CURRICULUM VITAE ABREVIADO (CVA)

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

A.1. Current position

Name	María de la Gracia Roca López-Cepero		
Position	Scientific Researcher (Investigador Científico OPIs)		
Initial date	December 2025		
Institution	Spanish National Research Council (CSIC)		
Department/Center	Food Phytochemistry	Instituto de la Grasa	
Country	Spain	Teleph. number	
Key words	Chlorophylls, vegetal oils, phyllobilins, UV-Vis. spectroscopy, biochemical analysis, chromatography, mass spectrometry, metabolomics, enzymology and metabolic processes, plant molecular biology, food biochemistry, chemistry and biochemistry of natural pigments, colouring foodstuffs, food colorants, cell culture, bioaccessibility, availability.		

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

Period	Position/Institution/Country/Interruption cause
1997-1997	Pre-doctoral contract within EU project (AIR4PL 94-1355)
1997-2001	FPI fellowship (Ministerio de Educación y Cultura-PN96) at IG (Sevilla, SP)
2002-2004	Post-doctoral fellowship (MCyT) IGER (Aberystwyth, UK)
2005-2008	Post-doctoral contract Juan de la Cierva at IG (Sevilla, SP)
2008-2025	Tenured Scientist (Científico Titular OPIs) at the Spanish National Research Council (CSIC).

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor´s degree in Biology	Seville University/Spain	1994
PhD in Biology	Seville University/Spain	2001

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

My initial background in Food Science started with the research of the biochemistry of chlorophylls in fruits to improve olive oil quality, establishing authenticity indexes and methodologies for the detection of adulteration. Next, the 2-year postdoctoral stay allowed me to work with the best scientists on biochemistry and molecular biology of chlorophylls, leading to cloning the key enzyme in the catabolic pathway of chlorophylls. But 17 years ago, when I got my position of “Científico Titular” at IG, my scientific career moved into new research areas. I initiate the development of new systematic tools to achieve metabolomic studies in foods of vegetal origin. It was necessary to characterize the chlorophyll metabolites by HPLC-MS^n and to establish an accurate procedure for data gathering, analysis, and post-processing, including a complete database, hyphenated high-resolution analytical techniques, and the application of powerful post-processing software. This approach allows the identification of new chlorophyll derivatives, figuring out new metabolic pathways, as well as characterizing for the first time the complete profile of the authorized green natural food colorants, and the new green “coloring foods”. Next, I started a second new research line related to the assimilation of chlorophylls in mammals, developing new *in vitro* protocols and taking part in the INFOGEST network. A further step was the acquisition of *in vivo* data on the availability of natural food chlorophylls, which is yielding new insights into the specific tissue distribution of chlorophylls. Most of the mentioned research lines have been developed in the group “Chemistry and Biochemistry of Pigments” founded by Dr. Mª Isabel Mínguez-Mosquera at IG almost 50 years ago, which I have led since 2021, and currently holds 5 members. During my career, I have participated in

several national competitive projects as a researcher, being a PI in the last three projects (AGL2015, AGL2018, and AGL2021), funded by the AEI. Currently, I am an official member of the PTI AGRO4FOOD. I have collaborated on two European projects, and currently, I am involved in two international projects (Brazil and China). I have signed an International Joint Supervision agreement between UFSM (Brazil) and the Universidad Pablo de Olavide (UPO) As an international evaluator, I have assessed research projects for the Austrian Science Fund, the Polish National Science Centre, and the German Academic Exchange Service. I have signed an EFSA agreement to support the Safety Assessment of Novel Foods and Nutrient Sources, besides collaboration with two EFSA Databases. At the national level, I have participated in the Technical Committee of the Evaluating Commission at the AEI (Food Science and Technology). Another exciting area of my internationalizing work arises from my appointment by the European Commission (EC) as a member of the EU expert group "Chemistry of olive oil" (2014/C 319/08) from 2015 to 2019, and nominated since 2020 as a permanent member. Part of the commitments includes the amending of the EC regulations (as Nº 2568/91) or harmonization of CODEX standards (as CXS 33-1981). Next, the EC decided on my appointment in 2021 as a member of the EU delegation in the International Olive Council (IOC) expert groups. I complete these responsibilities with my duties as a member of the Ph.D. Academic Commission "Biotecnología, Ingeniería y Tecnología Química" (UPO, Sevilla) and at the corresponding Quality Committee since 2018. Currently, I have been an Associate Editor of the Spanish Journal of Agricultural Research since 2018. I was a member of the Scientific Committee of two international congresses: Pigments in Foods (2013) and "Talking with bioactive compounds" (2021). I organized a 2010 R+D+i activity, managing a workshop for official delegates of the Ministerio de Medio Ambiente, Medio Rural y Marino. I impart lessons from 2011 in the University Master's "Ciencia y Tecnología de Aceites y Bebidas Fermentadas" at UPO. Besides the formation of master's students and abroad internships, I have directed three Ph.D. students, currently working in R+D+i responsibility positions, two in a private company and the other at the University. At present, I´m directing two ongoing Ph.D. My technological profile includes the development of one patent, one "know-how" technology, 4 R+D+i contracts with private companies/government agencies, and more than 100 private reports for food companies, the Spanish government, and law courts, as well as scientific assessment reports. Because of this transfer activity, we are officially recognized at CSIC in the "Catalogue of technical-scientific service". My dissemination activity is focused on participation in a primary school book for the Seville City Council, projects aimed at citizen science, and public events such as European Researchers´ Night. Last year, I was promoted to Scientific Researcher OPIs (Disposición 25408, BOE 298, 12 December 2025).

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

C.1. Publications *(see instructions)*

1. Fernandes, A.S.; Jacob-Lopez, E.; Zepka, L.Q.; de Rosso, V.V.; **Roca, M**. Bioactive compound-loaded food-grade bigels: (II) Delivery systems focusing on the bioaccessibility of chlorophylls and the effects of microstructure and 3D printing, Food Hydrocolloids, 169, 2025, 111596. (Impact factor 2024: 12.4; Q1/D1, 4/181, in Food Science & Technology).
2. Fernandes, A.S.; Jacob-Lopez, E.; Zepka, L.Q.; **Roca, M.;** de Rosso, V.V. Bioactive compound-loaded food-grade bigels: (I) Characterization and study of colorimetry and 3D-printing capability. Food Hydrocolloids 2025, 168, 111486. (Impact factor 2024: 12.4; Q1/D1, 4/181, in Food Science & Technology).
3. Viera, I.; Benito, I.; Pérez-Gálvez, A.; **Roca, M**. Authentic composition of *in vivo* absorbed copper chlorophyllins using a mice model. Food Research International, 2025, 211, 116438. (Impact factor 2024: 8.0; Q1/D1, 13/181, in Food Science & Technology).
4. Serra, R.; Pérez-Gálvez, A.; **Roca, M**. A new biochemical pathway in chlorophyll degradation in melon fruit. Food Chemistry, 2025, 475, 143316. (Impact factor 2024: 9.8; Q1/D1, 7/181, in Food Science & Technology).
5. do Nascimento, T.C., Pinheiro, P.N.; Deprá, M.C.; Sartori, R.B.; **Roca, M**.; Jacob-Lopes, E.; Zepka, L.Q. Photoperiod strategies to increase microalgae-pigment content: A new level-up to natural food colorants production, Algal Research, 2025, 104185. (Impact factor 2024: 4.5; Q1, 25/177, in Biotechnology).

6. Book Microalgae and One Health Fundamentals, Biocompounds, and Health and Environmental Applications. Editors: Pérez-Gálvez, A.; Jacob Lopes, E.; Zepka, L.Q.; **Roca, M**. 2025. Academic Press, Elsevier. ISBN: 9780443220807.
7. **Roca, M**.; Pérez-Gálvez, A. Application of EFSA EU menu database and R computing language to calculate the green chlorophyll intake in the European population. Food Chemistry, 2024, 461, 140912. (Impact factor 2024: 9.8; Q1/D1, 7/181, in Food Science & Technology).
8. **Roca, M.;** Pérez-Gálvez, A. Absolute chlorophyll composition of commercial green food colorants and coloring foodstuff by HPLC-ESI-QTOF-MS/MS: Copper chlorophyllins. Food Chemistry, 2024, 436, 137728. (Impact factor 2024: 9.8; Q1/D1, 7/181, in Food Science & Technology).).
9. Pérez-Gálvez, A.; **Roca, M.** Comprehensive chlorophyll composition of commercial green food colorants and coloring foodstuffs by HPLC-ESI-QTOF-MS/MS: Chlorophyllins. Food Chemistry, 2023, 415, 135746. (Impact factor 2023: 8.5; Q1/D1, 9/173, in Food Science & Technology).
10. Herrera M, Viera I, **Roca M**. Study of the authentic composition of the novel green foods: Food colorants and coloring foods. Food Research International, 2023, 170, 112974. (Impact factor 2023: 7.0; Q1/D1, 13/173, in Food Science & Technology).
11. Viera I, Herrera M, Roca M. (2022) Influence of food composition on chlorophyll bioaccessibility. Food Chemistry Volume 386, 30 August 2022, 132805. (Impact factor 2022: 8.8; Q1/D1, 7/172, in Food Science & Technology).
12. Quiles C, Viera I, Roca M (2022) Multiomics Approach To Decipher the Origin of Chlorophyll Content in Virgin Olive Oil. J. Agric. Food Chem. 2022, 70, 12, 3807–3817. (Impact factor 2022: 6.1; Q1, 22/142, in Food Science & Technology).
13. Isabel Viera, Marta Herrera, and María Roca (2021). In Vitro Bioaccessibility Protocol for Chlorophylls. Cite this: J. Agric. Food Chem. 2021, 69, 8777-8786. (Impact factor 2021: 5.9; Q1, 32/144, in Food Science & Technology).
14. Pérez-Gálvez A, Viera I, Roca M. Development of an accurate and direct method for the green food colorants detection. Food Research International, Volume 136, 2020, Article 109484. (Impact factor 2020: 6.48; Q1/D1, 9/143, in Food Science & Technology).

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)
1. **Roca M.** Artificial Intelligence applied to olive oil quality and authenticity. “The Belt and Road” International Symposium on Food Safety and Nutrition and International Conference on the Cooperation and Integration of Industry, Education, Research and Application (Chongqing, China). Food Safety and Nutrition Session. November 2025. Invited lecture.
2. Viera I, Pérez-Gálvez, A.; **Roca M**. Chlorophyll metabolism in mammals. 4th Food Chemistry Conference: Reshaping Global Food Systems. Glasgow, UK, 14th-16th October 2025. Poster.
3. Fernandes A., Zepka L., Jacob-Lopes E., **Roca M**., De Rosso V. Bigels of food grade as potential materials for extrusion-based 3D food printing. 19th Food Colloids Conference in Thessaloniki, Greece, from 14th to 18th April 2024. Poster.
4. **Roca M.** Chlorophylls in vegetable oils. The Third "The Belt and Road" International Seminar on Food Safety and Nutrition -Focusing on "Great wellness - A community with a shared health for mankind" Southwest University, Chongqing, China, 24 April 2024. Invited conference.
5. Fernandes, A.S.; Jacob-Lopez, E.; Zepka, L.Q.; de Rosso, V.V.; **Roca, M**. Bigels of food grade as potential carrier materials for chlorophylls: influence of oleogel/hydrogel ratios on digestion properties. 8th International Conference on Food Digestion, Porto, 9-11th April 2024. Poster.
6. Viera, I.; Herrera, M.; **Roca, M**. *In vitro* digestion of chlorophylls. 8th International Conference on Food Digestion, Porto, 9-11th April 2024. Poster.
7. How do we green our bodies? **Roca, M**. 3rd Food Chemistry Congress. Dresden, Germany. 10 – 12 October 2023. Invited conference.
8. Potentiality of databases: multiple correspondence analysis of chlorophyll catabolites. **Roca, M.**, Pérez-Gálvez, A. 3rd Food Chemistry Congress. Dresden, Germany, 9 - 12 October 2023. Publication: Abstract. Poster. Best poster award in the category: Information technologies, modelling systems, and computation methods.

9. **Roca, M**. New trends in food colorants. "The Belt and Road" online International Symposium on Food Safety and Nutrition. College of Food Science. Southwest University. China. 11th January 2022. Invited communication.
10. **Roca, M**. Chlorophylls in food: bioavailability and bioactive properties. 3rd Workshop de compostos bioactivos & qualidade de alimentos, Universidad Estatal de Santa María (Brasil). 28th July 2021. Invited conference.

C.3. Research projects.
1. Aliança Inter-regional de Internacionalização (C2025/896591). Financiación CAPES-Global.edu. Redes para Internacionalização Institucional. IP: Wayne C. (UFSM, Brazil). Submitted October 2025-Resolution February 2026 (2026-2030). Budget: R$ 90.375.772 (14.279.372 €). Participation: researcher.
2. The farm-to-fork strategy applied to chlorophylls and phyllobilins: *in vitro* and *in vivo* evidence of new metabolic pathways (PID2021-127992OB-I00). Funding: Ministerio de Ciencia, Investigación y Universidades, Agencia Estatal de Investigación and European Regional Development Fund. Instituto de la Grasa (CSIC). IP: **Roca M**. 2022-2026. 175450 €.
3. "China-Spain Joint Laboratory for Food Science" (2023YFE0116100). Funding: Ministry of Science and Technology of China. Budget: 2000000 yuan (243.155 €). From 01/2024 to 12/2026. IP Europe: **Roca M**.
4. Chlorophylls and phyllobilins (PIE 2023370E176). Funding: CSIC. Instituto de la Grasa (CSIC). IP: **Roca M**. From 15/10/2023 to 14/10/2027. Budget: 89376 €
5. Quality and safety of blue-green food colourants (RTI2018-095415-B-I00) Funding organization: Ministerio de Ciencia, Investigación y Universidades, Agencia Estatal de Investigación, and European Regional Development Fund (ERDF). IP: **Roca M**. and Gandul-Rojas B (from 01/01/2019 to 31/12/2021) Budget: 174.240 €
6. Pharmacological and nutritional strategies for health promotion (88887.310285/2018-00) Funding organization: Capes Print -Brazil Government. IP: Prof. Maria Rosa Chitolina (from 01/01/2019 to 31/06/2022) Participation: researcher. Budget: 24.400.000 R$ (3.845.440 €)
7. Nuevas estrategias básicas y aplicadas para la estabilización del color verde en aceituna de mesa (AGL2015-63890-R) Funding organization: CICYT-FEDER. IP: Gandul-Rojas B and **Roca M**. (from 01/01/2016 to 31/12/2018) Budget: 125000 €.
8. Fostering awareness of inquiry-based science education and responsible research and innovation through food and nutrition (Reference: 244449) Funding agency: EU-FP7-SCIENCE-IN-SOCIETY-2009-1. IP: Augusto Eduardo Guimaraes de Medina (from 01/06/2010 to 31/05/2014) Budget: 5922400 € Participation: researcher

C.4. Contracts, technological or transfer merits.
1. Agreement GP/EFSA/NUTRI/2021/01- GA 02 to support EFSA in the Safety Assessment of Novel Foods and Nutrient Sources. November 2022-september 2026.
2. Contract: Análisis de componentes bioactivos (clorofilas y carotenoides) dirigidos a la caracterización de variedades de olivar y al desarrollo de nuevos aceites de oliva con propiedades funcionales mejoradas. (EXP 00064835 / ITC-20131031). Funding agency: FEDER INNTERCONECTA IP: Gandul Rojas, B. (from 01/01/2013 to 31/12/2014) Budget: 1.404.508,10 €
2. Patent: Procedimiento de detección de complejos cúpricos de clorofilas en aceites vegetales (ES2346628B8). Authors: **Roca M,** Gallardo Guerrero L, Mínguez Mosquera MI, Gandul Rojas B. Priority date: April 2009 Ownership: CSIC.
3. Know-how: Método de predicción formación pyrofeofitina *a* (MIT TO0022272). Authors: Aparicio-Ruiz R, Roca M and Gandul B. Priority date: June 2012 Ownership: CSIC.
4. Official service unit at CSIC (from 2021) in the "Catalogue of technical-scientific service" under the denomination "Identificación y cuantificación de pigmentos vegetales" (www.csic.es/es/investigacion/catalogo-de-servicios-cientifico-tecnico/servicios/).
5. Transfer to EFSA Databases: EFSA Initiative: Chemical monitoring and surveillance data needs (from March 2025) and EFSA EU Risk Assessment Agenda (EU-RAA) (from May 2023).