CURRÍCULUM VÍTAE NORMALIZADO

Domingo Martínez Fernández

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GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

FECYT INNOVACIÓN

Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

Dr. Domingo Martínez-Fernández has been working extensively in the field of **plant physiology**, obtaining his Ph.D. in 2012, under the supervision of Dr. David J. Walker, at **IMIDA** (Murcia, Spain). He studied the responses of plant species to soil contaminants. From this step, his studies have been related to **plant water relations and stress,** and **soil biogeochemical processes**. As a result of his thesis, he published 8 manuscripts, **5** of them in SCI journals.

After his Ph.D., he joined the **CEBAS-CSIC** (Murcia, Spain), with Prof. M.Pilar Bernal and Dr. Rafael Clemente. His main objective was the establishment of vegetation covers in natural areas affected by degradation using phytotechnologies. He participated in several projects related to **phytoremediation**, studying in detail the role of organic matter and nutrients in the soil chemistry and the **plant's response** during their interaction with metals/metalloids and ecotoxicology. During his stay in the CEBAS-CSIC, he published **5** manuscripts in SCI journals.

In 2013, he obtained an **European Postdoc Position** (OPVK), at the Czech University of Life Sciences (Prague, Czech Republic), with Prof. Michael Komárek, like a Science Educational Staff. His objectives have been to evaluate the impacts and safety of **novel nanoparticles** (nano Iron Oxides, nZVI, AMO, etc.) for the immobilisation of pollutants in contaminated soils (**nanoremediation**), considering the physico-chemical interactions with the **rhizosphere-plant system** and their consequences for whole **plant physiology**. He has been **able to identify the main processes which affect plants during nanoparticles exposure**. He has obtained deep experience with the analysis of contaminated soils, and for the **modeling** of the transport of water and solutes (metals and nanoparticles) from the soil to the roots. His professional profile has involved him in many **projects and networks**, and in fact, he has been secondary proposer of two **COST Actions** (e.g."Engineered iron nanoparticles: a step towards gentle soil remediation"), with more of 60 participants around the world.

In 2015, he was selected as " **Talent Researcher**-Seneca Foundation" to carrying out a project at CULS (Prague, Czech Republic), as **Principal Investigator** (" **Nanotechnology for phytoremediation** of contaminated soils: Applicability and consequences of nanoparticles for plants and the environment"). He participates in other **international projects** as well (GACR, FWF, MINECO, USA) and collaborates with **companies** which are nanoparticle-producers in Czech Republic (NANOIRON s.r.o.). **Teaching activity** has been also part of his work during his stay in Prague, having to use his communication skills in English during lessons and **supervision of students**. At the moment, as a result of his Postdoc he has produced **14 scientific articles** and **2 book**

chapters, including **1 review** about nanotoxicology with some expert-collaborators from The University of Texas (USA) and Nanjing University (China). One of his papers was awarded the **Rector Prize at CULS as "Best Publication 2014**".

Last 25/11/2016, he was selected as **Junior Researcher** by the Czech Science Foundation (GACR) and **Principal Investigator** for the project "Phytoremediation of contaminated soils using nanoparticles: Implications for rhizosphere" (17-25536Y; Budget=188.158,84 EUR, 3 years (**01/2/2017 to 31/12/2019**), with a 50% load.

His expertise proved pivotal in securing a position as **civil servant** as tenured secondary education teacher in vocational training programs **related to environmental sciences**. Drawing on his advanced knowledge in biology and environmental research, he successfully passed the opposition process, enabling him to teach specialized subjects such as Botany, Phytopathology, Structure and Dynamics of the Environment, Cartographic Methods, and Human Activities and Environmental Issues, among others. In addition to his teaching duties, he gained significant administrative experience during a **five-year tenure as Head of Studies**. In this role, he managed institutional operations, implemented educational policies, and contributed to strategic decision-making as part of the high-school's leadership team. This period also highlighted his strengths in **organizational leadership** and educational management. In the current academic year, he joined the CIFEA of Molina de Segura, where he is teaching in the Higher Vocational Training program (FP Grado Superior en Técnico en Educación y Control Ambiental). He is leading an educational innovation project aimed at advancing vocational training methodologies and integrating cutting-edge teaching strategies into the curriculum.

He has always maintained a strong relationship with the CEBAS-CSIC, as reflected in their joint publications. During his time as a teacher, he has maintained and strengthened this collaboration by participating in joint activities and integrating their advancements into his educational work.

General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

RID: **D-5164-2013**
SCOPUS Author ID: **38362074600**
ORCID: **0000-0002-9360-0288**

Total citations: **1475** total citations by **988** documents
H index: **18**
i10 index: **20**
Co-authors: **43**

+ **21** SCI papers
+ **4** Book chapters (SPRINGER)
+ **1** Review **Q1** (as second author in Plant Physiology and Biochememestry)
Publication Awarded the **Rector Prize 2014 "Best Czech University of Life Sciences Prague Publication": Q1, 1 Decile** (Martínez-Fernández et al., 2014. Journal Hazardous Materials 276, 271-277).

Long stay abroad as Postdoc: **3 years and 8 months** Czech University of Life Sciences Prague, Czech Republic.
Sort stay abroad (more than 30 days):
1 month The University of Texas at El Paso (UTEP) Texas, USA (2016)
3 months Murdoch University, Perth, Australia (2011)

Projects as Principal Investigator (PI): **2**

Participation in National Projects (Spain): **6**
Participation in National Projects (Czech Republic): **3**
Participation in International Projects (UE and non UE): **6**

Participation in conferences: **21**
International conferences: **16** (76% of the total number of conferences)
National conferences: **5** (23% of the total number of conferences)
As First author: **10** (48% of the total number of conferences)
Poster participations: **16**

Oral Communications: **5**
Invited/keynote: **1** (by the "OMICS Group International 2014" as invited speaker for its international conference in Phyladelphya, USA).

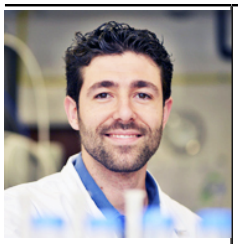
Main Networkers:
University of Natural Resources and Life Sciences (BOKU)(Vienna, **Austria**); NANOIRON s.r.o. (Brno, **Czech Republic**); Metallurgical and Materials Engineering Department at The University of Texas at El Paso (Texas, **USA**); Center for Environmental Implications of Nanotechnology at University of California (UC CEIN) (**USA**); State Key Laboratory of Pollution Control at Nanjing University (Nanjing, **China**); Laboratory of Plant Biotechnologies at Institute of Experimental Botany (Prague, **Czech Republic**); University of Notre Dame (**France**), Université de Limoges (Limoges, **France**); Center for Rhizobium Studies at Murdoch University (Perth, **Australia**); CEBAS-CSIC (Murcia, **Spain**).

Scientific networks: involved in **3 COST actions**

Obtained Grants for research:
FPI-IMIDA PhD-Student: **4 years**
Postdoc OPVK: **2 years and 6 months**
Postdoc Séneca: **1 year and 8 months**
Junior Grant Researcher: **3 years**

Teaching activity: **6** subjects during **4** years
Supervision of Master Thesis Student: **5**

ResearchGate score: **929.8** (**higher than 92%** of ResearchGate members)
STATS: **13.019** Reads, **1.390** Citations



Domingo Martínez Fernández

Surname(s): **Martínez Fernández**
Name: **Domingo**
ORCID: **0000-0002-9360-0288**
ScopusID: **38362074600**
ResearcherID: **D-5164-2013**
Contact aut. region/reg.: **Region of Murcia**
Personal web page: **www.domingomarfer.wordpress.com**

Current professional situation

Employing entity: Consejería de Educación y Formación Profesional (Región de Murcia) **Type of entity:** Público

Department: Química y Seguridad Ambiental, Centro Integrado de Formación y Experiencias Agrarias (CIFEA) de Molina de Segura

Professional category: Profesor de Secundaria

Start date: 01/09/2024

Type of contract: Civil servant **Dedication regime:** Full time

Performed tasks: Profesor de Secundaria, de la especialidad Procesos de Producción Agraría, impartiendo en el ciclo formativo de grado superior en Técnico en Educación y Control Ambiental (ECA) en el Centro Integrado de Formación y Experiencias Agrarias (CIFEA) de Molina de Segura. Módulos impartidos: - Medio natural (5 horas semanales) - Actividades humanas y problemática ambiental (4 horas semanales). - Estructura y dinámica del medio ambiente (4 horas semanales). - Métodos y producciones cartográficas (3 horas semanales). - Digitalización (1 hora semanal).

Identify key words: Desertification; Man made disaster; Conservation of resources; Protection of plant life; Prevention of pollution; Geographical information system; Cartography; Soil biology; Environmental biology; Applied biology; Biodiversity; Botany; Systematics phylogeny taxonomy; Biodiversity indicators; Sustainable exploitation; Ecosystem; Biosphere; Animal life; Protected species; Plant life; Pollution prevention; Drought prevention; Natural resources management; Applied ecology; Water management; Deterioration of the environment

Previous positions and activities

	Employing entity	Professional category	Start date
1	Consejería de Desarrollo Educativo y Formación Profesional (Junta de Andalucía)	Profesor de Secundaria (Jefe de Estudios)	01/09/2016
2	Grant Agency of the Czech Republic, GACR	Head Project Manager-Junior Researcher	01/02/2017
3	FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA	PostDoc Talento Investigador Séneca	01/10/2015
4	Czech University of Life Sciences Prague (Ceská zemedelská univerzita v Praze)	European Postdoc OPVK (MEYS Z.1.07/2.3.00/30.0040)	15/01/2013

	Employing entity	Professional category	Start date
5	Consejo Superior de Investigaciones Científicas	Project-Contracted (CTM2010-21922-C02-01)	01/09/2011
6	Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario	PhD-Studentship (FPI-IMIDA Grant)	01/09/2007
7	INGENIERIA Y DESARROLLO AGRONÓMICO S.L.	Laboratory staff	27/10/2006
8	Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario	Internship, as part of B.Sc. (Hons.) (Biology) studies	13/07/2006
9	INSECTICIDAS QUIPONS S.L.	Internship, as part of B.Sc. (Hons.) (Biology) studies	11/07/2005

1 **Employing entity:** Consejería de Desarrollo Educativo y Formación Profesional (Junta de Andalucía) **Type of entity:** Pública

Department: Agraria, IES José Marín

City employing entity: Vélez Rubio, Andalusia, Spain

Professional category: Profesor de Secundaria **Leadership and management (Y/N):** Yes (Jefe de Estudios)

Start-End date: 01/09/2016 - 31/08/2024

Type of contract: Civil servant

Dedication regime: Full time

Primary (UNESCO code): 310600 - Forestry

Performed tasks: Cargos: Jefe de Estudios Adjunto: 01/07/2019 - 31/08/2021 Jefe de Estudios: 01/09/2021 - 31/08/2024 Funciones Principales: Participación activa en procesos de toma de decisiones para mejorar las operaciones escolares. Configuración de horarios, asignación de tareas y coordinación pedagógica. Establecimiento de calendarios académicos y comunicación con familias. Organización de eventos escolares. Módulos Impartidos: Grado Superior: Gestión Forestal y del Medio Natural (GFMN) 2023-2024: Botánica Agronómica, Control Fitosanitario. 2022-2023: Botánica Agronómica, Coordinación COVID. 2021-2022: Botánica Agronómica, Coordinación COVID. 2020-2021: Botánica Agronómica, Fitopatología, Coordinación COVID. 2019-2020: Botánica Agronómica, Fitopatología. Grado Medio: Aprovechamiento y Conservación del Medio Natural (ACMN) y Producción Agropecuaria (PA) 2019-2020: Fundamentos Zootécnicos (PA) 2018-2019: Control Fitosanitario (ACMN) 2017-2018: Control Fitosanitario (ACMN), Principios de Sanidad Vegetal (ACMN) 2016-2017: Uso Público (ACMN), Control Fitosanitario (ACMN), Principios de Sanidad Vegetal (ACMN)

Identify key words: Livestock; Plant health product; Systematic botany; Phytopathology

Area of leadership and/or management activity: Jefe de Estudios

2 **Employing entity:** Grant Agency of the Czech Republic, GACR **Type of entity:** State agency

Department: Department Geoenvironmental Sciences, Faculty of Environmental Sciences (Fakulta životního prostredí

City employing entity: Prague, Praha, Czech Republic

Professional category: Head Project Manager-Junior Researcher **Leadership and management (Y/N):** Yes

Phone: (00420) 224382663

Start-End date: 01/02/2017 - 31/12/2019 **Duration:** 3 years

Type of contract: Temporary employment contract

Dedication regime: Part time

Primary (UNESCO code): 239100 - Environmental Chemistry; 241719 - Plant physiology; 251100 - Soil Science; 310108 - Agricultural Products not foodstuffs

Performed tasks: Título proyecto en Español: Fitorremediación de suelos contaminados mediante nanopartículas: implicaciones para la rizosfera. Duración: 3 años (2017-2019) Entidad financiadora: GACR, Organización Pública para la Ciencia Checa Código del proyecto: 17-25536Y Entidades participantes: Universidad Checa de las Ciencias de la Vida en Praga (CULS) y Centro de Edafología y Biología Aplicada del Segura-Consejo Superior de Investigaciones Científicas (CEBAS-CSIC) Tipo de participación: Parcial (50%) Más información sobre agencia financiadora en https://gacr.cz/en/about-gacr: "The Czech Science Foundation (also known as the Grant Agency of the Czech Republic, GACR) was established in 1993 as the main independent public organization with the aim to support basic research in the Czech Republic and promote international collaboration of researchers and research teams on the bilateral and multilateral levels"[…]. Phytoremediation of contaminated soils using nanoparticles: Implications for rhizosphere 17-25536Y

Identify key words: Environmental chemistry; Plant physiology; Soil pollution; Metal pollution; Polluted area

Area of leadership and/or management activity: University

Applicability in teaching and/or research: Specified position to perform academic work and activities to the extent specified by the project team on the thematic focus of the project: • project coordinator • experiments with plants, laboratory work • analysis and data processing

3 **Employing entity:** FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA

Department: Department Geoenvironmental Sciences, Czech University of Life Science Prague

City employing entity: Prague, Praha, Czech Republic

Professional category: PostDoc Talento Investigador Séneca **Leadership and management (Y/N):** Yes

Phone: (420) 224382663

Start-End date: 01/10/2015 - 31/08/2016 **Duration:** 11 months

Type of contract: Temporary employment contract

Dedication regime: Full time

Primary (UNESCO code): 241719 - Plant physiology

Secondary (UNESCO code): 251104 - Soil chemistry

Performed tasks: Contracted from 1st October 2015 by the "Progama Talento Investigador - Fundación Séneca", at the Department of Geoenvironmental Sciences of the Czech University of Life Sciences Prague (Prague, Czech Republic), for the postdoctoral project "Nanotechology for Phytoremediation fo Contaminated soils: Applicability and Consequences of Nanoparticles for Plants and the Environment" (Project CODE: 19835/PD/15), financed by the Agencia de Ciencia y Tecnología de la Región de Murcia - Consejería de Educación y Universidades de la Comunidad Autónoma de la Región de Murcia. The commercial application of Manufactured NanoMaterials (MNMs), substances with dimensions less than 100 nm, is increasing rapidly, but one important aspect, the safety of MNMs, still represents a barrier to their wide innovative use. The main objective of the project is to assess the environmental risks of MNMs as immobilisation amendments for metal/metalloids in contaminated soils during phytostabilisation through their interactions with contaminants in the rhizosphere-plant system and their implications for plant physiology. The project will help to detect the toxicity mechanisms for plants, especially at root level since it supposes the first point of contact and translocation of MNMs from the soil to the rest of trophic chain. The proposed research has the potential to provide a very significant benefit to the society, evaluating the impacts and safety of the novel MNMs application to metal-contaminated soils. http://fseneca.es/cms/ficha-pd-detalle/384

Identify key words: Nanomaterials; Soil science; Protection of plant life; Environmental impact; Plant disease; Waste management

Area of leadership and/or management activity: Public Research Body

Applicability in teaching and/or research: Participation in teaching acctivities as International Teacher. ZOX03E Environmental Geochemistry ZOZ05E Technologies ecological impact and remediation Master in Geoenviromental Sciences

4 **Employing entity:** Czech University of Life Sciences Prague (Ceská zemedelská univerzita v Praze) **Type of entity:** University

Department: Department of Geoenvironmental Sciences, Faculty of Environmental Sciences (Fakulta životního prostredí)

City employing entity: Prague, Praha, Czech Republic

Professional category: European Postdoc OPVK (MEYS Z.1.07/2.3.00/30.0040) **Leadership and management (Y/N):** Yes

Email: martinez-fernandez@fzp.czu.cz

Start-End date: 15/01/2013 - 30/09/2015 **Duration:** 2 years - 8 months - 15 days

Type of contract: Temporary employment contract

Dedication regime: Full time

Primary (UNESCO code): 241719 - Plant physiology; 251100 - Soil Science

Performed tasks: Contracted from 15th January 2013 as PostDoc, for the project "Mobility of Metals on the Boundary of Bio-, Pedo- and Geosphere with Emphasis on their Anthropogenic Origin and Environmental Impact", funded by the "European Science Foundation" and the "Ministry of Education, Youth and Sports of Czech Republic" (Project code: Postdok CZU ESF and MEYS Z.1.07/2.3.00/30.0040). The main research activities include the topics: - Uptake and physiological response of plants during trace elements exposition. - Application of amendments (nanoparticles) in contaminated soils and their effects on potential availability of trace elements. - Nanoparticles (nano oxides) as sorbents of metals/metalloids: implications for plant physiology. - Physiological response of plants (water relations) during phytoremediation of contaminated soils. - Modeling of solute transport in the soil-plant system. http://home.czu.cz/martinez-fernandez/zivotopis/ http://domingomarfer.wordpress.com/about/

Identify key words: Nanoparticles; Soil science; Metal pollution; Plant physiology

Area of leadership and/or management activity: University

Applicability in teaching and/or research: Participation in teaching acctivities as International Teacher. ZOX03E Environmental Geochemistry ZOZ05E Technologies ecological impact and remediation Master in Geoenvironmental Sciences

5 **Employing entity:** Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

Department: PhytoRec-Environmental Technologies' Team belonging to the Group 'Sustainability of Soil-Plant System' of CEBAS-CSIC, Centro de Edafología y Biología Aplicada del Segura

City employing entity: Murcia, Region of Murcia, Spain

Professional category: Project-Contracted (CTM2010-21922-C02-01) **Leadership and management (Y/N):** No

Start-End date: 01/09/2011 - 14/01/2013 **Duration:** 1 year - 4 months - 14 days

Type of contract: Temporary employment contract

Dedication regime: Full time

Primary (UNESCO code): 241703 - General botany; 241713 - Plant ecology; 241717 - Plant nutrition; 241719 - Plant physiology; 241791 - Mediterranean Flora; 251104 - Soil chemistry; 251106 - Soil conservation

Secondary (UNESCO code): 230318 - Metals

Performed tasks: Research focused on plant physiology during the development and environmental technologies for the recovery of soil-plant systems, in particular regarding: A) Recovery of soils contaminated with heavy metals and metalloids by Phytotechnologies: phytoremediation; B) Biological technologies for organic waste recycling and recovery of the soil-plant system: Composting and preparation of fertilizers and soil amendments. Phytoremediation technologies for contaminated soils combine the use of organic amendments made from waste materials, and plant species adapted to the soil type and the climate of the area, able to accumulate or exclude metals, depending on the technology to be developed. In situ extraction of soil solution using 'rhizon samplers' allows the ecotoxicological evaluation of

soils contaminated with trace elements, and thus determining the efficiency of the remediation phytotechnology applied.

Identify key words: Soil analysis; Soil chemistry; Waste recycling; Secondary metabolites (plant physiology); Agua; Plant development; Plant growth; Plant nutrition

6 **Employing entity:** Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** Public

Department: Natural Resources Alternative Crops

City employing entity: Murcia, Region of Murcia, Spain

Professional category: PhD-Studentship (FPI-IMIDA Grant) **Leadership and management (Y/N):** No

Start-End date: 01/09/2007 - 31/08/2011 **Duration:** 4 years

Type of contract: Grant-assisted student (pre or post-doctoral, others)

Dedication regime: Full time

Primary (UNESCO code): 120905 - Design and analysis of experiment; 230318 - Metals; 239001 - Design. Synthesis and study new drugs; 241719 - Plant physiology; 241900 - Symbiosis; 310307 - Forage crops

Secondary (UNESCO code): 310103 - Fertilizer utilization

Tertiary (UNESCO code): 239000 - Pharmaceutical Chemistry; 250801 - Erosion (water)

Performed tasks: See more using the link: http://repositorio.bib.upct.es:8080/dspace/handle/10317/2765 ..... Bituminaria bituminosa (L.) C.H. Stirton is a leguminous (Fabaceae) which appears throughout the Mediterranean and the Canary Islands. The interest of the study comes in its many potential applications. B. bituminosa grows naturally in soils contaminated with high concentrations of heavy metals (HMs), and in the Sierra Minera La Union, so it was very important to evaluate its potential use in phytoremediation in such semiarid soils. B. bituminosa is able to restrict the movement of HMs to the aerial part, relevant to the field of phytostabilization (chemical fixation of the contaminants through the use of plants). It could be considered that it is a species suitable for initial revegetation stage of saline soils, moderately contaminated by HMs, and pH in the neutral-alkaline range (pH 6.5 to 8.0). This is able to form nodules with symbiotic bacteria that allows to fix atmospheric N2 and improve fertility of the soil, which is especially of interest for revegetation of contaminated sites, usually very poor in nutrients. Canarian populations have higher proportion of psoralen while peninsular populations had higher proportion of angelicin. The presence of various HPs on the medium affects differently to water relations. The high accumulation of FCs, and maintenance of water relations, make B. bituminosa a suitable candidate for the production of these compounds on a field scale. It Can be nodulated by bacteria of the genera Rhizobium and Phylobacterium, and Mesorhizobium ciceri species.

Identify key words: Drought; Erosion; Secondary metabolites (plant physiology); Drought prevention; Fodder growing; Metalic ore

Applicability in teaching and/or research: With its ability to regrow after grazing and stay green during dry periods, this species is currently used as a model plant in forage production programs in Australia.

7 **Employing entity:** INGENIERIA Y DESARROLLO AGRONÓMICO S.L. **Type of entity:** Business

Department: Biotecnology

City employing entity: Murcia, Region of Murcia, Spain

Professional category: Laboratory staff **Leadership and management (Y/N):** No

Start-End date: 27/10/2006 - 26/01/2007 **Duration:** 3 months

Type of contract: Temporary employment contract

Dedication regime: Full time

Primary (UNESCO code): 310301 - Crop breeding; 310309 - Ornamental crops; 310411 - Reproduction

Secondary (UNESCO code): 510201 - Agriculture

Tertiary (UNESCO code): 330914 - Food processing
Performed tasks: In vitro reproduction of seedless varieties of table grapes, improved organoleptic qualities, selection of in vitro culture conditions.
Identify key words: In vitro culture of plant material

8 **Employing entity:** Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** Public
Department: Departament of Viticulture
City employing entity: Murcia, Region of Murcia, Spain
Professional category: Internship, as part of B.Sc. (Hons.)(Biology) studies **Leadership and management (Y/N):** No
Start-End date: 13/07/2006 - 21/09/2006 **Duration:** 2 months - 10 days
Type of contract: Temporary employment contract
Dedication regime: Full time
Primary (UNESCO code): 120905 - Design and analysis of experiment; 240701 - Cell culture; 241719 - Plant physiology; 310301 - Crop breeding; 310305 - Cultural engineering; 310309 - Ornamental crops; 320613 - Nutrition; 330914 - Food processing; 510201 - Agriculture
Secondary (UNESCO code): 241717 - Plant nutrition
Performed tasks: In vitro reproduction of seedless varieties of table grapes.
Identify key words: In vitro culture of plant material

9 **Employing entity:** INSECTICIDAS QUIPONS S.L. **Type of entity:** Business
Department: Microbiology
City employing entity: Murcia, Region of Murcia, Spain
Professional category: Internship, as part of B.Sc. (Hons.)(Biology) studies **Leadership and management (Y/N):** No
Start-End date: 11/07/2005 - 31/08/2005 **Duration:** 1 month - 11 days
Type of contract: Practices in companies
Dedication regime: Full time
Primary (UNESCO code): 241400 - Microbiology; 250811 - Quality of water; 251109 - Soil microbiology; 330203 - Industrial microbiology; 330810 - Sewage technology; 330811 - Water pollution control; 330990 - Food Microbiology
Secondary (UNESCO code): 320605 - Food pathogens; 331307 - Food machinery
Tertiary (UNESCO code): 331108 - Laboratory equipment
Identify key words: Water pollution; Food contamination; Food preserving; Microbiology
Area of leadership and/or management activity: Business

Summary of professional activity

A Ph.D. in Biology with an h-index of 18 and over 1,460 citations in high-impact journals, recognized for significant contributions in nanotechnology, phytoremediation, and environmental restoration. The professional trajectory includes leading a project as principal investigator, funded by the Grant Agency of the Czech Republic, and a three-and-a-half-year postdoctoral fellowship at the Czech University of Life Sciences Prague (CULS), focusing on plant-nanoparticle interactions. This research was made possible by funding from both an European program (OPVK) and the Science and Technology Agency of the Region of Murcia, having been selected among competitive candidates to develop independent research abroad. The scientific output includes notable works resulting from international collaborations and research stays, such as a review with nearly 500 citations, addressing the physiological responses of plants to nanomaterials. Excellence was further recognized with an award from the Rector of CULS for the best publication of the year in a high-impact journal in 2014. Creativity

and innovation are reflected in the registration of a utility model (patent) and the application of research expertise in teaching advanced vocational training courses. Currently, as civil servant in Spain, with five years of experience as Head of Studies, combining scientific expertise with educational leadership to foster interdisciplinary learning and practical applications in environmental sciences.

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

1 **University degree:** Doctorate
Name of qualification: Ph.D. in Biology
City degree awarding entity: Cartagena, Region of Murcia, Spain
Degree awarding entity: Technical University of Cartagena **Type of entity:** University
Date of qualification: 27/07/2012
Average mark: Excellent
Prize: Cum Laude
Standardised degree: Yes

2 **University degree:** Master
Name of qualification: Master's in Advanced Techniques in Agricultural and Alimentary Research and Development
City degree awarding entity: Cartagena, Region of Murcia, Spain
Degree awarding entity: Technical University of Cartagena **Type of entity:** University
Date of qualification: 17/07/2009
Average mark: Excellent
Standardised degree: Yes

3 **University degree:** Higher degree
Name of qualification: Bachelor of Science (Hons.)(Biology)(5 course)
City degree awarding entity: Murcia, Region of Murcia, Spain
Degree awarding entity: University of Murcia **Type of entity:** University
Date of qualification: 21/09/2006
Average mark: Good

Doctorates

Doctorate programme: Advanced Techniques in Agricultural and Alimentary Research and Development
Degree awarding entity: Technical University of Cartagena **Type of entity:** University
City degree awarding entity: Cartagena, Region of Murcia, Spain
Date of degree: 24/07/2012
DEA awarding entity: Technical University of Cartagena
Date DEA was awarded: 17/07/2009
European doctorate: No
Thesis title: Physiological responses of Bituminaria bituminosa to drought and heavy metals
Thesis director: David James Walker
Obtained qualification: Cum laude

Recognition of quality: Yes

Specialised, lifelong, technical, professional and refresher training (other than formal academic and healthcare studies)

1 **Type of training:** Course
Training title: Czech course A1
City awarding entity: Prague, Praha, Czech Republic
Awarding entity: Czech Language
End date: 25/10/2013 **Duration in hours:** 60 hours

2 **Type of training:** Course
Training title: HYDRUS 2D-3D short course, “Modeling or water flow and transport of solutes”
City awarding entity: Prague, Praha, Czech Republic
Awarding entity: Czech University of Life Sciences Prague **Type of entity:** University
End date: 20/03/2013 **Duration in hours:** 20 hours

3 **Training title:** IV Day of Presentation and Introduction to the use of the data bases of the Web of Knowledge
Awarding entity: Spanish Foundation for Science and Technology FECYT **Type of entity:** State agency
End date: 31/10/2007 **Duration in hours:** 12 hours

4 **Type of training:** Course
Training title: English course
City awarding entity: San Diego (California), United States of America
Awarding entity: Human International Academy, San Diego California, USA
End date: 31/08/2007 **Duration in hours:** 60 hours

5 **Training title:** Advanced Techniques in Prevention of Labour Risks in the Laboratory
Awarding entity: School of Public Administration of Spain **Type of entity:** State agency
End date: 26/02/2006 **Duration in hours:** 16 hours

6 **Training title:** Innovation, quality and food safety
Awarding entity: National Technological Centre for Conserved Product **Type of entity:** Technological Centre
End date: 16/09/2005 **Duration in hours:** 30 hours

7 **Training title:** Management of the Environment by Modern Companies
Awarding entity: CEMACAM **Type of entity:** Business
End date: 16/07/2004 **Duration in hours:** 30 hours

Attended advanced, improvement and innovative teacher training and new technology courses and seminars focused on improving teaching

1 **Title of course/seminar:** Agenda 2030 y Desarrollo Sostenible en Educación
Goals of the course/seminar: Curso a distancia
Organising entity: Universidad Internacional de La Rioja
Duration in hours: 100 hours
Start-End date: 03/10/2024 - 22/10/2024

2 **Title of course/seminar:** COMPETENCIA DIGITAL DOCENTE NIVEL B2
Organising entity: C.E.P. de El Ejido
Duration in hours: 70 hours
Start-End date: 17/01/2024 - 18/03/2024

3 **Title of course/seminar:** PROGRAMAS EUROPEOS ERASMUS KA1 .IV
Organising entity: Dirección Gral. de Tecnologías Avanzadas y Transformación Educativa
Duration in hours: 35 hours
Start-End date: 01/09/2022 - 31/08/2023

4 **Title of course/seminar:** PROGRAMAS EUROPEOS ERASMUS KA1 III
Organising entity: Dirección Gral. de Tecnologías Avanzadas y Transformación Educativa
Duration in hours: 35 hours
Start-End date: 01/09/2022 - 31/08/2023

5 **Title of course/seminar:** DERECHOS DE AUTOR EN CONTENIDOS DIGITALES Y PROTECCIÓN DE DATOS
Goals of the course/seminar: Curso a distancia
Organising entity: C.E.P. de Cuevas - Olula
Duration in hours: 30 hours
Start-End date: 03/11/2022 - 12/12/2022

6 **Title of course/seminar:** JEFATURA DE ESTUDIOS: ORGANIZACIÓN Y FUNCIONAMIENTO DE LOS CENTROS DE SECUNDARIA
Organising entity: C.E.P. de Almería
Duration in hours: 30 hours
Start-End date: 24/02/2022 - 30/03/2022

7 **Title of course/seminar:** Inteligencia emocional en el aula
Goals of the course/seminar: Curso a distancia
Organising entity: Universidad de Murcia
Duration in hours: 110 hours
Start-End date: 17/10/2019 - 06/11/2019

8 **Title of course/seminar:** UTILIDAD DE LOS DRONES EN CIERTAS ENSEÑANZAS
Goals of the course/seminar: Curso presencial y práctico
Organising entity: C.E.P. de Cuevas - Olula
Duration in hours: 25 hours
Start-End date: 15/01/2019 - 24/01/2019

9 **Title of course/seminar:** Presentaciones eficaces en el aula
Goals of the course/seminar: Curso a distancia
Organising entity: Universidad de Murcia
Duration in hours: 110 hours
Start-End date: 29/07/2018 - 17/10/2018

10 **Title of course/seminar:** COMPETENCIA DIGITAL DOCENTE: LA ESCUELA 2.0 COMO HERRAMIENTA DIDÁCTICA EN EL DESARROLLO DE LAS COMPETENCIAS DIGITALES
Goals of the course/seminar: Curso a distancia
Organising entity: UNIVERSIDAD CAMILO JOSÉ CELA
Duration in hours: 110 hours
Start-End date: 21/12/2014 - 09/01/2015

11 **Title of course/seminar:** COMPETENCIA DIGITAL DOCENTE: NUEVAS TECNOLOGÍAS DE LA INFORMACIÓN Y LA COMUNICACIÓN (TIC) APLICADAS A LA EDUCACIÓN
Goals of the course/seminar: Curso a distancia
Organising entity: UNIVERSIDAD CAMILO JOSÉ CELA
Duration in hours: 110 hours
Start-End date: 01/12/2014 - 20/12/2014

12 **Title of course/seminar:** COMPETENCIA DIGITAL DOCENTE: USO INTEGRADO DE LAS TIC EN CENTROS EDUCATIVOS
Goals of the course/seminar: Curso a distancia
Organising entity: UNIVERSIDAD CAMILO JOSÉ CELA
Duration in hours: 110 hours
Start-End date: 10/11/2014 - 30/11/2014

13 **Title of course/seminar:** Presentation skills
Goals of the course/seminar: Perfeccionamiento de la tarea docente
Organising entity: Czech University of Life Sciences Prague **Type of entity:** University
Faculty, institute or centre: Mgr. Yveta Rychtarikova
Duration in hours: 30 hours
Start-End date: 01/10/2013 - 05/11/2013

14 **Title of course/seminar:** Master in Education Teacher Training at Secondary school
City organizing entity: Elche, Valencian Community, Spain
Organising entity: University Miguel Hernández **Type of entity:** University
Faculty, institute or centre: Education
Start-End date: 01/10/2010 - 20/09/2011
Target group profile: The Master that enables the exercise of teaching as Professor of Secondary Education, Secondary Education, Vocational Training, Language Education, Art Education and Sports Education is a requirement to the admission to specific Corps Secondary School Teachers, Technical teachers Training, Musical and Performing Arts, Visual Arts and Design teachers, teachers Workshop in Art and Design and School Teachers Official Language (RD 276 / 2007 of 23 February). This Master presents a clear professional profile, designed to train future teachers of secondary education, enabling them to become teachers of Secondary Education, school and vocational training in public schools and private schools, and to take them places both teaching and mentoring of students at various educational levels as management and leadership positions. Special emphasis is placed on the graduates are able to competently meet the various educational needs resulting from the diversity of students present in the classroom.
Provable tasks: El Máster que habilita para el ejercicio de la docencia como Profesor de Educación Secundaria Obligatoria, Bachillerato, Formación Profesional, Enseñanzas de Idiomas, Enseñanzas Artísticas y Enseñanzas Deportivas (RESOLUCIÓN de 17 de diciembre de 2007, BOE nº 305 de 21 de diciembre) es requisito específico para

el ingreso en los Cuerpos de Profesores de Enseñanza Secundaria, profesores Técnicos de Formación Profesional, Profesores de Música y Artes Escénicas, Profesores Artes Plásticas y Diseño, Maestros de Taller de Artes Plásticas y Diseño y Profesores de Escuelas Oficiales de Idiomas (RD 276/2007, de 23 de febrero).
Aims of the stay: To learn to teach

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
Czech	A1	A2	A1	A1	A1
English	C1	C1	C1	C1	C1
Spanish	C2	C2	C2	C2	C2

Teaching experience

General teaching experience

1 **Type of teaching:** International teaching
Name of the course: Ecological Stress and Sanitation Technology ZOZ71E
Professional category: International teacher Science Educational Staff
Type of programme: Bachelor's degree **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Degree Environmental Sciences WS 2015/2016
Course given: Degree Environmental Geochemistry **Frequency of the activity:** 1
Start date: 2015 **End date:** 2016
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 4
Entity: Czech University of Life Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Sciences
Department: Department of Environmental Geosciences
City of entity: Prague, Czech Republic
Subject language: English

2 **Type of teaching:** International teaching
Name of the course: Environmental Geochemistry and Mineralogy ZOX03E
Professional category: Seneca Foundation Postdoc
Type of programme: Master's degree **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Master Environmental Geochemistry SS 2015/2016
Course given: Master Environmental Geochemistry and Mineralogy **Frequency of the activity:** 1
Start date: 2015 **End date:** 2016
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 2
Entity: Czech University of Life Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Sciences
Department: Department of Environmental Geosciences
City of entity: Prague, Czech Republic

Subject language: English

3 **Type of teaching:** International teaching
Name of the course: Ecological Stress and Sanitation Technology ZOZ71E
Professional category: International teacher Science Educational Staff
Type of programme: Bachelor's degree **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Degree Environmental Sciences WS 2014/2015
Course given: Degree Environmental Sciences **Frequency of the activity:** 1
Start date: 2014 **End date:** 2015
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 1
Entity: Czech University of Life Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Sciences
Department: Department of Environmental Geosciences
City of entity: Prague, Czech Republic
Subject language: English

4 **Type of teaching:** International teaching
Name of the course: Environmental Geochemistry ZOX03E
Professional category: International teacher Science Educational Staff
Type of programme: Master's degree **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Master Environmental Geochemistry SS 2014/2015
Course given: Master Environmental Geochemistry **Frequency of the activity:** 1
Start date: 2014 **End date:** 2015
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 3
Entity: Czech University of Life Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Sciences
Department: Department of Environmental Geosciences
City of entity: Prague, Czech Republic
Subject language: English

5 **Type of teaching:** International teaching
Name of the course: Land and Water Management IV - Remediation of contaminated soild by nanoparticles/biochar ZXX24Z
Professional category: International teacher Science Educational Staff
Type of programme: Master's degree **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Master Environmental Geochemistry SS 2014/2015
Course given: Master Environmental Geochemistry **Frequency of the activity:** 1
Start date: 2014 **End date:** 2015
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 2
Entity: Czech University of Life Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Sciences
Department: Department of Environmental Geosciences
City of entity: Prague, Czech Republic
Subject language: English

6 **Type of teaching:** International teaching
Name of the course: Environmental Geochemistry KA01
Professional category: International teacher Science Educational Staff OPVK
Type of programme: Bachelor's degree **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Degree Environmental Sciences 2013/2015
Course given: Degree Environmental Geochemistry **Frequency of the activity:** 1
Start date: 2013 **End date:** 2015
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 32
Entity: Czech University of Life Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Sciences
Department: Department of Environmental Geosciences
City of entity: Prague, Czech Republic
Subject language: English

Experience supervising doctoral thesis and/or final year projects

1 **Project title:** Effects of MNMs on plant physiology and potential toxicity.
Type of project: Doctoral thesis
Entity: Czech University of Life Sciences Prague **Type of entity:** University
City of entity: Prague, Praha, Czech Republic
Student: Manuel Teodoro Tenango
Obtained qualification: Cum laude
Date of reading: 25/11/2020
Quality recognition: Yes **Date of award:** 25/11/2020

2 **Project title:** The influence of nano-sorbent on risk elements uptake by plant.
Type of project: End of course project
Co-director of thesis: Martina Vítková
Entity: Czech University of Life Sciences Prague **Type of entity:** University
City of entity: Prague, Praha, Czech Republic
Student: Denisa Svengova
Date of reading: 18/04/2017

3 **Project title:** Reactive transport modelling in porous media
Type of project: End of course project
Co-director of thesis: Lukas Trakal
Entity: Czech University of Life Sciences Prague **Type of entity:** University
City of entity: Prague, Praha, Czech Republic
Student: Kingsley Ezeji
Date of reading: 11/04/2017

4 **Project title:** Optimisation of biochar and digestate doses in an acid contaminated soil according to the plant responses
Entity: Czech University of Life Sciences Prague
Student: Juan Carlos Galán-Robles
Date of reading: 01/04/2017

5 **Project title:** Root uptake by sunflowers in hydroponic under Nano-maghemite exposition
Type of project: 112
Entity: Czech University of Life Sciences Prague/Universitat de Girona **Type of entity:** University
City of entity: Prague, Praha, Czech Republic
Student: Didac Barroso
Obtained qualification: Excelent
Date of reading: 01/04/2015
Quality recognition: Yes

6 **Project title:** Brewers draff for the chromium adsorption in contaminated ground-water
Type of project: End of course project
Co-director of thesis: Michael Komárek
Entity: Czech University of Life Sciences Prague
City of entity: Prague, Praha, Czech Republic
Student: Olesya Egorova
Obtained qualification: Good
Identify key words: Soil science; Waste recycling; Processed agricultural produce
Date of reading: 26/07/2013

Materials and other teaching or educational publications.

Domingo Martínez Fernández. Grupo de trabajo, 19403GT055, 19403GT05500 5.
Name of the materials: BUENAS PRÁCTICAS PARA LA EVALUACIÓN DE LA FORMACIÓN PROFESIONAL DUAL
Date of drafting: 01/11/2018
Format: Manual
Corresponding author: Yes

Participation in innovative teaching projects

Project title: PROYECTO TERRAL
Type of participation: Team member
Time of working relationship: For a limited time
Funding entity: C.E.P. de Málaga **Type of entity:** Público
Start-End date: 28/03/2017 - 05/06/2017

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** Phytoremediation of contaminated soils using nanoparticles: Implications for rhizosphere

Identify key words: Nanoparticles; Plant physiology

Type of project: Basic research (including archaeological digs, etc)

Geographical area: National

Degree of contribution: Coordinator of total project, network or consortium

Entity where project took place: Czech University of Life Sciences Prague, Faculty of Environmental Science

Type of entity: University

City of entity: Prague, Praha, Czech Republic

Name principal investigator (PI, Co-PI....): Domingo Martínez-Fernández; Martina Vitkova; Zuzana Michálkova; Songlin Wu; Manuel Teodoro

Nº of researchers: 7

Nª people/year: 7

Funding entity or bodies:

GACR Czech Science Fundation

Type of entity: State agency

City funding entity: Czech Republic

Type of participation: Principal investigator

Name of the programme: Junior Grant Proposal GACR

Code according to the funding entity: 17-25536Y

Start-End date: 01/02/2017 - 31/12/2019

Duration: 3 years

Total amount: 188.158,84 €

Relevant results: The use of nanoparticles in soils represents an emerging method for stabilisation of contaminants, even more efficient in combination with phytostabilisation. However, the mechanisms at the soil-root interface (i.e. rhizosphere) are yet poorly understood. For that reason, the interactions of nanoparticles with plants need to be investigated in detail before their full application. The implications for plant physiology related to water balance and stress will be evaluated considering incorporation of nanoparticles in plant tissues with special focus on the key processes in the soil-root interface. The influence of root exudates on the reactivity of nanoparticles will be investigated as well. Sets of laboratory, hydroponic, rhizobox and field experiments will be conducted. Integral experimental approach coming from laboratory to field scale will provide complex knowledge of the studied issues, which will be useful for wide scientific community, helping to extrapolate the research to higher and more concrete levels.

Dedication regime: Part time

Applicant's contribution: Coordinator and applicant. Título proyecto en Español: Fitorremediación de suelos contaminados mediante nanopartículas: implicaciones para la rizosfera. Duración: 3 años (2017-2019) Entidad financiadora: GACR, Organización Pública para la Ciencia Checa Código del proyecto: 17-25536Y Entidades participantes: Universidad Checa de las Ciencias de la Vida en Praga (CULS) y Centro de Edafología y Biología Aplicada del Segura-Consejo Superior de Investigaciones Científicas (CEBAS-CSIC). Tipo de participación: Parcial (50%). https://gacr.cz/en/about-gacr en su versión en inglés: “The Czech Science Foundation (also known as the Grant Agency of the Czech Republic, GACR) was established in 1993 as the main independent public organization with the aim to support basic research in the Czech Republic and promote international collaboration of researchers and research teams on the bilateral and multilateral levels”[…].

2 **Name of the project:** Especiación de As en suelo, agua de poro y plantas de la Sierra Minera de La Unión: desarrollo de un modelo preliminar de toxicidad para plantas.

Entity where project took place: Centro de Edafología y Biología Aplicada del Segura **Type of entity:** State agency

City of entity: Murcia, Spain

Name principal investigator (PI, Co-PI....): Rafael Clemente; M. Pilar Bernal; Domingo Martínez-Fernández

Nº of researchers: 3

Funding entity or bodies:

FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA

City funding entity: Spain

Code according to the funding entity: 19460/PI/14

Start-End date: 01/07/2015 - 30/06/2018 **Duration:** 3 years

Total amount: 45.400 €

3 **Name of the project:** Nanotechnology for Phytoremediation of contaminated soils: Applicability and consequences of nanoparticles for plants and the environment

Type of project: Research and development, including transfer **Geographical area:** European Union

Degree of contribution: Researcher

Entity where project took place: Czech University of Life Sciences **Type of entity:** University

City of entity: Prague, Praha, Czech Republic

Nº of researchers: 1

Funding entity or bodies:

FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA

City funding entity: Spain

Name of the programme: Talento Investigador Postdoc Séneca

Code according to the funding entity: 19835/PD/15

Start-End date: 01/10/2015 - 31/05/2017 **Duration:** 1 year - 8 months

Total amount: 63.900 €

Relevant results: Nanotechnology is useful as an environmental technology and is operated under the name of nanoremediation. This is used to protect the environment, either through prevention, treatment or cleaning up hazardous waste sites. Nanoremediation methods are based on nanomaterials reagents for transformation and detoxification of pollutants, providing a wide range of novel amendments for the immobilization of metal/metalloids in the soil. Their size results in high reactivity and stabilization efficiency, having received much attention due to their excellent superparamagnetic properties, great biocompatibility, their relatively-high specific surface area and important sorption properties. However, the impacts of nanoparticles on the environment must be intensively studied before their full implementation. The commercial application of Manufactured NanoMaterials (MNMs), substances with dimensions less than 100 nm, is increasing rapidly, but one important aspect, the safety of MNMs, still represents a barrier to their wide innovative use.

Dedication regime: Full time

4 **Name of the project:** Added value of plants in trace element immobilisation in soils: bio-energy crops and food safety

Identify key words: Soil analysis; Food contamination; Agricultural area with environmental restrictions; Metal pollution

Type of project: Research and development, including transfer **Geographical area:** European Union

Degree of contribution: Researcher

Entity where project took place: Centro de Edafología y Biología Aplicada del Segura **Type of entity:** State agency

City of entity: Murcia, Region of Murcia, Spain
Nº of researchers: 7
Name of the programme: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad-Programa Estatal de Fomento de la Investigación Científica y Técnica de Retos
Code according to the funding entity: CTM2013-48697-C2-1-R
Start-End date: 01/10/2014 - 31/12/2016 **Duration:** 2 years - 3 months
Total amount: 151.250 €
Relevant results: Ministerio de Economía y Competitividad. Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad
Dedication regime: Part time
Applicant's contribution: O1.2: Diseño de un dispositivo para la adición de las enmiendas y la siembra de las especies que facilite y optimice la eficacia del proceso. Responsable: M. Pilar Bernal Participantes: M.Pilar Bernal; Rafael Clemente; Titulado superior contratado CEBAS; Antonia García; Domingo Martínez-Fernández Período de ejecución: T4-T6 H2. Diseño de dispositivo para siembra y enmienda en suelos contaminados semi-áridos; T6 E2. Registro de patente o modelo de utilidad de un dispositivo de siembra y acondicionamiento del suelo; T8

5 **Name of the project:** Biochar as option for sustainable resource management
Entity where project took place: Europe
Code according to the funding entity: COST Action TD1107- 4184/11
Start-End date: 01/07/2012 - 30/06/2016 **Duration:** 4 years
Applicant's contribution: The main objective of the Action is to expand and interconnect knowledge in Biochar systems, to assess environmental impacts of Biochar use and thus sharpen a promising global change mitigation tool up to the stage where economically feasible application will begin. Systematize essential knowledge to optimize Biochar production (“designer Biochars”) with regard to its properties and effects, considering the large range of suitable biomass, energy and mass balances, cost efficiency and Biochar quality. Develop an EU road map to produce 140 million tons of Biochar annually by processing 500 million tons of organic residues, offsetting 10% of the European fossil fuel use. Systematize and integrate knowledge to identify the most beneficial Biochar use strategies in agriculture across various European regions and climates, identifying the most promising applications.

6 **Name of the project:** Mobility of metals on the boundary of bio-, pedo- and geosphere with emphasis on their anthropogenic origin and environmental impact
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** European Union
Entity where project took place: European Social Funds in Czech Republic (ESF) and Ministry of Education, Youth and Sports (MEYS)
City of entity: Prague, Praha, Czech Republic
Nº of researchers: 14
Funding entity or bodies:
European Social Funds in Czech Republic **Type of entity:** CZU

Name of the programme: Postdok CZU
Code according to the funding entity: (ESF a MEYS CZ.1.07/2.3.00/30.0040)
Start-End date: 15/01/2013 - 30/06/2015 **Duration:** 2 years - 6 months
Total amount: 52.200 €
Dedication regime: Full time

7 **Name of the project:** Interaction of organic matter with trace elements in contaminated soil during development of recovery phytotechnologies.
Identify key words: Environmental standard; Ecology; Metal pollution; Erosion
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Non EU International

Degree of contribution: Researcher
Entity where project took place: Centro de Edafología y Biología Aplicada del Segura **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Mª Pilar Bernal Calderón
Nº of researchers: 3
Funding entity or bodies:
MICINN, Plan Nacional de I+D+i.

Type of participation: Team member
Code according to the funding entity: CTM2010-21922-C02-01
Start-End date: 01/01/2011 - 30/06/2014
Participating entity/entities: CEBAS - CSIC
Total amount: 168.190 €

8 **Name of the project:** Study of the biosynthesis, regulation and therapeutic activity of furanocoumarins from Bituminaria bituminosa.
Identify key words: Chromatography; Biosynthesis; Pharmaceutic industry; Fodder plant
Identify key words: Biopharmaceutics
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** National
Degree of contribution: Researcher
Entity where project took place: University of Murcia
City of entity: Murcia, Region of Murcia, Spain
Nº of researchers: 6
Type of participation: Others
Name of the programme: Ministerio de Ciencia e Innovación
Code according to the funding entity: BFU2010-19599
Start-End date: 01/01/2011 - 31/12/2013
Participating entity/entities: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario; Universidad de Murcia
Dedication regime: Full time

9 **Name of the project:** Effect of cultivation conditions on the production of furanocoumarins by Bituminaria bituminosa
Identify key words: Biopharmaceutics; Pharmaceutic industry; Agro industrial cropping; Secondary metabolites (plant physiology); Metal pollution; Fodder growing; Irrigated agriculture; Hydroponics; Metal waste
Identify key words: Chromatography; Biopharmaceutics; Agro industrial cropping
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Regional
Degree of contribution: Researcher
Entity where project took place: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** Público
City of entity: Murcia, Region of Murcia, Spain
Nº of researchers: 6
Type of participation: Others
Name of the programme: Fundación Séneca-Agencia de Ciencia y Tecnología de la Región de Murcia
Code according to the funding entity: nº. 11776/PI/09
Start-End date: 01/01/2010 - 31/12/2011
Participating entity/entities: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario; Universidad de Murcia
Dedication regime: Full time

10 **Name of the project:** Mass selection, propagation and seed production of two cultivars of Bituminaria bituminosa with tolerance to drought and cold
Identify key words: Metal pollution; Drought; Fodder growing; Plant physiology; Plant propagation; Seed; Cultivation system
Identify key words: Genetic selection; Soil biology; Fodder growing; Hydroponics; Generation from biomass
Type of project: Basic research (including archaeological digs, etc)
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario
Type of entity: Público
City of entity: Murcia, Region of Murcia, Spain
Nº of researchers: 5
Type of participation: Others
Name of the programme: Ministerio de Educación y Ciencia – INIA.
Code according to the funding entity: nº. RTA2007-00046-00-00
Start-End date: 01/01/2008 - 31/12/2010
Participating entity/entities: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario
Dedication regime: Full time

11 **Name of the project:** Phytostabilisation of heavy metals contaminated soils: efects on soil-plant.
Type of project: Basic research (including archaeological digs, etc)
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Edafología y Biología Aplicada del Segura
Type of entity: State agency
City of entity: Murcia, Region of Murcia, Spain
Nº of researchers: 10
Type of participation: Team member
Name of the programme: Ministerio de Ciencia e Innovación, Plan Nacional de I+D+I
Code according to the funding entity: CTM2007-66401-C02-01/TECNO
Start-End date: 01/10/2007 - 30/09/2010
Total amount: 225.786 €
Dedication regime: Full time

12 **Name of the project:** Engineered iron Nanoparticles: a step towards gentle SOil Remediation (ENSOR)
Identify key words: Nanoparticles; Remediation (environmental risks); Soil conditioning
Geographical area: European Union
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Europe
Type of entity: Associations and Groups
City of entity: Prague,
Name principal investigator (PI, Co-PI....): Sonja Gvozdenac; Shu-Chien Hsu; Daniel Tsang; Deniz Bingöl; Katarína Pe?ková; Jurate Kumpiene; Jakub Kierczak; Marisa Almeida; Nelson Marmiroli; Krisztina Kovács; Efstratios Kelepertzis; Luke Beesley; Alexandra Courtin-Nomade; Michel Mench; Petra Kidd; Rafael Clemente; Ralph Bolanz; Petra Najmanová; Domingo Martínez-Fernández; Martina Vitkova; Jan Filip; Chuanyong Jing; Daohui Lin; Markus Puschenreiter; Michael Komárek
Nº of researchers: 25
Funding entity or bodies:
COST Action

Type of participation: Co-ordinator
Name of the programme: COST action

Code according to the funding entity: OC-2015-2-20112

Start date: 01/04/2016 **Duration:** 4 years

Relevant results: The number of sites polluted with metals and metalloids is rising throughout the world, creating toxicological and environmental risks for safe agricultural production and groundwater resources. Therefore, there is an urgent need for the development of efficient, cost-effective and environmentally friendly methods of remediation of the contaminated soils. Nanomaterials are, due to their unique properties, promising materials for various technological fields - including environmental management - and nanotechnology has been identified in Horizon 2020 as one of the priorities in research and development. Specifically, ironbased nanomaterials are, due to their important surface and physical/chemical properties, prospective amendments for environmental restoration, particularly for chemical stabilisation and aided phytostabilisation of metals and metalloids in contaminated soils. The main aim of the ENSOR COST Action is to create an interdisciplinary network of experts working in the fields of environmental geochemistry, plant and soil sciences, microbiology, nanotechnology, environmental engineering and biotechnology, together with private industries. The presented research will significantly contribute to a better understanding of the behaviour of iron-based nanomaterials in the soil-rhizosphere-plant environment and evaluate their potential use in environmental management of contaminated sites, taking into account their possible toxicological effects. This Action will encourage high-quality interdisciplinary research, transfers of knowledge and scientific advances to environmental management issues, promote cross-sector partnerships, create an important platform for students and Early Career Investigators and thus increase the competitiveness of European research and technology.

Applicant's contribution: Preparation of application and creation of network. Status: Revision Completed

13 **Name of the project:** Modeling metal adsorption onto oxidation products of nano zerovalent iron: Influence of microorganisms and root exudates in soil environments

Identify key words: Nanoparticles; Oxides and sulfides; Microbiology

Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Non EU International

Degree of contribution: Coordinator of total project, network or consortium

Entity where project took place: Czech University of Life Sciences Prague **Type of entity:** University

City of entity: Prague, Praha, Czech Republic

Name principal investigator (PI, Co-PI....): Michael Komarek; Martina Vítková; Domingo Martínez-Fernández; Barbora Hudcová; Carla M. M. Koretsky; Jeremy B. Fein

Nº of researchers: 3

Funding entity or bodies:

KONTAKT II (Ministry of Education, Youth and Sports) **Type of entity:** Administrative Body of the National Health System

City funding entity: Prague, Czech Republic

Type of participation: Co-ordinator

Name of the programme: KONTAKT II

Duration: 2 years - 3 months

Total amount: 68.000 €

Relevant results: The aim of the presented project is (i) to describe the geochemical and mineralogical transformations of nano zerovalent iron in a model and natural soil environment, (ii) to develop surface complexation models describing metal(loid) (As, Cd, Cr, Cu, Pb, Zn) adsorption onto newly formed iron nanooxides, (iii) to evaluate the influence of microorganisms and root exudates on the transformation of nano zerovalent iron and subsequent metal adsorption.

Dedication regime: Part time

Applicant's contribution: Participants: Czech University of Life Sciences Prague (CULS, Czech Rep.), Western Michigan University (WMU, USA) University of Notre Dame (UND, France). Project No Selected (15/12/2015).

14 **Name of the project:** Nanotechnology in food and agriculture, toward the year 2020 (NanoAgriFood)

Geographical area: European Union

Entity where project took place: Europe **Type of entity:** Associations and Groups

Name principal investigator (PI, Co-PI....): Nelson Marmiroli; Elena Maestri; Jaco Vangronsveld; Lorenzo Ros-McDonnell; Jordi Esquena; Domingo Martínez-Fernández; Maria Victoria de-la-Fuente; Eduardo Moreno-Jiménez; Michel Mench; Stefan Weigel; Brett Robinson; Jason White; Stephen Ebbs; etc. 60 participants
Nº of researchers: 60
Funding entity or bodies:
COST Action

Name of the programme: COST action
Code according to the funding entity: OC-2015-1-19656
Duration: 2 years
Relevant results: Not selected 03/11/2015

Results

Industrial and intellectual property

Title registered industrial property: DISPOSITIVO PARA LA REVEGETACIÓN DE SUELOS
Type of industrial property: Utility model
Inventors/authors/obtainers: MªPilar Bernal Calderón; Rafael Clemente Carrillo; Domingo Martínez Fernández
Entity holder of rights: CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS (CSIC)
Reference/registry code: 1 217 738 **Nº of application:** U201831081
Country of inscription: Spain, Region of Murcia
Date of register: 10/07/2018
Conferral date: 07/12/2018
Nº of patent: ES1217738

Scientific and technological activities

Scientific production

H index: 18
Date of application: 14/01/2025
Source of H-Index: GOOGLE SCHOLAR

Publications, scientific and technical documents

1 Tania Pardo; Domingo Martínez-Fernández; Carlos de la Fuente; Rafael Clemente; Michael Komárek; M. Pilar Bernal. Maghemite nanoparticles and ferrous sulfate for the stimulation of iron plaque formation and arsenic immobilization in Phragmites australis. Environmental Pollution. 219, pp. 296 - 304. ELSEVIER, 05/10/2016. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S026974911631644X>. ISSN 0269-7491

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: No
Impact source: SCOPUS
Category: Science Edition - ENVIRONMENTAL SCIENCES

Impact index in year of publication: 4.839
Journal in the top 25%: Yes
Position of publication: 37
No. of journals in the cat.: 358

Relevant results: Highlights •Root iron plaque formation by Fe nanoparticles was studied for the first time. •The distribution of iron plaque formed in P. australis roots was assessed by SEM-EDS. •Combination of nFe2O3 and Fe2+ salts boosted iron plaque formation in plant roots. •Increased iron plaque formation enhanced P. australis As immobilization capacity. DOI: 10.1016/j.envpol.2016.10.014
Relevant publication: Yes

2 Domingo Martínez-Fernández; Michael Komárek. Comparative effects of nanoscale zero-valent iron (nZVI) and Fe2O3 nanoparticles on root hydraulic conductivity of Solanum lycopersicum L.Environmental and Experimental Botany. 131, pp. 128 - 136. ELSEVIER, 19/06/2016. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0098847216301563>.
DOI: 10.1016/j.envexpbot.2016.07.010
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 2
Corresponding author: Yes
Impact source: SCOPUS
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 3.712
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 43

Relevant results: Highlights •NZVI and nFe2O3 affected differently the nutritional status of tomato plants. •Root water conductivity was lowered by nFe2O3 (100 mg L?1), but not by nZVI. •Only nFe2O3 gave rise to lower levels of Mo and Zn in the shoots. •NZVI seems to be less harmful than nFe2O3 for plants regarding root water uptake. DOI: http://www.sciencedirect.com/science/article/pii/S0098847216301563
Relevant publication: Yes

3 Nubia Zuverza-Mena; Domingo Martínez-Fernández; Wenchao Du; J. Antonio Hernandez-Viezcas; Nestor Bonilla-Bird; Michael Komárek; JR Peralta-Videa; JL Gardea-Torresdey. Exposure of engineered nanomaterials to plants: Insights into the physiological and biochemical responses-A Review. Plant Physiology and Biochemestry. 110, pp. 236 - 264. ELSEVIER, 26/05/2016. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0981942816302182?np=y>. ISSN 0981-9428
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of review
Total no. authors: 8
Corresponding author: No
Impact source: SCOPUS
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2.928
Journal in the top 25%: Yes
Position of publication: 44
No. of journals in the cat.: 204
Source of citations: SCOPUS
Citations: 349

Relevant results: • There is lack of consistency in the responses of plants to NPs' exposure. • Plant responses depend on exposure conditions and NP characteristics. • Most of reports focus on seed germination and plant growth. • Mechanisms of interaction between plants and NPs are not well understood. • Further studies at the transcriptomic and genetic levels are needed.
Relevant publication: Yes

4 Domingo Martínez-Fernández; Didac Barroso; Michael Komárek. Root water transport of Helianthus annuus L. under iron oxide nanoparticle exposure. Environmental Science and Pollution Research. 23 - 2, pp. 1732 - 1741. SPRINGER, 05/01/2016. Available on-line at: <http://link.springer.com/article/10.1007/s11356-015-5423-5>.
DOI: 10.1007/s11356-015-5423-5
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 3
Corresponding author: Yes
Impact source: SCOPUS
Category: Science Edition - ENVIRONMENTAL SCIENCES
Impact index in year of publication: 2.828
Journal in the top 25%: Yes
Position of publication: 54
No. of journals in the cat.: 223
Source of citations: SCOPUS
Citations: 161

Relevant results: These results will be an important factor to take into account with regard to the applicability of NM for long-term use in crops, particularly during privative water conditions.
Relevant publication: Yes

5 Domingo Martínez-Fernández; Martina Vítková; M. Pilar Bernal; Michael Komárek. Effects of Nano-Maghemite on Trace Elements Accumulation and Drought Response of Helianthus annuus L. in a Contaminated Soil. Water, Air, and Soil Pullution. 226 - 101, SPRINGER, 20/03/2015. Available on-line at: <http://link.springer.com/article/10.1007/s11270-015-2365-y/fulltext.html>.
DOI: 10.1007/s11270-015-2365-y
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Total no. authors: 4
Impact source: SCOPUS
Category: Science Edition - ENVIRONMENTAL SCIENCES
Impact index in year of publication: 1.685
Journal in the top 25%: No
Position of publication: 106
No. of journals in the cat.: 216
Source of citations: WOS
Citations: 40

Relevant results: These results highlight the applicability of NM as an amendment during phytoremediation due to its immobilisation of TEs in the soil, allowing the growth of plants by making the contaminants less available. In addition, the high reactivity of NM ensures that it does not have to be used in large amounts or at high doses.
Relevant publication: Yes

6 Domingo Martínez-Fernández; Deniz Bingol; Michael Komárek. Trace elements and nutrients adsorption onto nano-maghemite in a contaminated-soil solution: a geochemical/statistical approach. Journal of Hazardous Materials. 276, pp. 271 - 277. SPRINGER, 29/01/2014. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0304389414003884>.
DOI: 10.1016/j.jhazmat.2014.05.043
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Total no. authors: 3
Corresponding author: Yes
Impact source: SCOPUS
Category: Science Edition - ENGINEERING, CIVIL
Impact index in year of publication: 4.529
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 124
Source of citations: WOS
Citations: 18

Relevant results: AWARDED "BEST PUBLICATION 2014 at Czech University of Life Sciences Prague" Rector Prize Jiri Balik (Diplom Rektora - za nejlepsi publikactni vystup v roze 2014).
Relevant publication: Yes

7 Rafael Clemente; David J. Walker; Tania Pardo; Domingo Martínez-Fernández; M. Pilar Bernal. The use of a halophytic plant species and organic amendments for the remediation of a trace elements-contaminated soil under semi-arid conditions.Journal of Hazardous Materials. 223-224, pp. 63 - 71. (Holland): ELSEVIER, 15/07/2012. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0304389412004396>. ISSN 0304-3894

DOI: 110.1016/j.jhazmat.2012.04.048

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Impact source: ISI
Category: Science Edition - ENVIRONMENTAL SCIENCES
Impact index in year of publication: 4.331
Journal in the top 25%: Yes
Position of publication: 16
No. of journals in the cat.: 215
Source of citations: Google Scholar
Citations: 174

Relevant results: The findings demonstrate the potential of A. halimus, particularly in combination with an organic amendment, for the challenging task of the phytostabilisation of contaminated soils in (semi-)arid areas and suggest the need for an ecotoxicological evaluation of the remediated soils.
Relevant publication: Yes

8 Domingo Martínez-Fernández; Martina Vítková; Zuzana Michálková; Michael Komárek. Engieenered nanomaterials for phytoremediation of metal/metalloids contaminated soils: implications for plant physiology. Phytoremediation: Management of Environmental Contaminants. 5, SPRINGER International Publishing Switzerland., 12/12/2015. Available on-line at: <In: Anasari A.A., Gill S.S., Gill R., Lanza G.R., Newman L. (eds.).>.

Type of production: Book chapter
Format: Book
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Source of citations: SCOPUS
Citations: 33

Relevant results: Nanomaterials, including engineered nanosized iron oxides, manganese oxides, cerium oxides, titanium oxides, or zinc oxides, provide specific affinity for metal/metalloids adsorption and their application is being rapidly extended for environmental management. Their significant surface area, high number of active surface sites, and high adsorption capacities make them very promising as cost effective amendments for the remediation of contaminated soils. The alleviation of the toxicities of metal/metalloids by their immobilization in the soil stimulates the growth and development of plants during phytoremediation, but there is a body of evidence indicating that nanomaterials themselves can yield both beneficial and harmful effects in plant systems at the physiological, biochemical, nutritional, and genetic levels. However, many results are contradictory and the safety of engineered nanomaterials still represents a barrier to their wide, innovative use in phytoremediation. Both their positive and negative effects on plants will have to be taken into account to evaluate their applicability, and the scientific community faces a challenge to understand deeply the factors which can determine their relevance in environmental science and technology.
Relevant publication: Yes

9 Manuel Teodoro; Rafael Clemente; Ermengol Ferrer-Bustins; Domingo Martínez-Fernández; María Pilar Bernál; Martina Vítková; Petr Vítek; Michael Komárek. Nanoscale Zero-Valent Iron Has Minimum Toxicological Risk on the Germination and Early Growth of Two Grass Species with Potential for Phytostabilization. Nanomaterials. 10 - 8, pp. 1537. MDPI, 05/08/2020. Available on-line at: <https://www.mdpi.com/2079-4991/10/8/1537>.

DOI: 10.3390/nano10081537
doi: https://doi.org/10.3390/nano10081537

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: Yes

Impact source: ISI
Category: NANOSCIENCE & NANOTECHNOLOGY
Impact index in year of publication: 4.7
Journal in the top 25%: No
Position of publication: 59
No. of journals in the cat.: 141

Source of citations: SCOPUS
Citations: 12

Relevant results: Q2

10 Songlin Wu; Tomáš Cajthaml; Jaroslav Semerád; Alena Filipová; Mariana Klementová; Roman Skála; Martina Vítková; Zuzana Michálková; Manuel Teodoro; Zhaoxiang Wu; Domingo Martínez-Fernández; Michael Komárek. Nano zero-valent iron aging interacts with the soil microbial community: a microcosm study. Environmental Science: Nano. 6 - 4, pp. 1189 - 1206. Royal Society of Chemistry, 27/02/2019. Available on-line at: <https://pubs.rsc.org/en/content/articlelanding/2019/en/c8en01328d>.

DOI: 10.1039/c8en01328d
doi: https://doi.org/10.1039/C8EN01328D
Type of production: Scientific paper
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 12
Corresponding author: No
Impact source: ISI
Category: ENVIRONMENTAL SCIENCES
Impact index in year of publication: 6.7
Journal in the top 25%: Yes
Position of publication: 64
No. of journals in the cat.: 358

Source of citations: SCOPUS
Citations: 38

11 Pavla Zahumenická; Eloy Fernández; Jana Šedivá; Jana Žiarovská; José Luis Ros-Santaella; Domingo Martínez-Fernández; Daniela Russo; Luigi Milella. Morphological, physiological and genomic comparisons between diploids and induced tetraploids in Anemone sylvestris L.Plant Cell, Tissue and Organ Culture (PCTOC). 132, pp. 317 - 327. Springer Netherlands, 02/11/2017. Available on-line at: <https://link.springer.com/article/10.1007/s11240-017-1331-3>.

doi: https://doi.org/10.1007/s11240-017-1331-3
Type of production: Scientific paper
Format: Journal
Position of signature: 7
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 9
Corresponding author: No
Impact source: ISI
Category: PLANT SCIENCES
Impact index in year of publication: 2.5
Journal in the top 25%: No
Position of publication: 98
No. of journals in the cat.: 265

Source of citations: SCOPUS
Citations: 25

Relevant results: Q2

12 Zuzana Michálková; Domingo Martínez-Fernández; Michael Komárek. Interactions of two novel stabilizing amendments with sunflower plants grown in a contaminated soil. Chemosphere. 186, pp. 374 - 380. Pergamon, 01/11/2017. Available on-line at: <https://www.sciencedirect.com/science/article/abs/pii/S0045653517312316>.

doi: https://doi.org/10.1016/j.chemosphere.2017.08.009
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 3
Impact source: ISI
Category: ENVIRONMENTAL SCIENCES
Impact index in year of publication: 7.7
Journal in the top 25%: Yes
Position of publication: 32
No. of journals in the cat.: 358

Source of citations: SCOPUS **Citations:** 38

13 Elena Arco; Domingo Martínez-Fernández; M Pilar Bernal; Rafael Clemente. Response of Piptatherum miliaceum to co-culture with a legume species for the phytostabilisation of trace elements contaminated soils.Journal of Soils and Sediments. pp. 1 - 9. ELSEVIER, 12/09/2015. Available on-line at: <http://link.springer.com/article/10.1007/s11368-015-1261-9>.

DOI: 10.1007/s11368-015-1261-9

Type of production: Scientific paper **Format:** Journal

Position of signature: 2 **Degree of contribution:** Author or co-author of article in journal without external admissions assessment committee

Total no. authors: 4

Impact source: SCOPUS **Category:** Science Edition - SOIL SCIENCE

Impact index in year of publication: 2.139 **Journal in the top 25%:** No

Position of publication: 10 **No. of journals in the cat.:** 34

Source of citations: SCOPUS **Citations:** 18

Relevant results: The co-culture of both species could be a good strategy for the development of a vegetation cover in this type of contaminated soils. As trace element concentrations in the aerial part of the plants were not of concern, the presence of the plants and, especially, their roots would mean a considerable contribution to the physicochemical stabilisation of the soil.

14 Domingo Martínez Fernández; Elena Arco; Rafael Clemente; María Pilar Bernal. Comparison of compost and humic fertiliser effects on growth and trace elements accumulation of native plant species in a mine soil phytorestoration experiment. Ecological Engineering. 73, pp. 588 - 597. ELSEVIER, 29/09/2014. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0925857414005163>.

DOI: 10.1016/j.ecoleng.2014.09.105

Type of production: Scientific paper **Format:** Journal

Position of signature: 1 **Degree of contribution:** Author or co-author of article in journal without external admissions assessment committee

Total no. authors: 4

Impact source: SCOPUS **Category:** Science Edition - ENVIRONMENTAL SCIENCES

Impact index in year of publication: 3.041 **Journal in the top 25%:** Yes

Position of publication: 47 **No. of journals in the cat.:** 216

Source of citations: Google Scholar **Citations:** 4

Relevant results: The response of three native species (Dittrichia viscosa,Nicotiana glauca and Silybum marianum), and the applicability of a compost made from pig slurry and a humic fertiliser (HF) prepared from it, were assessed in a mesocosm pot-experiment through the plant growth and composition. The compost reduced the TEs concentrations in the plants to a greater extent than the HF and increased plant biomass of the three studied species, whereas HF increased the TEs concentrations in the leaves of N. glauca and limited its growth. S. marianum showed a high biomass response and was able to regulate the uptake of As and Zn from the soil solution and their transport to the harvestable parts. Similarly, D. viscosa restricted the transfer of As from the soil to the leaves.

15 Domingo Martínez-Fernández; Martina Vítkova; Zuzana Michálkova; Michael Komárek. The influence of nutrients on arsenic adsorption onto nanomaghemite. One Century of the Discovery of Arsenicosis in Latin America (1914-2014). 1, pp. 119 - 121. TAYLOR & FRANCIS Group- CRC Press/Balkema, 16/05/2014. Available on-line at: <Proceedings of the 5th International Congress on Arsenic in the Environment>. ISBN 9781-138001411

Publisher Code: Code 107322

Type of production: Scientific paper **Format:** Journal

Position of signature: 1

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 4 **Corresponding author:** Yes

Relevant results: The effects of the iron nano-oxide maghemite (Fe2O3) on the bioavailability of trace elements (As, Al, Cu, Fe, Mn, Mg, Zn) were tested by a set of adsorption experiments, performed with a soil solution with/without the nanomaghemite (NM) and increasing concentrations of nutrients (K, N and P). For this purpose, KNO3, NH4NO3 and KH2PO3 were added in different proportions to a soil solution obtained from an As-contaminated soil, to create a set of combination of them during NM-nutrients interaction, and study the changes in the availability of the elements with emphasis on the competition between contaminant and nutrients for the sorption sites. NM was able to decrease As concentration in a soil solution, but among the nutrients studied, the presence of P reduced the effectiveness of the NM for As adsorption. The concentration of Ca, Mg, Mn and Na were also affected by K, N and P in the soil solution probably because of competition for the sorption sites in the NM. © 2014 Taylor & Francis Group

16 Tania Pardo; Domingo Martínez-Fernández; Rafael Clemente; David J. Walker; M. Pilar Bernal. The use of olive-mill waste compost to promote the plant vegetation cover in a trace elements-contaminated soil. Environmental Science and Pollution Research. 21, pp. 1029 - 1038. (Germany): SPRINGER, 19/07/2013. Available on-line at: <http://link.springer.com/article/10.1007%2Fs11356-013-1988-z>. ISSN 0301-4797

DOI: 10.1007/s11356-013-1988-z

Type of production: Scientific paper **Format:** Journal

Position of signature: 2 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5

Impact source: ISI **Category:** Science Edition - ENVIRONMENTAL SCIENCES

Impact index in year of publication: 2.757 **Journal in the top 25%:** Yes

Position of publication: 55 **No. of journals in the cat.:** 215

Source of citations: Google Scholar **Citations:** 13

Relevant results: The applicability of a mature compost as a soil amendment to promote the growth of native species for the phytorestoration of a mine-affected soil from a semi-arid area (SE Spain), contaminated with trace elements (As, Cd, Cu, Mn, Pb and Zn), was evaluated in a 2-year field experiment. The use of compost as a soil amendment appears to be useful for the promotion of a vegetation cover and the phytostabilisation of moderately contaminated soils under semi-arid conditions.

17 Respuestas fisiológicas de Bituminaria bituminosa frente a sequía y metales pesados. Ecosistemas. 21 - 3, pp. 118 - 120. 30/11/2012. Available on-line at: <http://www.revistaecosistemas.net/index.php/ecosistemas/article/view/713>.

DOI: 10.7818/ECOS.210.21-3.19

Type of production: Scientific paper **Format:** Journal

Position of signature: 1 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 1

Source of citations: Google Scholar **Citations:** 2

Relevant results: El interés del estudio de B. bituminosa nace en sus múltiples aplicaciones potenciales. B. bituminosa crece de manera natural en suelos contaminados con elevadas concentraciones de metales pesados (MPs), como en la Sierra Minera de La Unión (Murcia, España), por lo que resulta muy relevante evaluar su aplicabilidad en la fitorremediación en este tipo de suelo con clima semiárido. Otro de sus usos está relacionado con el hecho de que los frutos y hojas de B. bituminosa pueden llegar a acumular altas concentraciones de furanocumarinas (FCs).

18 Domingo Martínez-Fernández; David J. Walker. The Effects of Soil Amendments on the Growth of Atriplex halimus and Bituminaria bituminosa in Heavy Metal-Contaminated Soils. Water, Air, and Soil Pollution. 223 - 1, pp. 63 - 72. (Holland): SPRINGER, 28/05/2012. Available on-line at: <http://link.springer.com/article/10.1007/s11270-011-0839-0?null>. ISSN 0049-6979

DOI: 10.1007/s11270-011-0839-0

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 2

Impact source: ISI
Category: Science Edition - WATER RESOURCES
Impact index in year of publication: 1.685
Journal in the top 25%: No
Position of publication: 31
No. of journals in the cat.: 81

Source of citations: SCOPUS
Citations: 19

Relevant results: The combination of A. halimus and compost addition seems appropriate for the phytostabilisation of contaminated semi-arid sites.

19 David J. Walker; Domingo Martínez-Fernández; Enrique Correal; Pascual Romero-Espinar; José Antonio del Río. Accumulation of furanocoumarins by Bituminaria bituminosa in relation to plant development and environmental stress. Plant Physiology and Biochemistry. 54, pp. 133 - 139. (Holland): ELSEVIER, 09/05/2012. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0981942812000587>. ISSN 0981-9428
DOI: 10.1016/j.plaphy.2012.03.001
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5

Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2.838
Journal in the top 25%: Yes
Position of publication: 39
No. of journals in the cat.: 190

Source of citations: Google Scholar
Citations: 9

Relevant results: The genetically- and developmentally-regulated accumulation of FCs by B. bituminosa is altered by short-term variations in environmental conditions, particularly temperature.
Relevant publication: No

20 Domingo Martínez-Fernández; David J. Walker; Pascual Romero; María Carmen Martínez-Ballesta; Enrique Correal. The Response of the Leguminous Fodder Plant Bituminaria bituminosa to Water Stress. Journal of Agronomy and Crop Science. 198 - 6, pp. 442 - 451. (Germany): J.M. GREEF, 09/03/2012. Available on-line at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1439-037X.2012.00515.x/pdf>. ISSN 1439-037X
DOI: 10.1111/j.1439-037X.2012.00515.x
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5

Impact source: ISI
Category: Science Edition - AGRONOMY
Impact index in year of publication: 2.433
Journal in the top 25%: Yes
Position of publication: 12
No. of journals in the cat.: 80

Source of citations: Google Scholar
Citations: 6

Relevant results: Bituminaria bituminosa (L.) C.H. Stirton (Fabaceae) is a biennial–perennial species, which grows throughout the Mediterranean basin and Macaronesia. It is cultivated to provide livestock fodder and shows promise as a source of furanocoumarins. This is the first report on its physiological and growth responses to water deprivation.

21 Domingo Martínez-Fernández; David J. Walker; Pascual Romero-Espinar; Pilar Flores; José Antonio del Río. Physiological responses of Bituminaria bituminosa to heavy metals. Journal of Plant Physiology. 168 - 18, pp. 2206 - 2211. (Holland): ELSEVIER, 15/12/2011. Available on-line at: <http://www.sciencedirect.com/science/article/pii/S0176161711003622>. ISSN 0176-1617

DOI: http://www.sciencedirect.com/science/article/pii/S0176161711003622
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2.791
Journal in the top 25%: Yes
Position of publication: 43
No. of journals in the cat.: 190
Source of citations: Google Scholar
Citations: 13

Relevant results: For population C2 of Bituminaria bituminosa, HMs increased the root furanocoumarins (FC) concentrations. For LA, Cu raised the root concentrations of both FCs. There was a relationship between plant stress, manifested as proline accumulation and disruption of plant water relations, and increased FC accumulation.

22 M. Pilar Bernal; Rafael Clemente; Carlos de la Fuente; Tania Pardo; José Antonio Alburquerque; María Ángeles Bustamante; Isabel Martínez-Alcalá; Domingo Martínez-Fernández; David J. Walker. New options for pig slurry revaluation. Tierras de Castilla y León. 174, pp. 54 - 57. (Spain): Gestora de Comunicaciones de Castilla y León, 31/12/2010. Available on-line at: <http://213.229.136.11/bases/ainia_probiogas.nsf/0/1D775250492F328DC12578290026C002/$FILE/Gana%20174_P%C3%A1gs%2054-57.pdf>. ISSN 1889-0784
Collection: Nº. 174, 2010
Type of production: Scientific paper
Format: Journal
Position of signature: 8
Degree of contribution: Author or co-author of reserved scientific or technical document
Total no. authors: 9
Relevant results: La utilización del purín como enmienda es una de las vías más factibles para su manejo respetando el medio ambiente, pues es una fuente importante de materia orgánica y de nutrientes capaz de mejorar las condiciones negativas en suelos contaminados * La valorización energética de los purines de cerdo mediante digestión anaerobia ha adquirido gran interés como opción de tratamiento en el ámbito del sector ganadero, principalmente tras la publicación del Plan de Biodigestión de Purines (RD 949/2009).

23 Domingo Martínez-Fernández; Lukas Trakal; Michael Komárek. A central composite design to detect the optimal combination of biochar and digestate for the phytoremediation of a mining soil by Dittrichia viscosa. Plant and Soil. SPRINGER,
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 3
Corresponding author: Yes
Impact source: SCOPUS
Category: Science Edition - AGRONOMY
Impact index in year of publication: 2.952
Journal in the top 25%: Yes
Position of publication: 8
No. of journals in the cat.: 81
Relevant results: Manuscript under preparation

24 Soja Gerhard; Luke Beesley; David Houben; Domingo Martínez-Fernández; Lukas Trakal; Tom Sizmur; Flavio Silva; Eduardo Moreno; Tania Pardo; Irene Raya; Guido Fellet; Frederic Rees; Marie Rue. Application of three different Biochars in European soils: a COST action experiment. Chemosphere.
Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 13
Impact source: SCOPUS
Category: Science Edition - ENVIRONMENTAL SCIENCES

Impact index in year of publication: 3.304
Journal in the top 25%: Yes
Position of publication: 39
No. of journals in the cat.: 223

Relevant results: Manuscript under preparation for submision. The results were obtained from experiments carried out in 7 different countries involved in the COST action "Biochar as option for sustainable resource management COST 4184/11"

25 Domingo Martínez-Fernández; Lukas Trakal; Martina Vítková; Michael Komárek. Prediction of 100 years of Zn-leachate in a contaminated soil by HYDRUS modeling. Agriculture, Ecosystems and Environment. ELSEVIER,

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Total no. authors: 4
Impact source: SCOPUS
Category: Science Edition - AGRICULTURE, MULTIDISCIPLINARY
Impact index in year of publication: 3.402
Journal in the top 25%: Yes
Position of publication: 1
No. of journals in the cat.: 56

Relevant results: Manuscript Under preparation. Although the effect of organic acids on the solubility of metals has been researched widely, people are still unclear about the interaction among organic acids, pH and metals in mine soils. The aim of this work was to create a predictive model of the metals transport by water flow in a contaminated soil, using HYDRUS and PHREEQC softwares, analysing the role of the root exudates in the leachability of metals. A set of columns experiments was stabilised with a mine soil, and a synthetic root exudates (SRE) was applied to the soil. Once the model was obtained, the transport of Zn was predicted simulating the continuous production of root exudates by the plants during phytoremediation tasks in the used soil. It was observed that the presence of root exudates caused a local change in the availability of Zn, without this being due to changes in the pH.

26 Lukas Takal; Domingo Martínez Fernández; Martina Vitkova; Michael Komárek. Phytoextraction of metals: Modeling root metal uptake and associated processes. Phytoremediation: Management of Environmental Contaminants, Volume 1. 1, pp. 69 - 83. New York(United States of America): SPRINGER, 01/11/2013. Available on-line at: <http://link.springer.com/chapter/10.1007/978-3-319-10395-2_6>. ISBN 978-3-319-10394-5
DOI: 978-3-319-10395-2

Type of production: Book chapter
Format: Book
Position of signature: 2
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Total no. authors: 4
Source of citations: Google Scholar
Citations: 2

Relevant results: A modern approach, how to evaluate the extraction potential of selected plants as well as how to plan and design the most effective metal phytoextraction, is the ability to relevantly model this process. There are many studies aimed at the modeling of metal transport. Nevertheless, there is a limited amount of present studies, which are focused on the modeling of the phytoremediation process. In general, developing an applicable model requires sufficient conceptual model description and a fundamental theoretical understanding of the studied system, as well as its experimental equipment and measurement; these are all crucial aspects required to create a relevant simulation of studied problem. This chapter attempts to describe the problems associated with metal phytoextraction modeling. The term “root metal uptake” is crucial for the simulation of phytoremediation of metals, which is a concrete modification of the general term “root uptake.”

27 Domingo Marínez-Fernández. Nanoparticles as sorbents of metals/metalloids: implications for plant physiology. Environmentálního inženýrství a geoenvironmentálních v?d. 1, Kostelek, Praha(Czech Republic): P?ísp?vek ve sborníku (mimo kategorie RIV), 18/09/2013. ISBN 978-80-213-2407-7

Type of production: Book chapter
Format: Book
Position of signature: 1
Degree of contribution: Author or co-author of chapter in book

Total no. authors: 1

28 Elena Arco; Domingo Martínez-Fernández; Rafael Clemente; MPilar Bernal. Selección de plantas nativas y enmiendas orgánicas para la fitorrecuperación de suelos contaminados por elementos traza. Control de la Degradación y Restauración de Suelos. pp. 77 - 81. J.A. Sánchez Garrido,V. González Andrés, F. del Moral Torres, 04/02/2013. Available on-line at: <ISBN: 978?84?15487?52?4>.

Type of production: Book chapter
Format: Book
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 4

29 Domingo Martínez-Fernández. Physiological responses of Bituminaria bituminosa to drought and heavy metals. Digital Repository Technical University of Cartagena. Cartagena, Region of Murcia(Spain): 24/07/2012. Available on-line at: <http://repositorio.bib.upct.es:8080/dspace/handle/10317/2765>.

Type of production: Scientific-technical report
Format: Scientific and technical document or report
Position of signature: 1
Degree of contribution: Author or co-author of scientific or technical document for the general public

Works submitted to national or international conferences

1 **Title of the work:** Optimisation of biochar and digestate doses in an acid contaminated soil treated by phytostabilization
Name of the conference: ELLS (Euroligue for life Sciences) 2016 - Scientific Conference and ELLS Annual Conference
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Stuttgart, Stuttgart, Germany
Date of event: 10/11/2016
End date: 12/11/2016
Organising entity: University of Hohenheim
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Juan Carlos Galán Robles; Domingo Martínez-Fernández. "Optimisation of biochar and digestate doses in an acid contaminated soil treated by phytostabilization". En: Optimisation of biochar and digestate doses in an acid contaminated soil treated by phytostabilization. 10/11/2016.

2 **Title of the work:** Loss of root functionality in tomato plants under nZVI exposure
Name of the conference: 18th International Conference on Heavy Metals in the Environment
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Corresponding author: Yes
City of event: Ghent, Belgium
Date of event: 12/09/2016
End date: 15/09/2106
Organising entity: Ghent University
Type of entity: University
With external admission assessment committee: Yes
Domingo Martínez-Fernández; Didac Barroso; Deniza Svengova; Martina Vítková; Michael Komárek. "ICHMET2016".

3 **Title of the work:** Roots water balance of sunflowers under nanomaghemite exposition in hydroponics
Name of the conference: 14th International Symposium on Soil and Plant Analysis (14th ISSPA) 2015
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Kona, Hawaii, United States of America
Date of event: 26/01/2015
End date: 30/01/2015
Organising entity: International Plant Nutrition Institute
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Domingo Martínez-Fernández; Michael Komárek. "Roots water balance of sunflowers under nanomaghemite exposition in hydroponics". 28/01/2015.

4 **Title of the work:** Effects of Nano Oxides on Helianthus annuus in a contaminated soil.
Name of the conference: Natural Resources Green Technologies & Sustainable Development.
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Zagreb, Croatia
Date of event: 26/11/2014
End date: 28/11/2014
Organising entity: Faculty of Food Technology and Biotechnology,
With external admission assessment committee: Yes
Type of contribution: Scientific book or monograph
Domingo Martínez-Fernández; Martina Vítková; Michael Komárek. En: Natural Resources Green Technologies & Sustainable Development.. 28/11/2014. ISBN 978-953-6893-03-4

5 **Title of the work:** Response surface methodology approach for trace elements and nutrients adsorption onto nano-maghemite
Name of the conference: 11th International Phytotechnologies Conference.
City of event: Heraklion, Greece
Date of event: 30/09/2014
End date: 03/10/2014
Organising entity: International Phytoremediation Society
Type of entity: Associations and Groups
Domingo Martínez-Fernández; Deniz Bingöl; Michael Komárek. "Response surface methodology approach for trace elements and nutrients adsorption onto nano-maghemite".

6 **Title of the work:** The combined use of plants and nano-oxides for the remediation of contaminated soils.
Name of the conference: OMICS Group International 2014
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - invited/keynote talk
Reasons for participation: Upon invitation
City of event: Philadelphia, United States of America
Date of event: 25/08/2014
End date: 27/08/2014
Organising entity: OMICS Group International
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Domingo Martínez-Fernández. "Past and Present Research Systems of Green Chemestry.". En: Past and Present Research Systems of Green Chemestry.. 2161-0401, 2161-0401, OCCR an open access journal,

25/08/2014. Available on-line at: <http://omicsonline.org/2161-0401/2161-0401.S1.005-010.pdf>. ISSN 2161-0401

7 **Title of the work:** The influence of nutrients on arsenic adsorption onto nanomaghemite
Name of the conference: 5th International Congress on Arsenic in the Environment (As2014)
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Buenos Aires, Argentina
Date of event: 11/05/2014
End date: 16/05/2014
Organising entity: International Society of Groundwater for Sustainable Development
Type of entity: University
City organizing entity: Buenos Aires, Argentina
With external admission assessment committee: Yes
Type of contribution: Scientific-technical report
Domingo Martínez Fernández; Martina Vítková; Zuzana Michálková; Michael Komárek. Available on-line at: <Acepted for Oral communication>.

8 **Title of the work:** Nanoparticles as sorbents of metals/metalloids: implications for plant physiology
Name of the conference: Environmentálního inženýrství a geoenvironmentálních ved
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
City of event: Kostelec, Praha, Czech Republic
Date of event: 18/09/2013
End date: 18/09/2013
Organising entity: Príspevek ve sborníku (mimo kategorie RIV)
Type of contribution: Scientific paper
Domingo Martínez-Fernández. 18/09/2013.

9 **Title of the work:** A successful phytoremediation strategy in a TE polluted mine soil under semi-arid conditions
Name of the conference: 23rd Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC Europe).
Type of event: Conference
City of event: Glasgow, United Kingdom
Date of event: 12/05/2013
End date: 16/05/2013
Organising entity: SETAC
MPilar Bernal; Rafael Clemente; Tania Pardo; Domingo Nartínez-Fernández; David J Walker.

10 **Title of the work:** Selection of native plants and organic amendments for the phytoremediation of trace elements contaminated soils.
Name of the conference: VI National Simposium about Control of Degradation and Restoration of Soils.
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
City of event: Almería, Andalusia, Spain
Date of event: 04/02/2013
End date: 07/02/2013
Organising entity: Spanish Society of Soil Sciences
City organizing entity: Almeria, Andalusia, Spain
Publication in conference proceedings: Yes

With external admission assessment committee: Yes

Type of contribution: Scientific paper

Elena Arco; Domingo Martínez Fernández; Rafael Clemente; María Pilar Bernal. ISBN 978-84-15487-52-4

11 **Title of the work:** Native plants for the phytoremediation of heavy metals and arsenic contaminated soils in an area with high ecological value in La Unión (Spain)

Name of the conference: 9th International Phytotechnology Society Conference

Type of event: Conference

Geographical area: Non EU International

Type of participation: Participatory - oral communication

Reasons for participation: Open access

City of event: Hasselt, Belgium

Date of event: 11/09/2012

End date: 14/09/2012

Organising entity: International Phytotechnology Society

City organizing entity: United States of America

With external admission assessment committee: Yes

Type of contribution: Scientific-technical report

Domingo Martínez-Fernández; Elena Arco; Clémence Bes; Rafael Clemente; M. Pilar Bernal. "Book of proceedings". Available on-line at: <http://www.uhasselt.be/UH/IPS-General/Conference-program.html>.

12 **Title of the work:** Arsenic contaminated soils from the Sierra Minera of La Unión

Name of the conference: EUROSOIL 2012

Type of event: Conference

Geographical area: Non EU International

Type of participation: 'Participatory - poster

Reasons for participation: Open access

City of event: Bari, Italy

Date of event: 02/07/2012

End date: 06/07/2012

Organising entity: EUROSOIL

With external admission assessment committee: Yes

Type of contribution: Scientific paper

Clémence Bes; Domingo Martínez-Fernández; Rafael Clemente; M. Pilar Bernal. "Book of proceedings".

13 **Title of the work:** The use of organic amendments in the phytostabilisation of trace elements-contaminated soils from La Unión Mining District (SE Spain)

Name of the conference: 11th International Conference on the Biogeochemistry of TE.

Geographical area: Non EU International

Type of participation: Participatory - oral communication

Reasons for participation: Open access

City of event: Florence, Italy

Date of event: 03/07/2011

End date: 07/07/2011

Organising entity: International Society of Trace Element Biogeochemistry

With external admission assessment committee: Yes

Rafael Clemente; Tania Pardo; Domingo Martínez-Fernández; M. Pilar Bernal; David J. Walker.

14 **Title of the work:** Use of organic amendments for the phytoremediation of soils contaminated with trace elements in the mining area of ??La Unión (Murcia)

Name of the conference: V National Symposium on control of degradation and sustainable soil use (V Simposio Nacional sobre control de la degradación y uso sostenible del suelo)

Type of event: Conference

Geographical area: National

Reasons for participation: Upon invitation

Type of participation: Participatory - oral communication
City of event: Murcia, Region of Murcia, Spain
Date of event: 27/06/2011
End date: 30/06/2011
Organising entity: Dpto. de Química agrícola, Geología y edafología de la UMU. Dpto. de Ciencia y Tecnología Agraria. UPCT y CEBAS-CSIC. Campus Mare Nostrum.
Type of entity: University Research Institute
City organizing entity: Murcia, Region of Murcia, Spain
Type of contribution: Scientific paper
M. Pilar Bernal; Tania Pardo; Domingo Martínez-Fernández; David J. Walker; Rafael Clemente.

15 **Title of the work:** The Effect of environmental conditions on the accumulation of furanocoumarins by Bituminaria bituminosa
Name of the conference: 8th APGC Symposium: Plant Functioning in a Changing Global and Polluted Environment
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Open access
City of event: Groningen, Holland
Date of event: 05/06/2011
End date: 09/06/2011
Organising entity: APGC
David J. Walker; Domingo Martínez-Fernández; Pascual Romero-Espinar; Pascual Romero-Azorín; Mercedes Dabauza Micó; María Pazos Navarro; Enrique Correal; José Antonio del Río. En: Programme and Abstracts, p. 63.. pp. 63 - 63. Eds.: L.J. De Kok, J.T.M. Elzenga, J. Stefels, ISBN 978-90-367-4982-4

16 **Title of the work:** The use of compost and pig slurry in the phytostabilisation of heavy metals contaminated soil
Name of the conference: 20th The Society of Environmental Toxicology and Chemistry (SETAC) Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Open access
City of event: Seville, Andalusia, Spain
Date of event: 23/05/2010
End date: 27/05/2010
Organising entity: Society of Environmental Toxicology and Chemistry (SETAC)
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Tania Pardo; Rafael Clemente; Domingo Martínez-Fernández; David J. Walker; M. Pilar Bernal. En: Europe: Extended Abstracts. Science and Technology for Environmental Protection.

17 **Title of the work:** The Physiology of Drough Tolerance in Tedera (Bituminaria bituminosa)
Name of the conference: the 13th Meeting of the FAO-CIEAM sub-Network on Mediterranean Pastures and Fodder Crops
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Open access
City of event: Alicante, Valencian Community, Spain
Date of event: 07/04/2010
End date: 10/04/2010
Organising entity: FAO-CIEAM
Publication in conference proceedings: Yes

With external admission assessment committee: Yes

Type of contribution: Scientific paper

Domingo Martínez-Fernández; David J. Walker; Rascual Romero; Enrique Correal. En: The contributions of grasslands to the conservation of Mediterranean biodiversity.. 92, pp. 286 - 286. C. Porqueddu, S. Ríos (eds). Zaragoza: CIHEAM/ CIBIO/ FAO/ SEEP. (Options Méditerranéennes, Series A: Mediterranean Seminars)., ISSN 1016-1210, ISBN 2-85352-435-3

18 **Title of the work:** Phytoremediation using the heavy metal, cold, salt and drought-tolerant species Atriplex halimus L.

Name of the conference: COST Action 859 Phytotechnologies to promote sustainable land use and improve food safety" Final Conference

Type of event: Conference **Geographical area:** European Union

Type of participation: 'Participatory - poster **Reasons for participation:** Open access

City of event: Ascona, Switzerland

Date of event: 11/10/2009

End date: 16/10/2009

Organising entity: COST Action 859

City organizing entity: United Kingdom

Type of contribution: Scientific paper

David J. Walker; Domingo Martínez-Fernández; Rafael Clemente; Tania Pardo; M. Pilar Bernal. Available on-line at: <web page COST Action 859 (http://www.gre.ac.uk/cost859/)>.

19 **Title of the work:** The Physiological Response to Water Stress of Plants Grown in Pots, in the Field and in Hydroponics

Name of the conference: Plant Abiotic Stress Tolerance

Geographical area: Non EU International

Type of participation: 'Participatory - poster **Reasons for participation:** Open access

City of event: Vienna, Austria

Date of event: 08/02/2009

End date: 11/02/2009

Organising entity: VIPCA Conferences

With external admission assessment committee: Yes

Domingo Martínez-Fernández; David J. Walker. En: Book of proceedings.

20 **Title of the work:** Effect of cold storage and post-harvest handling of fruits of Citrus limon (CV.FINO-49) on the levels of flavonoids and resistance against Penicillium digitatum

Name of the conference: V Iberoamerican Congress of Postharvest Technology

Type of event: Conference **Geographical area:** Non EU International

Type of participation: 'Participatory - poster **Reasons for participation:** Open access

City of event: Cartagena, Region of Murcia, Spain

Date of event: 29/05/2007

End date: 01/06/2007

Organising entity: Universidad Politecnica **Type of entity:** University

City organizing entity: Cartagena, Region of Murcia, Spain

With external admission assessment committee: Yes

Type of contribution: Scientific paper

Jose Antonio del Río; Ignacio Porras; Domingo Martínez-Fernández; Pedro Gómez; Licinio Díaz; Ángel García-Lidón; Fernándo Riquelme; Ana Ortuño. En: Book of proceedings.

21 **Title of the work:** Phytoanticipins of Citrus sp. involved in defense mechanism against Penicillium digitatum and Alternaria alternata pv. Citri
Name of the conference: XIII Congress of the Spanish Society of Plant Pathology
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster **Reasons for participation:** Open access
City of event: Murcia, Region of Murcia, Spain
Date of event: 18/09/2006
End date: 22/09/2006
Organising entity: Sociedad Española de Fitopatología
Type of contribution: Scientific paper
Ana Ortuño; Pedro González; Ana González; Domingo Martínez-Fernández; Ignacio Porras; Ángel García-Lidón; José Antonio del Río. En: Book of proceedings.

Science Outreach activities

1 **Title of the work:** Profil Katedry geoenvironmentálních v?d Fakulty životního prost?edí ?ZU v Praze.
Name of the event: Profil KGEV FŽP/Youtube.com
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Representing
Corresponding author: No
City of event: Prague, Praha, Czech Republic
Date of event: 06/11/2015
Organising entity: Czech University of Life Sciences Prague **Type of entity:** University
Michael Komárek; Kerry Mitchel; Domingo Martínez-Fernández; Martina Vítkova; Lukas Trakal; Hana Silerova; Michal Gálik. (Czech Republic): Available on-line at: <https://www.youtube.com/watch?v=DXYRFhFtrSU&feature=youtu.be>.

2 **Title of the work:** Interview
Name of the event: ABABOL. La Verdad.
Type of event: Media interviews **Geographical area:** National
City of event: Region of Murcia, Spain
Date of event: 24/10/2015
Organising entity: ABABOL. La Verdad. **Type of entity:** Business
(Spain): Available on-line at: <http://ababol.laverdad.es/ciencia-y-salud/6433-esta-beca-me-permite-aplicar-toda-mi-experiencia-como-fisiologo-vegetal-e-investigador>.

3 **Title of the work:** S olovem v p?d? by si mohla poradit speciální látka
Name of the event: PRAGUE TV
Type of event: Media interviews
City of event: Prague, Czech Republic
Date of event: 05/04/2015
Organising entity: Chanel 24
"Praha – V?dci z ?eské zem?d?lské univerzity testují speciální látku, která by k sob? vázala olovo v zamo?ené lokalit?. Zabránili by tak tomu, aby se ze zem? dostávaly takové t?žké kovy také do spodních vod a zne?iš?ovaly je.". (Czech Republic): Available on-line at: <http://www.ceskatelevize.cz/ct24/domaci/1511904-s-olovem-v-pude-si-mohla-poradit-specialni-latka>.

4 **Title of the work:** Projekt Posdok CZU
Name of the event: VEDA, VYZKUM A PROJEKTY
Type of event: Media interviews

City of event: Prague, Czech Republic
Date of event: 20/06/2013
Organising entity: Journal of the Ziva UNIVERZITA ZPRAVODA J Czech University of Life Sciences Prague (CULS)
"Pocinaje letosnim lednem obohatilo CZU 14 novych odborniku z CR a dalsich peti zemi.".

5 **Title of the work:** Encuentran una planta murciana útil para descontaminar la sierra minera
Name of the event: laopiniondemurcia.es
Type of event: Media interviews
City of event: Murcia,
Date of event: 28/07/2012
Organising entity: LA OPINIÓN
(Spain): Available on-line at: <http://www.laopiniondemurcia.es/municipios/2012/07/25/encuentran-planta-murciana-util-descontaminar-sierra-minera/417753.html>.

6 **Title of the work:** Una planta silvestre murciana para restaurar zonas contaminadas por metales
Name of the event: LA RAZÓN.es
Type of event: Media interviews
Date of event: 28/07/2012
Organising entity: LA RAZÓN
Available on-line at: <http://www.larazon.es/historico/3498-una-planta-silvestre-murciana-para-restaurar-zonas-contaminadas-por-metales-SLLA_RAZON_476052#.Ttt1mqT3wZbNT2W>.

7 **Title of the work:** Una planta murciana puede ayudar a restaurar las zonas contaminadas por metales
Name of the event: MICROCIENCIA
Type of event: Media interviews
City of event: Spain
Date of event: 26/07/2012
Organising entity: FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA
Domingo Martínez-Fernández; David J. Walker. Available on-line at: <http://www.fseneca.es/microciencia/una-planta-murciana-puede-ayudar-a-restaurar-las-zonas-contaminadas-por-metales/#more-18456>.

8 **Title of the work:** IMIDA encuentra nuevas aplicaciones de planta silvestre murciana en restauración de zonas contaminadas por metales pesados
Name of the event: EUROPA PRESS
Type of event: Media interviews **Geographical area:** National
City of event: Spain
Date of event: 22/07/2012
Organising entity: EUROPA PRESS
Available on-line at: <http://www.europapress.es/murcia/noticia-imida-encuentra-nuevas-aplicaciones-planta-silvestre-murciana-restauracion-zonas-contaminadas-metales-pesad-20120724174839.html>.

9 **Title of the work:** https://domingomarfer.wordpress.com/noticias/
Name of the event: Blog Wordpress
Corresponding author: Yes
Date of event: 02/02/2011
Organising entity: Personal Blog CV, links and news
Available on-line at: <https://domingomarfer.wordpress.com/noticias/>.

R&D management and participation in scientific committees

Evaluation and revision of R&D projects and articles

1 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Agricultural Science Research Journal
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

2 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Central European Journal of Biology
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

3 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Chemosphere
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

4 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Enviromental Science and Pollution Research
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

5 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Environmental Science: Processes and Impacts
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

6 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: New Journal of Chemistry
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

7 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Open Life Sciences
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

8 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: RSC Advances
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

9 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Water, Air and Soil Pollution
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

10 **Performed tasks:** Peer Reviewer at Science Journals
Entity where activity was carried out: Science of the Total Environment
Type of activity: Review of articles in scientific or technological journals
Start date: 2015

11 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Chemical Speciation and Bioavailability
Type of activity: Review of articles in scientific or technological journals
Start date: 2014

12 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Applied and Environmental Soil Science
Type of activity: Review of articles in scientific or technological journals
Start date: 2013

13 **Name of the activity:** Reviewer
Performed tasks: Peer Reviewer at Science Journals
Entity where activity was carried out: Journal of Agrobiology
Type of activity: Review of articles in scientific or technological journals
Start date: 2013

Other achievements

Stays in public or private R&D centres

1 **Entity:** The University of Texas at El Paso (UTEP), Texas, USA **Type of entity:** University
Faculty, institute or centre: Chemistry and Environmental Science
City of entity: El Paso, Texas, United States of America
Start-End date: 01/08/2016 - 31/08/2016 **Duration:** 1 month
Funding entity: Czech University of Life Science Prague **Type of entity:** University
Name of programme: Exchange
Goals of the stay: Guest
Provable tasks: Lab works

Acquired skills developed: Oxidative sugars in the roots under nanoparticle exposure
Narrative explanation: Paper: nZVI as sorbents of metals: implications for Lycopersicum esculetum

2 **Entity:** University of Natural Ressources and Life Sciences (BOKU)
City of entity: Vienna, Austria
Start-End date: 15/07/2014 - 16/07/2014 **Duration:** 2 days
Name of programme: Markus Puschenreiter
Goals of the stay: Guest
Provable tasks: Rhizoboxes training, for the proper use in research with plants.
Acquired skills developed: Skills for the growth of plants in Rhizoboxes.

3 **Entity:** Centre for Rhizobium Studies (CRS), Murdoch University **Type of entity:** University
Faculty, institute or centre: Biology
City of entity: Perth, Australia
Primary (UNESCO code): 230204 - Biochemical genetics; 241900 - Symbiosis; 310307 - Forage crops; 310309 - Ornamental crops; 310801 - Bacteria
Secondary (UNESCO code): 230318 - Metals; 330804 - Pollution engineering
Tertiary (UNESCO code): 310310 - Pastura
Start-End date: 13/03/2011 - 14/06/2011 **Duration:** 3 months - 1 day
Funding entity: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** o
Goals of the stay: Doctorate
Provable tasks: Identification of nodulating strains from Bituminaria bituminosa nodules, to select the most tolerant to drought and heavy metals in soil.
Narrative explanation: Characterization of nodulating strains from Bituminaria bituminosa nodules, selecting Phylobacterium, Rhizobium LB6, and some strains of Mesorhizobium ciceri. as the most tolerant to drought and heavy metals in soils.
Identify key words: Biology and other natural sciences; Microbiology

4 **Entity:** Experimental Station of Zaidín (Granada)
City of entity: Granada, Andalusia, Spain
Primary (UNESCO code): 241900 - Symbiosis; 310902 - Genetics; 310905 - Microbiology
Secondary (UNESCO code): 310307 - Forage crops
Start-End date: 01/09/2009 - 01/10/2009 **Duration:** 1 month - 1 day
Funding entity: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** O
Goals of the stay: Doctorate
Provable tasks: Isolation and initial characterization of nodulating strains from Bituminaria bituminosa nodules.
Acquired skills developed: ARDRA, PCR-REP
Identify key words: Population genetics; Plant nutrition; Bacterial diseases of plants; Plant life

5 **Entity:** Centro de Edafología y Biología Aplicada del Segura **Type of entity:** State agency
City of entity: Murcia, Region of Murcia, Spain
Primary (UNESCO code): 120905 - Design and analysis of experiment; 310307 - Forage crops; 310309 - Ornamental crops; 310391 - Use (management) combined water and fertilizer
Secondary (UNESCO code): 310301 - Crop breeding
Start-End date: 01/11/2008 - 01/12/2008 **Duration:** 1 month
Funding entity: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** o

Goals of the stay: Doctorate
Provable tasks: Hydroponic culture of plants for Root Hydraulic conductivity determination
Acquired skills developed: Root hydraulic conductivity
Identify key words: Fodder growing; Root vegetable; Hydroponics

6 **Entity:** Czech University of Life Sciences Prague **Type of entity:** University
Faculty, institute or centre: Faculty of Environmental Science
City of entity: Prague, Praha, Czech Republic
Primary (UNESCO code): 239100 - Environmental Chemistry; 241719 - Plant physiology
Secondary (UNESCO code): 241717 - Plant nutrition
Start date: 15/01/2013 **Duration:** 3 years - 1 month
Funding entity: European Social Funds (ESF)+ Fundación Séneca
Name of programme: Postdok CZU (ESF and MEYS Z.1.07/2.3.00/30.0040) + Postdoc Talento Investigador Fundación Séneca (19835/PD/15)
Goals of the stay: Post-doctoral
Provable tasks: Research and Teaching

Obtained grants and scholarships

1 **Name of the grant:** Junior Grant for Research (Juniorské granty 2017)
Aims: Post-doctoral
Awarding entity: the Grant Agency of the Czech Republic, GACR
Conferral date: 25/11/2016 **Duration:** 3 years
End date: 31/12/2019
Entity where activity was carried out: Czech University of Life Sciences Prague

2 **Name of the grant:** PhD. studentship
City awarding entity: Murcia, Region of Murcia, Spain
Identify key words: Drought; Population genetics; Microbiology; Plant physiology; Bacterial diseases of plants; Fodder growing; Metal pollution; Erosion
Aims: Pre-doctoral
Awarding entity: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario **Type of entity:** Public
Conferral date: 01/09/2007 **Duration:** 4 years
End date: 31/08/2011
Entity where activity was carried out: Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario

3 **Name of the grant:** Postdoc Fundación Séneca (Research Talent Program)
Aims: Post-doctoral
Awarding entity: FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA
Conferral date: 24/07/2015 **Duration:** 1 year - 8 months
Entity where activity was carried out: Czech University of Life Sciences Prague

4 **Name of the grant:** Grant of English-Language Beca Idioma MEC Orden ECI/397/2007 de 15 de Febrero (BOE 26 de febrero)
City awarding entity: San Diego, United States of America
Identify key words: Didactics of language and literature
Aims: Language English

Awarding entity: MINISTERIO DE EDUCACION Y CIENCIA
Amount of the grant: 1.600 €
Conferral date: 01/05/2007 **Duration:** 1 month
Entity where activity was carried out: MINISTERIO DE EDUCACION Y CIENCIA
Faculty, institute or centre: Human International Academy, San Diego, California, USA

5 **Name of the grant:** Scholarship for University, 5 course. MEC, Real Decreto 2298/83 de 28 julio.
City awarding entity: Murcia, Region of Murcia, Spain
Identify key words: Plants and animal biology and ecology
Aims: University Studies
Awarding entity: Ministerio de Educación, Política Social y Deporte **Type of entity:** State agency
Conferral date: 21/02/2006 **Duration:** 1 year
Entity where activity was carried out: Ministerio de Educación, Política Social y Deporte

6 **Name of the grant:** Scholarship for University, 4 course. MEC Real Decreto 2298/83 de 28 julio.
City awarding entity: Murcia, Region of Murcia, Spain
Identify key words: Plants and animal biology and ecology
Aims: University Studies
Awarding entity: MINISTERIO DE EDUCACION Y CIENCIA
Conferral date: 20/12/2004 **Duration:** 1 year
Entity where activity was carried out: Ministerio de Educación, Política Social y Deporte

7 **Name of the grant:** Scholarship for University, 3 course. MECD Real Decreto 2298/83 de 28 julio.
City awarding entity: Murcia, Region of Murcia, Spain
Identify key words: Plants and animal biology and ecology
Aims: University Studies
Awarding entity: Ministerio de Educación, Política Social y Deporte **Type of entity:** State agency
Conferral date: 09/02/2004 **Duration:** 1 year
Entity where activity was carried out: Ministerio de Educación, Política Social y Deporte

8 **Name of the grant:** Scholarship for University, 2 course. MECD Real Decreto 2298/83 de 28 julio.
City awarding entity: Murcia, Region of Murcia, Spain
Identify key words: Plants and animal biology and ecology
Aims: University Studies
Awarding entity: Ministerio de Educación, Política Social y Deporte **Type of entity:** State agency
Conferral date: 10/03/2003 **Duration:** 1 year
Entity where activity was carried out: Ministerio de Educación, Política Social y Deporte

9 **Name of the grant:** Scholarship for University, 1 course. MECD Real Decreto 2298/83 de 28 julio para alumnos que vayan a iniciar estudios universitarios (BOE de 22 febrero y 29 de junio).
City awarding entity: Murcia, Region of Murcia, Spain
Identify key words: Plants and animal biology and ecology
Aims: University Studies
Awarding entity: Ministerio de Educación, Política Social y Deporte **Type of entity:** State agency
Conferral date: 20/11/2001 **Duration:** 1 year
Entity where activity was carried out: Ministerio de Educación, Política Social y Deporte

Other types of collaboration with researchers or technologists

1 **Type of relationship:** Voluntary research, as an internal student
Name principal investigator (PI, Co-PI....): José Antonio del Río
Description of the collaboration: Internal student
Participating entity/entities:
University of Murcia

Start date: 01/10/2005 **Duration:** 1 year

2 **Type of relationship:** Voluntary research, as an internal student
Name principal investigator (PI, Co-PI....): José Antonio del Río
Description of the collaboration: Internal student
Participating entity/entities:
University of Murcia

Start date: 01/10/2004 **Duration:** 1 year

Scientific societies and professional associations

Name of the society: International Phytotechnology Society (IPS)
City affiliation entity: United States of America
Identify key words: Metal pollution; Ecosystem management; Oil pollution; Metalic ore; Atmospheric pollutant
Professional category: Member
Start-End date: 13/09/2012 - 14/09/2013

Prizes, mentions and distinctions

1 **Description:** Best Presentation KGEV Dissertation-2015
Awarding entity: Department Geoenvironmental Sciences CULS **Type of entity:** University Department
City awarding entity: Prague, Praha, Czech Republic
Conferral date: 22/10/2015
Recognition linked: Selected as best presentation during the annual evaluation process of Staff activities 2015, at KGVE Department, CULS (CULS-KGEV Každoro?ní Hodnocení Výzkumných Pracovník? 2015)

2 **Description:** Best Postdoc Publication 2014
Awarding entity: Czech University of Life Sciences Prague
City awarding entity: Prague, Praha, Czech Republic
Conferral date: 01/10/2015
Recognition linked: "BEST POSTDOC PUBLICATION 2014" Rector Prize Jiri Balik at Czech University of Life Sciences Prague (Diplom Rektora - za nejlepsi publikactni vystup v roze 2014).

3 **Description:** Talent Researcher Grant 2015
Awarding entity: FUNDACION SENECA AGENCIA DE CIENCIA Y TECNOLOGIA DE LA REGION DE MURCIA
City awarding entity: Murcia, Spain
Conferral date: 16/09/2015

Recognition linked: http://fseneca.es/cms/ficha-pd-detalle/384

4 **Description:** Reserva en Proceso selectivo Juan de la Cierva Incorporación Convocatoria 2014 - Agricultura
Awarding entity: Ministerio de Economía y Competitividad **Type of entity:** State agency
Conferral date: 24/06/2015

5 **Description:** Invited Speaker International Conference Philadelphia OMICS 2014
Awarding entity: OMICS Group International 2014 **Type of entity:** Innovation and Technology Centres
City awarding entity: Philadelphia, United States of America
Conferral date: 25/08/2014
Recognition linked: Keynote/Invited "The combined use of plants and nano-oxides for the remediation of contaminated soils" Domingo Martínez-Fernández Ph.D. OMICS GI 2014