



CURRICULUM VITAE (CVA)

Part A. PERSONAL INFORMATION

		CV date	3-2-2025
First name	Francisco Javier		
Family name	Señoráns Rodríguez		
Gender (*)			
Passport, ID number			
e-mail			
Open Researcher and Contributor ID (ORCID) (*)			

A.1. Current position

Position	Full Professor (Catedrático de Universidad)		
Initial date	2021		
Institution	Universidad Autónoma de Madrid		
Department/Center	Dpt. Applied Phys. Chemistry	Faculty of Sciences, Campus de Cantoblanco, 28049, Madrid, Spain	
Country	Spain	Teleph. Nr.	+34914973775
Key words	Bioactive Extracts / Healthy Lipids / Enzymatic biotechnology / Green Chemistry / Microalgae / Compressed and supercritical fluids / Microencapsulation / Lipases		

A.2. Previous positions (research activity interruptions, art. 14.2.b)

Period	Position/Institution/Country/Interruption cause
2002- 2021	Associate Professor (Prof. Titular de Universidad), UAM, Spain
2001 -2002	Researcher Contract Program "Ramón y Cajal" Science M., UAM

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado (MSc) Chemical Sciences	Universidad Autonoma de Madrid	1990
PhD Chemical Sciences	Universidad Autonoma de Madrid	1996

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

Dr. has developed his research and teaching career in Food Science and Technology in different Spanish and international Institutions during the last **30 years** in Madrid (CSIC and UAM) and as Researcher and Lecturer at Uppsala University (Sweden) for two years. He is Chemical Sciences PhD (1996) and at present is **Catedrático de Universidad (Full Professor) at Universidad. Autónoma de Madrid** (Spain), where he has been responsible for more than 20 years of several research projects and contracts with industry on topics like microalgae extraction, antioxidants and health, enzymatic technologies for structured lipids, phenolic lipids and phospholipid modification. Prof. was in charge of the management and creation of the Joint Institute in Food Science Research (CIAL) as a Co-director in 2007. He is co-author of **more than 130 articles** of international impact (SCI) with **h index of 47 (Scopus) (h= 43** in Web of Science), apart from other publications and of two **international patents transferred** to industry. In 2001 he received the Prize "Archer Daniels" granted by the AOCS. At present, he **directs a research team (Healthy Lipids Group)** with a sound record of research contracts with food and pharma industry, in projects related with bioactive lipids, including omega-3 PUFA fractionation and enrichment of fish and marine oils, microalgae components extraction with green solvents using compressed fluids and supercritical technology, and enzymatic biotechnologies for synthesis and modification of structured lipids, hypocaloric oils, and phospholipids. His new research lines include microencapsulation for bioactive ingredients protection and delivery with new nanocarriers and liposomes. In the last years, he has been Responsible Resercher of 4 research contracts with industry and 2 projects on microalgae

(ALGATEC-CM) in collaboration with 2 universities and 3 research centers, and has been co-Responsible Researcher (co-IP) of a project on phospholipids and DHA recently finished and a new one on Polar Lipids and Algae (POLARALGA from AEI).

Scientific Indicators: JCR articles, h Index, supervised Thesis, Patents...

JCR Articles in SCI: 122

h-index = 43 (Web of Science, Clarivate)

h-index = 47 (Scopus)

JCR Articles in SC first Q: Q1= 81%

Total cites (Scopus): > 6600

Doctoral Thesis supervised: 8

Official Research Periods Evaluation granted (Spanish CNEAI "Sexenios"): 6

(5 for Research Activity and 1 for Transference of Results)

Co-Inventor of 9 granted patents (2 Patents in Exploitation)

Project Incomes achieved as Responsible Researcher in the last 12 years: > 2.800.000 €

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

Co-Author of more than 130 scientific articles in international JCR Journals (included in SCI). Publications in the last years and related to the project:

N. Castejón, F.J. Señoráns. Enzymatic Modification to Produce Health-promoting Lipids from Fish Oil, Algae and other New Omega-3 Sources: a Review. *New Biotechnology* 57 (2020) 45 – 54 Review (invited)

María Señoráns, N. Castejón, F.J. Señoráns Advanced Extraction of Lipids with DHA from *Isochrysis galbana* with enzymatic pre-treatment combined with Pressurized Liquids and Ultrasound Assisted Extractions. *Molecules* (2020) 25, 3310; doi:10.3390/molecules25143310

N. Castejón and F. Javier Señoráns Integrated green and enzymatic process to produce omega-3 acylglycerols from *Echium plantagineum* using immobilized lipases J. American Oil Chemists Society - JAOCS (2020) DOI 10.1002/aocs.12464

C. Blanco-Llamero and F. J. Señoráns Biobased Solvents for Pressurized Liquid Extraction of *Nannochloropsis gaditana* Omega-3 Lipids. *Marine Drugs* (2021) 19(2), 107 10.3390/md19020107

N. Castejón, P. Luna and F.J. Señoráns (2021) Microencapsulation by spray drying of omega-3 lipids extracted from oilseeds and microalgae: Effect on polyunsaturated fatty acid composition *LWT* 148 (2021) 111789 doi: 10.1016/j.lwt.2021.111789

Cristina Blanco-Llamero, P. García-García, F.J. Señoráns Combination of synergic enzymes and ultrasounds as an effective pretreatment process to break microalgal cell wall and enhance algal oil extraction *Foods* (2021) 10(8), 1928 doi: 10.3390/foods10081928

C. Blanco-Llamero, P. García-García, F.J. Señoráns Cross-linked enzyme aggregates and their application in enzymatic pretreatment of microalgae: comparison between CLEAs and combi-CLEAs *Frontiers in Bioengineering and Biotechnology* (section Industrial Biotechnology) (2021) 9:794672. doi: 10.3389/fbioe.2021.794672

C. Blanco-Llamero, Fonseca J, Durazzo A, Lucarini M, Santini A, Señoráns FJ, Souto EB. Nutraceuticals and Food-Grade Lipid Nanoparticles: From Natural Sources to a Circular Bioeconomy Approach. *Foods*. 2022; 11(15):2318. <https://doi.org/10.3390/foods11152318>

RM. Galindo-Camacho, Blanco-Llamero C, da Ana R, Fuertes MA, Señoráns FJ, Silva AM, García ML, Souto EB. Therapeutic Approaches for Age-Related Macular Degeneration. *International Journal of Molecular Sciences*. 2022; 23(19):11769. <https://doi.org/10.3390/ijms231911769>

C. Blanco-Llamero, Galindo-Camacho RM, Fonseca J, Santini A, Señoráns FJ, Souto EB. Development of Lipid Nanoparticles Containing Omega-3-Rich Extract of Microalga *Nannochloropsis gaditana*. *Foods*. 2022; 11:3749. doi.org/10.3390/foods11233749

García-González, M.; Castejón, N.; García-García, P.; Fernández-L, G.; Señoráns, F.J. Biocatalysts Based on Immobilized Lipases for the Production of Ethyl Esters of Fatty Acids

including Bioactive Gamma-Linolenic Acid from Borage Oil. *Catalysts* 2023, 13, 1275. <https://doi.org/10.3390/catal13091275>

Berzal, G.; García-García, P.; Señoráns, F.J. Integrated Process for Schizochytrium Oil Extraction, Enzymatic Modification of Lipids and Concentration of DHA Fatty Acid Esters Using Alternative Methodologies. *Mar. Drugs* 2024, 22,146. <https://doi.org/10.3390/md22040146>

P. García-García, M. Ospina, F.J. Señoráns Tisochrysis lutea as a source of omega-3 polar lipids and fucoxanthin: extraction, characterization using green solvents and advanced techniques. *J. Applied Phycology* 36 (2024)1697–1708 10.1007/s10811-024-03233-x

D. Tomazi Pereira, P. García-García , N. Korbee, J. Vega, F. J. Señoráns and F. L. Figueroa. Optimizing the Extraction of Bioactive Compounds from Porphyra linearis (Rhodophyta): Evaluating Alkaline and Enzymatic Hydrolysis for Nutraceutical Applications. *Mar. Drugs* 2024, 4,146. <https://doi.org/10.3390/md22060284>

C. Blanco-Llamero, P. García-García, F.J. Señoráns Efficient Green Extraction of Nutraceutical Compounds from Nannochloropsis gaditana: A Comparative Electrospray Ionization LC-MS and GC-MS Analysis for Lipid Profiling *Foods* (2024) 13, 4117.

C. Blanco-Llamero, P. García-García, F.J. Señoráns. Carotenoids as added-value products from microalgae biorefinery: therapeutic potential of common carotenoids-current overview (2024) 229-242. Chapter. Elsevier (New York, USA).

C.2. Congress

Co-Author of more than 120 contributions to International Conferences, including oral communications and invited lectures.

C.3. Research projects as Responsible Researcher

Responsible Researcher or PI of 10 competitive projects. Recent ones:

8. Project Title: “Development of Advanced Technologies of Microalgae for a Circular Economy” (ALGATEC-CM) Financed by Comunidad de Madrid . PROGRAM R&D Technology. Consortium leader: URJC. IP L. F. Bautista Period: Jan-2019-Dec-22. Respons. researcher (UAM group)
9. Project Title: “Engineering of Enzymatic Processes in Solvent-Free Systems: Synthesis of Structured Phospholipids for the Treatment of Neurodegenerative Diseases”. Financed by AEI (Ref. RTI2018-093583-B-I00). Participating groups: Faculty of Sciences (UAM) and. CIAL (CSIC). Duration: 2019-sep-2022 Responsible Researcher
10. Project Title: “Green Extraction and Fractionation of Polar Lipids from Microalgae to Produce Nutraceuticals with Lipidic Nanoparticles and Natural Exosomes” (POLARALGA) Financed by AEI. Proyectos de Generación del Conocimiento (Ref. PID2022-143229NB-I00) Participating groups: Faculty of Sciences (UAM). Duration: sep-2023 - sep-2026. Responsible Researcher

C.4. Contracts, technological or transfer merits

Responsible Researcher or PI of more than 14 contracts for research with industries. Recent ones:

13. Contracts with 3 companies, CULTUREDMEAT (Cultivated Meat) Project, period 2021-23. Financed by Program MISIONES del CDTI.
Research contracts with Companies: Neoalgae, BTSA, BDI Biotech.
Responsible Researcher
14. Contract with Bioceanics company, period 2024-25. Budget: 254.000 euros + IVA.
Responsible Researchers

C.5. Patents

Co-Inventor of 9 patents, several of them licensed to companies or in exploitation:

[3] Inventors: G. Reglero, P. Frial, F.J. Señoráns, E. Ibáñez, S. Santoyo, C. Torres, L. Jaime, C. Soler, M. R. García, F. Marín, A. Ruiz. Title: Oily mixture of natural bioactive ingredients for the preparation of an enriched food product. Nº de registro: P200402755 Assignee: Embutidos Frial, S.A. y UAM. International: PCT/ES2005/000600 Extended countries: More than 40 Patent exploitation by: Frial, S.A **International Patent in Exploitation**

[8] Inventors: E. Miguel, G. Reglero, C. Largo, T. Fornari, L. Jaime, S. Santoyo, F.J. Señoráns Title. Composition Based on Rosemary Extract and Vitamin E and Uses Thereof WO2011ES70586 Priority date: 05-aug-2010 Assignee: UAM y Fund. Investigación Médica Hospital Universitario La Paz (FIBHULP) Patent exploitation by: Laboratorios Ynsadiet

[9] Inventors: Marín, F.R.; Señorans, F.J; Dávalos, A.; López de las Hazas, M. Carmen Title: Procedimiento para la obtención de exosomas a partir de mazada, exosomas obtenidos y aplicaciones de los mismos. . Nº de solicitud: P202330029 Priority date: 17-jan-2023 Assignee: UAM, IMDEA Food

C.6. Doctoral Thesis supervision

Director of 8 Doctoral Theses (one more in realization).

Director of 17 Master Theses and more than 15 Final Degree Projects (TFG, Tesinas, etc)

Last supervised Thesis: "Proceso integrado empleando tecnologías verdes y enzimáticas para la obtención de lípidos enriquecidos en ácido docosahexaenoico con potenciales propiedades nutraceuticas". Doctor: Gonzalo Berzal Hernanz. Date: jul-2024

C.7. Management of scientific activities

- Member of Scientific Organising Committee of 3 International Conferences: Iberoamerican Conference on Supercritical Fluids. Prosciba 2013, Colombia, Nutrition Conference Madrid 2017 and European Nutrition Symposium Dublin 2018

-Project evaluator for national and international agencies (2003-2023).

-Co-Director of Food Science Research Institute (CIAL, UAM-CSIC) Dates: jul-2007 mar2010

C.8. International Awards

Archer Daniels Midland (ADM) AWARD 2001 AMERICAN OIL CHEMISTS SOCIETY, USA. "International Congress on Functional Foods and Nutraceuticals" AWARD (2006). Istanbul. Turkey. May 2006

C.9. Technological Based Companies and Start-ups

Creation and promotion of two Spin-Off technological based Companies from UAM.

C.10. Other Merits

-Evaluator of R&D Projects for Spanish and International Agencies (Agencia Nacional de Evaluación y Prospectiva (ANEP)) since 2003

-Coordinador Científico del Curso Internacional: " Functional Foods: Scientific Foundations and Opportunities" Centro de Altos Estudios Avanzados del Mediterráneo (CIHEAM).2006

-Sub-director de la Sección Departamental de Ciencias de la Alimentación de la UAM. Facultad de Ciencias, UAM. Fecha: desde 2006 hasta marzo de 2011

-Experto Evaluador (Panel 2012) del Plan Nacional de I+D+i . Convocatorias de Ayudas a Proyectos de Investigación del M. de Educación y Ciencia, Programa Nacional Recursos y Tecnologías Agroalimentarias, AGL Fecha: 2012