

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Alicia		
Family name	Lorenzana de la Varga		
Gender (*)	Female	Birth date	07/07/1974
Social Security, Passport, ID number	241006342870	09798181C	P-7509-2017
e-mail	alorv@unileon.es	URL Web	
Open Researcher and Contributor ID (ORCID)		0000-0001-6293-7796	

A.1. Current position

Position	Full University Professor		
Initial date	25-02-2022		
Institution	University of León (Spain)		
Department/Center	Agrarian Sciences and Engineering	School of Forestry and Agricultural Engineering (EIAF)	
Country	Spain	Teleph. number	34 987291835
Key words	<i>Trichoderma, Xylotrechus, Biocontrol, Integrated Pest Management, Soil fungi</i>		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
1995-1996	Learning stay/Montford University, HND in Agriculture/ Lincoln, United Kingdom
1998	Learning stay/Agronomy Faculty of Santa Rosa/Argentina
1999-2004	Research fellow of the University of León, Diagnostic Laboratory of Vegetable Pests and Diseases. Foundation Chicarro-Canseco-Banciella – School of Forestry and Agricultural Engineering/University of León/Spain
2004-2007	Adjunct Professor/ University of León/Spain
2005-2007	Autonomous Agricultural Engineer, Foundation Chicarro-Canseco-Banciella, under the auspices of the Ministry of Agriculture and Fisheries, Food and Environment University of León/Spain
2007-2010	Assistant Professor/ University of León/Spain
2010-2022	Associate Professor/University of León/Spain , interruption 5 months (1 maternity leave

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Technical Agricultural Engineer	University of León (Spain)	1996
Agricultural Engineer	University of León (Spain)	1999
Ph.D. in Agricultural Engineering	University of León (Spain)	2006

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I am a member of a multidisciplinary group composed by agronomists (plant production) and microbiologists which has been recognized as a Consolidated Research Unit (number 264) by the Regional Government of “Castilla y León” (Spain). I also belong to the Research Group “Sustainable Agriculture and Engineering” of the University of León (Spain) from 2009.

As an agricultural engineer working on phytopathology and entomology, I have published 22 SCI-journals (239 citations) in relevant scientific publications in this area, such as Journal of Fungi, European Journal of Plant Pathology, Agronomy, *Journal of Economic Entomology*, *Journal of Stored Products Research*, *Frontiers in Plant Science*, *Crop Protection and Plant Disease* among others. Likewise, I

have been the author of 2 books, 33 chapters of books and 12 popular scientific articles. I have directed 22 end-of-career projects, end-of-degree and end-of-master works related to plant health. I am co-author of more than 100 communications to congresses and seminars, both national and international. I have participated in 64 research projects and contracts with different public entities and companies, mostly related to the protection of the crops and oriented to the integrated control of them, being the principal investigator in 3 of them. In 1999 I launched the Laboratory of Vegetable Pests and Diseases in the School of Forestry and Agricultural Engineering of the University of León (Spain), financed by the Foundation Chicarro-Canseco-Banciella, whose objectives are the detection of health problems in crops and the search for integrated control methods. Another objective of this Laboratory is the training of young researchers. Thus, numerous doctoral theses have been developed in which I have collaborated in different ways. In this laboratory I developed my research activity for more than ten years, continuing with it from the position of full university professor, which today I occupy. As a result of this activity, important results have been transferred to my sector, maintaining a continuous relationship with other researchers, professionals and farmers. My current scientific challenge focuses on the biological control of soil fungi. The research team of which I am a part is a reference in the dialogue *Trichoderma*-plant, and our objective is to deepen the skills of *Trichoderma* as a beneficial fungus for agriculture and know its mechanisms of action in interaction with plants.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

- Rosa E. Cardoza, Sara Mayo-Prieto, Natalia Martínez-Reyes, Susan P. McCormick, Guzmán Carro-Huerga, M. Piedad Campelo, Álvaro Rodríguez-González, **Alicia Lorenzana**, Robert H. Proctor, Pedro A. Casquero and Santiago Gutiérrez (2022). Effects of trichothecene production by *Trichoderma arundinaceum* isolates from bean-field soils on the defense response, growth and development of bean plants (*Phaseolus vulgaris*). *Frontiers in Plant Science*, 13:1005906. <https://doi.org/10.3389/fpls.2022.1005906>. JCR: 6,627; Category: Plant Science (20/239), Q1.
- Álvaro Rodríguez-González, Guzmán Carro-Huerga, Marcos Guerra, Sara Mayo-Prieto, Alejandra Juana Porteous-Álvarez, **Alicia Lorenzana**, María Piedad Campelo, Alexia Fernández-Marcos, Pedro Antonio Casquero and Santiago Gutiérrez (2022). Spores of *Trichoderma* strains over *P. vulgaris* beans: direct effect on insect attacks and indirect effect on agronomic parameters. *Insects*. <https://doi.org/10.3390/insects13121086>. JCR: 3,141; Category: Entomology (17/100), Q1.
- Alejandra J. Porteus Álvarez, M. Mercedes Maldonado-González, Sara Mayo-Prieto, **Alicia Lorenzana**, Ana I. Paniagua-García y Pedro A. Casquero (2021). Green strategies of powdery mildew control in hop: from organic products to nanoscale carriers. *Journal of Fungi*, 7 (6), 490. <https://doi.org/10.3390/jof7060490>. JCR (2020): 5,816; 2 citations; Cat.: Microbiology (24/137), Q1.
- S. Mayo Prieto, M.P. Campelo, **A. Lorenzana**, A. Rodríguez-González, B. Reinoso, S. Gutiérrez, P.A. Casquero (2020). Antifungal activity and bean growth promotion of *Trichoderma* strains isolated from seeds vs soil. *European Journal of Plant Pathology*, 158 (4): 817-828. <https://doi.org/10.1007/s10658-020-02069-8>. JCR: 1,907; 12 citations; Category: Agronomy (41/91), Q2.
- Sara Mayo-Prieto, Álvaro Rodríguez-González, **Alicia Lorenzana**, Santiago Gutiérrez, Pedro A. Casquero (2020). Influence of substrates in the development of bean and in pathogenicity of *Rhizoctonia solani* JG Kühn. *Agronomy*, 10 (5), 707. <https://doi.org/10.3390/agronomy10050707>. JCR: 3,417; 3 citations; Category: Agronomy (16/91), Q1.
- Laura Lindo, Rosa E. Cardoza, **Alicia Lorenzana**, Pedro A. Casquero, Santiago Gutiérrez (2020). Identification of plant genes putatively involved in the perception of fungal ergosterol-squalene. *Journal of Integrative Plant Biology*, 62 (7): 927-947. <https://doi.org/10.1111/jipb.12862>. JCR: 7,061; 9 citations; Category: Plant Sciences (12/235), Q1.
- Álvaro Rodríguez-González, María Piedad Campelo, **Alicia Lorenzana**, Sara Mayo-Prieto, Óscar González-López, Samuel Álvarez-García, Santiago Gutiérrez, Pedro Antonio Casquero (2020): Spores of *Trichoderma* strains sprayed over *Acanthoscelides obtectus* and *Phaseolus vulgaris* L. beans: effects in the biology of the bean weevil. *Journal of Stored Product Research*, 88, 101666. <https://doi.org/10.1016/j.jspr.2020.101666>. JCR: 2,643; 17 citations; Cat.: Entomology (20/102), Q1.
- Álvaro Rodríguez González, Pedro A. Casquero Luelmo, Víctor Suárez Villanueva, Guzmán Carro Huerga, Samuel Álvarez García, Sara Mayo Prieto, **Alicia Lorenzana de la Varga**, Rosa Elena Cardoza, Santiago Gutiérrez Martín (2018): Effect of trichodiene production by *Trichoderma*

harzianum on *Acanthoscelides obtectus*. *Journal of Stored Products Research* 77: 231-239. <https://doi.org/10.1016/j.jspr.2018.05.001> . JCR: 1,954; 14 citations; Cat.: Entomology (22/98), Q1.

- **Alicia Lorenzana**, Alfonso Hermoso de Mendoza, M. Victoria Seco, M. Piedad Campelo, Pedro A. Casquero (2017): Within-plant distribution of *Phorodon humuli* (Hemiptera: Aphididae) and natural enemies on hops with implications for sampling and management. *Entomological Science* 20(1): 443-450. <https://doi.org/10.1111/ens.12273> . JCR: 1,069; 2 citations; Category: Entomology (45/96), Q2.
- Mayo, S., Gutiérrez, S., Malmierca, M.G., **Lorenzana, A.**, Campelo, M.P., Hermosa, R., Casquero, P.A. (2015): Influence of *Rhizoctonia solani* and *Trichoderma* spp. in growth of bean (*Phaseolus vulgaris* L.) and in the induction of plant defense-related genes. *Frontiers in Plant Science*, 6 (685). <https://doi.org/10.3389/fpls.2015.00685> . JCR: 4,495; 76 citations; Cat.: Plant Science (15/209), Q1.

C.2. Congress

- Casquero, P. A.; Cardoza, R. E.; Mayo-Prieto, S.; Gutiérrez, S. (8/10). (2023). Native *Trichoderma* strains to improve defense response and development of dry beans (*Phaseolus vulgaris*). 4th International Legume Society Conference. Granada, Spain. Oral flash presentation.
- Mayo-Prieto, S.; **Lorenzana, A.**; Campelo, M. P.; Casquero, P. A. (2/13) (2022). Antifungal activity and growth promotion in beans of autochthonous strains of *Trichoderma* isolated from seeds and cultivation soils of local varieties of beans. X Congress on Genetic Improvement of Plants. Pontevedra, Spain. Poster.
- Mayo-Prieto, S.; Squarzon, A.; Rodríguez-González, A.; Casquero, P. A. (4/10) (2018). Pesticides influence on the development of *Trichoderma* spp. 19th Congress of the Spanish Society of Phytopathology. Toledo, Spain. Poster.
- Mayo, S.; Rodríguez-González, O.; González-López, A.; **Lorenzana, A.**; Carro-Huerrga, G.; Campelo, M. P.; Gutiérrez, S. & Casquero, P. A. (2017). Effect of farmesol production of *Trichoderma* and the development of bean (*Phaseolus vulgaris* L.). 15th Congress of the Mediterranean Phytopathological Union. Córdoba, Spain. Poster.
- **Lorenzana, A.**; Rodríguez, S.; Mayo, S.; Campelo, M. P. & Castedo-Dorado, F. (2017). The importance of identifying the vegetative compatibility types of chesnut blight (*Cryphonectria parasitica*) at local level. Case study in a stand of El Bierzo (León). 15th Congress of the Mediterranean Phytopathological Union. Córdoba, Spain. Poster.
- Dapena, E.; Marcos, M. F.; Fernández, I.; Blasquez, M. D.; Campelo, M. P.; **Lorenzana, A.** & Gómez-Bernardo, E. M. (2016). Fire blight sensitivity evaluation of the progeny of 'Meana' x 'Florina'. 18th Congress of the Spanish Society of Phytopathology. Palencia, Spain. Poster.
- Mayo, S.; Rodríguez-González, A.; González-López, O.; **Lorenzana, A.**; Carro, G.; Campelo, M. P.; Gutiérrez, S. & Casquero, P. A. (2016). *Trichoderma* spp. evaluation against *Rhizoctonia solani* in bean growth. 18th Congress of the Spanish Society of Phytopathology. Palencia, Spain. Poster.
- Crespo, V.; Castedo-Dorado, F.; Campelo, M. P.; Marcos, M. F. & **Lorenzana, A.** (2016). Incidence and severity of foliar mycoses evaluation in clones of *Populus x euramericana* and *P. x interamericana* in the Esla river valley (León)). 18th Congress of the Spanish Society of Phytopathology. Palencia, Spain. Poster.
- Mayo, S.; Rodríguez-González, A.; González-López, O.; **Lorenzana, A.**; Carro, G.; Campelo, M. P.; Gutiérrez, S. & Casquero, P. A. (2016). Substrates in vitro selection for optimal development of *Trichoderma* using the qPCR technique. VI Congress of Industrial Microbiology and Microbial Biotechnology. León, Spain. Poster.
- Mayo, S.; González, O.; Rodríguez, A.; **Lorenzana, A.**; Campelo, M. P.; Gutiérrez, S. & Casquero, P. A. (2016). Influence of *Rhizoctonia solani* and *Trichoderma harzianum* in the induction of common bean plant defence-related genes. Congreso Iberoamericano de Biotecnología. Salamanca, Spain. Poster.

C.3. Research projects

- **PID2021-123874OB-I00** "Isolation of bacterial strains capable of de-epoxidating trichotecenes from bean and hops cultures colonized by *Trichoderma* strains producing these mycotoxins". **Financing Institution (FI)**: State Investigative Agency-Ministry of Science and Innovation (Spain). **PI**: Santiago Gutiérrez Martín and Pedro A. Casquero Luelmo. University of León. 2022-2025. **Role**: Member of the research team (MRT).

- **RTI2018-099600-B-I00** “Isolation of *Trichoderma* strains producing trichotecenes from bean crops and study of their effect on the defense of the plant against fungal diseases”. FI: State Investigative Agency-Ministry of Science and Innovation (Spain). PI: Santiago Gutiérrez Martín. University of León. 2019-2021, 84700 €. Role: MRT.
- **2019/00004/001 (ULE)** “Operative Group Spanish Quality Hops”. FI: Ministry of Agriculture, Fishing and Food (Spain). PI: Pedro A. Casquero Luelmo. University of León. 2019. 5313,5 €. Role: MRT.
- **LE251P18** “Implementation of *Trichoderma* strains in the sustainable production of quality beans”. FI: Castilla y León Regional Government (Spain). PI: Pedro A. Casquero Luelmo. University of León. 2018-2021. 120000 €. Role: MRT.
- **AGL2015-70671-C2-2-R** “Importance of membrane sterols of *Trichoderma* in the nitrogen use efficiency (NUE) of plants. Cloning of genes encoding for ergosterol and squalene receptors in tomato plants”. FI: Ministry of Economy and Competitiveness (Spain). PI: Santiago Gutiérrez. University of León. 2016-2018, 40000 €. Role: MRT.
- **LE228014** “Effect of terpenes and physiologically related compounds produced by *Trichoderma parareesei* in the development of common bean (*Phaseolus vulgaris*, L.) and in the defense responses in bean plants”. FI: Castilla y León Regional Government. PI: Pedro. A. Casquero. University of León. 2015-2017, 29000 €. Role: MRT.
- **AGL2012-40041-C02-02** “TRICHOCLOCK: farnesol as an auto-regulated molecule: signaling of tyrosol and farnesol in the interaction *Trichoderma*-bean”. FI: Ministry of Economy and Competitiveness (Spain). PI: Santiago Gutiérrez, University of León. 2013-2015, 76500 €. Role: MRT.
- **PHBT14/01067** “Biotechnological potential of plant species and microorganisms”. FI: Ministry of Education, Culture and Sports (Spain). PI: Pedro A. Casquero, University of León. 2015, 7000 €. Role: MRT.
- **RF2010-00005-C05-03** “Regeneration and documentation of the national collections of bean for its conservation: Characterization of the Natural Collection of the CRF, design and implementation of web page for its diffusion”. FI: Ministry of Science and Innovation (Spain). PI: Pedro A. Casquero, University of León. 2010-2013, 21000 €. Role: MRT.
- **LE57/02** “Determination of treatment thresholds against hop aphid (*Phorodon humuli* Schrank) and importance of natural enemies such as control elements”. FI: Castilla y León Regional Government (Spain). PI: M^a Victoria Seco, University of León. 2002-2004, 14075 €. Role: MRT.

C.4. Contracts, technological or transfer merits

- **2020/00216/001 (University of León, ULE)** “Application of *Trichoderma* strains in sustainable vine production: effects on pH regulation and improvement of wine quality ” as part of the project CDTI-CIEN “Study of new factors related to soil, plant and oenological microbiota that influence the acidity balance of wines and their guarantee of quality and stability in hot climates” (LOWPH-WINE 2020). FI: Center for the Industrial-technological development (CDTI-Spain). University of León. 2020-2024. 166980 €. Role: MRT.
- **IDI-20160750** “Global approach to improve wine production against the climate change based on robotics, IR technology and on biotechnological and wine-yard handling strategies. Effect of *Xylotrechus arvicola* in the transmission of vine-wood diseases: use of *Trichoderma* in biological control of the insect and the disease”. FI: Center for the Industrial-technological development (CDTI-Spain). University of León (Spain). 2016-2020. 197593 €. Role: MRT.
- **1999/00053/001(ULE)** “Creation and maintenance of a Laboratory for the diagnosis of diseases and pests”. FI: Foundation Chicarro-Canseco-Banciella. PI: Eva M^a Gómez-Bernardo, University of León. 1999-2018, 377989 €. Role: MRT.
- **2023/00035/001 (ULE)** “Testing corn varieties under deficit irrigation”. FI: Spanish National Research Council, Biological Mission of Galicia. PI: Pedro A. Casquero. 2023-2024, 8470 €. Role: MRT.
- **2020/00060/001 (ULE)** “Apple scab perithecia maturity evaluation test”. FI: Castilla y León Regional Government. Pedro A. Casquero. 2020, 3618 €. Role: MRT.