

Ainhoa

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Summary of Qualifications

I am a food science predoctoral researcher currently focused on improving the quality and nutritional value of gluten-free flour-based products. My main areas of expertise are flour physical modification, flour characterization and bakery products formulation and evaluation.

My goal is to help consumers to have more nutritious, tasty and sustainable food products through research and development of new products. I believe in the importance of scientific dissemination, so I work to ensure that my research reaches all stakeholders and general population.

Education

- nov 2020 – present **PhD in Agri-Food and Biosystems Science and Engineering**
PROCERALtech research group, University of Valladolid (Spain).
Directors: Dra. Felicidad Ronda and Dr. Pedro A. Caballero
Doctoral Thesis: Innovative treatment of cereal and pseudocereal grains as a strategy to improve the quality and nutritional value of gluten-free products.
- sept 2018 – jun 2020 **Master in Agronomic Engineering**
Higher Technical School of Agricultural Engineering, University of Valladolid (Spain)
MSc thesis: Microwave treatment of buckwheat grains to improve the functional and nutritional properties of the resulting flours.
Average grade of 9.3/10. Extraordinary Award.
- sept 2014 – jul 2018 **Degree in Agricultural and Food Industries Engineering**
Higher Technical School of Agricultural Engineering, University of Valladolid (Spain)
Average grade of 9.2/10. Extraordinary Award.

Professional experience

- nov 2020 – present **Predocctoral researcher at University of Valladolid**
Doctoral thesis in the PROCERALtech research group led by Dra. Felicidad Ronda, at the Department of Agricultural and Forestry Engineering, University of Valladolid (Spain).
Project: Molecular and structural changes induced by emerging hydrothermal treatments for functional, sensory and nutritional improvement of gluten-free products (PID2019-110809RB-I00).
Project: Treatment of new grains of high nutritional value with microwave radiation. Molecular basis of the techno-functional changes induced for the improvement of gluten-free products (VA195P20).
Project: Optimization of soft wheat flour physical modification process by microwave-assisted treatments to improve its baking performance.

- sept 2019 –
oct 2020 **R&D technician at Productos Solubles**
Training contract and subsequent employment contract in the coffee capsule section of the R&D department of Productos Solubles (Palencia, Spain).
Project: Development and industrialization of compostable Nespresso compatible capsules.
- Market launch of a compostable industrial capsule, collaborating in its adaptation to the company's production system and first production.
 - Design and validation, both in the laboratory and in the factory, of prototypes in collaboration with technology centers and suppliers.
 - Technology watch by means of market and competition studies.
- nov 2018 –
jul 2019 **Research technician at University of Valladolid**
Collaboration grant from the Ministerio de Educación (Spain) to research at PROCEREALtech group, at the Department of Agricultural and Forestry Engineering, University of Valladolid (Spain).
Project: Application of emerging technologies for the treatment of cereals and pseudocereals used in the production of gluten-free products with improved quality and nutritional value.
- Optimization of microwave radiation application conditions for physical modification of buckwheat grains.
 - Handling techniques for the determination of functional properties and antioxidant capacity of flours, as well as rheological properties of flour dispersions and gels.
- jun 2017 –
ago 2017 **Quality control technician at Dulces y Conservas Helios S.A.**
Internship in the Quality Department of Dulces y Conservas Helios (Valladolid, Spain).
Activities: physico-chemical analysis of the final product, quality monitoring during processing and documentation management.

Teaching

Teaching experience in the degree in Agricultural and Food Industries Engineering (University of Valladolid) in the subject Food Physical Properties (2021, 2022) and Basics of cereal industrialization (2021)

Supervision of 1 MSc thesis for the master's degree in Food Quality, Development and Innovation (University of Valladolid).

Technical skills

Characterization of flours and their constituents: techno-functional properties (hydration, foaming, emulsification, and gel-forming capacities), thermal properties (Differential Scanning Calorimetry), viscosimetric profiles (RVA, viscometers), particle size distribution (Mastersizer 2000), chemical composition (moisture, ash, protein, fat, fiber...), Fourier-Transform Infrared Spectroscopy (FTIR), Scanning Electron Microscope (SEM), color.

Bakery products: gluten-free bread formulation and processing. Color, texture, volume and crumb grain characterization of bread, sensorial analysis.

Rheology: dough and gels. Dynamic oscillatory test (frequency and strain sweeps, oscillatory-time test), creep recovery tests. Fermentation tests.

Texture analysis of food: compression (TPA), stickiness, extrusion and fracture tests.

Sensorial analysis: coffee and bread. Design, performance and evaluation of consumer testing (preference, discrimination) and descriptive analysis (sensory profile).

Physical modification of flours and grains with hydrothermal treatments by microwave radiation.

Data analysis: Statgraphics, Origin, Excel.

Languages

Spanish Native

English CEFR level C1 – Certified by Cambridge English Advanced (CAE) (2018)

Honors and awards

Master's thesis award in the field of agriculture, livestock and food "La Ciencia en femenino: Premio Cátedra AgroBank al mejor Trabajo Final de Máster" of the Cátedra AgroBank for the work "Microwave treatment of buckwheat grains to improve the functional and nutritional properties of the resulting flours". May-2022

Extraordinary award of the Master in Agronomic Engineering, University of Valladolid. Apr-2021.

PhD fellowship "Formación del profesorado Universitario (FPU)" from Ministerio de Universidades (Spain). Nov-2020 to nov-2024.

Collaboration grant from the Ministry of Education in the project "Application of emerging technologies for the treatment of cereals and pseudocereals used in the production of gluten-free products of high quality and nutritional value". Nov-2018 to Jul-2019.

Extraordinary award of the Degree in Agricultural and Food Industries Engineering, University of Valladolid. Dec-2018.

Publications

Vicente, A., Villanueva, M., Caballero, P.A., Ronda, F. (2022) *Buckwheat grains treated by microwave radiation. Impact on the techno-functional and rheological properties of the flour*. LWT. Submitted for approval.

Vicente, A., Villanueva, M., Caballero, P.A., Ronda, F. (2022) *Microwave radiation applied to quinoa grains modifies the structure and techno-functional properties of the resulting flour*. Food Hydrocolloids. Submitted for approval.

Conference participation

Vicente, A., López, E., Villanueva, M., Caballero, P.A., Ronda, F. *Effect of microwave treatment of quinoa (Chenopodium quinoa Willd.) flour on its techno-functional and rheological properties*. Poster presentation. 7th Whole Grain Summit. Online. 25-27 October 2021.

Vicente, A., Gil, C., Villanueva, M., Caballero, P.A., Ronda, F. *Impact of the addition of quinoa (Chenopodium quinoa Willd.) flour on maize starch-based gluten-free bread quality*. Poster presentation. 7th Whole Grain Summit. Online. 25-27 October 2021.

Calix, C.S., Rau, D.N., Villanueva, M., **Vicente, A.**, Abebe, W., Neves, G.N., Ronda, F. *Brown tef whole grains treated by microwave radiation. Impact on techno-functional properties of the resulting flours*. Poster presentation. 7th Whole Grain Summit. Online. 25-27 October 2021.

Vicente, A., Villanueva, M., Calix, C.S., Gutiérrez, A.L., Caballero, P.A., Ronda, F. *Microwave treatment of buckwheat grains at different moisture content and its effect on techno-functional and rheological properties of obtained flours*. Poster presentation. 16th ICC Cereal and Bread Congress. Online. 29-31 March 2021.

Caballero P.A., Gutiérrez, A., **Vicente A.**, Villanueva M., Solaesa A.G., Harasym J., Martín-Diana A.B., Rico D.,

Ronda F. *Tratamiento de granos de cereales y pseudocereales con tecnologías emergentes como estrategia para la mejora de la calidad y el valor nutricional de productos sin gluten*. Oral presentation. X Congreso Nacional CyTA – CESIA. León, Spain. 15-17 May 2019

Courses

Course “Professional development”, Online organized by IMFAHE, 30h, 29 October 2021 to 9 January 2022.

Course “Creating infographics, presentations and other visual content (interactive or not) with genial.ly and canva”, online, organized by Centre for Online Teaching, Training and Teaching Innovation of the University of Valladolid (VirtUVa), 30h, 4 October to 12 November 2021.

Seminar “Kinexus Rheometers and rSpace 2.0 – Making solid rheology results easy”, Online organized by Netzsch-Gerätebau, 4h, 21 July 2021.

Seminar “The Basic of Rotational and Oscillatory Rheology”, Online organized by Instrumentos Físicos Ibérica S.L., 8h, 8-9 June 2021.

Course “Information Resources for Doctoral Students”, Online organized by the Doctorate School of the University of Valladolid, 40h, 25 January to 26 February 2021.

Course “Information Management. Bibliographic managers and bibliography”, Online organized by the Doctorate School of the University of Valladolid, 20h, 23 November to 9 December 2020.

Seminar “Principles and Applications of Raman Spectroscopy”, Online organized by the Doctorate School of the University of Valladolid, 16h, 30 November to 15 December 2020.

Seminar “Initiation to the writing and publication of scientific articles”, Online organized by the Doctorate School of the University of Valladolid, 4h, 11 December 2020.

Course “Food carbohydrates. Structure, function, interactions with other ingredients and applications”, at University of Valladolid, 10 hours, 9-12 July 2019.

English Language Immersion Course, at the Menéndez Pelayo International University, 40 hours, 8-13 July 2018.

Course "Development of Gluten Free Products: Ingredients, Processes, Trends", at University of Valladolid, 6 hours, 24 April 2018.

English course “General English” level B2 at ATC Language Schools (Dublin, Ireland), 60h, August 2016.

Scientific dissemination activities

Participation in #Cuentame11FUva for the "Day of Women and Girls in Science". Production of a video for social networks on the research work of my research group. February 2022.

Castilla y León Science Week 2021, presentation of the activity "Este taller tiene miga: abre tu mente al mundo del pan".

European Researchers' Night of Castilla y León 2020, presentation on gluten-free dough.

Castilla y León Science Week 2020, "Taller sobre celiacía".

Other activities

Participation as a Mentee in the International Mentor Program (IMP) USA-Europe of IMFAHE's Platform of Talent 2021/22.

Mentor of new students Degree in Agricultural and Food Industries Engineering (University of Valladolid) in the “Tutor-IAP” program in the academic year 2017/18.

Participation as a Mentee in the “Mujer e ingeniería” program in the academic year 2017/18.