MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

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

Part A. PERSONAL INFORMATION

CV date	1/04/2025

First name	Maximino		
Family name	Manzanera Ruiz		
Gender (*)	Male	Birth date	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0001-9555-7490	

(*) Mandatory

A.1. Current position

Position	Full Professor (Catedrático de Universidad)		
Initial date	6/12/2021		
Institution	University of Granada		
Department/Center	Microbiology	Faculty of Pharmacy	
Country	SPAIN	Teleph. number	
Key words	Xerotolerance, Biosafety, Drought, Biostimulant, Bioremediation		

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

Period	Position/Institution/Country/Interruption cause
02/01/2012-05/12/2021	Associate Professor/Univ Granada/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Biology	University of Granada/Spain	1995
PhD in Biochemistry	University of Granada/Spain	2000

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

Maximino Manzanera began his doctorate in 1995, after graduating in Biology from the University of Granada (UGR). His doctoral thesis was entitled "Genomic transcriptional factors involved in the regulation of the target pathway of the plasmid TOL (pWW0) of *Pseudomonas putida* KT2440" and was performed under the supervision of Dr. Juan Luis Ramos and Dr. Silvia Marqués at the Estación Experimental del Zaidín as part of the Higher Council for Scientific Research (CSIC). This thesis was awarded as best one in Biochemistry in UGR in year 2000. He studied the transcriptional regulation used for the bioremediation of aromatic hydrocarbons such as toluene, xylene, benzene, ethylbenzene and their derivatives. In 2000 he began his postdoctoral studies at the University of Cambridge at the Institute of Biotechnology, Dept. of Genetics, Dept. of Chemistry and at the Cambridge Institute of Medical Research (CIMR) until 2005. During this period, in the Institute of Biotechnology he studied the anhydrobiosis processes in microorganisms as plant biostimulants, in order to safely combine probiotic microorganisms for plants and seeds in compatible formulation. In the Department of Genetics, he used Microorganisms as cell factories of secondary metabolites. In the Chemistry Department, he used NFkB and the DNA to which it binds to create nano-networks by getting in touch with nanobiotechnology. At the CIMR he looked for MT1-MMP protease inhibitors. His return to Spain in 2006, with a Ramón y Cajal contract, allowed him to found his research group at the Institute for Water Research (University of Granada) on desiccation tolerance and

protection of crops from drought for its use in the removal of soil pollutants, as well as in obtaining alternative fuels from microorganisms. In 2011, he joined the Microbiology Department of the Faculty of Pharmacy as Associate Professor where he teaches Microbiology, Biotechnology, Human Nutrition and Dietetics, and Food Science and Technology. During this period, he has supervised 8 doctoral theses (one from the University of Cambridge and 7 from the University of Granada), and 20 master's thesis. Dr. Manzanera has visited San Diego State University and Berkeley Lawrence Laboratory thanks to two Salvador de Madariaga fellowships, in 2017 and 2019, for a total of 6 months. He has participated in 31 research projects (in 12 of them as Principal Investigator, and raising over 1 million euros, mostly in bioremediation, beneficial microbe-plant interactions, drought tolerance) and has published 53 research papers (8 books or book chapters and 43 articles in indexed journals, of which 25 are in the first quartile), showing his abilities to successfully lead research projects and manage team work. Maximino currently focuses his studies on biosafety, water saving, interactions of plants and microorganisms and waste recycling for the production of biofuels. He founded VitaNtech Biotechnology, a Spin-off company of University of Granada, ranked among the Top20 of Agrobiotech Spanish companies, where he is currently acting as Scientific Advisor.
Dr. Manzanera has been awarded with a total of 4 *Sexenios* (six-year research evaluation awards), being the last one granted in 2020. He has supervised a total of 7 doctoral theses. Thanks to this research activity his works have received a total of 1,799 citations (up to date), with an average number of citations/year during the last 4 years (2018-2021) of 175 (based on Scopus). The total publications in the first quartile (Q1) of the JCR (year of publication) has been 35, resulting in an *h*-Index of 26 (based on Scopus). He was member of the Academic Commission of Master in Biotechnology from 2010 until 2023. He has supervised graduate students under the Erasmus+ program from different Universities including Thompson River (Canada), Hourari Boumediene (Argelia), Chiang Mai (Thailand), Patras (Greece), and Sfax (Tunicia). Dr. Manzanera is the single administrator and author of divulgation sites such as BiotecnologiaUGR (Facebook with approx. 5,000 followers) and is an active collaborator of the Foundation *iDescubre* (dedicated to Divulgation of Science).

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*

1.- Barros-Rodríguez, A.; Pacheco, P.; Peñas-Corte, M.; Fernandez-Gonzalez, AJ.; Cobo-Díaz JF; Enrique-Cruz, Y.; Manzanera, M. Comparative Study of Bacillus-Based Plant Biofertilizers: A Proposed Index. Biology ***2024****, 13(9), 668; https://doi.org/10.3390/biology13090668*

2.- Peñas-Corte, M.; Bouzas, P.; Nieto del Río, J.; ***Manzanera, M.;*** *Barros-Rodríguez, A.; Fernandez-Navarro, JR. Enhancing Maize Stress Tolerance and Productivity through Synergistic Application of Bacillus velezensis A6 and Lamiales Plant Extract, Biostimulants Suitable for Organic Farming. Biology* ***2024****, 13(9), 718; https://doi.org/10.3390/biology13090718*

3.- Barros-Rodríguez, A.; García-Gálvez, C.; Pacheco, P.; Kalyuzhnaya, M.G.; ***Manzanera, M.*** *Isolation of Methane Enriched Bacterial Communities and Application as Wheat Biofertilizer under Drought Conditions: An Environmental Contribution. Plants* ***2023****, 12, 2487. https://doi.org/10.3390/plants12132487*
4.- Ledezma-Villanueva, A.; Robledo-Mahón, T.; Gómez-Silván, C.; Angeles-De Paz, G.; Pozo, C.; ***Manzanera, M.;*** *Calvo, C.; Aranda, E. High-Throughput Microbial Community Analyses to Establish a Natural Fungal and Bacterial Consortium from Sewage Sludge Enriched with Three Pharmaceutical Compounds. J. Fungi* ***2022****, 8, 668. https://doi.org/10.3390/jof8070668*
5.- Rebelo Romão, I.; Rodrigues dos Santos, A.S.; Velasco, L.; Martínez-Ferri, E.; Vilchez, J.I.; ***Manzanera, M.*** *Seed-Encapsulation of Desiccation-Tolerant Microorganisms for the Protection of Maize from Drought: Phenotyping Effects of a New Dry Bioformulation. Plants* ***2022****, 11, 1024. https://doi.org/10.3390/plants11081024*
6.- B. Muñoz-Palazon, P. R. Bouzas, J. González-López & ***M. Manzanera*** *(2022) Transmission of SARS-CoV-2 associated with wastewater treatment: a seroprevalence study,*

International Journal of Water Resources Development, 38:6, 928-937, DOI: 10.1080/07900627.2021.1910935
7.- Barros-Rodríguez, A.; Rangseekaew, P.; Lasudee, K.; Pathom-aree, W.; ***Manzanera, M.*** *Impacts of Agriculture on the Environment and Soil Microbial Biodiversity. Plants* ***2021****, 10, 2325. https://doi.org/10.3390/plants10112325*
8.- Barros-Rodríguez, A.; Rangseekaew, P.; Lasudee, K.; Pathom-aree, W.; ***Manzanera, M.*** *Impacts of Agriculture on the Environment and Soil Microbial Biodiversity. Plants* ***2021****, 10, 2325. https://doi.org/10.3390/plants10112325*
9.- Rangseekaew, P.; Barros-Rodríguez, A.; Pathom-aree, W.; ***Manzanera, M.*** *Deep-Sea Actinobacteria Mitigate Salinity Stress in Tomato Seedlings and Their Biosafety Testing. Plants* ***2021****, 10, 1687. https://doi.org/10.3390/plants10081687*
10.- Morcillo, R.J.L.; ***Manzanera, M.*** *The Effects of Plant-Associated Bacterial Exopolysaccharides on Plant Abiotic Stress Tolerance. Metabolites* ***2021****, 11, 337. https://doi.org/10.3390/metabo11060337*
11.- Barros-Rodríguez A, ***Manzanera M.*** *(2020). Units for Vigilance of Emerging Diseases (UVED) based on Wastewater Treatment Plants (WWTP-UVED). Microbial Biotechnology.*

C.2. Congress: 36 international meetings in the last 10 years, mostly as Keynote speaker.

C.3. Research projects

1.- Producción de biofertilizante de bajo costo, utilizando gases de efecto invernadero como fuente de C, para la promoción del crecimiento de plantas bajo limitación de agua. REF: PID2021-127623OB-I00. FUNDE BY: Proyectos del Plan Nacional 2021. Ministerio de Ciencia e Innovación. DURATION: 01/09/2022- 31/08/2025. PRINCIPAL INVESTIGATOR (PI): M. Manzanera. AMOUNT: 181.500 €.
2.- Unidades de Vigilancia para Enferemedades Infecciosas basadas en Colectores de Aguas Residuales (UVEICAR) para el seguimiento epidemiológico de la COVID19. REF: CV20.01559. FUNDED BY: Junta de Andalucía. Programa ayudas a proyectos de investigación sobre el SARS-CoV-2 y la enfermedad COVID-19 en régimen de concurrencia no competitiva, para agentes públicos del sistema andaluz del conocimiento con cargo a fondos FEDER. DURATION: 16/07/2020-15/07/2021
PRINCIPAL INVESTIGATOR (PI): ***M. Manzanera.*** *AMOUNT: 59.000 €*
3.- Recuperación de tierras de secano para cultivos de regadío mediante consorcios microbianos (Generagua). PY18-976 ENTIDAD FINANCIADORA: Junta de Andalucía. Ayudas a proyectos de I+D+I Programa Operativo FEDER 2014-2020. DURATION: 01/09/2020-30/09/2022. PI: ***M. Manzanera*** *AMOUNT: 120.000 €*
4.- Recuperacion de tierras secas para agricultura por irrigación bacteriana. REF. CGL2017-91737-EXP. FUNDED BY: Ministerio de Ciencia e Innovación. Plan nacional de I+D+i 2017. Convocatoria Explora. DURACIÓN: 1/9/18-31/11/20. PI: ***M. Manzanera.*** *CUANTÍA: 48.400 €*
5.- Eliminación de contaminantes emergentes de lodos de depuradora mediante compostaje y bioaumento con microorganismos nativos para la obtención de enmiendas bioseguras de suelos. REF CTM2017-84332-R. FUNDED BY: Minist de Ciencia e Innovación. Plan nacional de I+D+i 2017. DURATION: 01/01/2018-31/12/2020. PI: ***M. Manzanera*** *AMOUNT: 100.430 €.*
6.- Mejora en la tolerancia a la sequía de plantas con interés en producción de biocombustibles en zonas de secano. REF P11-RNM-7844. FUNDED BY: Proyectos de Excelencia de la Consejería de Innovación Ciencia y Empresa. Junta de Andalucía. DURATION: 01/03/2013-31/3/2016. PI: ***M. Manzanera.*** *AMOUNT: 164.611 €*

C.4. Contracts, technological or transfer merits

*1.- Caracterización microbiológica de lote de productos Herogra. EMPRESA: HEROGRA (Granada. España). DURATION : 25/05/2021-24/07/2021. PI****: M. Manzanera***
*2.- Identificación de hongos fitopatógenos y selección de un carrier para bacterias PGPR para la bioestimulación de plantas. EMPRESA: Establecimientos HEFE (Rota, Cadiz. España). DURATION : 05/02/2018-31/05/2018. PI****: M. Manzanera***
*3.- Estudios de toxicidad de la cepa bacteriana denominada XT1. COMPANY: XTREM BIOTECH S.L. DURATION: 31/10/2017- 30/04/2018. PI****: M. Manzanera***

*4.- Biosafety tests on 3 bacterial strains for their safe release in the Environment. EMPRESA: INSTITUTE OF TECHNOLOGY CARLOW (Irlanda). PI**: M. Manzanera***
5.- Ensayos de 4 variables de bioseguridad de las cepas microbianas P. fluorescens IABPF05, Rhizobium leguminosarum IABRL05 y Azotobacter vinelandii IABAV02.
*COMPANY: Investigaciones y Aplicaciones Biotecnológicas S.L. DURATION 15/05/2014 - 1/11/2014 PI**: M. Manzanera***
*6.- Diseño de sistemas bio-absorbentes para la eliminación y biorremediación de aguas contaminadas con hidrocarburos**.** COMPANY: Compañía Logística de Hidrocarburos (CLH) DURATION: 14/05/2014 - 14/10/2014 PI: Dra. Concepción Calvo*
7.- Estudio de propiedades antioxidantes, estabilizantes, emulsificantes, coadjuvantes y gelificantes de los subproductos resultantes de la conversión de biomasa en energía. COMPANY: DMC Research DURATION: 04/06/2012-13/04/2015 PI: Dra. Concepción Calvo.

Patents

***1.-** INVENTORS: **Manzanera M**, González López JJ, Narvaez J.*
TITLE: Cepa bacteriana CECT7625, usos y producto xeroprotector producido por la misma.
APPLICATION NUMBER: P200931117. PRIORITY COUNTRY: Spain. PRIORITY DATE: 3/12/09 OWNERSHIP: UGR. LISENCED BY: Vitantech Biotechnology in 2019.
***2.-** INVENTORS: **Manzanera M**, Vilchez JI, SantaCruz L, González López J, Narvaez J*
TITLE: Cepa bacteriana CECT7626, uso de dicha cepa para aumentar la tolerancia al estrés hídrico de una planta y compuesto xeroprotector producido por la misma
APPLICATION NUMBER: P200931118. PRIORITY COUNTRY: Spain. PRIORITY DATE: 3/12/09. OWNERSHIP: UGR. LISENCED BY: Vitantech Biotechnology in 2019.
***3.-** INVENTORS: **Manzanera M**, González López J., Narvaez J., SantaCruz Calvo L.*
TITLE: Cepa bacteriana CECT7623, usos y producto xeroprotector producido por la misma.
APPLICATION NUMBER: P200931116. PRIORITY COUNTRY: Spain
PRIORITY DATE: 3/12/09. OWNERSHIP: UGR. LISENCED: Vitantech Biotechnology 2019.
***4.-** INVENTORS: **Manzanera M**, Vilchez JI, SantaCruz L, González López J, Narvaez J*
TITLE: Cepa bacteriana CECT7624, uso de dicha cepa para aumentar la tolerancia al estrés hídrico de una planta y compuesto xeroprotector producido por la misma.
APPLICATION NUMBER: P200931119. OWNERSHIP: Spain. LISENCED BY: Vitantech Biotechnology in 2019.
***5.-** INVENTORS: **Manzanera M**., González López J.J., Narvaez J.*
TITLE: Cepa bacteriana CECT7625, usos y producto xeroprotector producido por la misma.
APPLICATION NUMBER: P201100029. PRIORITY COUNTRY: Spain
PRIORITY DATE: 3/12/09 OWNERSHIP: UGR. LISENCED: Vitantech Biotechnology 2019.
***6.-** INVENTORS: **Manzanera M**, Vilchez JI, SantaCruz L, González López J, Narvaez J*
TITLE: Cepa bacteriana CECT7626, uso de dicha cepa para aumentar la tolerancia al estrés hídrico de una planta y compuesto xeroprotector producido por la misma
APPLICATION NUMBER: P201100030. PRIORITY COUNTRY: Spain. LISENCED BY: Vitantech Biotechnology in 2019.
***7.-** INVENTORS: **Manzanera M**., González López J.J., Narvaez J., SantaCruz Calvo L.*
TITLE: Cepa bacteriana CECT7623, usos y producto xeroprotector producido por la misma.
APPLICATION NUMBER: P201100031. PRIORITY COUNTRY: Spain
PRIORITY DATE: 3/12/09. OWNERSHIP: Universidad de Granada. LISENCED BY: Vitantech Biotechnology in 2019.
***8.-** INVENTORS: **Manzanera M**, Vilchez JI, SantaCruz L, González López J, Narvaez J*
TITLE: Cepa bacteriana CECT7624, uso de dicha cepa para aumentar la tolerancia al estrés hídrico de una planta y compuesto xeroprotector producido por la misma.
APPLICATION NUMBER: P201100032. PRIORITY COUNTRY: Spain
PRIORITY DATE: 3/12/09. OWNERSHIP: UGR. LISENCED: Vitantech Biotechnology 2019.
***9.-** INVENTORS: **Manzanera M**, Vilchez JI, SantaCruz L, González López J, Narvaez J*
TITLE: Cepa bacteriana CECT7624, uso de dicha cepa para aumentar la tolerancia al estrés hídrico de una planta y compuesto xeroprotector producido por la misma.
APPLICATION NUMBER: P201100033. PRIORITY COUNTRY: Spain
PRIORITY DATE: 3/12/09. OWNERSHIP: Universidad de Granada. LISENCED BY: Vitantech Biotechnology in 2019.