

CV Date	09/05/2023
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## Part A. PERSONAL INFORMATION

First Name	María Mónica		
Family Name	Calvo Polanco		
Sex	Not Specified	Date of Birth	
ID number Social Security, Passport			
URL Web	<a href="https://produccioncientifica.usal.es/investigadores/157351/detalle">https://produccioncientifica.usal.es/investigadores/157351/detalle</a>		
Email Address			
Open Researcher and Contributor ID (ORCID)	0000-0002-0813-0921		

### A.1. Current position

Job Title	Contratada Doctor Permanente		
Starting date	2022		
Institution	Universidad de Salamanca		
Department / Centre	Botánica y Fisiología Vegetal / Facultad de Biología		
Country	Spain	Phone Number	(34) 623380748
Keywords	Molecular, cellular and genetic biology; Agriculture		

### A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2020 - 2022	Investigadora de la Unidad de Excelencia AGRIENVIRONMENT / Universidad de Salamanca
2015 - 2018	AgreenSkills-Marie Curie Postdoctoral Fellow / INRA Montpellier
2015 - 2015	Postdoctoral Fellow / SupAgro-INRA Montpellier
2014 - 2015	Postdoctoral / Consejo Superior de Investigaciones Científicas
2014 - 2014	Profesora Visitante / Universidad de Iwate
2011 - 2014	Contratada Juan de la Cierva / Consejo Superior de Investigaciones Científicas
2008 - 2011	Postdoc - Research Associate / UNIVERSITY OF ALBERTA / Canada
2005 - 2008	Research Assistant / UNIVERSITY OF ALBERTA / Canada

### A.3. Education

Degree/Master/PhD	University / Country	Year
Master en Bioinformática y Bioestadística	Universitat Oberta de Catalunya	2022
PhD in Forest Biology and Management	University of Alberta / Canada	2008

## Part B. CV SUMMARY

## Part C. RELEVANT ACCOMPLISHMENTS

### C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- 1 **Scientific paper.** Monica Calvo Polanco; Zoe Ribeyre; Myriam Dauzat; et al; Yann Boursiac. (1/13). 2021. Physiological roles of Casparian strips and suberin in the transport of water and solutes. *New Phytologist*. NPH-MS-2021-35823. WOS (14) <https://doi.org/10.1111/nph.17765>
- 2 **Scientific paper.** Flavius C Pascut; Valentin Couvreur; Daniela Dietrich; et al; Kevin F Webb. 2021. Non-invasive hydrodynamic imaging input roots at cellular resolution. *Nature Communications*. NCOMMS-21-12338-T. WOS (10) <https://doi.org/10.1038/s41467-021-24913-z>
- 3 **Scientific paper.** Monica Calvo Polanco; Angel Maria Zamareño; Jose Maria Garcia Mina; Ricardo Aroca. 2019. Local ABA-Cytokinin signaling affects aquaporin regulation under drought independently of *Laccaria bicolor* in poplar. *Journal of Experimental Botany*. 70-21, pp.6437-6446. ISSN 0022-0957. WOS (23) <https://doi.org/10.1093/jxb/erz389>
- 4 **Scientific paper.** Angel Luigi; Alfonso; Mónica; José Eduardo; Asunción. (3/5). 2023. A mycorrhizal helper bacterium alleviates drought stress in mycorrhizal *Helianthemum almeriense* plants by regulating water relations and plant hormones. *Environmental and Experimental Botany*. Elsevier. 207-105228. ISSN 0098-8472.
- 5 **Scientific paper.** Guilhem Reyt; Priya Ramakrishna; Isai Salas Gonzalez; et al; David E. Salt. 2021. Two chemically distinct root lignin barriers control solute and water balance. *Nature Communications*. WOS (22) <https://doi.org/10.1038/s41467-021-22550-0>
- 6 **Scientific paper.** Monica Calvo Polanco; Juan Manuel Ruiz Lozano; Rosario Azcón; Sonia Molina; Carmen R. Beuzon; Jose Luis Garcia; Manuel Cantos; Ricardo Aroca. 2019. Phenotypic and molecular traits determine the tolerance of olive trees to drought stress. *Plant Physiology and Biochemistry*. 139, pp.521-527. ISSN 0981-9428. WOS (12) <https://doi.org/10.1016/j.plaphy.2019.04.017>
- 7 **Scientific paper.** Janusz J. Zwiazek; Maria Alejandra Equiza; Justine Karst; Jorge Señorans; Mark Wartenbe; Monica Calvo Polanco (AC). (6/6). 2019. Role of urban ectomycorrhizal fungi in improving the tolerance of lodgepole pine (*Pinus contorta*) seedlings to salt stress. *Mycorrhiza*. Springer. 29, pp.303-312. ISSN 0940-6360. WOS (17) <https://doi.org/10.1007/s00572-019-00893-3>
- 8 **Scientific paper.** First-coauthor; First-coauthor; Marie Barberon; et al; David E Salt. 2019. Surveillance of cell wall diffusion barrier integrity modulates water and solute transport in plants. *Scientific Reports*. 9-4227. ISSN 2045-2322. WOS (50) <https://doi.org/10.1038/s41598-019-40588-5>
- 9 **Scientific paper.** Beatriz Sanchez Romera; Monica Calvo Polanco; Juan Manuel Ruiz Lozano; Angel Maria Zamarreño; Vicente Arbona; Jose Maria Garcia Mina; Ricardo Aroca. 2017. Involvement of def-1 mutation in the regulation of root hydraulic properties by arbuscular mycorrhizal fungi. *Plant and Cell Physiology*. 59-2, pp.248-261. ISSN 0032-0781. WOS (31) <https://doi.org/10.1093/pcp/pcx178>
- 10 **Scientific paper.** Monica Calvo Polanco; Wenqing Zhang; Jorge Senorans; Ellen McDonald; Janusz Zwiazek. (1/5). 2017. Boreal forest plant species responses to pH: ecological interpretation and application to reclamation. *Plant and Soil*. Springer International Publishing. 420-1-2, pp.195-208. ISSN 0032-079X. WOS (19) <https://doi.org/10.1007/s11104-017-3356-0>
- 11 **Scientific paper.** Monica Calvo Polanco; Sonia Molina; Jose Maria Garcia Mina; Angel Maria Zamarreño; Ricardo Aroca. 2017. Ethylene sensitivity and relative air humidity regulate root hydraulic properties in tomato plants. *Planta*. Springer. 246-5, pp.987-997. ISSN 0032-0935. WOS (10) <https://doi.org/10.1007/s00425-017-2746-0>
- 12 **Scientific paper.** First-coauthor; First-coauthor; Damian Cirelli; Jorge Senorans; Mark Wartenbe; Janusz Zwiazek. 2016. Long-term impact of road salt use on soil and urban trees in Edmonton, Canada. *Urban Forestry and Urban Greening*. 21, pp.16-28. ISSN 1618-8667. WOS (39) <https://doi.org/10.1016/j.ufug.2016.11.003>

- 13 **Scientific paper.** Monica Calvo Polanco; Ivan Sanchez Castro; Manuel Cantos; Jose Luis Garcia; Rosario Azcon; Juan Manuel Ruiz Lozano; Carmen Beuzon; Ricardo Aroca. 2016. Effects of different arbuscular mycorrhizal fungal backgrounds and soils on olive plants growth and water relation properties under well-watered and drought conditions. *Plant Cell and Environment*. 39, pp.2498-2514. ISSN 0140-7791. WOS (66) <https://doi.org/10.1111/pce.12807>
- 14 **Scientific paper.** Monica Calvo Polanco; Beatriz Sanchez Romera; Ricardo Aroca; et al; Juan Manuel Ruiz Lozano. 2016. Exploring the use of recombinant inbred lines in combination with beneficial microbial inoculants (AM fungus and PGPR) to improve drought stress tolerance in tomato. *Environmental and Experimental Botany*. 131, pp.47-57. ISSN 0098-8472. WOS (107) <https://doi.org/10.1016/j.envexpbot.2016.06.015>
- 15 **Book chapter.** ; Carmen Guerrero Galán; Gabriela Houdinet; Monica Calvo Polanco; Katia E. Bonaldi; Kevin Garcia; Sabine Dagmar Zimmermann. 2018. The role of plant transporters in mycorrhizal symbiosis. *Membrane transport in plants*. Elsevier. 90. WOS (11) <https://doi.org/10.1016/bs.abr.2018.09.012>
- 16 **Book chapter.** Gorka Erice; Maria Luisa Lopez Bueno; Monica Pineda; Matilde Baron; Ricardo Aroca; Monica Calvo Polanco. 2018. Determining Plant Water Relations. *Advances in Plant Ecophysiology Techniques*. Springer. pp.109-134. WOS (1) [https://doi.org/10.1007/978-3-319-93233-0\\_7](https://doi.org/10.1007/978-3-319-93233-0_7)
- 17 **Book chapter.** Juan Manuel Ruiz Lozano; Rosa Porcel; Monica Calvo Polanco; Ricardo Aroca. 2018. Improvement of salt tolerance in rice plants by arbuscular mycorrhizal symbiosis. *Root Biology*. Springer International Publishing. 52, pp.259. WOS (9) [https://doi.org/10.1007/978-3-319-75910-4\\_10](https://doi.org/10.1007/978-3-319-75910-4_10)
- 18 **Bibliographic review.** Capilla; Inmaculada; Noelia; et al; Oscar; Monica. (7/9). 2023. Functions of nitric oxide-mediated post-translational modifications under abiotic stress. *Frontiers in Plant Science*. 14-1158184.
- 19 **Bibliographic review.** Muhammad; Tania; Hannah; Monica; Isabelle; ; Kevin; Sabine. 2021. Mycorrhizal Symbiosis for Better Adaptation of Trees to Abiotic Stress Caused by Climate Change in Temperate and Boreal Forests. *Frontiers in Forest and Global Change*. 4-742392. WOS (5) <https://doi.org/10.3389/ffgc.2021.742392>
- 20 **Bibliographic review.** Carmen Guerrero Galan; Monica Calvo Polanco; Sabine D. Zimmermann. 2019. Ectomycorrhizal symbiosis helps plants to challenge salt stress conditions. *Mycorrhiza*. 29, pp.291-301. ISSN 0940-6360. WOS (41) <https://doi.org/10.1007/s00572-019-00894-2>

## C.2. Conferences and meetings

- 1 Esperanza; Pedro; Oscar; Monica. Mycorrhizal fungi volatiles affects plant development and root architecture through auxin and cytokinin pathways. XVI Meeting of Plant Molecular Biology (RBMP). Sociedad Española en Biología Molecular. 2022. Spain.
- 2 Esperanza; María; Oscar; Monica. Mycorrhizal fungi volatiles affects plant development through different hormonal pathways. XXIV Reunión de la Sociedad Española de Biología de Plantas -XII Congreso Hispano-Luso de Biología de Plantas. Sociedad Española de Biología de Plantas. 2021.
- 3 Monica Calvo Polanco; Maria Noya; Esperanza Miñambres; Oscar Lorenzo. High-throughput screening of Arabidopsis thaliana mutants impaired in hormonal pathways affected by mycorrhizal fungi volatiles. XV Meeting of Plant Molecular Biology. Sociedad Española de Bioquímica y Biología Molecular (SEBBM). 2020.
- 4 Monica Calvo Polanco; Sonia Molina; Ricardo Aroca. Phenotypic and molecular traits determine the tolerance of olive trees to drought stress. XVI Spanish Portuguese Congress of Plant Physiology. Spanish Society of Plant Physiology. 2019. Spain.
- 5 Monica Calvo Polanco; Yann Boursiac. Modelling water transport in plant roots. 5th AgreeSkills Annual Meeting. AgreeSkills- Maria Skolodowska Actions. 2018. United Kingdom.
- 6 Guilhem Reyt; Monica Calvo Polanco; Prasat Hosmani; Yann Boursiac; David Salt. New insights into lignin polymerisation to establish a functional Casparian strip-based cell wall diffusion barrier. International Symposium on Plant Apoplastic Diffusion Barriers: Biosynthesis and Functions. ITQB NOVA. 2017. Portugal.

- 7 Monica Calvo Polanco; Zoe Ribeyre; Rochus Benni Franke; David Salt; Thierry Simonneau; Bertrand Muller; Christophe Maurel; Yann Boursiac. Role of endodermal Casparian strip and suberin in the hydromineral status of plants under stress. XV Spanish and Portuguese congress of plant physiology. Spanish Society of Plant Physiology. 2017. Spain. Participatory - oral communication. Conference.
- 8 Monica Calvo Polanco; Angel Maria Zamarréño; Jose Maria Garcia Mina; Ricardo Aroca. Systematic regulation of aquaporin expression by *Laccaria bicolor* in aspen trees under drought conditions. XV Spanish and Portuguese congress of plant physiology. Spanish Society of Plant Physiology. 2017. Spain. Participatory - oral communication. Conference.
- 9 ; Monica Calvo Polanco;. Understanding root water transport in plants under abiotic stress. 4th AgreeSkills Annual Meeting. AgreeSkills INRA. 2017. France. Participatory - oral communication. Conference.
- 10 Yann Boursiac; Ana Maria Velez Cardona; Monica Calvo Polanco; Didier Felbacq; Christophe Pradal; Martin Lucas; Christophe Godin; Christophe Maurel. How does water flow through roots?. Salt & Water stress in plants, from molecules to crops. Gordon Research Conferences. 2016. Switzerland.

### C.3. Research projects and contracts

- 1 **Project.** Modelling integrated biodiversity-based next generation Mediterranean farming systems. BIOMEnext PCI2022-132990. (Universidad de Salamanca). 01/06/2022-31/05/2025. 129.375 €.
- 2 **Project.** Caracterización del potencial de la cepa *P. brassicacearum* CDVBN10 como biofertilizante, bioestimulante y biopesticida para cultivos de importancia agronómica TED2021-129157B-I00. (Universidad de Salamanca). 01/01/2023-31/12/2024. 127.950 €.
- 3 **Project.** Excellence Unit Project: Mechanisms of communication among mycorrhizal fungi and plants under stress. (Universidad de Salamanca). 15/01/2020-31/12/2022.
- 4 **Project.** Aplicación de la biología translacional y el microbioma en la protección frente a estrés hídrico e hipoxia en plantas. (Universidad de Salamanca). 15/12/2020-21/12/2022. 264.000 €.
- 5 **Project.** ERACAPS Project: Plant root diffusional barriers: genesis and implications for nutrient efficiency and stress tolerance. (Supagro INRA). 01/08/2014-31/12/2017. 2.100.000 €.
- 6 **Project.** AGL2012-39057-C02-02, Mecanismos reguladores de la efectividad de bacterias y hongos arbusculares promotores del crecimiento en la revegetación de zonas semiáridas. Ministerio de Economía y Competitividad. (Estación Experimental del Zaidín). 01/01/2013-31/12/2015. 133.380 €.
- 7 **Project.** KBBE.2011.289365, Empowering root-targeted strategies to minimize abiotic stress impacts on horticultural crops. (Estación Experimental del Zaidín). 01/01/2012-31/12/2015. 178.380 €.
- 8 **Project.** AGL2011-25403, Implicación de los jasmonatos y del etileno en la regulación de las características hidráulicas de la raíz y la inducción de tolerancia a la sequía en plantas micorrizadas. (Estación Experimental del Zaidín). 01/01/2012-31/12/2014. 169.400 €.
- 9 **Project.** CVI-5920, Involvement of aquaporins in the enhancement of drought tolerance by arbuscular mycorrhizal symbiosis in olive trees. JUNTA DE ANDALUCÍA. (Estación Experimental del Zaidín). 01/07/2011-30/06/2014. 126.400 €.
- 10 **Project.** Plasma membrane aquaporin responses to NaCl in *Arabidopsis thaliana*: protoplast and proteomic analyses. Japan Society for the Promotion of Science (JSPS). (University of Iwate). 13/02/2014-12/06/2014. 30.000 €.
- 11 **Project.** Environmental constraints to growth of *Acorus* sp. in oil sands reclamation areas. CONRAD Oil Sand Companies - NSERC Canada. (University of Alberta). 01/10/2010-30/09/2012. 120.000 €. Co-ordinator.
- 12 **Project.** Mycorrhizal diversity and salt resistance in urban areas. City of Edmonton - NSERC Canada. (University of Alberta). 01/10/2008-30/09/2012. 90.000 €. Co-ordinator.