Fecha del CVA	29/04/2024

Parte A. DATOS PERSONALES

Nombre	Rafael		
Apellidos	López Núñez		
Sexo	No Contesta	Fecha de Nacimiento	
DNI/NIE/Pasaporte			
URL Web			
Dirección Email	rlnunez@irnase.csic.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-8848-3793		

A.1. Situación profesional actual

Puesto	Científico Titular		
Fecha inicio	2001		
Organismo / Institución	Consejo Superior de Investigaciones Científicas		
Departamento / Centro			
País	España	Teléfono	954624711
Palabras clave	Abono orgánico		

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora - indicar meses totales, según texto convocatoria-)

Periodo	Puesto / Institución / País
2003 -	CONCEJAL-DELEGADO DE AGRICULTURA Y MEDIO AMBIENTE / Ayuntamiento de Utrera
1987 -	Titulado Superior Especializado del CSIC / CSIC
1984 -	Actividad Profesional en GALLINA BLANCA-PURINA SA (DOS HERMANAS, SEVILLA) / GALLINA BLANCA-PURINA SA

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Programa Oficial de Doctorado en Química	Universidad de Sevilla	1992
Licenciado en Química	Universidad de Sevilla	1984

Parte B. RESUMEN DEL CV

From 1987 to 2000, Rafael López Núñez worked at CSIC, occupying the position of Head of the Analysis Service of the IRNAS-CSIC. During this period, he consolidated this labs, which has been maintained to this day (he is still the scientific head of it) as a basic infrastructure of IRNAS. From 1991 to 1994 he was Deputy Director of IRNAS.

In 1992 he received a doctorate in Chemistry from the University of Seville, dealing his thesis on the reuse of agro-industrial waste in agriculture, a line of research that he has maintained up to now. Since 2001 he has been a Senior Scientist at the CSIC. On the subject of organic waste, he has participated in numerous research projects (+20), directing the projects 'Design of nursery substrates based on urban compost for the cultivation of forest plants' (AGL2002-02633 AGR-FOR), and 'Production and use of MSW compost' financed by the Andalusian Regional Government Environment Department. The Andalusian MSW Master Plan that was drawn up in that period made specific mention of the indicated study and its recommendations. In the waste recycling line, most of the publications have focused on the development and optimization of composting systems, mainly with the aim of minimizing the problems associated with the process (odors, nitrogen losses) and optimizing the co- composting of product mixes. On these issues, he actively participated in the consortium of the LIFE-COMPOST 'Co-composting procedures and its use on afforestation, landscaping and forestry and agricultural crops in the Andalusian region', led by the Ministry of the Environment of the Junta de Andalucía, and that with the financing of more than € 2,000,000 was a great boost to composting in the region. Also along this line, a large group of articles published with a notable impact has dealt with

the generation and minimization of gases and odors associated with the composting process. He is a founding member of the Spanish Composting Network and currently the Coordinator of the current Board of Directors. The second line of work has been the contamination associated with heavy metals, mainly as a result of the Aznalcóllar mining accident and the recovery of contaminated soils. Currently, he has started a research line related to the use of portable XR fluorescence for the analysis of the elemental composition of soils and organic residues. In that line, 2 SCI articles have recently been published and participation in a European project of the EJP-SOIL program has begun.

He has participated in and directed 15 contracts for companies and 5 agreements with administrations, with the financing of more than € 620,000, related to the reuse of waste, the efficiency of fertilizers, the purification-reuse of wastewater, the restoration of mining areas.

He has been Secretary of the Organizing Committee of the V Congress of the Spanish Composting Network (November 2016) and professor in an international cooperation course financed by AECID held in Bolivia in 2017 on Low-cost systems for the management of organic waste, as well as a speaker at numerous related courses and conferences.

He has co-directed 4 Doctoral Theses and currently co-directs one, and numerous TFG (+30) and several TFM. His doctoral students have had a remarkable scientific and academic career at the CSIC itself, at the University of Huelva and at prestigious universities in Colombia. At present, he is the head of the SOILPLANT group of IRNAS.

In relation to urban agriculture, he participated in the organization of a national congress on urban agriculture sponsored by the Spanish Society of Organic Agriculture, director of a Latin American course on urban agriculture sponsored by AECID (November 2015). On this subject, he has recently published two articles, one with great social and media repercussion when detecting significant Pb contamination in a charismatic urban garden in Seville. This article has been commented on in a high school textbook.

General indicators: 5 Research six-year periods (Last: 2014-2019) + 1 transfer six-year period; Thesis supervised: 4 + 1 (in progress); Total citations: 2222 (SCOPUS); Average citations / year in the last 5 years: 149 (SCOPUS); Total publications in the first quartile Q1: 27; h Index: 22 (SCOPUS) .

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con “peer review” y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

1 **Diccionario científico**. 2022. DICCIONARIO MULTILINGÜE DE LA CIENCIA DEL SUELO. FERTILIDAD QUÍMICA DEL SUELO. Sociedad Española de la Ciencia del Suelo; Institut d’Estudis Catalans,.

2 **Artículo científico**. López-Núñez, Rafael. 2022. Portable X-ray Fluorescence Analysis of Organic Amendments: A Review. Applied Sciences. 12-14. ISSN 2076-3417.

3 **Artículo científico**. Paloma Campos; Heike Knicker; Rafael López; José María de la Rosa. 2021. Application of Biochar Produced from Crop Residues on Trace Elements Contaminated Soils: Effects on Soil Properties, Enzymatic Activities and Brassica rapa Growth. Agronomy. MDPI. 11-7, pp.1394-1412. https://doi.org/10.3390/agronomy11071394

4 **Artículo científico**. Layla M. San-Emeterio; Rafael López Núñez/ IRNAS-CSIC; Francisco J. González Vila; José A. González Pérez;. 2021. Evolution of Composting Process in Maize Biomass Revealed by Analytical Pyrolysis (Py-GC/MS) and Pyrolysis Compound Specific Isotope Analysis (Py-CSIA). Applied Sciences. MDPI. 11-15, pp.6684. https://doi.org/10.3390/app11156684

5 **Artículo científico**. Sabina Rossini Oliva; Rafael López Núñez/ IRNAS-CSIC;. 2021. Potential Toxic Elements Accumulation in Several Food Species Grown in Urban and Rural Gardens Subjected to Different Conditions. Agronomy. MDPI. 11-11, pp.2151-2166. https://doi.org/10.3390/agronomy11112151

6 **Artículo científico**. López-Núñez, Rafael; Ajmal-poley, Fátima; Burgos-Domenech, María Del Pilar. 2020. Prediction of As, Cd, Cr, Hg, Ni, and Se Concentrations in Organic Amendments Using Portable X-ray Fluorescence and Multivariate Modeling. Applied Sciences. 10, pp.5726.

7 **Artículo científico**. Rafael López Núñez/ IRNAS-CSIC; Juana Hallat; Asunción Castro; Adolfo Miras; Pilar Burgos; Pilar Burgos. 2019. Heavy metal pollution in soils and urban-grown organic vegetables in the province of Sevilla, Spain. Biological Agriculture & Horticulture. Taylor & Francis. 35-4, pp.219-237. https://doi.org/10.1080/01448765.2019.1590234

8 **Artículo científico**. López-Núñez R.; Ajmal-Poley F.; González-Pérez J.; Bello-López M.; Burgos-Doménech P.2019. Quick analysis of organic amendments via portable x-ray fluorescence spectrometry. International Journal of Environmental Research and Public Health. MDPI. 16, pp.4317. ISSN 16617827. https://doi.org/10.3390/ijerph16224317

9 **Artículo científico**. José María Álvarez de la Puente; Claudio Pasian; Rattan Lal; Rafael López; Manuel Fernández. 2019. Vermicompost and biochar substrates can reduce nutrients leachates on containerized ornamental plant production. Horticultura Brasileira. ASSOCIAÇÃO BRASILEIRA DE HORTICULTURA. 37, pp.49-55. https://doi.org/10.1590/S0102-053620190107

C.2. Congresos

1 Giuseppe Picca; César Plaza; Rafael López Núñez/ IRNAS-CSIC; Engracia Madejón; Marco Panettieri. Co-compostaje de cascarilla de café con biochar y residuos de poda. Compostaje: Objetivo de Desarrollo Sostenible. VII Jornadas de la Red Española de Compostaje. Red Española de Compostaje, UNIVERSIDAD DE SALAMANC. 2022. España. Participativo - Ponencia oral (comunicación oral). Congreso.

2 José María de la Rosa; Arturo Santa Olalla; Elena Fernández Boy; Rafael López; Paloma Campos. APLICACIÓN DE RESIDUOS VEGETALES TRANSFORMADOS PARA UNA AGRICULTURA SOSTENIBLE: EFECTOS EN LA GERMINACIÓN, NECESIDADES HÍDRICAS Y PRODUCTIVIDAD. IV CONGRESO INTERNACIONAL DE TECNOLOGIAS LIMPIAS. V ENCUENTRO DE INVESTIGACIÓN EN INGENIERÍA AMBIENTAL. Universidad Santo Tomás. 2021. Colombia.

3 Rafael López Núñez; Paloma Campos Díaz de Mayorga; Marina Santana Sosa; Cristina Bellido Través; Miguel Angel Bello López; José María de la Rosa Arranz. Uso de fluorescencia de Rayos X portátil para el análisis de enmiendas orgánicas. IV CONGRESO INTERNACIONAL DE TECNOLOGIAS LIMPIAS. Universidad Santo Tomás. 2021. Colombia.

4 Arturo Santa-Olalla; Elena Fernández-Boy; Paloma Campos; Heike Knicker; Rafael López; José María de la Rosa. Efectos de la enmienda con biochar en la materia orgánica de un suelo contaminado con elementos traza. IX Simposio sobre Control de la Degradación y Recuperación de Suelos CONDEGRES 2021. Sociedad Española de la Ciencia del Suelo. 2021. España. Participativo - Ponencia invitada/ Keynote. Congreso.

5 Layla M. San-Emeterio; Ian D. Bull; Jens Holtvoeth; et al; José A. González-Pérez. Quantification of biomarkers as an estimation of soil organic matter turnover and sources under a crop rotation. EGU General Assembly 2021. EGU - Unión Europea de Geociencias. 2021. Austria. Participativo - Ponencia oral (comunicación oral).

6 López-Núñez, Rafael; Ajmal-poley, Fátima; Gonzalez-Perez, Jose Antonio; Bello-Lopez, Miguel Angel; Burgos-Domenech, María Del Pilar. USING HAND-HELD X-RAY FLUORESCENCE SPECTROMETRY FOR QUICK ANALYSIS OF ORGANIC AMENDMENTS. XVI European Society for Agronomy Congress. 2020. Congreso.

C.3. Proyectos o líneas de investigación

1 **Proyecto**. ARE MIXED SPECIES SYSTEMS FOSTERING BELOWGROUND C INPUTS AND C SEQUESTRATION?" Proyecto MIXROOT-C. Unión Europea (European Joint Programme EJP SOIL. 1. (Instituto de Recursos Naturales y Agrobiología de Sevilla). 01/11/2021-31/12/2024. 2.000.000 €.

2 **Proyecto**. A novel protocol for robust in field monitoring of carbon stock and soil quality properties based on proximal sensors and existing soil spectral libraries " Proyecto ProbeField. Unión Europea (European Joint Programme EJP SOIL ". (Instituto de Recursos Naturales y Agrobiología de Sevilla). 01/11/2021-31/10/2024. 1.841.754 €.

3 **Proyecto**. OPTIMIZING ROOTS FOR SUSTAINABLE CROP PRODUCTION IN EUROPE – PURE CULTURES AND COVER CROPS" Proyecto MaxRoot-C. Unión Europea (European Joint Programme EJP SOIL. (Instituto de Recursos Naturales y Agrobiología de Sevilla). 01/11/2021-31/10/2024. 2.000.000 €.

4 **Proyecto**. COOPB20365, Transferencia de conocimientos para la recuperación de suelos degradados bajo ecosistemas de Bosque seco tropical (Colombia) y Mediterráneo (España. CSIC. JOSE MARIA DE LA ROSA ARRANZ. Desde 01/01/2019. 29.000 €. Miembro de equipo.

5 **Proyecto**. EQC2018-004767-P, MEJORA Y AMPLIACIÓN DE LA CAPACIDAD ANALÍTICA DELSERVICIO DE ANÁLISIS Y ASISTENCIA TÉCNICA DEL IRNAS: ADQUISICIÓN DE UN SISTEMA DE PLASMA DE ACOPLAMIENTO INDUCTIVO CON DETECCIÓN POR MASAS. MINISTERIO DE CIENCIA E INNOVACION. RAFAEL LÓPEZ NÚÑEZ. Desde 01/01/2018. 150.015 €.

6 **Contrato**. Realización de ensayos con un producto bioestimulante para determinar sus efectos beneficiosos sobre una especie vegetal seleccionada dentro del Proyecto C-BIOFERT GUADAIRA SERVICIOS AMBIENTALES SL. 01/10/2021-01/04/2022. 9.071 €.

7 **Contrato**. Mejoradores del ciclo del nitrógeno RAFAEL LÓPEZ NÚÑEZ. 01/12/2020-30/10/2021. 30.303 €.

8 **Contrato**. MEJORADORES DEL CICLO DEL NITRÓGENO INNVIRONMENT Fertiberia, S.A.. RAFAEL LÓPEZ NÚÑEZ. 09/01/2020-08/03/2020. 3.000 €.