliente *cum laude*

Master

-Zury Hernández Restrepo. Effect of yeasts on growth and ochratoxin A production of Aspergillus steynii. grade 8,0. July 2011

-Laura Sierra Zapata. Control of *Aspergillus* strains Ochratoxin A producer belonging section Nigri section with yeasts: evaluation of its biocontrol potential and OTA production reduction grade 9,0. July 2012

Doctorate Mentor

Rocío García Rubio 2014-2018, Felipe Salas de la Cuadra 2015-currently, María Molina Gutierrez 2017- currently

C.7 Institutional responsibilities.

Member of board of the faculty of Biology from 2002 till now

Membership of the board of the specialized group of filamentous fungi and yeasts of the Spanish Society of Microbiology from 2012 to 2016.

C.8 memberships of scientific societies

Membership of Spanish society of microbiology

Membership of European society of Microbiology