



## CURRICULUM VITAE (CVA)

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

<b>Part A. PERSONAL INFORMATION</b>		<b>CV date</b>	13-10-2022
<b>First name</b>	Gloria		
<b>Family name</b>	Bárzana González		
<b>Gender (*)</b>	Woman	<b>Birth date (dd/mm/yyyy)</b>	01-05-1982
<b>Social Security, Passport, ID number</b>	71651659N	<b>e-mail</b>	gbarzana@cebas.csic.es
<b>URL Web</b>	<a href="http://www.cebas.csic.es/dep_spain/nutricion/aquaporinas/aquapo_lineas.html">http://www.cebas.csic.es/dep_spain/nutricion/aquaporinas/aquapo_lineas.html</a>		
<b>Open Research and Contributor ID (ORCID)(*)</b>	<a href="https://orcid.org/0000-0002-2511-9994">https://orcid.org/0000-0002-2511-9994</a>		

(\*) Mandatory

### A.1. Current position

<b>Position</b>	Researcher with a G1 competitive contract at CEBAS-CSIC		
<b>Initial date</b>	01 June 2022		
<b>Institution</b>	Consejo Superior de Investigaciones Científicas- CSIC		
<b>Department/Centre</b>	Plant Nutrition	CEBAS-CSIC	
<b>Country</b>	Spain	<b>Teleph. number</b>	968396200 Ext. 6308
<b>Key words</b>	Plant Aquaporins, physiopathies, water relations, plant nutrition, abiotic stress, sustainable agriculture		

### A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
01.11.2008-26.06.2014	Predocctoral at EEZ-CSIC (SPAIN) / LIBST (BELGIUM)
15.08.2013-15.10.2013	Consultant at ICRISAT (INDIA)
30.09.2014-30.04.2015	Researcher at MYCOSYM TRYTON S.L.
01.05.2015-04.09.2017	Freelance ( <b>mother in 13.10.2016</b> )
04.09.2017-03.01.2018	Researcher at TRIALCAMP S.L.U./ EUROFINS
03.05.2018-09.07.2018	Membership Recruiter at United Nations High Commissioner for Refugees
09.07.2018-01.02.2019	Researcher and Agricultural technical engineer at PROMOVERT CROP SERVICES S.L.
01.02.2019-31.03.2022	Researcher at CEBAS-CSIC (SPAIN)

### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Msc.	University of Granada, Spain. Biology	2007
MASTER: Agrarian biology	University of Granada and EEZ-CSIC (Spain)	2008
International Course UNESCO	AECI-UNESCO and EEZ-CSIC (Spain)	2009
Thematic School: Water transport in Plants	INRA-CNRS Montpellier FRANCE	2011
PhD	EEZ-CSIC, University of Granada (Spain) and LIBST, UCLouvain University (BELGIUM)	2014

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

Gloria Bárzana González has MsC in Biology in 2007 (University of Granada). In 2008 had got a Master degree in Agrarian Biology and aquiculture (University of Granada) and is Doctor in Biological Sciences (University of Granada, 2014); During those years she was able to develop comprehensive

studies, combining physiological, biochemical and molecular factors, thus understanding the importance of aquaporins as fundamental pieces for the improvement of plants and defence against stress. In order to get to know these proteins in depth, she made several stays with the group of François Chaumont, in Belgium, where she developed molecular techniques as genetic transformation, heterologous expression systems and functional characterization of proteins.

Her work caught the attention of the Institute for International Cooperation, ICRISAT, in India, which turned to her as an R&D consultant for the development of a new project focused on seed selection using genetic markers, where aquaporins appeared as stress resistance markers.

After finishing this stage in India, she dedicated a few years of her life to work as freelance in sustainable agriculture and she became the mother of a child. In this period, she was able to understand at first-hand the problems facing agriculture outside the research sector and she had a first contact with the physiopathies.

Thus, during several years she worked in several companies related to phytosanitary products for the control of physiopathies and pests, their uses, and the problems they generate for the ecosystems, understanding the reality of the field at all levels. She worked both, at a technical and R&D level, carrying out Ecotoxicology, Effectiveness and Residue tests, in charge of developing new products, developing public-private projects (InnPacto) directing experimental trials and managing and training working groups.

Currently hired as a researcher at CEBAS-CSIC in the Plant Nutrition Department, at the Aquaporins Group. As soon as she returns to scientific research (2019), her scientific concern led her to develop a new line of research on the interrelation of aquaporins with the physiopathies and stress of crop plants, a new line of which there is no previous knowledge, assuming a personal challenge and also innovative for the group. This new field of study has enormous applicability and great importance in developing the agriculture of the future.

The group has been favoured by the entry of a researcher from its profile, which is reflected in the direction of 5 PhD, 1 TFM, 2 TFG and several students in practices of the Degree in Biology and Biotechnology, and the number of staff continues to increase, due to the excellent results they are having, which have given rise to more than 10 publications, 3 bibliographic reviews and various sub-lines of research projects in development, indicating the feasibility and potential for the future research activity with the studies she is currently conducting.

Author and co-author of 22 articles (Q1, WOS, Plant Sciences, category) and a book chapter. h-index 10; she is collaborating in 6 active projects and in the development of a new degree in "Environmental Sciences and Sustainable Development" in the UNIR University, invited as a speaker at International Congresses, teaching in 2 Masters in different Spanish Universities (UMU and UPCT), working as Guest editor on a research topic on Aquaporins and a Special issue on Water-nutrients interrelations, reviewer in the journal "Frontiers in Plant Science" (Q1) and "Agronomy" (Q1).

## Part C. RELEVANT MERITS (sorted by typology)

### C.1. Publications (Publications of the last 3 years)

- Bárzana G**; Rios J.J., Lopez-Zaplana A., Nicolas-Espinosa J., Yepes-Molina L., Garcia-Ibanez P. & Carvajal M. (2020) Interrelations of nutrient and water transporters in plants under abiotic stress. *Physiologia Plantarum*. <https://doi.org/10.1111/ppl.13206>
- Lopez-Zaplana A., **Bárzana G.**, Agudelo A. & Carvajal M. (2020) Foliar Mineral Treatments for The Reduction of Melon (*Cucumis melo L.*) Fruit Cracking. *Agronomy*. <https://doi.org/10.3390/agronomy10111815>
- Yepes-Molina L., **Bárzana G.** & Carvajal M. (2020) Controversial Regulation of Gene Expression and Protein Transduction of Aquaporins under Drought and Salinity Stress. *Plants*. <https://doi.org/10.3390/plants9121662>
- Bárzana G.** & Carvajal M. (2020) Genetic regulation of water and nutrient transport in water stress tolerance in roots. *Journal of Biotechnology*. <https://doi.org/10.1016/j.jbiotec.2020.10.003>
- Lopez-Zaplana A., Nicolas-Espinosa J., Carvajal M. & **Bárzana G\***. (2020) Genome-wide analysis of the aquaporin genes in melon (*Cucumis melo L.*). *Scientific Reports*. <https://doi.org/10.1038/s41598-020-79250-w>
- Lopez-Zaplana A., Nicolas-Espinosa J., Carvajal M. & **Bárzana G\***. (2021) Relationship between aquaporins expression and B concentration for conferring cold stress tolerance in broccoli cultivars. *Environmental and Experimental Botany*. <https://doi.org/10.1016/j.envexpbot.2021.104466>

- Quirante-Moya F. J., Martínez-Alonso A., Lopez-Zaplana A., **Bárzana G.** & Carvajal M. (2021) Water relations and Ca, B and Si application nutrients determining fruit physical quality in relation to aquaporins in Prunus. *Scientia Horticulturae*. <https://doi.org/10.1016/j.scienta.2021.110718>
- Ríos J.J., Lopez-Zaplana A., **Bárzana G.**, Martínez-Alonso A. & Carvajal M. (2021) Foliar application of boron nanoencapsulated in almond trees allow B movement within tree and implements water uptake and transport involving aquaporins. *Frontiers in Plant Science*. <https://doi.org/10.3389/fpls.2021.752648>
- Lopez-Zaplana A., Martínez-García N., Carvajal M. & **Bárzana G\***. (2021) Relationships between aquaporins gene expression and nutrient concentrations in melon plants (*Cucumis melo L.*) during typical abiotic stresses. *Environmental and Experimental Botany*. <https://doi.org/10.1016/j.envexpbot.2021.104759>
- Martínez-Alonso A., Carvajal M. & **Barzana, G.** (2021) Different Strategies to Tolerate Salinity Involving Water Relations. *Biology and Life Sciences Forum*. <https://doi.org/10.3390/IECPS2021-12035>
- Nicolas-Espinosa J., García-Gómez P., Ríos J.J., Piqueras A., **Bárzana G.** & Carvajal, M. Nanoencapsulated Boron Foliar Supply Increased Expression of NIPs Aquaporins and BOR Transporters of In Vitro Ipomoea batatas Plants. *Appl. Sci.* <https://doi.org/10.3390/app12041788>
- Lopez-Zaplana A., **Bárzana G.**, Ding L., Chaumont F. & Carvajal (2022) Aquaporins involvement in the regulation of melon (*Cucumis melo L.*) fruit cracking under different nutrient (Ca, B and Zn) treatments. *Environmental and Experimental Botany* <https://doi.org/10.1016/j.envexpbot.2022.104981>
- Bárzana G.**, García-Gómez P. & Carvajal M. (2022) Nanomaterials in plant systems: Smart advances related to water uptake and transport involving aquaporins. *Plant Nano Biology* <https://doi.org/10.1016/j.plana.2022.100005>
- Ortiz-Delvasto N., García-Ibáñez P., Olmos-Ruiz R., **Bárzana G.** & Carvajal M. (2022) Substrate composition affects growth and physiological parameters of blueberry. *Scientia Horticulturae*. <https://doi.org/10.1016/j.scienta.2022.111528>
- Pedrazni H.E., **Bárzana G.**, Gil R.A., Molina S et al. (2022) Jasmonates, aquaporins and nutritional response of *Medicago sativa* in symbiosis with AM under abiotic stress. *Annals of Agricultural Science and Research* 1:1-14.
- Martínez-Alonso A., García-Ibañez P., **Bárzana G.** & Carvajal M. (2022) Leaf Gas Exchange and Growth Responses of Tomato Plants to External Flavonoids Application as Biostimulators under Normal and Salt-Stressed Conditions. *Agronomy* 12, 3230. <https://doi.org/10.3390/agronomy12123230>

## C.2. Congress

### International

- XVIII Reunión de la Sociedad Española de Fisiología Vegetal (SEFV) XI Congreso Hispano-Luso de Fisiología Vegetal. Sept 2009. Poster.
- 2nd EMBO Conferences Series on Plant Molecular Biology. *Frontiers in Plant Research*. May 2009. Poster.
- XIX Reunión de la Sociedad Española de Fisiología Vegetal (SEFV) XII Congreso Hispano-Luso de Fisiología Vegetal. June 2011. Poster.
- Top science international - BASF symposium on Unlocking Yield Potential in Soil. Oct 2014. Guest Oral Speaker.
- Tropical Agriculture Conference 2015 – Meeting the Productivity Challenge in the Tropics. Nov 2015. Oral and poster
- 18th International workshop on plant membrane biology. July 2019. Poster.
- XXIV Reunión de la Sociedad Española de Biología de Plantas y el XVII Congreso Hispano-Luso de Biología de Plantas. July 2021. Guest Oral Speaker.
- The 2nd International Electronic Conference on Plant Sciences. Dec 2021. Oral and Poster.
- XVI Meeting of Plant Molecular Biology (RBMP2022). Sept 2022. Poster.

## C.3. Research projects (Projects collaboration in the last 3 years).

- 1.- **Title:** Desarrollo de métodos de propagación vegetativa de *Allium Cepa* mediante técnicas de Biofortificación. Organism: Ministerio de Ciencia, Innovación y Universidades - CDTi Project leader:

- Gloria Bárzana and Jose Antonio Pascual (CEBAS-CSIC). Starts and end 2023-2025. Funding: 73.000€.
- 2.- **Title:** Fuentes Alternativas para Fertilizantes de Precisión en Cultivo Ecológico basadas en Subproductos de Agricultura. Organism: Ministerio de ciencia, innovación y universidades Proyecto MISIONES – CDTi. Project leader: Micaela Carvajal and Jose Antonio Pascual (CEBAS-CSIC) Starts and end 2022-2025. Funding: 333.057€.
  - 3.- **Title:** Agricultura Sostenible con Vertido Cero de Nitratos en Mar Menor. Organism: CARM (RIS3MUR) PARTE1. (21094/PDC/19). Project leader: Micaela Carvajal (CEBAS-CSIC). Starts and end 2021-2022. Funding: 187.500 €.
  - 4.- **Title:** Nueva generación de sistemas de aprovechamiento energético de biomásas residuales sin emisiones. Hacia fuentes de energía negativas en carbono (0e-MISION). Organism: Ministerio de ciencia, innovación y universidades Proyecto MISIONES - CDTi. Project leader: Micaela Carvajal (CEBAS-CSIC). Starts and end 2020-2022. Funding: 1.500.000 €.
  - 5.- **Title:** Interrelación de la microflora del suelo con los canales moleculares de absorción de agua y nutrientes en la planta (*Allium Cepa L.*) para generar intervención agrícola de precisión. Organism: Ministerio de Ciencia, Innovación y Universidades - CDTi. Project leader: José Antonio Pascual (CEBAS-CSIC). Starts and end 2020-2022. Funding: 60.000 €.
  - 6.- **Title:** Bioestimulación de la actividad transportadora de las acuaporinas en fruta de hueso. Organism: Ministerio de Ciencia, innovación y Universidades - CDTi. Project leader: Micaela Carvajal (CEBAS-CSIC). Starts and end 2019-2022. Funding: 45.000 €.
  - 7.- **Title:** Nanotecnologías de encapsulación de nutrientes y su aplicación en fertilización foliar. Organism: Ministerio de Ciencia, Innovación y Universidades (Retos-Colaboración RTC-2017-6544-2). Project leader: Micaela Carvajal (CEBAS-CSIC). Starts and end 2018-2022. Funding: 495.040 €.
  - 8.- **Title:** Desarrollo y aplicación de nuevas tecnologías de control de fisiopatías en el cultivo de melón, brócoli y pack choi. Ministerio de Ciencia, Innovación y Universidades (Retos-Colaboración RTC-2017-6119-2). Project leader: Micaela Carvajal Alcaraz (CEBAS-CSIC). Starts and end 2018-2022. Funding: 210.242 €.

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

- 1.- Producción y desarrollo de ingredientes vegetales encapsulados con efecto beneficioso en la microbiota humana. SAKATA SEED IBERICA, S.L.U CDTI. 2018-2021. 84.267 Eur
- 2.- Development and application of new technologies for controlling physiopathies in melon, broccoli and pack choi. SAKATA SEED IBERICA, S.L.U Retos-Colaboración. 2018-2021
- 3.-Nutrient encapsulation nanotechnologies and its application in foliar fertilization. NUTRIENTES FOLIARES S.A. Retos-Colaboración. 2018-2021.
- 4.-Bioestimulación de la actividad transportadora de las acuaporinas en fruta de hueso. Fenix Fresh, S.L.-CDTI. 2019-2022. 45.000 Eur
- 5.-Diferenciación funcional de los subproductos del brócoli como base para su aplicación cosmeceútica. AGROPEYFI, S.L.-CDTI. 2019-2021. 30.000 Eur
- 6.- Interrelación de la microflora del suelo y los canales moleculares de transporte de membrana. JAVALOYES S.A.-CDTI. 2020-2022. 60.000 Eur
- 7.-Nueva generación de sistemas de aprovechamiento energético de biomásas residuales sin emisiones. COMERCIAL HUETE, SL.& COMERCIAL PROJAR, S.A.- (Programa MISIONES CDTI) 1.500.000 €.
- 8.- Endophytic microorganisms as inducers of natural molecules of agronomic interest. MYCOSYM TRITON S.L. –INNPACTO. 2014-2015.
- 9.- Member of the Scientific committee of +Broccoli Association.
- 10.-Consultant in the development of the degree in “Environmental Sciences and Sustainable Development” UNIR University.
- 11.- Guest Editor in Research Topics and Special Issues on Aquaporins, Water-ion-solute Interrelations and Integral water transport in “Frontiers in Plant Science” (Frontiers Media S.A.) and “Agronomy” (MDPI) and reviewer in both Q1 journals.
- 12.- Teacher in the Master's Degree in UPCT (TAIDA. Advanced Techniques in Agricultural and Food Research and Development) and in UMU (Molecular Biology and Biotechnology).