CVA date	May, 11th, 2026

Part A. PERSONAL INFORMATION

First name	MARÍA DE LA CRUZ		
Family name	GONZÁLEZ GARCÍA		
Gender (*)	FEMALE	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-8141-9679	

A.1. Current position

Position	Profesora Titular de Universidad		
Initial date	10/12/2015		
Institution	Universidad de Sevilla		
Department/Center	Bioquímica Vegetal y Biología Molecular		
Country	España	Teleph. number	
Key words	Arabidopsis, Redox regulation, photosynthesis, invertases, light acclimation		

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

Period	Position/Institution/Country/Interruption cause
2012-2015 (36 months)	Tenured lecturer at the Univ. of Sevilla, Spain
2008-2012 (49 months)	Ramón y Cajal research fellow at the Plant Biochemistry and Molecular Biology Department, Sevilla, Spain
2005-2008 (36 months)	I3P Research Fellow at the Institute of Plant Biochemistry and Photosynthesis (IBVF) CSIC, Sevilla, Spain
2002-2005 (30 months)	FEBS Fellow at the Lehrstuhl für Pharmazeutische Biologie, University of Wuerzburg, Würzburg, Germany

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor of Chemical Sciences (specializing in Biochemistry)	University of Granada (Spain)	1993
PhD in Chemical Sciences	University of Sevilla (Spain)	1999

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

My research career focuses on the **metabolism of photosynthetic organisms**, with a consistent orientation toward generating knowledge that has a real impact on crop improvement and on the understanding of key physiological processes. Since my early career stages, I have combined basic and applied research, consolidating stable international collaborations and contributing significantly to strategic research lines within the groups in which I have worked, always with a clear emphasis on the quality of the knowledge generated and the real impact of the results, published mostly in prestigious Q1 journals.

In my first postdoctoral stage (1999-2002), at the Institute of Plant Biochemistry and Photosynthesis (IBVF, CSIC-University of Seville), I played a central role in the **development of a method to prevent bolting in autumn-sown sugar beet**, a problem with substantial agronomic consequences, based in the identification of the role of **invertases**—key enzymes in sucrose degradation that establish source-sink relationships in plants—in sugar biosynthesis and accumulation in the root and their **regulation by gibberellins**. This work, conducted in collaboration with AIMCRA (Association for Research on the Improvement of Sugar Beet

Cultivation), generated a solution directly applicable in the field and validated under real cultivation conditions, providing tangible benefits for the production sector.

Subsequently, during my postdoctoral stay at the **University of Würzburg** (Germany), I contributed decisively to identifying the **role of cell-wall invertases in cytokinin-mediated delay of senescence**, helping to clarify a key element in the regulation of this process. This research line had a significant impact and resulted in a publication in Plant Cell and a review in Trends in Plant Science, both of which remain reference articles in the field of invertases two decades later. In addition, I contributed substantially to identifying the **role of cell-wall invertases in the development of clubroot disease in *Brassicaceae***, providing the first evidence for the involvement of these enzymes in sugar supply to the pathogen and disease progression. The collaboration established from then on with Prof. Roitsch—leading to numerous publications until 2017—has remained active and was recently strengthened through Erasmus research visits to his group at the University of Copenhagen, from which a new manuscript is currently being prepared.

From 2005 to the end of 2024, my research at the Institute of Plant Biochemistry and Photosynthesis - from different postdoctoral positions (I3P and Ramón y Cajal) to my current role as Tenured Lecturer - has focused on **plastidial redox-regulatory systems**. I have contributed to the understanding of the **role of NTRC in plant development** (lateral root formation, seed development, and seedling establishment) and led the development of a proteomic approach specifically designed to identify NTRC targets, expanding the group's capacity to address complex mechanistic questions. This work contributed to the establishment of new research lines within the group, including the regulation of the malate valve by NTRC and thioredoxins, between others. During this period, I have co-supervised three PhD students.

Throughout this period, I have been part of a consolidated research group with an already established leadership. Although my formal institutional role has been that of a research team member, I have played an active role in the design, experimental development, and execution of research projects, while balancing these responsibilities with family-care commitments. These commitments are related to the born of my two daughters in 2006 and 2009, which were associated to temporal interruptions of my research work.

My recent incorporation (2025) into Dr. Ángel Mérida's group has broadened my contribution towards the study of **photoprotection mechanisms and PSII repair**, including contributions to the analysis of the role of APE1 in **de-etiolation**, thereby integrating my previous experience with the strategic objectives of the group.

Alongside my scientific activity, I have built a solid trajectory **in teaching, knowledge transfer, and institutional leadership**. With more than twenty years of teaching experience, I have led innovation projects and outreach activities, achieving an "excellent" rating in the official evaluation of my teaching performance. I have taken on high-level management responsibilities, including serving as Coordinator of the Biochemistry Degree Programme (2019–2025, 64 months) and, currently, from March 2025, as Head of the Department of Plant Biochemistry and Molecular Biology. These roles have strengthened my capacity to lead teams, manage complex processes, and articulate collective strategies.

I believe that this combination of research expertise, knowledge transfer, teaching excellence, and institutional leadership positions me fully and confidently to assume the co-direction of the proposed project.

Part C. RELEVANT MERITS
C.1. Publications

1. Torres-Romero, D.; Muro-Pastor, M.I.; Arana, F.J.; Hornero-Méndez, D.; Serrato, A.J.; **González, M.C.**; Sahrawy, M.; Florencio, F.J.; Mérida A. (6/9) 2026. APE1 is involved in the stabilization/formation of the RC47 complex of PSII in oxygenic prototrophic organisms. Plant Physiology. kiaf656. https://doi.org/10.1093/plphys/kiaf656.

2. Rodríguez-Marín F.; Gallardo-Martínez A.M.; Hernández M.L.; **González M.C.**, Cejudo F.J.; Pérez-Ruiz J.M. (5/6). 2-Cys peroxiredoxins and chaperone cpHSP70 act concertedly in chloroplast biogenesis in Arabidopsis seedlings. The Plant Cell. koag096. https://doi.org/10.1093/plcell/koag096.

3. Delgado-Requerey V.; Cejudo F.J.; **González M.C.** (3/3). 2023. The functional relationship between NADPH thioredoxin reductase C, 2-Cys peroxiredoxins, and m-Type thioredoxins in the regulation of Calvin–Benson cycle and malate-valve enzymes in Arabidopsis. Antioxidants. 12, 1041. https://doi.org/10.3390/antiox12051041. (Corresponding author). WOS (6), SCOPUS (6).

4. Cejudo F.J.; **González M.C.**; Pérez-Ruiz J.M. (2/3). 2021. Redox regulation of chloroplast metabolism. Plant Physiology. 186, 9-21. https://doi.org/10.1093/plphys/kiaa062. WOS (91), SCOPUS (94).

5. **González M.C.**; Delgado-Requerey V.; Ferrández J.; Serna A.; Cejudo FJ. (1/5). 2019. Insights into the function of NADPH thioredoxin reductase C (NTRC) based on identification of NTRC-interacting proteins in vivo. Journal of Experimental Botany. 70, 5787-5798. https://doi.org/10.1093/jxb/erz. WOS (36), SCOPUS (35).

6. Nájera V.A.; **González M.C,**; Pérez-Ruiz J.-M.; Cejudo FJ. (2/3). 2017. An event of alternative splicing affects the expression of the NTRC gene, encoding NADPH-thioredoxin reductase C, in seed plants Plant Science. 258, pp.21-28. https://doi.org/10.1016/j.plantsci.2017.02.001. WOS (10), SCOPUS (11).

7. Ojeda V.; Pérez-Ruiz J.-M.; **González M.C.**; Nájera V.A.; Sahrawy M.; Serrato A.J.; Geigenberger P.; Cejudo F.J. (3/7). 2017. NADPH thioredoxin reductase C and thioredoxins act concertedly in seedling development. Plant Physiology. 174, 1436-1448. https://doi.org/10.1104/pp.17.00481. WOS (62), SCOPUS (64).

8. Albacete, A.; Cantero-Navarro, E.; Grossinsky, D. E.; et al; **Gonzalez, M.C.**; Roitsch, Thomas. (9/16). 2015. Ectopic overexpression of the cell wall invertase gene CIN1 leads to dehydration avoidance in tomato. Journal of Experimental Botany. 66, 863-878. https://doi.org/10.1093/jxb/eru448. WOS (69), SCOPUS (73).

9. Kirchsteiger K.; Ferrandez J.; Pascual M.B.; **González M.C.**; Cejudo F.J. (4/5). 2012. NADPH thioredoxin reductase C is localized in plastids of photosynthetic and nonphotosynthetic tissues and is involved in lateral root formation in Arabidopsis. Plant Cell. 24, 1534-1548. https://doi.org/10.1105/tpc.111.092304. WOS (77), SCOPUS (79).

10. Siemens J*.; **González M.C.***; Wolf S.; et al; Ludwig-Müller J. 2011 (2/9). Extracellular invertase is involved in the regulation of clubroot disease in Arabidopsis thaliana. Molecular Plant Pathology. 12, 247-262. https://doi.org/10.1111/j.1364-3703.2010.00667.x. WOS (81), SCOPUS (85). * co-first authors.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)
32 conference communications.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. Ayuda extraordinaria para la preparación de proyectos (2025AEP82). Consejo Superior de Investigaciones Científicas. ÁNGEL MÉRIDA BERLANGA. (Institute of Plant Biochemistry and Photosynthesis (IBVF)). 01/09/2025 -31/05/2026. €10.000. Researcher.

2. PID2020-115156GB-I00, Unravelling the oxidative component of redox regulation. Impact on photosynthetic metabolism and plant growth (OXIPLANT). Ministry of Science and Innovation (National). FRANCISCO JAVIER CEJUDO FERNÁNDEZ. (Institute of Plant Biochemistry and Photosynthesis (IBVF)). 01/09/2021-28/02/2025. €254,100. Researcher.

3. P20_00567, Effect of the redox balance in the chloroplast on the efficiency of the photosynthetic process in plants. PAIDI 2020: R&D+i Projects. Ministry of Economy, Knowledge, Enterprises, and University. FRANCISCO JAVIER CEJUDO FERNÁNDEZ. (Institute of Plant Biochemistry and Photosynthesis (IBVF)). 05/10/2021-31/12/2022. €108,000. Researcher.

4. BIO2017-85195-C2-1-P, Redox regulation of chloroplast photosynthetic metabolism. State Plan 2013-2016 Excellence – R&D Projects. FRANCISCO JAVIER CEJUDO FERNÁNDEZ. (Institute of Plant Biochemistry and Photosynthesis (IBVF)). 01/01/2018-30/09/2021. €258,093. Researcher.

5. 2017/BIO-182, Incentive for the BIO-182 Research Group. Ministry of Innovation, Science, and Business. Andalusian Government. Grants for Group Consolidation by the Andalusian Government. Francisco Javier Cejudo Fernández. (Institute of Plant Biochemistry and Photosynthesis (IBVF)). 10/05/2017-31/12/2019.

6. BIO2013-43556-P, Role of NTRC in the redox regulation of chloroplasts: Relationship with the ferredoxin-dependent system and implications in signaling in plants. State Plan 2013-2016 Excellence – R&D Projects. FRANCISCO JAVIER CEJUDO FERNÁNDEZ. (Institute of Plant Biochemistry and Photosynthesis (IBVF)). 01/01/2014-31/12/2017. €235,950. Researcher.

7. Contract, Neuroprotective foods for active aging in society (FOOD4STROKE) (3766/0412). Laboratorios Econatur, S.L. (Regional). Francisco Javier Cejudo. 26/11/2019-26/12/2021. €56,469.4. Researcher.

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any.

Design of a method to inhibit bolting in autumn-sown sugar beet through the application of gibberellin biosynthesis inhibitors (paclobutrazol):
Between September 1999 and December 2001, I joined a FEDER-funded project with a full-time contract, focused on studying various issues related to the cultivation of sugar beet. This crop is associated with significant economic losses when winter temperatures are particularly low, as a cold spell at a specific point in the growing cycle can cause bolting or flowering, which in turn reduces the sucrose content in the root.
Our work led to the implementation of a procedure involving the application of specific doses of paclobutrazol (a gibberellin biosynthesis inhibitor) at the beginning of March. This method is highly effective in inhibiting bolting and also increases the sucrose content in the root and the degree of polarization, resulting in a significant economic benefit. This procedure, is now recommended by AIMCRA for use by beet growers and is currently applied in real-world crops.