

**CURRICULUM VITAE ABREVIADO (CVA)**

**Part A. PERSONAL INFORMATION**

First name	Marina		
Family name	Villanueva Barrero		
Gender (*)	Female	Birth date	06/11/1986
Social Security, Passport, ID number	71157614F		
e-mail	marina.villanueva@uva.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-8342-9360		

**A.1. Current position**

Position	Assistant Professor		
Initial date	25-01-2022		
Institution	University of Valladolid		
Department/Center	Department of Agriculture and Forestry Engineering	College of Agricultural and Forestry Engineering	
Country	Spain	Teleph. number	686335026
Key words	Physical properties of foods, Food rheology, Food phase transitions, Food quality, Sensory evaluation, Glycemic index, Cereal derivatives, Flours, Doughs, Gels, Bread, Gluten-free		

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

Period	Position/Institution/Country/Interruption cause
02-2020/01-2022	PostDoctoral Researcher/Wroclaw University of Economics and Business/Poland
09-2019/02-2020	Adjunct Professor/University of Valladolid/Spain
07-2019/12-2019	Technical Specialist (Research)/University of Valladolid/Spain
12-2018/07-2019	Postdoctoral Researcher/University of Valladolid/Spain
05-2014/05-2018	Predoctoral Researcher/University of Valladolid/Spain

**A.3. Education**

PhD, Licensed, Graduate	University/Country	Year
PhD Agricultural and Biosystems Sciences and Engineering	University of Valladolid/Spain	2018
MSc in Quality, Development and Innovation in Food	University of Valladolid/Spain	2013
Agronomic Engineering	University of Valladolid/Spain	2012
Agricultural Engineering	University of Valladolid/Spain	2009

**Part B. CV SUMMARY**

Dr. Villanueva is Assistant Professor and Researcher at the University of Valladolid, Spain. She holds a BSc in Agronomic Engineering, a MSc in Food Quality, Development and Innovation and a PhD in Agri-Food and Biosystems Science and Engineering from the College of Agricultural and Forestry Engineering, University of Valladolid, Spain.

Ever since her master's studies, her entire research career has been focused on the physical chemistry of food carbohydrates, thermal analysis of food constituents, rheological analysis of different food materials, food processing and storage effect on texture, the design and development of structured gluten-free systems, nutritional and functional foods, new clean-friendly technologies for the modification of the main constituents of flours as well as the valorisation of agri-food residues in the context of environmental management and circular



economy. All these experiences have enabled her to acquire extensive scientific knowledge in food rheology and bakery product design and development, especially in the area of gluten-free systems.

Her main research activity has been carried out as a member of the PROCEREALtech research group. But, as part of her research training, she has also worked with Prof. Lazaridou and Prof. Biliaderis at the Aristotle University of Thessaloniki (Greece) and as a postdoctoral researcher at Wroclaw University of Economics and Business (Poland) with Prof. Harasym.

Her research activity has produced 35 international publications in impact journals, 2 book chapter, more than 70 communications to international and national congresses and 2 patents (one of them as part of a university grant, Prometeo 2018 and the other as part of Third Award Innovative Business Idea). In the broad area of Food Science and Technology, she has been involved in 5 research projects funded by International, National and Regional Institutions (one as PI) as well as 22 agri-food industrial collaboration projects.

During her professional career Dr. Villanueva has been granted fellowships in competitive processes, awards and mentions: the Junta de Castilla y León PhD grant, the Alfonso Martín Escudero Foundation postdoctoral grant, the Erasmus+ fellowship, a Cum Laude mention, International Doctorate mention, the Extraordinary Award by her doctorate program and Honorary Alumni UVa, among others.

In addition, she has combined her research activity with teaching activities in the subjects of Basic Operations in Food Industry, Physical Properties of Foods, Sensory Analysis, Oenology Technology, Integrated Practice, New trends in Oenology, Wine-making practices and application of the latest trends. Throughout her academic career, she has supervised 1 thesis (defended in April 2023 with a Cum Laude qualification and international mention), 2 thesis in progress, 19 MSc theses, 1 BSc thesis and 4 industry internships.

Beyond her academic work, Dr. Villanueva is also a committed researcher who gets involved in outreach activities and STEM careers initiatives. Among others, the Conference of Women Researchers in Castilla y León, the #Cuéntame11F initiative to promote STEM careers, and conducting workshops during Science Week and European Researchers' Night. In addition, she is also involved in the researcher's community being an active member of national scientific associations as well as a reviewer of scientific articles in SCI journals in the food area.

## **Part C. RELEVANT MERITS**

### **C.1. Publications**

1. Vicente, A., Villanueva, M., Caballero, P.A., Lazaridou, A., Biliaderis, C.G., Ronda, F. (2023). Flours from microwave-treated buckwheat grains improve the physical properties and nutritional quality of gluten-free bread. *Food Hydrocolloids*, 109644.
2. Náthia-Neves, G., Calix-Rivera, C.S., Villanueva, M., Ronda, F. (2023). Microwave radiation induces modifications in the protein fractions of tef flours and modulates their derived techno-functional properties. *International Journal of Biological Macromolecules*, 253, 126908.
3. Gutiérrez, A.L., Villanueva, M., Rico, D., Harasym, J., Ronda, F., Martín-Diana, A.B., Caballero, P.A. (2023). Valorisation of Buckwheat By-Product as a Health-Promoting Ingredient Rich in Fibre for the Formulation of Gluten-Free Bread. *Foods*, 12(14), 2781.
4. Vela, A.J., Villanueva, M., Ronda, F. (2023). Physical modification caused by acoustic cavitation improves rice flour bread-making performance. *LWT*, 183, 114950.
5. Vicente, A., Villanueva, M., Caballero, P.A., Muñoz, J.M., Ronda, F. 2023. Microwave modification of quinoa grains at constant and varying water content modulates changes in structural and physico-chemical properties of the resulting flour. *Foods*, 12 (7), 1421.
6. Calix-Rivera, C.S., Villanueva, M., Náthia-Neves, G., Ronda, F. 2023. Changes on techno-functional, thermal, rheological, and microstructural properties of tef flours induced by microwave radiation – Development of new improved gluten-free ingredients. *Foods*, 12 (6), 1345.
7. Abebe, W., Náthia-Neves, G., Calix-Rivera, C.S., Villanueva, M., Ronda, F. 2023. Lipase inactivation kinetics of tef flour with microwave radiation and impact on the rheological properties of the gels made from treated flour. *Molecules*, 28, 2298.
8. Vela, A.J., Villanueva, M., Ozturk, O.K., Hamaker, B., Ronda, F. 2023. Modification of the microstructure of tef [*Eragrostis tef* (Zucc.) Trotter] flour ultrasonicated at different

- temperatures. Impact on its techno-functional and rheological properties. *Current Research in Food Science*, 6, 100456.
9. Vela, A.J., Villanueva, M., Náthia-Neves, G., Ronda, F. 2023. Impact of solubilized substances on the techno-functional, pasting and rheological properties of ultrasound-modified rice, tef, corn and quinoa flours. *Foods*, 12 (3), 484.
  10. Ronda, F., Pérez-Quirce, S., Villanueva, M. 2023. Rheological properties of gluten-free bread doughs and their modification: improve bread quality. En: *Advances in Food Rheology and Applications (Second Edition)*. Editores: Jasim Ahmed and Santanu Basu. Editorial: ELSEVIER, Cambridge, USA.
  11. Vela, A.J., Villanueva, M., Li, C., Hamaker, B., Ronda, F. 2023. Ultrasound treatment of tef [*Eragrostis tef* (Zucc.) Trotter] flour rupture starch  $\alpha$ -(1,4) bonds and fragment amylose with modification of gelatinization properties. *LWT – Food Science and Technology*, 174, 114463.
  12. Vicente, A., Villanueva, M., Caballero, P.A., Muñoz, J.M., Ronda, F. 2023. Buckwheat grains treated with microwave radiation: Impact on the techno-functional, thermal, structural, and rheological properties of flour. *Food Hydrocolloids*, 137, 108328.
  13. Vela, A.J., Villanueva, M., Solaesa, A.G., Ronda, F. 2021. Impact of high-intensity ultrasound waves on structural, functional, thermal and rheological properties of rice flour and its biopolymers structural features. *Food Hydrocolloids*, 113, 106480.
  14. Solaesa, A.G., Villanueva, M., Vela, A.J., Ronda, F. 2022. Impact of microwave radiation on in vitro starch digestibility, structural and thermal properties of rice flour. From dry to wet treatments. *International Journal of Biological Macromolecules*, 222, 1768 – 1777.
  15. Villanueva, M., Abebe, W., Pérez-Quirce, S., Ronda, F. 2022. Impact of the variety of tef [*Eragrostis tef* (Zucc.) Trotter] on physical, sensorial and nutritional properties of gluten-free breads. *Foods*, 11 (7), 1017.
  16. Acevedo, B.A., Villanueva, M., Chaves, M.G., Avanza, M.V., Ronda, F. 2021. Modification of structural and physicochemical properties of cowpea (*Vigna unguiculata*) starch by hydrothermal and ultrasound treatments. *Food Hydrocolloids*, 124, 107266.
  17. Vela, A.J., Villanueva, M., Ronda, F. 2021. Low-frequency ultrasonication modulates the impact of annealing on physicochemical properties and functional properties of rice flour. *Food Hydrocolloids*, 120, 106933.
  18. Solaesa, A.G., Villanueva, M., Muñoz, J.M., Ronda, F. 2021. Dry-heat treatment vs. heat-moisture treatment assisted by microwave radiation: Techno-functional and rheological modifications of rice flour. *LWT – Food Science and Technology*, 141, 110851.
  19. Vela, A.J., Villanueva, M., Solaesa, A.G., Ronda, F. 2021. Impact of high-intensity ultrasound waves on structural, functional, thermal and rheological properties of rice flour and its biopolymers structural features. *Food Hydrocolloids*, 113, 106480.
  20. Villanueva, M., Abebe, W., Collar, C., Ronda, F. 2021. Tef [*Eragrostis tef* (Zucc.) Trotter] variety determines viscoelastic and thermal properties of gluten-free dough and bread quality. *LWT - Food Science and Technology*, 135, 110065.
  21. Solaesa, A.G., Villanueva, M., Ronda, F. 2020. Protein and lipid enrichment of quinoa (cv. Titicaca) by dry fractionation. Techno-functional, thermal and rheological properties of milling fractions. *Food Hydrocolloids*. 105, 105770.
  22. Collar, C., Villanueva, M., Ronda, F. 2020. Structuring diluten wheat matrices: impact of heat moisture treatment on protein aggregation and viscoelasticity of hydrated composite flours. *Food and Bioprocess Technology*, 13, 475 – 487.
  23. Rico, D., Ronda, F., Villanueva, M., Pérez Montero, C., Martín-Diana, A.B. 2019. Development of healthy gluten-free crackers from White and Brown tef (*Eragrostis tef* Zucc.) flours. *Heliyon*, 5, e02598.
  24. Solaesa, A.G., Villanueva, M., Beltrán, S., Ronda, F. 2019. Characterization of Quinoa Defatted by Supercritical Carbon Dioxide. Starch Enzymatic Susceptibility and Structural, Pasting and Thermal Properties. *Food and Bioprocess Technology*, 12, 1593-1602.
  25. Acevedo, B.A., Villanueva, M., Chaves, M.G., Avanza, M.V., Ronda, F. 2019. Starch enzymatic hydrolysis, structural, thermal and rheological properties of pigeon pea (*Cajanus cajan*) and dolichos bean (*Dolichos lab-lab*) legume starches. *International Journal of Food Science and Technology*, 55 (2), 712 – 719.
  26. Villanueva, M., Harasym, J., Muñoz, J.M., Ronda, F. 2019. Rice flour physically modified by microwave radiation improves viscoelastic behavior of doughs and its bread-making performance. *Food Hydrocolloids*, 90, 472-481.

27. Assefa, Y., Emire, S., Villanueva, M., Abebe, W., Ronda, F. 2018. Influence of milling type on tef injera quality. *Food Chemistry*, 266, 155 – 160.
28. Assefa, Y., Emire, S., Villanueva, M., Abebe, W., Ronda, F. 2018. The effect of mechanical kneading and Absit preparation difference on tef injera quality. *African Journal of Food Science*, 12, 246253.
29. Villanueva, M., De Lamo, B., Harasym, J., Ronda, F. 2018. Microwave radiation and protein addition modulate hydration, pasting and gel rheological characteristics of rice and potato starches. *Carbohydrate Polymers*, 201, 374-381.
30. Villanueva, M., Pérez-Quirce, S., Collar, C., Ronda, F. 2018. Impact of acidification and protein fortification on rheological and thermal properties of wheat, corn, potato and tapioca starch-based gluten-free bread dough. *LWT – Food Science and Technology*, 96, 446-454.
31. Pérez-Quirce, S., Caballero, P. A., Vela, A. J., Villanueva, M., Ronda, F. 2018. Impact of yeast and fungi (1-3)(1-6)-b-glucan concentrates on viscoelastic behavior and bread making performance of gluten-free rice-based doughs. *Food Hydrocolloids*, 79, 382 – 390.
32. Villanueva, M., Ronda, F., Moschakis, T., Lazaridou, A., Biliaderis, C. 2018. Impact of acidification and non-gluten proteins on thermal properties of rice, potato and tapioca starches and rheological behaviour of their gels. *Food Hydrocolloids*, 79, 20-29.
33. Villanueva, M., Harasym, J., Muñoz, J.M., Ronda, F. 2018. Microwave absorption capacity of rice flour. Impact of the radiation on rice flour microstructure, thermal and viscometric properties. *Journal of Food Engineering*, 224, 156-164.
34. Ronda, F., Pérez-Quirce, S., Villanueva, M. 2017. Rheological Properties of Gluten-Free Bread Doughs. Relationship with Bread Quality. En: Ahmed, J. Ptaszek, P. and Basu, S. (Eds), *Advances in Food Rheology and Applications*. Elsevier.
35. Abebe, W., Ronda, F., Villanueva, M., Collar, C. 2015. Effect of tef [*Eragrostis tef* (Zucc.) Trotter] grain flour addition on viscoelastic properties and stickiness of wheat dough matrices and bread loaf volume. *European Food Research and Technology*, 241, 469 – 478.
36. Villanueva, M., Mauro, R., Collar, C., Ronda, F. 2015. Acidification of protein-enriched rice starch doughs: effects on breadmaking. *European Food Research Technology*, 240, 783-794.
37. Ronda, F., Villanueva, M., Collar, C. 2014. Influence of acidification on dough viscoelasticity of gluten-free rice starch-based dough matrices enriched with exogenous protein. *LWT -Food Science and Technology*, 59, 12-20.

## **C.2. Congress (last 5 years)**

1. Calix-Rivera, C.S., Villanueva, M., Náthia-Neves, G., Caballero, P.A. & Ronda, F. Changes on morphological, techno-Functional, thermal, and rheological properties of tef flours induced by microwave radiation. 37th EFFoST International Conference, Valencia, Spain, 2023. Poster presentation.
2. Calix-Rivera, C. S., Rivera-Flores, O., Vela, A.J., Villanueva, M., Ronda, F. Suitability of breadfruit flour as a gluten-free ingredient: hydration, thermal, pasting properties and rheological characterization. 6th International Symposium on Gluten-free Cereal Products and Beverages. Rome, Italy, 2023. Poster presentation – ICC BEST POSTER AWARD.
3. Calix-Rivera, C. S., Abebe, W., Náthia-Neves, G., Martínez, M., Villanueva, M., Ronda, F. Lipase Inactivation Kinetics of Tef Flour with Microwave Radiation. Improving its Storage Stability. 6th International Symposium on Gluten-free Cereal Products and Beverages. Rome, Italy, 2023. Poster presentation.
4. Náthia-Neves, G., Zumel, H., Vicente, A., Villanueva, M., Ronda, F. Effect of fat content on the techno-functional properties of whole canary seed flours treated by ultrasound. 6th International Symposium on Gluten-free Cereal Products and Beverages. Rome, Italy, 2023. Poster presentation.
5. Vicente, A., Mate, M., Villanueva, M., Caballero, P.A., Lazaridou, A., Biliaderis, C.G., Ronda, F. An alternative technology to improve gluten-free bread quality: microwave-assisted hydrothermal treatment of buckwheat grains. 6th International Symposium on Gluten-free Cereal Products and Beverages. Rome, Italy, 2023. Oral presentation.





6. Náthia-Neves, G., Vela, A.J., Calix-Rivera, C. S., Vicente, A., Mauro, R.R., Abebe, W., G., Muñoz, J. M., Villanueva, M., Caballero, P.A., Ronda, F. Hydrothermal treatments assisted by emerging technologies: an effective alternative to obtain gluten-free ingredients with improved properties. 21st Gums & Stabilizers for the Food Industry Conference, Thessaloniki, Greece, June 2023. Oral presentation.
7. Villanueva, M & Ronda, F. Can microwave-treated rice flour replace the hydroxy-propyl-methyl-cellulose in gluten-free bread formulation? 21st Gums & Stabilizers for the Food Industry Conference, Thessaloniki, Greece, June 2023. Poster presentation.
8. Calix-Rivera, C.S., Rodríguez, S., Villanueva, M. & Ronda, F. Estudio comparativo de dos tratamientos hidrotérmicos sobre las propiedades físico-funcionales de la harina de arroz. III Congreso Nacional de Jóvenes Investigadores en Ciencia, Ingeniería y Tecnología de los alimentos, Salamanca, España, November, 2022. Oral presentation.
9. Ronda, F., Caballero, P.A., Villanueva, M., Neves, G.N., Abebe, W., Vela, A.J., Gutiérrez, A., Vicente, A., Mendoza, R.J., Calix-Rivera, C.S., Mauro, R.R. Tratamientos físicos de granos y harinas para la obtención de nuevos ingredientes destinados a la elaboración de productos sin gluten. III Congreso Nacional de Jóvenes Investigadores en Ciencia, Ingeniería y Tecnología de los alimentos, Salamanca, España, November, 2022. Oral presentation.
10. Vicente, A., Villanueva, M., Caballero, P.A. & Ronda, F. Microwave treatment of buckwheat grains: an alternative approach to modulate flour techno-functional properties. 19th European Young Cereal Scientists and Technologists Workshop, Valencia, España, June 2022. Oral presentation.
11. Caballero, P.A., Ronda, F., Villanueva, M. Empleo de cereales minoritarios y pseudocereales para la mejora de las propiedades nutricionales y sensoriales de los productos sin gluten. VIII Congreso de la Sociedad Española de Enfermedad Celíaca (SEEC), Madrid, España, November 2022. Oral presentation.
12. Vela, A.J., Villanueva, M., Li, C., Ozturk, O.K., Hamaker, B. & Ronda, F. Effect of temperature in the modification of tef [*Eragrostis tef* (Zucc.) Trotter] flour by ultrasound treatments. 19th European Young Cereal Scientists and Technologists Workshop, Valencia, España, June 2022. Oral presentation.
13. Villanueva, M., Harasym, J., Caballero, P.A., Ronda, F. Impact of heat-moisture treatment by microwaves on functional and pasting properties of buckwheat flours. 7th Cereal & Europe Spring Meeting. Tesalónica (Grecia), April 2022. Poster presentation.
14. Harasym, J., Orkusz, A., Villanueva, M., Ronda, F. Impact of house cricket (*Acheta domestica*) powder addition on the rheological profile of rice flour. 7th Cereal & Europe Spring Meeting. Tesalónica (Grecia), April 2022. Poster presentation.
15. Harasym, J., Pozzi, L., Villanueva, M. High level addition of *Spirulina platensis* powder to pan bread wheat flour creates pumpernickel type green bread. 7th Cereal & Europe Spring Meeting. Tesalónica (Grecia), April 2022. Poster presentation.
16. Vela, A.J., Villanueva, M., Caballero, P.A., Ronda, F. Influence of temperature in the physical modification of rice flour by ultrasound technology. 7th Cereal & Europe Spring Meeting. Tesalónica (Grecia), April 2022. Poster presentation.
17. Villanueva, M., García-Solaesa, A., Vela, A.J., Caballero, P.A., Ronda, F. Microwave-treated rice flour as hydroxy-propyl-methyl-cellulose replacer in gluten-free bread formulation. 7th Cereal & Europe Spring Meeting. Tesalónica (Grecia), April 2022. Poster presentation.
18. Caballero, P.A., Villanueva, M., Garcia-Solaesa, A., Vela, A.J., Gutiérrez, A.L., Ronda, F. Canary seed flour as an ingredient of high nutritional value to produce gluten-free sugar snap cookies. 7th Cereal & Europe Spring Meeting. Tesalónica (Grecia), April 2022. Poster presentation.
19. Calix-Rivera, C.S., Rau, D.N., Villanueva, M., Ronda, F. Microwave radiation treatment of tef grain and flour. Effect on its techno-functional properties. Trends in grain-based foods. Braganza (Portugal), March 2022. Poster presentation.
20. Vicente, A., Tabary, E., Villanueva, M., Caballero, P.A., Ronda, F. Impact of quinoa flour on rheological properties of doughs and quality of the resulting gluten-free bread. Trends in grain-based foods. Braganza (Portugal), March 2022. Poster presentation.
21. Vela, A.J., Villanueva, M., Ronda, F. Physical modification of rice flour via ultrasonication. Influence of treatment time and temperature. Trends in grain-based foods. Braganza (Portugal), March 2022. Oral presentation.

22. 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. 7th Whole Grain Summit. On-line, October 2021. Poster presentation.
23. Calix, C.S., Rau, D.N., Villanueva, M., Vicente, A., Abebe, W., Neves, G., Ronda, F. Brown tef whole grains treated by microwave radiation. Impact on techno-functional properties of the resulting flours. 7th Whole Grain Summit. On line, Octubre 2021. Poster presentation.
24. 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. 7th Whole Grain Summit. On line, Octubre 2021. Poster presentation.
25. Villanueva, M., Harasym, J., Ada, K., Vela, A.J., Caballero, P.A., Ronda, F. Particle size impact on techno-functional properties of whole buckwheat flour and its breadmaking performance. 7th Whole Grain Summit. On-line, October 2021. Poster presentation.
26. Vela, A.J., Fernandez, O., Villanueva, M., Ronda, F. Water removal method determines the final physicochemical properties of ultrasound treated quinoa flour. 7th Whole Grain Summit. On line, Octubre 2021. Poster presentation.
27. Vela, A.J., Villanueva, M., Ronda, F. Impact of dual ultrasound-annealing treatment on the structural and physicochemical properties of white and brown tef flours. 7th Whole Grain Summit. On line, Octubre 2021. Oral presentation.
28. Mendoza, R., Encinas, E., Miguel, J.M., Gutierrez, A., Villanueva, M., Caballero, P.A., Ronda, F. Hemp (*Cannabis sativa* L.) flour obtained from seeds of industrial varieties grown in Spain: a study of its potential as a high nutritional value food ingredient. 16th ICC Cereal and Bread Congress (ICBC). Online, 29-31 Marzo 2021. Poster presentation.
29. Vicente, A., Villanueva, M., Calix, C.S., Gutierrez, A., 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. 16th ICC Cereal and Bread Congress (ICBC). Online, 29-31 Marzo 2021. Poster presentation.
30. Gutierrez, A., Rico, D., Villanueva, M., Ronda, F., Martín-Diana, A.B., Caballero, P.A. Study of different presoaking temperatures of buckwheat whole grains treated with high hydrostatic pressure: effects on functional, technological and nutritional properties of flours. 16th ICC Cereal and Bread Congress (ICBC). On-line, March 2021. Poster presentation. ICC BEST POSTER AWARD.
31. Vela, A.J., Villanueva, M., Ronda F. Influence of temperature in the physical modification of rice flour achieved by low-frequency ultrasound treatment. 16th ICC Cereal and Bread Congress (ICBC). Online, Marzo 2021. Poster presentation
32. Vela, A.J., Villanueva, M., Solaesa, A.G., Ronda F. Dependence of water removal method in the final properties of tef flours modified by ultrasonication. 16th ICC Cereal and Bread Congress (ICBC). Online, Marzo 2021. Poster presentation
33. Villanueva, M., Harasym, J., Murillo, L., Vela, A.J., Caballero, P.A., Ronda, F. Modification of the techno-functional and pasting properties of buckwheat flour by microwave radiation. 16th ICC Cereal and Bread Congress (ICBC). Online, Marzo 2021. Poster presentation
34. 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. X Congreso Nacional CyTA – CESIA. León, España. Mayo 2019. Oral presentation.
35. Caballero P.A., Suazo E., Tejedor L., Villanueva M., Solaesa A.G., Harasym J., Ronda F. Potencial de la harina de alpiste como ingrediente de alto valor nutricional para el desarrollo de alimentos sin gluten. X Congreso Nacional CyTA – CESIA. León, España. Mayo 2019. Poster presentation.
36. Villanueva M., Harasym J., Solaesa A.G., Vela A.J., Caballero P.A., Ronda F. Impact of microwave radiation on buckwheat flour and the effect on the rheological properties of gluten-free doughs and breadmaking. 19th ICC Conference. Vienna, Austria. April 2019. Poster presentation.
37. Vela A.J., Villanueva M., Solaesa A.G., Ronda F. Physical modification of rice flour by means of ultrasound. 19th ICC Conference. Vienna, Austria. April 2019. Poster presentation.

38. Solaesa A.G., Villanueva M., Vela A.J., Caballero P.A., Ronda F. Impact of microwave treatment depending on the moisture content of rice flour. 19th ICC Conference. Vienna, Austria. April 2019. Poster presentation.
39. Gutierrez A.L., Villanueva M., Rico D., Martín-Diana A., Harasym J., Ronda F., Caballero P.A. Valorisation of a buckwheat by-product to promote a nutritional improvement of gluten-free bread. 19th ICC Conference. Vienna, Austria. 24-25 April 2019. Poster presentation.
40. Villanueva M. 2019. Modificación física de harinas sin gluten y su aplicación en la mejora de productos horneados II. Investigadoras de Castilla y León: La aventura de la Ciencia y la Tecnología. Valladolid (España). April 2019. Oral presentation.
41. Ronda F., Collar C., Villanueva M., Saldaña M., Isar M., Harasym J. Use of microwaved rice flour in gluten-free bread-making. 32th EFFOST International Conference. Nantes, (France), November 2018. Oral presentation.
42. Caballero P.A., Tejedor L., Villanueva M., Harasym J., Ronda F. Application of canary seed flour in gluten-free breadmaking. 32th EFFOST International Conference. Nantes, France. 6-8 November 2018. Poster presentation.
43. Villanueva M., Harasym J., Collar C., Caballero P.A., Ronda F. Effect of MW-treated rice flour on rheological properties of gluten-free bread doughs. 32th EFFOST International Conference. Nantes, France. 6-8 November 2018. Poster presentation
44. Solaesa A.G., Villanueva M., Harasym J., Beltrán S., Ronda F.. Microstructure and in vitro digestibility of supercritical fluid defatted-quinoa. 32th EFFOST International Conference. Nantes, France. 6-8 November 2018. Poster presentation.
45. Villanueva M., De Lamo B., Harasym J., Ronda F. Physical modification of model systems -corn starch and protein blends- by microwave assisted heat-moisture treatment. 32th EFFOST International Conference. Nantes, France. 6-8 November 2018. Poster presentation.
46. Harasym J., Villanueva M., Murillo L., Solaesa A.G., Abebe W. Impact of microwave-assisted heat-moisture treatment on white and brown Ethiopian teff flour properties. 32th EFFOST International Conference. Nantes, France. 6-8 November 2018. Poster presentation.
47. Gutiérrez A.L., Harasym J., Ronda F., Villanueva M., Caballero P.A. Impact of buckwheat hull addition on hydration properties of rice gluten-free flour. 32th EFFOST International Conference. Nantes, France. 6-8 November 2018. Poster presentation.
48. García-Solaesa, A., Villanueva, M., Harasym, J., Beltrán, S., Ronda, F. Valorization of quinoa by-products after oil extraction with supercritical CO<sub>2</sub>. Congress FOOD 2030: Towards sustainable agri-food systems, Stuttgart, Germany. 5-6 September 2018. Oral presentation.
49. Villanueva, M., De Lamo, B., Harasym, J., Ronda, F. Microwave treated starch-protein blends: An innovative raw material to improve the quality of gluten-free products for coeliac disease patients. Congress FOOD 2030: Towards sustainable agri-food systems, Stuttgart, Germany. 5-6 September 2018. Poster presentation.
50. Harasym, J., Villanueva, M., García-Solaesa, A., Abebe, W., Caballero, P.A., Ronda, F. Minority crops utilization for diversification of gluten-free food products offer. Congress FOOD 2030: Towards sustainable agri-food systems, Stuttgart, Germany. 5-6 September 2018. Poster presentation.
51. Ronda, F., Harasym, J., Villanueva, M., García-Solaesa, A., Abebe, W., Caballero, P.A. Microwave assisted heat moisture treatment as useful tool in improvement of gluten-free functional characteristic. Congress FOOD 2030: Towards sustainable agri-food systems, Stuttgart, Germany. 5-6 September 2018. Poster presentation.

### C.3. Research projects

1. Molecular and structural changes induced by emerging hydrothermal treatments for functional, sensory and nutritional improvement of gluten-free products. (CleanGFree). (PID2019-110809RB-I00/AEI/10.1303/501100011033). Spanish Ministerio de Ciencia e Innovación. PI: Felicidad Ronda Balbás. 06/2020-05/2024. 133100 €. Work team.
2. Modification of high nutritional gluten-free flours by innovative heat-moisture treatment for the development of improved bakery products (MicroTREAT) (UMO-2020/37/K/ST5/03602). Norway Grants - Narodowe Centrum Nauki (Poland). PI: Marina Villanueva Barrero. 04/2021-/01/2022. 125538 €. PI.

3. Application of electromagnetic waves to gluten-free flours for the adaptation of its structure and functionality to the needs of the food industry. Development of better quality products. (Ref: VA072P17). Regional Ministry of Education (JCyL/FEDER). PI: Felicidad Ronda. 2017-2019. 120000 €. Work team. I
4. Impact of microwave and ultrasound on gluten-free flours functionality: structuring ability in gluten-free breadmaking matrices. (AGL2015-63849-C2-2-R). Ministry of Economy and Competitiveness (MINECO/FEDER). PI: Felicidad Ronda. 2016-2020. 84000 €. Work team.
5. Nutritional and functional improvement of gluten-free breads: addition of beta-glucans of different origins and molecular weights according to the health claims approved by the EFSA. (Ref: AGL2012-35088). Ministry of Economy and Competitiveness (MINECO/FEDER). PI: Felicidad Ronda. 2013-2015. 76050 €. Work team.

#### **C.4. Contracts, technological or transfer merits**

##### **C.4.1. Patents**

1. Rice flour modified by hydrothermal microwave treatment, method of production and uses. Inventors/authors/objectors: Felicidad Ronda Balbás; Marina Villanueva Barrero; Joanna Harasym; Jose M<sup>a</sup> Muñoz Muñoz; Pedro A. Caballero Calvo; Sandra Pérez Quirce. Entity: University of Valladolid. Application number: P201830851. Country of registration: Spain. Date of registration: 29/08/2018.
2. Ready-to-eat adapted food product for patients with dysphagia. Inventors/authors/objectors: Pedro A. Caballero Calvo; Felicidad Ronda Balbás; Marina Villanueva Barrero; Joanna Harasym; Ane Arratibel García; Fabiola Juarez Muriel; Elena Roura Carvajal. Entity: University of Valladolid. Application number: 201831386. Country of registration: Spain. Date of registration: 14/09/2018. Companies: Fundación Alicia, Alimentación y Ciencia.

##### **C.4.2. Contracts**

1. Laboratory experiences for the industrial implementation of microwave treatment of wheat flour. Project Directors: Jose María Muñoz Muñoz and Marina Villanueva; Company: Corporativo Bimbo S.A. DCV. Period: 2023-2024 (12 months). Project Cost: 28250 €
2. Optimization and validation of the freeze-drying process for edible flowers. Leading Researchers: P.A. Caballero; F. Ronda. Company: Innoflower S.L. Period: 2023. Cost: 2000€
3. Parametrization and technological development of the process of lyophilisation of leaves, buds and edible flowers (FlowerLyoTech). Leading Researchers: P.A. Caballero; F. Ronda. Premio Lanzadera Universitaria-Company: Innoflower S.L. Period: 2023-2024. Cost: 1500€
4. Industrial implementation of technology for microwave treatment of soft wheat flours to improve their baking properties [Implementación industrial de la tecnología de tratamiento de microondas de harinas de trigo de baja fuerza para la mejora de sus propiedades de panificación]. Project Directors: Felicidad Ronda, Pedro A. Caballero, Marina Villanueva; Company: Corporativo Bimbo S.A. DCV. Period: 2023-2024 (12 months). Project Cost: 248434 €
5. Optimization of the treatment process and pre-industrial testing of microwave-treated biscuit flour [Optimización del proceso de tratamiento y realización de prueba pre-industrial con harina galletera tratada con microondas]. Project Directors: Felicidad Ronda; Pedro A. Caballero; Project Director: Felicidad Ronda; Company: Corporativo Bimbo S.A. DCV. Period: 2022-2023 (6 month). Project Cost: 11647 €
6. Integral use of blackberry seeds for the production of superfoods [Aprovechamiento integral de las semillas de zarzamora para la producción de superalimentos]. Project Director: Ángela García Solaesa. Company: Agroberrry. Period: 2022-2023 (12 months). Project Cost: 12000€
7. Determinación de los estándares de calidad de las semillas de cáñamo para su uso agroalimentario. Project Director: Pedro A. Caballero, Company: CANNALIZA. Period: 2022-2024 (25 months). Project cost: 2500€.



8. Development of new food products through the integral use of natural pistachio nuts (PISTACHIO FOODS) [Desarrollo de nuevos productos alimenticios mediante el aprovechamiento integral del pistacho natural (PISTACHIO FOODS)]. Project Directors: P.A. Caballero; F. Ronda. Premio 3ª Convocatoria de financiación de proyectos de innovación rural para ayuntamientos de la provincia de Valladolid. Company: Pistacyl S.L. Period: 2021-2022. Project Cost: 8000 €
9. Optimization of the Physical Modification Process of Wheat Flour through Microwave Assisted Treatments to Improve its Baking Performance. Project Director: Felicidad Ronda; Company: Corporativo Bimbo S.A. DCV. Period: 2020-2021 (9 months). Project Cost: 34222 €
10. Parametrization, Technological Development and Validation of the Freeze-Drying Process for Edible Leaves, Shoots and Flowers. Project Director: Felicidad Ronda; Company: INNOFLOWER. Period: 2021-2023 (23 months). Project Cost: 12000 €
11. Characterisation of hemp seed varieties and by-products approved for production in castilla y león (Superhealthy) [Caracterización de variedades de semillas de cáñamo y sub-productos aprobadas para su producción en Castilla y león (Superhealthy)]. Project Directors: F. Ronda; P.A. Caballero; Premio Lanzadera Universitaria-Trasformación y aprovechamiento de semillas de cáñamo producidas en la provincia de Palencia para la producción de superalimentos. Company: José Manuel Miguel Castrillo. Period: 2020-2021 (8 months). Project Cost: 3825 €
12. Parameterisation of the freeze-drying process and study of the biological activity of freeze-dried edible flowers [Parametrización del proceso de liofilización y estudio de la actividad biológica de las flores comestibles liofilizadas]. Project Director: Felicidad Ronda; Pedro A. Caballero. Company: INNOFLOWER. Period: 2020-2021 (10 months). Project Cost: 3000 €
13. Shelf life study of gluten-free bread [Estudio de vida útil de pan sin gluten]. Project Director: Felicidad Ronda; Company: AMARITTA FOODS S.L. Period: 2020-2020 (1 months). Project Cost: 475,29 €
14. Second proof of concept: Applicability of physical treatments to wheat flour. Project Director: Felicidad Ronda; Company: Corporativo Bimbo S.A. DCV. Period: 2020 (4 months). Project Cost: 6205 €
15. Development of high quality baked products. Own Innovation Plan [Desarrollo de productos horneados de alta calidad. Plan de Innovación propio]. Project Director: Felicidad Ronda; Company: Fundación Parque Científico de la Universidad de Valladolid. Period: 2019-2020 (2 months). Project Cost: 5252 €
16. Proof of concept: Applicability of physical treatments to improve the baking properties of common wheat. Project Director: Felicidad Ronda; Company: Corporativo Bimbo S.A. DCV. Period: 2019 (2 months). Project Cost: 5252 €
17. Study of the agri-food transformation of the canary seed (*Phalaris canariensis* L.) as a tool for rural development in the province of Palencia. Project Director: Pedro A. Caballero; Company: Fitopal S.L. Period: 2017-2018 (5 months). Project Cost: 3000 €
18. Optimization of the pre-treatment and packaging processes of natural pistachio. Project Director: Pedro A. Caballero; Company: Sociedad Cooperativa PISTACYL. Period: 2017 (5 months). Project Cost: 6611,57 €
19. Fortification of bread with beta-glucans [Enriquecimiento de pan con beta-glucanos]. Project Director: Felicidad Ronda. Company: Biofactoría Naturae et Salus S.A. Period: 2015 (1 month). Project Cost: 2541€.
20. Flour analysis [Análisis y estudios de harinas]. Project Director: Felicidad Ronda; Company: Grupo Ordesa, S.A. Period: 2014-2015 (12 months). Project Cost: 920 €.
21. Study of starch digestibility of flour samples. Project Director: Felicidad Ronda; Company: Grupo Ordesa, S.A. Period: 2014-2015 (12 months). Project Cost: 400 €.
22. Effect of the formulation of infant flours in starch digestibility. Project Director: Felicidad Ronda; Company: Grupo Ordesa, S.A. Period: 2014. Project Cost: 1260 €.

#### **C.5. Direction of research activities**

1. Supervision of PhD. Thesis: Physical modification of gluten-free flours by ultrasound treatments. Application to the development of new products suitable for the celiac population. University of Valladolid. College of Agricultural and Forestry Engineering.



Antonio José Vela Corona. 13 April, 2023 – Sobresaliente Cum Laude; International Mention. Extraordinary award in application period.

2. Doctoral theses that are in progress under my supervision:  
“Physical modification of cereal gluten-free grains and flours by hydrothermal treatment assisted by microwaves”. UVa. Caleb Samir Calix Rivera.  
“New technologies applied to the physical modification of high nutritional value grains and flours to reduce the glycaemic response of gluten-free products”. UVa. Murdiati Murdiati
3. Supervisor of:  
Degree Thesis: 1  
Master Thesis (Ms. in Food Quality, Development and Innovation): 19  
Industry internships: 4

### **C.6. Research stays abroad**

1. Postdoctoral stay funded by Fundación Alfonso Martín Escudero at Wroclaw University of Economics, Department of Biotechnology and Food Analysis with Prof. Joanna Harasym, from January 2020 to January 2022.
2. Postdoctoral stay at the Department of Biotechnology and Food Analysis with Prof. Joanna Harasym, from 2 September to 13 October 2019.
3. Erasmus+ training stay at Wroclaw University of Economics, Department of Biotechnology and Food Analysis with Prof. Joanna Harasym, from 26 to 30 August 2019.  
International stay at Aristotle University of Thessaloniki, Department of Food Science & Technology (Greece) with Prof. C. Biliaderis: from June 2015 to October 2015.

### **C.7. Other merits**

1. First Prize “Desafío Universidad-Empresa” por el proyecto: “Aprovechamiento integral de semillas de zarzamora para la producción de superalimentos (ZaMoraFoods)”.
2. Participation as a researcher in different scientific workshops: Science Exhibition, Science Week, children's workshops, Feria de Ciencia Sostenible, etc. Participation in scientific-technical conferences to support women in the field of research.
3. Attendance to different courses and conferences in the scientific-technical field related to the lines of my research.
4. Participation as a researcher (organization and teaching) in the workshop "Con las manos en la masa" during the 13th European Researchers' Night, held at the Science Museum of Valladolid on September 2018.
5. Participation as a researcher in the "European Corner: Valladolid Researches", an exhibition of the projects with European funding, during the 12th European Researchers' Night, held in the Science Museum of Valladolid on September 2017.
6. Third Prize "IDEA INNOVATIVE BUSINESS" in the 2017 edition of the INITIATIVE CAMPUS ENTREPRENEURSHIP CONTEST for the project "Development of a range of products adapted to the population with dysphagia".
7. Beneficiary of the PROMETEO Programme for the development of market-oriented prototypes, promoted by the General Foundation of the University of Valladolid (FUNGE).