

Part A. PERSONAL INFORMATION		CV date 03/02/22	
<i>First and Family name</i>	Francisco Gabriel Acién Fernández		
<i>ID number</i>	08912410W	Age	51
<i>Researcher codes</i>	<i>WoS Researcher ID</i>	H-1894-2015	
	<i>SCOPUS Author ID</i>	55385950700	
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A.1. Current position			
<i>University/Institution</i>	University of Almería		
<i>Department</i>	Department of Chemical Engineering		
<i>Address and Country</i>	Almería, 04120, Spain		
<i>Phone number</i>	(+34) 950 015 443	e-mail	facien@ual.es
<i>Current position</i>	Full Professor (Catedrático de Universidad)	From	2017
<i>Keywords</i>	Food sustainability, circular economy, chemical engineering, waste management, microalgae, fermentation.		

A.2. Education		
PhD in Chemistry	University of Almeria	1996

A.3. Scientific indices		
	Index	Value (Scopus)
	<i>h-index</i>	56
	JCR articles	260
	Total citations	12,500
	Average citations per year (last 5 years)	1,400
	Average citations per JCR article	55.3

Part B. CV SUMMARY

Full Professor at the University of Almería. His main research line deals with the development of microalgae-based processes for CO₂ abatement and wastewater treatment and for the production of agricultural products, animal feeds, and human food. He is also interested in the valorisation of greenhouse co-products and wastes. In this sense, Prof Acién participated in 15 international and 35 national projects and contracts with companies, most of them as the PI. He was the coordinator of the H2020 SABANA project, focused on the sustainable production of biofertilisers and aquafeeds from waste using microalgae and is currently the Coordinator of the SABANA Demonstration Plant located in Almería. His research was presented in over 200 national and international conferences and led to the publication of over 250 scientific publications (*h-index* 56) and 20 book chapters; he was recently included in the Clarivate list of Highly Cited Researchers, which are those that rank in the top 1% by citations for field and publication year. He is the Editor of three books and the inventor of 10 patents being exploited by large wastewater processors and producers of microalgae and microalgae-based products.

Prof Acién is a highly recognised researcher being the Director of *Cátedra Cajamar de Bioeconomía*, Vice-president of the European Algae Biomass Association and a permanent member of the Scientific Committee of the International Society for Applied Phycology (ISAP) and *Sociedad Latinoamericana de Biotecnología Ambiental y Algal* (SOLABIAA). Prof Acién has directed 10 PhD Thesis and over 200 of BSc and MSc Thesis. He has lectured at the University of Almeria and has been invited to teach courses in several Universities including the University of Malaga, the University of Seville, the International University of Andalusia and other Universities in South America such as the University of Antofagasta in Chile and Europe including Wageningen University and Research in The Netherlands.

He is an active project evaluator for ANEP, H2020, and Horizon Europe and has evaluated proposals for other institutions such as the University of Wageningen. He is a member of the Editorial Board of high impact factor journals including *Algal Research* and the *Journal of Applied Phycology*. Moreover, he has participated in the COST Actions PARAQUA (Applications for zoosporic parasites in aquatic systems) and EUALGAE (European network for algal-bioproducts)

Part C. RELEVANT MERITS

C.1. Recent publications

- i)** Lafarga, T. **Acién, G.** (2022). Sustainable industrial processes based on microalgae. Elsevier // Book Editor
- ii)** Lafarga, T. **Acién, G.** (2021). Cultured microalgae for the food industry. Elsevier // Book Editor
- iii)** Fernández del Olmo, P., **Acién, G.**, Fernández-Sevilla, G. (2022) Productivity analysis in tubular photobioreactors using a dynamic photosynthesis model coupled to computational fluid dynamics particle tracking. *Bioresource Technology*, 344, 126277 // Source: Scopus; IF: 14.8; Position: 2/146 (D1); Area: Environmental Engineering.
- iv)** Collao, J., Morales-Amaral, M.M., **Acién, G.**, Bolado-Rodriguez, S., Fernandez-Gonzalez, N. (2021) Effect of operational parameters, environmental conditions, and biotic interactions on bacterial communities present in urban wastewater treatment photobioreactors. *Chemosphere*, 284, 131271 // Source: Scopus; IF: 10.1; Position: 8/146 (D1); Area: Environmental Science.
- v)** Lafarga, T.*, Sánchez-Zurano, A., Villaró, S., Morillas-españa, A., **Acién, G.** (2021) Industrial production of Spirulina as a protein source for bioactive peptide generation. *Trends in Food Science & Technology*, 116, 176-185 // Source: Scopus; IF: 16.7; Position: 3/310 (D1); Area: Food Science.
- vi)** Sánchez-Zurano, A., Morillas-España, A., Gómez-Serrano, C., Ciardi, M., **Acién, G.**, Lafarga, T.* (2021) Annual assessment of the wastewater treatment capacity of the microalga *Scenedesmus almeriensis* and optimisation of operational conditions. *Scientific Reports*, 11, 21651. // Source: Scopus; IF: 7.1; Position: 8/110 (D1); Area: Multidisciplinary.
- vii)** Sánchez-Zurano, A., Morillas-España, A., Gómez-Serrano, C., Ciardi, M., **Acién, G.**, Lafarga, T.* (2021) Year-long evaluation of microalgae production in wastewater using pilot-scale raceway photobioreactors: Assessment of biomass productivity and nutrient recovery capacity. *Algal Research*, 60, 102500. // Source: Scopus; IF: 6.9; Position: 24/347 (D1); Area: Agronomy and Crop Science.
- viii)** Morillas-España, A., Sánchez-Zurano, A., Lafarga, T., Morales-Amaral, M.M., Gómez-Serrano, C., **Acién, G.**, González-López, C.V. (2021) Improvement of the wastewater treatment capacity using the microalga *Scenedesmus* sp. and membrane bioreactors. *Algal Research*, 60, 102516. // Source: Scopus; IF: 6.9; Position: 24/347 (D1); Area: Agronomy and Crop Science.

C.2. Research projects & contracts

- i)** Research project: Sustainable algae biorefinery for agriculture and aquaculture (SABANA)
Funding agency: H2020-EU.3.2.5
Code: 727874
Start-End date: 2016-2021
Contribution: Coordinator
Budget: 10.646.000€
- ii)** Research project: Developing early-warning systems for improved microalgae production (PRODIGIO)
Funding agency: H2020-EU.3.3.2
Code: 101007006
Start-End date: 2021-2023
Contribution: IP
Budget: 2.452.941€
- iii)** Research project: Processing of brewery wastes with microalgae for producing valuable compounds (GREENBIOREFINERY)
Funding agency: ERANet-LAC
Code: ELAC2014/BEE-0357
Start-End date: 2015-2018
Contribution: Coordinator
Budget: 394.700€
- iv)** Research project: Producción de bacterias para uso agrícola como mejoradoras de la fertilidad del suelo y agentes protectores frente a biopatógenos (BACAGRO)
Funding agency: Ministerio de Economía, Industria y Competitividad
Code: RTC-2015-3897-2
Start-End date: 2021-2023
Contribution: IP
Budget: 175.000€
- v)** Research project: Valorización de subproductos agroalimentarios mediante microalgas para la producción de alimentos y piensos animales (ALGA4FF)
Funding agency: Junta de Andalucía

Code: P20_00812

Start-End date: 2015-2018

Contribution: IP

Budget: 563.995€

vi) Research project: Mejora de la calidad nutricional de alimentos para acuicultura mediante la incorporación de hidrolizados de microalgas enriquecidos en microorganismos probióticos (ALQUABIOTIC)

Funding agency: Ministerio de Economía, Industria y Competitividad

Code: RTC-2016-4730-2

Start-End date: 2018-2020

Contribution: IP

Budget: 1.067.387€

vii) Research project: Procesado de residuos de industria cervecera con microalgas para la obtención de bioproductos

Funding agency: Ministerio de Economía y Competitividad

Code: PCIN-2015-019

Start-End date: 2015-2018

Contribution: IP

Budget: 140.000€

viii) Research project: Desarrollo de una tecnología de upgrading biológico para la producción de biometano en entornos agroindustriales (GREENUPGAS)

Funding agency: Ministerio de Economía y Competitividad

Code: ITC-2015-1346

Start-End date: 2015-2018

Contribution: IP

Budget: 550.000€

C.3. Training and supervision

i) Thesis title: *Optimización de la producción de microalgas en reactores abiertos de escala industrial*. Student name: Marta Barceló-Villalobos. Date of reading: 2021. Type of project: PhD.

ii) Thesis title: *Evaluation of the use of vacuum in advanced pilot-scale membrane distillation modules powered by solar energy for the desalination of seawater and brines*. Student name: Juan Antonio Andres Mañas. Date of reading: 2020. Type of project: PhD.

iii) Thesis title: *Optimización de la producción de biomasa microalgal en reactores externos*. Student name: Claudia Sepúlveda Vega. Date of reading: 2018. Type of project: PhD.

iv) Thesis title: *Producción de biomasa microalgal en exterior utilizando lixiviado como fuente de nutrientes*. Student name: Gabriel Ivan Romero Villegas. Date of reading: 2018. Type of project: PhD.

v) Thesis title: *Producción de microalgas acoplada al tratamiento de aguas residuales*. Student name: Cintia Gómez Serrano. Date of reading: 2017. Type of project: PhD.

vi) Thesis title: *Hibridación solar-biomasa en centraler termoeléctricas*. Student name: Maria Guadalupe Pinna Hernández. Date of reading: 2017. Type of project: PhD.

vii) Thesis title: *Tratamiento de aguas residuales con microalgas en reactores abiertos*. Student name: Maria del Mar Morales-Amaral. Date of reading: 2016. Type of project: PhD.

C.4. National and international presentations

i) Title: Industrial scale production of microalgae biomass for agriculture and aquaculture related applications

Event: EABA AlgaEurope 2021

Type of presentation: Invited speaker

Date: 2021

Place: Rome, Italy

ii) Title: SABANA Project: Demonstrating the application of microalgae in agriculture and aquaculture

Event: Algal Biomass, Biofuels & Bioproducts 2021

Type of presentation: Invited speaker

Date: 2021

Place: Hawaii, US

iii) Title: Comparison of standard harvesting methods for microalgae biomass recovery at large scale

Event: Algal Biomass, Biofuels & Bioproducts 2017

Type of presentation: Invited speaker

Date: 2017

Place: Miami, US

C.5. Dissemination and technology transfer

i) Training course: Microalgal processes. From fundamentals to industrial scale (Almería)

Role: Organiser

Date: 2021

ii) Training course: Contribución de las tecnologías de captura, almacenamiento y uso de CO₂ a la bioeconomía (Almería)

Role: Organiser

Date: 2021

- iii)** MOOC course on MIRIADAX: Biotecnología de microalgas (online)
Role: Organiser Date: 2019-today
- iv)** Training course: Gestión de subproductos y restos hortícolas: una circularidad posible (Almería)
Role: Organiser Date: 2020
- v)** Training course: La contribución de las microalgas a la bioeconomía (Almería)
Role: Organiser Date: 2020
- vi)** Patent: Sistema de carbonatación para cultivo de microalgas en reactores abiertos
Code: ES2451579A1
- vii)** Patent: Sistema combinado de calefacción y enriquecimiento carbonico a partir de biomasa
Code: ES2514090B1
- viii)** Patent: Method for the valorisation of photosynthetic microorganisms for integral use of biomass
Code: WO2014/122331
- ix)** Patent: Proceso escalable para la obtención de ficocianina
Code: ES2325847A1
- x)** Patent: Nueva especie de microalga y su aplicación para consumo animal, humano y en la obtención de carotenoides
Code: ES2259548B1
- xii)** Patent: Procedimiento para fijar dióxido de carbono mediante la utilización de un cultivo de cianobacterias
Code: ES2262462B1
- xiii)** Patent: Sistema de eliminación de metales pesados en aguas mediante microalgas
Code: ES2642462A2
- xiv)** Patent: Fotobiorreactor de doble lazo con desgasificador plano
Code: ES2150389B1
- xv)** Research contract: Production of bioplastics from carbon captures in household waste incineration using microalgae (SETEC)
Contractor: SETEC (Paris, France) Contribution: IP
Start-End date: 2020-2021 Budget: 200.000€
- xvi)** Research contract: Producción y aprovechamiento integral de la microalga *Nostoc* sp. para la obtención de un nuevo bioplástico y biofertilizante (ALGABELLUM)
Contractor: Biorizon Biotech SL (Almería, Spain) Contribution: IP
Start-End date: 2021-2022 Budget: 45.000€
- xvii)** Research contract: Eco-friendly and sustainable new family of biopesticides based on microalgae via circular economy (ALGAENAUTS)
Contractor: Biorizon Biotech SL (Almería, Spain) Contribution: IP
Start-End date: 2022-2023 Budget: 55.000€

C.7. Other merits

- i)** Member of the Functional Unit Photosynthesis and Desalination at CIESOL Solar Energy Research Centre (UAL-CIEMAT)
- ii)** Member of the Ibero-American Network for Microalgae Wastewater Treatment (RENUWAL)
- iii)** Vice-president of the European Algae Biomass Association (EABA)
- iv)** Member of the Executive Committee of *Sociedad Latinoamericana de Biotecnología Algal y Ambiental* (SOLABIAA)
- v)** Member of the Executive Committee of the International Society for Applied Phycology (ISAP)
- vi)** Member of the Editorial Board of *Algal Research*
- vii)** Member of the Editorial Board of *Revista Latinoamericana de Biotecnología Ambiental y Algal* (RELABIAA)
- viii)** Project evaluator for the Spanish Agency of Evaluation and Prospective (ANEP)
- ix)** Project evaluator for the Horizon Europe Research & Innovation Programme 2021-27
- x)** Director of *Cátedra Cajamar de Bioeconomía*
- xi)** Participant of the COST Action PARAQUA (CA20125)
- xii)** Participant of the COST Action EUALGAE (ES1408)