



CURRICULUM VITAE (CVA)

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

CVA date	31/12/2023
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Parte A. PERSONAL INFORMATION

Name	JOSÉ ÁNGEL		
Family names	FERNÁNDEZ ESCRIBANO		
Sex (*)	Male	Birth date (dd/mm/yyyy)	28/05/1971
DNI, NIE, passport	35322453L		
e-mail	jangel.fernandez@usc.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-7629-6106		

* datos obligatorios

A.1. Current position

Current position	Full Professor		
From	09/05/2022		
Institution	Universidade de Santiago de Compostela (USC)		
Departament	Functional Biology/Faculty of Biology		
Country	Spain	Phone	(+34) 881 813 314
Keywords	Biomonitoring, pollution, ecosystems		

A.2. Previous positions

Period	Position/ Institution/ Country
2012-2022	Associate Professor / USC / Spain
2005-2012	Profesor Contratado / USC / Spain
2005-2000	Assistant / USC / Spain

(Incorporar todas las filas que sean necesarias)

A.3. Education

Grado/Master/Tesis	University/Country	Year
Degree in Biology	USC / Spain	1994
PhD in Biology	USC / Spain	1999

(Incorporar todas las filas que sean necesarias)

Parte B. CV SUMMARY (máx. 5000 caracteres, incluyendo espacios)

His research career began in 1999 when, after the defense of his PhD Thesis focused on the application of terrestrial mosses as biomonitors of atmospheric pollution, he began to publish his results in several scientific articles in international journals. From that moment on, the main objective of his research was the revision of the methodology on the use of terrestrial mosses, given that during the realization of the Thesis numerous problems were detected that had not yet been solved since the technique began to be used at the end of the 1960s. These investigations addressed the study of aspects such as: i) analysis of the spatial variation of heavy metal concentrations in moss; ii) analysis of temporal variations; iii) selection of the most appropriate treatment/storage methods; iv) determination of representative sample sizes; v) selection of the most appropriate geostatistical techniques; vi) study of the effect of contamination foci; etc. In addition to the evaluation of total contaminant levels in moss, he also worked intensively on the development of the sequential elution technique, which allows the quantification of contaminants according to their cellular location, thus obtaining more complete results from the ecotoxicological point of view. In parallel, he also developed several



investigations aimed at selecting the most suitable biomonitors for monitoring terrestrial (i.e. tree leaves, pine needles, micromammals, slugs and birds of prey), coastal (i.e. macroalgae and invertebrates) and fluvial (i.e. trout fries and aquatic mosses) ecosystems. All this activity has resulted in 136 articles published in JCR journals of which almost 75% correspond to Q1 (ca. 80% in the period 2016-20). In the last 10 years he has published 65 JCR articles and received 2891 citations (3899 in total), currently reaching an H-index of 35 (31 without self-citations). On the other hand, he has also made more than thirty communications (oral and posters) to both national and international congresses.

Regarding his technological development and innovation activities, he has participated, as a researcher, in 2 national competitive projects (one as investigator in chief) and 4 regional ones. In addition, he has been main investigator in a project of the European Union 7th Framework Program whose most outstanding result was the obtaining of a European patent in which, through biotechnology, a standard material (and its corresponding optimized exposure device) for the biomonitoring of air pollution could be developed. All these scientific advances were used in a practical way in more than twenty contracts and agreements with various private companies (e.g. Aluminio Español, Applus Norcontrol, etc.) and administrations (i.e. Xunta de Galicia and Gobierno Autónomo de La Rioja). In parallel, he has also participated in different dissemination activities in order to make society aware of the usefulness of the research carried out, both at the level of secondary and high school students (e.g. FECYT Summer Science Campus program, STEM Campus, etc.) and teachers of secondary education centers (e.g. course on "Sampling in the analysis of air quality" of the Autonomous Center for Training and Innovation of the Xunta de Galicia). In 2009 he was also the promoter of the company "Biovia Consultor Ambiental S.L.", spin-off of the University of Santiago de Compostela.

Regarding the training of new researchers, in the last 10 years he has been co-director of 6 Doctoral Theses that obtained the highest qualification (7 in total) of which 5 received the mention of International Doctorate and 2 received the Extraordinary Doctorate Award. It should be noted that these theses were the beginning of the research career of the new PhD students and that, at present, 4 of them continue working in the field of scientific research (two at the CSIC through Juan de la Cierva contracts, one as a researcher at the Okinawa OIST in Japan, and another at the USC with a postdoctoral contract from the Xunta de Galicia). Finally, in addition to acting as a reviewer for about twenty JCR scientific journals, he is currently a member of the Editorial Boards of two: *Science of the Total Environment* (ed. Elsevier, since February 2011) and *International Journal of Environmental Research and Public Health* (ed. MDPI; since March 2020). He has also cooperated as evaluator of research projects of the Università di Siena (Italy) and the Austrian Science Fund.

Parte C. RELEVANT MERITS (last 10 years)

C.1. Publications (including peer-reviewed articles, books and conferences)

1. García-Seoane, R., Fernández, J.A., Villares, R., Aboal, J.R. (2018). Use of macroalgae to biomonitor pollutants in coastal waters: optimization of the methodology. *Ecological Indicators* 84: 710-726. DOI: 10.1016/j.ecolind.2017.09.015
2. García-Seoane, R., Aboal, J.R., Boquete, M.T., Fernández, J.A. (2018). Biomonitoring coastal environments with transplanted macroalgae: a methodological review. *Marine Pollution Bulletin* 135, 988-999. DOI: 10.1016/j.marpolbul.2018.08.027
3. García-Seoane, R., Fernández, J.A., Boquete, T., Aboal, J.R. (2019). Application of macroalgae analysis to assess the natural variability in selected pollution concentrations (N and Hg), and to detect sources of it in coastal environments. *Science of the Total Environment* 650 (1): 1403-1411. DOI: 10.1016/j.scitotenv.2018.09.156
4. García-Seoane, R., Fernández, J.A., Varela, Z., Real, C., Boquete, M.T., Aboal, J.R. (2019). Sampling optimization for biomonitoring metal contamination with marine macroalgae. *Environmental Pollution* 255, 113349. DOI: 10.1016/j.envpol.2019.113349
5. García-Seoane, R., Aboal, J.R., Boquete, T., Fernández, J.A. (2020). Phenotypic differences in heavy metal accumulation in populations of the brown macroalgae *Fucus vesiculosus*: a transplantation experiment. *Ecological Indicators* 111: 105978. DOI: 10.1016/j.ecolind.2019.105978



6. García-Seoane, R., Aboal, J.R., Fernández, J.A. (2020). Optimal number of *Fucus vesiculosus* subsamples to differentiate between sites affected by distinct levels of heavy metal contamination. *Aquatic Toxicology* 222: 105465. DOI: 10.1016/j.aquatox.2020.105465
7. García-Seoane, R., Fernández, J.A., Boquete, T., Aboal, J.R. (2021). Analysis of intra-thallus and temporal variability of trace elements and nitrogen in *Fucus vesiculosus*: sampling protocol optimization for biomonitoring. *Journal of Hazardous Materials* 412: 125268. DOI: 10.1016/j.jhazmat.2021.125268
8. Vázquez-Arias, A., Pacín, C., Ares, A., Fernández, J.A., Aboal, J.R. (2023). Do we know the cellular location of heavy metals in seaweed? An up-to-date review of the techniques. *Science of the Total Environment* 856: 159215. DOI: 10.1016/j.scitotenv.2022.159215
9. Aboal, J.R., Pacín, C., García-Seoane, R., Varela, Z., González, A.G., Fernández, J.A. (2023). Global decrease in heavy metal concentrations in brown algae in the last 90 years. *Journal of Hazardous Materials* 445: 130511. DOI: 10.1016/j.jhazmat.2022.130511
10. Vázquez-Arias, A., Aboal, J.R., Fernández, J.A. (2023). Trace element accumulation by devitalized seaweed transplants: biological implications and practical considerations. *J. Hazardous Materials* 459: 132216. DOI: 10.1016/j.jhazmat.2023.132216

C.3. Research projects and grants

1. Project reference: CTM2016-70578-P
Título: Estandarización y optimización del empleo de briófitos para la biomonitorización pasiva y activa de la calidad de aguas continentales. Elaboración de protocolos.
Funded by: Ministerio de Ciencia e Innovación, Programa Nacional de Proyectos de Investigación Fundamental
Principal researcher: J. Aboal Viñas
Participation as: researcher
From 01/01/2016 until 31/12/2018
Budget: 160.083 €
2. Project reference: (2010-PI036) Ref.282952
Título: Creating and testing a method for controlling the air quality based on a new biotechnological tool. Use of a devitalized moss clone as passive contaminant sensor (MOSSCLONE)
Funded by: Comisión Europea. Collaborative Project. FP7- ENV.2011.3.1.9-1: Eco-innovation! (part of the EcoInnovation Call).
Principal researcher: J. Ángel Fernández Escribano
Participation as: European Project coordinator
From 01/04/2012 until 31/03/2015
Budget: 423.117,28 €
3. Project reference: CTM2011-30305
Título: Biomonitorización activa de la calidad del aire con musgos terrestres: estandarización y optimización de la metodología
Funded by: Ministerio de Ciencia e Innovación; Programa Nacional de Proyectos de Investigación Fundamental
Principal researcher: J. Ángel Fernández Escribano
From 01/01/2012 until 31/12/2014
Budget: 130.680,00 €
4. Project reference: 10MDS200001PR
Título: Biomonitorización de la calidad del aire con musgos terrestres: validación de la técnica de lavado secuencial mediante microscopía electrónica e histoquímica
Funded by: Xunta de Galicia. PGIDT - 2010
Principal researcher: Jesús R. Aboal Viñas
Participation as: researcher
From 14/12/2010 until 14/12/2013
Budget: 29.827,55 €
5. Project reference: CN 2012/028
Título: ECOTOX. Consolidación y estructuración de unidades de investigación competitivas



Funded by: Xunta de Galicia. Consolidación e Estructuración de unidades de investigación competitivas. Consellería de Cultura, Educación e Ordenación Universitaria
Principal researcher: Alejo Carballeira Ocaña
Participation as: researcher
From 01/09/2012 until 31/10/2015
Budget: 200.000,00 €

C.4. Technology and knowledge transfer activities

1. Título: Servicios de investigación sobre biomonitorización de contaminación por metales pesados en el área metropolitana de Logroño
Principal researcher: Javier Martínez Abaigar
Participation as: researcher
Funded by: Consejería de Agricultura, Gandería y Medio Ambiente del Gobierno de La Rioja
From 09/01/2018 until 09/09/2018
Budget: 41.000 €
2. Título: Caracterización y análisis dentro de la red autonómica de biomonitorización de metales pesados de La Rioja. Periodo 2014-2015
Principal researcher: Javier Martínez Abaigar
Participation as: researcher
Funded by: Consejería de Turismo, Medio Ambiente y Política Territorial del Gobierno de La Rioja
From 31/05/14 until 15/12/2015
Budget: 32.313,05 €
3. Título: Diversos estudios de valoración en los terrenos próximos a la planta que la empresa tiene en San Cibrao (año 2012) (2012-CE218)
Principal researcher: Alejo Carballeira Ocaña
Participation as: researcher
Funded by: Aluminio Español S.A.
From 27/07/12 until 31/12/2012
Budget: 22.870,00 €
4. European Patent nº EP3076171-A1
Título: Passive contaminant sensor device used to sense air pollutants comprising polycyclic aromatic hydrocarbons or heavy metals or their compounds, comprises axenic devitalized moss clone.
Authors: Reski, R., E. Decker, A. Beike, (...) & H.G. Zechmeister (25 coauthors in alphabetical order)
Date: 06/10/2016