



CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Juan Miguel		
Family name	González Grau		
Gender (*)	Male	Birth date (dd/mm/yyyy)	1/10/1962
ID number	30559079Z	URL Web:	
e-mail	jmgrau@irnase.csic.es	www.irnas.csic.es/diversidad-microbiana-y-microorganismos-de-ambientes-extremos/ www.microextreme.net	
Open Researcher and Contributor ID (ORCID)	0000-0003-4746-6775		

A.1. Current position

Position	Investigador Científico		
Initial date	09/06/2009		
Institution	Consejo Superior de Investigaciones Científicas		
Department/Center	Instituto de Recursos Naturales y Agrobiología de Sevilla		
Country	Spain	Teleph. number	+34 954624711
Key words	Environmental microbiology, genomics, extremophiles, diversity, ecology, ecophysiology, molecular biology, biotechnology		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2006-2009 (36 m)	Científico titular, CSIC, Spain
2002-2006 (54 m)	Ramón y Cajal, IRNAS-CSIC, Spain
1995-2001 (73 m)	Asistant professor, University of Maryland Biotechnology Institute, USA
1993-1995 (35 m)	Researcher, Japan Marine Science and Technology Center, Japan

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Biology	University of Basque Country	1990
Graduate in biological Sciences	University of Basque Country	1986

Part B. CV SUMMARY

My research focuses on the study of diversity (in its broadest sense), its role, that of microorganisms and their enzymes in the environment and their biotechnological applications. The use of genomics and bioinformatic analyses represent some of our major tools together to a variety of other methods frequently used in our research. An example is the expertise in different culturing systems, both batch and continuous cultivation (chemostat and retentostat). In order to determine the role of microorganisms in nature, extreme environments represent a key for these studies because these environments usually present lower diversity and complexity; besides, we can also study other characteristics unique to extremophiles and extreme environments and appreciated in biotechnology. For instance, the resistance to high temperatures (in thermophiles), to high salt (in halophiles) or the response to desiccation (xerophiles), to mention only a few. Understanding the functioning of microbial communities and individual microorganisms is driving us to an interest for their enzymes and the response of both microorganisms and their enzymes to a variety of extreme conditions, such as growth-limiting scenarios. Besides, the microorganisms inhabiting extreme environments and their molecules (i.e., enzymes) are highly appreciated in the biotechnological industry as a result of their resistance, durability and high activity. My research has been directed to a variety of topics but generally with a common focus on the functional study of the role of microorganisms and their diversity, with a major methodological

component which is highly important because the development of novel techniques and working strategies frequently allow to provide response to multiple novel questions in Microbiology and related sciences. A significant fraction of my research work has been carried out abroad (where I have been around 13 years mostly in USA and Japan) and I have maintained collaborations with scientists and the private sector both from Spain and different countries. I have contributed as reviewer for over 60 peer-review scientific journals of high impact, editor-in-chief for International Microbiology and guest editor for special issues or research topics (Microorganisms, Frontiers in Microbiology), and in the evaluation of projects for funding by national (ANEP, AEI) and international (NASA and NSF in USA; Belgium; Austria; Chile, Argentina; etc.) agencies. I have published 144 peer-review scientific papers and 58 book chapters, obtained continuous funding from competitive calls from international (also including participation and coordination of european projects), national and regional sources (over 65 projects, coordinating about 70% of them) as well as collaborated with research contracts with the private sector (12). Since its constitution and for 22 years, I have lead the “Microbial diversity and Microbiology of extreme environments” research group at IRNAS-CSIC with reference BIO288. I have participated in training and supervision of multiple undergraduate and postdoctoral trainees and supervised 12 PhD theses, numerous TFG and TFM and students in practices. I am also leading the CSIC Service “Detection and function of microorganisms and their molecules” which offers our expertise to the public and private sectors and has been quality certified ISO9001:2015 from December 2019 on the culture of microorganisms including chemostat and retentostat systems.

Data from: <http://scholar.google.es/citations?user=H-J2mlwAAAAJ&hl=en>

h-Index: 50; i10-index: 118; Total citations: 9024

Citations (last 5 y): 402(2023), 438(2022), 456(2021), 366(2020), 393(2019).

Num. 6-year terms (Sexenios): 7. Num. 5-year terms (Quinquenios): 6

Total publications (peer review, ISI): 144. Book chapters: 58. Funding: 65 projects. I+D contracts: 12. Supervised PhD theses (total 12), last 10 years: 5 (+2 ongoing). Patents: 13.

Part C. RELEVANT MERITS

C.1. Publications (18 out of 144 papers total; 58 book chapters; 3 books) (last 10 años)

Cuecas, A., M.C. Portillo, W. Kanoksilapatham, J.M. Gonzalez. 2014. Bacterial distribution along a 50°C temperature gradient reveals a parcelled out hot spring environment. *Microbial Ecology* 68: 729-239. Q1

Sant'Anna, F.H., A. Slovodkin, T. Sokolova, F.T. Robb, J.M. Gonzalez. 2015. Genome analysis of three genomes within the thermophilic hydrogenogenic bacterial species *Caldanaerobacter subterraneus*. *BMC Genomics* 16: 757. Q1

Santana, M.M., J.M. Gonzalez. 2015. High temperature microbial activity in upper soil layers. *FEMS Microbiology Letters* 362: 1-4. Q2

Cuecas, A., J. Cruces, J.F. Galisteo-López, X. Peng, J.M. Gonzalez. 2016. Cellular viscosity in prokaryotes and thermal stability of low-molecular weight biomolecules. *Biophysical Journal* 111(4): 875-882. Q1

Santana, M.M., J.M. Gonzalez, M.I. Clara. 2016. Inferring pathways leading to organic-sulfur mineralization in the Bacillales. *Critical Reviews in Microbiology* 42(1): 31-45. Q1

Cuecas, A., W. Kanoksilapatham, J.M. Gonzalez. 2017. Evidence of horizontal gene transfer by transposase gene analyses in *Fervidobacterium* species. *PloSOne*12(4):e0173961.Q1

Santana, M.M., J.M. Gonzalez, C. Cruz. 2017. Nitric oxide accumulation: the evolutionary trigger for phytopathogenesis. *Frontiers in Microbiology* 8:1947. Q1

Gonzalez, J.M. 2018. Molecular tunnels in enzymes and thermophily. A case study on the relationship to growth temperature. *MDPI Microorganisms* 6: 109. doi:10.3390/microorganisms6040109. Q1

Moxley, E., E. Puerta-Fernández, E.J. Gómez, J.M. Gonzalez. 2019. Influence of the abiotic factors temperature and water content on bacterial 2-chlorophenol biodegradation in soils. *Frontiers in Environmental Science* 7: 41. doi:10.3389/fenvs.2019.00041. Q1

Gómez, E., J.A. Delgado, J.M. Gonzalez. 2020. Water availability and temperature are major environmental factors affecting microbial extracellular enzyme activity in soils. *Ecology and Evolution* 10: 10105-10115. doi: 10.1002/ece3.6672. Q1

- Gómez, E., J.A. Delgado, J.M. Gonzalez. 2020. Persistence of microbial extracellular enzymes in soils. Influence of temperature and water availability. *Ecology and Evolution* 10: 10167-10176. doi: 10.1002/ece3.6677. Q1
- Macías-Benítez, S., A.M. García-Martínez, P. Caballero Jiménez, J.M. Gonzalez, M. Tejada Moral, J. Parrado. 2020. Rhizospheric organic acids as biostimulants: monitoring feedbacks on soil microorganisms and biochemical properties. *Frontiers in Plant Science*, section Crop and Product Physiology 11: 633. doi: 10.3389/fpls.2020.00633. Q1
- Gonzalez, J.M., E. Puerta-Fernández, M.M. Santana, B. Rekadwad. 2020. On a non-discrete concept of prokaryotic species. *Microorganisms* 8(11): 1723. doi: 10.3390/microorganisms8111723. Q1
- Gómez, E.J., J.A. Delgado, J.M. Gonzalez. 2021. Influence of water availability and temperature on estimates of microbial extracellular enzyme activity. *PeerJ* 9: e10994. doi: 10.7717/peerj.10994. Q1
- Santana, M.M., T. Dias, J.M. Gonzalez, C. Cruz. 2021. Transformation of organic and inorganic sulfur - adding perspectives to new players in soil and rhizosphere. *Soil Biology & Biochemistry* 160: 108306. <https://doi.org/10.1016/j.soilbio.2021.108306>. Q1
- Ginsbach, L.F., J.M. Gonzalez. 2022. Understanding life at high temperatures. Relationships of molecular channels in enzymes of methanogenic Archaea and their growth temperatures. *International Journal of Molecular Sciences* 23(23): 15149. <https://doi.org/10.3390/ijms232315149>. Q1
- Gonzalez, J.M., B. Aranda. 2023. Microbial growth at limiting conditions. *Future perspectives Microorganisms* 11, 1641. <https://doi.org/10.3390/microorganisms11071641>. Q2
- Gonzalez, J.M., M.M. Santana, E.J. Gómez, J.A. Delgado. 2023. Soil thermophiles and their extracellular enzymes; a set of capabilities able to provide significant services and risks. *Microorganisms* 11, 1650. <https://doi.org/10.3390/microorganisms11071650>. Q2.

C.2. Congress (total 205; oral presentations 90; Invited and keynote: 31)

C.3. Research projects (14 out of 65 competitive projects; 44 as coordinator/PI; last 10 y)

- Study of the microbiota associated to cultures of acidophilic microalgae. Contract for Technological Support. Funding Enterprise: Bioavan S.L. Participant Institutions: IRNAS-CSIC. Duration: June-December 2015. Principal investigator: Juan M. González. Funding: 7 260 €. Coordinador: Juan M. González.
- Interacción de los procesos microbianos y geoquímicos en la atenuación natural de la contaminación por drenaje ácido de minas en embalses y estuarios. P11-RNM-7199. Junta de Andalucía. Instituciones participantes: Universidad de Cadiz, IRNAS-CSIC. Duración: 2013-2017. Financiación: 214 222 €. Coordinador: Alfonso Corzo (U. Cadiz); Responsable IRNAS: Juan M. González
- Comparative Microbial Genomics. Consolider CSD2009-00006. Ministerio de Ciencia e Innovación. Instituciones participantes: Universidad Miguel Hernandez más 9 instituciones. Duración: 2009-2015. Financiación: 367 415 € (para IRNAS-CSIC). Coordinador: Francisco Rodriguez-Valera; Responsable en IRNAS-CSIC: Juan M. González.
- Efecto del contenido de agua y la temperatura sobre la diversidad microbiana y su actividad en suelos y sedimentos. Aplicación a la degradación de contaminantes halogenados. RNM2529. Junta de Andalucía, Consejería de Economía, Innovación y Ciencia. Instituciones participantes: IRNAS-CSIC, Bioavan SL. Duración: 2014-2019. Financiación: 168 901 €. Coordinador: Juan M. González.
- Integrative analysis of extremophiles in search for new biotechnological solutions. 003-ABEL-CM-2013. NILS Science and Sustainability (ABEL-CM-01-2013). EEA (European Economic Area) Grants. Entidades participantes: Instituto de Recursos Naturales y Agrobiología de Sevilla (IRNAS-CSIC), Universidad de Sevilla, University of Bergen (Noruega), Centro de Astrobiología (CAB-CSIC). Duración: 2014-2015. Financiación: 20 335 €. Coordinador: Juan M. González.
- Vida microbiana más allá de las condiciones óptimas. CGL2014-58762-P. Ministerio de Economía y Competitividad. Instituciones participantes: IRNAS-CSIC, Universidad de Sevilla, Bioavan SL. Duración: 2015-2018. Financiación: 120 000 €. Coordinador: Juan M. González.
- Thermostable isomerase processes for biotechnology. ERA-IB-16-049, PCIN-2016-129. European Union, ERA-IB2 7th call: Industrial Biotechnology for Europe: an integrated

- approach; Ministerio de Economía y Competitividad, APCIN 2016. Instituciones participantes: IRNAS-CSIC (España), University of Bergen (Noruega), Christian-Albrechts-Universität Kiel (Alemania), Bioavan SL (España), University of Exeter (Reino Unido). Duración: 2016-2020. Financiación: 1155 000 € (para IRNAS-CSIC 197 000 €). Coordinador: Juan M. González.
- Red Nacional de Microorganismos Extremófilos. RED2018-102734-T. Ministerio de Ciencia e Innovación. Duración: 2020-2021. Financiación: 17 000 €. Coordinador: J.M. Gonzalez
 - Diseño racional de enzimas termoestables para sacarificación de biomasa vegetal bajo consideraciones de transporte y accesibilidad. PY20 RE 021 LOYOLA. Junta de Andalucía. Duración: 2021-2023. Financiación: 199 880 €. Mauricio Zurita (Universidad de Loyola); Juan M. González (responsable IRNAS).
 - Espectrofotómetro para medidas de tiempos de vida de fluorescencia y su utilización en Microbiología. EQC2019-005634-P. Ministerio de Ciencia e Innovación. Duración: 2019-2021. Financiación: 282 869.28 €. J.M. González.
 - Sistema de esterilización para un nuevo laboratorio de microbiología del nivel de Bioseguridad tipo II. Junta de Andalucía. Duración 2020-2022. Financiación: 78 236 €. J.M. González.
 - Comportamiento y consecuencias adaptativas de bacterias a bajas tasas de crecimiento. P20_00774. Junta de Andalucía, Consejería de Economía, Conocimiento, Empresas y Universidades. Duración: 2021-2023. Financiación: 166 930 €. Coordinator: J.M. González.
 - Respuestas funcionales de bacterias a tasas de crecimiento muy bajas (BLOG). PID2020-119373GB-I00. Ministerio de Ciencia e Innovación. Duración: 2021-2024. Financiación: 108 900 €. Coordinator: J.M. González.
 - Nómadas de la Ciencia 2. FCT-21-17143. Ministerio de Ciencia e Innovación, FECYT. Duración: 2022-2023. Financiación: 4 500 €. Coordinador: J.M. González.

C.4. Contracts, technological or transfer merits (3 out 12 contracts; Patents 6 out 13)

- Production and valorization of biohydrogen from urban solid residues. Collaboration contract. Funding Institution or enterprise: University of Cadiz. Participant Institutions: IRNAS-CSIC. Duration: 2011-2012. Principal investigator: Juan M. Gonzalez. Funding: 9 000 €.
- Observatory of Santimamiñe Cave. Monitoring of the development of microbial communities in the cave. Contract for Technological Support. Funding Enterprise: Consultores Independientes en Gestión de Recursos Naturales, S.A. Participant Institutions: IRNAS-CSIC. Duration: 2012-2013 and 2013-2014. Principal investigator: Juan M. Gonzalez. Funding: 5 750 € and 2 250 €.
- Study of the microbiota associated to cultures of acidophilic microalgae. Contract for Technological Support. Funding Enterprise: Bioavan S.L. Participant Institutions: IRNAS-CSIC. Duration: June-December 2015. Principal investigator: Juan M. Gonzalez. Funding: 7 260 €.
- Gonzalez, J.M., M.C. Portillo. 20/12/2010. Heterotrophic thermophilic bacterium CECT7628 of the *Ureibacillus* genus and its use to produce sulfates. N. application: PCTES2010070852. PCT countries. Owner: CSIC.
- Gonzalez, J.M., M.C. Portillo. 20/12/2010. Heterotrophic thermophilic microorganism of the bacterial species *Brevibacillus thermoruber* and its use to produce sulfates. N. application: PCTES2010070851. PCT countries. Owner: CSIC.
- Gonzalez, J.M., M.C. Portillo, M. Santana. 18/3/2010. The use of anaerobic hyperthermophilic archaea of the genus *Pyrococcus* for the biocleaning of materials with iron precipitates. N. application: P0201030403. Spain. Owner: CSIC.
- Gonzalez, J.M., M.C. Portillo. 28/7/2010. Ecological procedure for the treatment of culturing soils. N. application: P201031177. Spain. Owner: CSIC. A confidentiality agreement has been signed with ResBioAgro S.L.
- Gonzalez, J.M., A. Cuecas, J. Cruces, M.C. Portillo. 30/4/2013. Stabilization of biomolecules through the maintenance of medium viscosity. N. application: P201330466. Spain. Owner: CSIC.
- Gonzalez, J.M., M.M. Santana, J.A. Delgado, E.J. Gómez, C. Cruz. 01/07/2016. Thermophilic microorganisms to solubilize phosphates at elevated temperatures. N. application: P21630900. Spain. Owner: CSIC.