

Part A. PERSONAL INFORMATION

CV date 27/10/2021

First and Family name	María José Bonete Pérez		
Social Security, Passport, ID number	22106650Q		
Researcher numbers	Researcher ID	L-4225-2014	
	Orcid code	0000-0003-0714-3998	

A.1. Current position

Name of University/Institution	University of Alicante		
Department	Agrochemistry and Biochemistry		
Address and Country	AP. 99 ALICANTE 03080 , SPAIN		
Phone number	+34965903524	E-mail	mjbonete@ua.es
Current position	Professor in Biochemistry & Molecular Biology	From	25/12/2002
Espec. cód. UNESCO	2403/2414/2415		
Palabras clave	Archaea, haloarchaea, proteins, nitrogen metabolism, metabolic regulation, transcriptional regulation, small RNAs, stress, toxic metals, bioremediation		

A.2. Education

PhD	University	Year
Sciences (Chemistry)	University of Murcia	1983

Part B. CV SUMMARY (max. 3500 characters, including spaces)

I have a degree in Chemistry from the University of Valencia (Spain) and PhD of Science from the University of Murcia (Spain). I made a post-doctoral stay at the University of Bath (UK) as invited investigator conducting research on halophilic proteins. Professor of Biochemistry and Molecular Biology since 2002. I works as a teacher and researcher at the Department of Agrochemistry & Biochemistry of the University of Alicante (Spain), which I has managed since 2009-2017 as Head of Department. I am the director of the research group "Biotechnology of Extremophiles" of the UA (VIGROB-016). I belongs to the National Extremophile Microorganisms Network since its creation in 1994. My main lines of research are: halophilic proteins (production, characterization, 3D structure and biotechnological applications), Nitrogen Metabolism in Haloarchaea (genomics, proteomics and regulation), Genome Analysis of *Haloferax mediterranei*, Transcriptional regulators and small RNAs. The research developed has been funded by the National Government and FEDER , Generalitat Valenciana, University of Alicante funds as IP. I has made R & D contracts with companies and technological institutes (BioFuelSystems, Bioarray, INESCOP, etc.). All this work has allowed me to make scientific contributions in high impact journals and specialized books. I am part of different editorial panels and a member of the Research Institute I.M.E.M. RAMON MARGALEF (IMEM) of the UA. I has been collaborating internationally with different research groups as reflected in my publications. I also act as Expert Evaluator of the EU in H2020 Biobased Industries and for others national and international agencies.

Part C. RELEVANT MERITS

C.1. Publications (journals).

- Payá G, Bautista V, Camacho M, **Bonete MJ**, Esclapez J. (2021). Functional analysis of Lsm protein under multiple stress conditions in the extreme haloarchaeon *Haloferax mediterranei*. Biochimie 187:33-47. DOI: 10.1016/j.biochi.2021.05.002.
- Rodríguez-Herrero V, Peris A, Camacho M, Bautista V, Esclapez J, **Bonete MJ**.(2021) Novel Glutamate-Putrescine Ligase Activity in *Haloferax mediterranei*: A New Function for glnA-2 Gene. Biomolecules 11(8):1156. DOI: 10.3390/biom11081156.
- Pastor-Soler S, Camacho M, Bautista V, **Bonete MJ**, Esclapez J.(2021) Towards the Elucidation of Assimilative nasABC Operon Transcriptional Regulation in *Haloferax mediterranei*. Genes (Basel). 12(5):619. DOI: 10.3390/genes12050619.

- Matarredona L, Camacho M, García-Bonete MJ, Esquerra B, Zafrilla B, Esclapez J, **Bonete MJ** (2021) Analysis of *Haloferax mediterranei* Lrp Transcriptional Regulator. Genes (Basel) 12(6):802. DOI: 10.3390/genes12060802.
- Matarredona L, Camacho M, Zafrilla B, Bravo-Barrales G, Esclapez J, **Bonete MJ**. (2021). The Survival of *Haloferax mediterranei* under stressful conditions. Microorganisms 9 (336). DOI: 10.3390/microorganisms9020336.
- Matarredona L, Camacho M, Zafrilla B, **Bonete MJ**, Esclapez J. (2020) The Role of Stress Proteins in Haloarchaea and Their Adaptive Response to Environmental Shifts. Biomolecules 10(10), 1390. DOI: [10.3390/biom10101390](https://doi.org/10.3390/biom10101390)
- Sahli K, Gomri, M.A., Esclapez, J., Gómez-Villegas, P, Ghennai, O., **Bonete, M.J.**, León, R., Kharroub, K. (2020) Bioprospecting and characterization of pigmented halophilic archaeal strains from Algerian hypersaline environments with analysis of carotenoids produced by *Halorubrum* sp. BS2. J. Basic Microbiol.6 (7): 624-638. DOI: [10.1002/jobm.202000083](https://doi.org/10.1002/jobm.202000083)
- Payá, G., Bautista, V., Camacho, M., **Bonete, M.J.**, Esclapez, J. (2020) New proposal of nitrogen metabolism regulation by small RNAs in the extreme halophilic archaeon *Haloferax mediterranei*. Mol Genet Genomics. 295(3):775-785. DOI: 10.1007/s00438-020-01659-9.
- Rodríguez-Herrero V, Payá G, Bautista V, Vegara A, Cortés-Molina M, Camacho M, Esclapez J, **Bonete MJ**.(2020) Essentiality of the glnA gene in *Haloferax mediterranei*: gene conversion and transcriptional analysis. Extremophiles, 24(3):433-446. DOI: 10.1007/s00792-020-01169-x.
- Payá, G.; Bautista, V.; Camacho, M.; Castejón-Fernández, N.; Alcaraz, L.A.; **Bonete, M.J.**; Esclapez, J. Small RNAs of *Haloferax mediterranei*: Identification and Potential Involvement in Nitrogen Metabolism. Genes 9 : 83, (2018) DOI: doi:10.3390/genes9020083.
- Torregrosa-Crespo, J.; Martínez-Espinosa, R.M.; Esclapez, J.; Bautista, V.; Pire, C.; Camacho, M.; Richardson, D.J.; **Bonete, M.J.** Anaerobic Metabolism in Haloferax Genus: Denitrification as Case of Study. Advances in Microbial Physiology 68: 41-85, (2016). DOI: 10.1016/bs.ampbs.2016.02.001
- Esclapez J., Pire C., Camacho M., Bautista V., Martinez-Espinosa R.M., Zafrilla B., Vegara A., Alcaraz L.A., **Bonete M.J.**, Transcriptional profiles of *Haloferax mediterranei* based on nitrogen availability. J. Biotechnology 193: 100-107 (2015). DOI: doi:10.1016/j.jbiotec.201
- Palanca, C.; Pedro-Roig, L.; Llacer, J.L.; Camacho, M.; **Bonete, M.J.**; Rubio, V. The structure of a PII signaling protein from a halophilic archaea reveals novel traits and high salt adaptations. FEBS Journal 281: 3299-3314. (2014)
- Pedro-Roig, L.; Lange, C.; **Bonete, M.J.**; Soppe, J.; Maupin-Furlow, J. Nitrogen regulation of protein-protein interactions and transcript levels of GlnK PII regulator and AmtB ammonium transporter homologs in Archaea. Microbiologyopen 2(5):826-840, (2013).
- Esclapez, J.; Zafrilla, B.; Martínez-Espinosa, R.M.; **Bonete, M.J.** Cu-NirK from *Haloferax mediterranei* as an example of metalloprotein maturation and exportation via Tat system. Biochim. Biophys. Acta (BBA) - Proteins and Proteomics 1834: 1003-1009, (2013).

Book chapters:

- Esclapez, J.; Bautista, V.; Torregrosa-Crespo, J.; Vegara, A.; Camacho, M.; Pire, C.; **Bonete, M.J.**; Martínez-Espinosa, R.M. "Extremophile enzymes and biotechnology." en "Extremophiles from Biology to Biotechnology", ISBN: 978-1-4987-7492-5, Florida, CRC Press, pp. 227-248, (2018).
- Esclapez, J.; Camacho, M.; Pire, C.; Bautista, V.; Vegara, A.; Pedro-Roig, L.; Pérez-Pomares, F.; Martínez-Espinosa, R.M.; **Bonete, M.J.** "Recent Advances in the Nitrogen Metabolism in Haloarchaea and Its Biotechnological Applications" En: Biotechnology of Extremophiles. Advances and Challenges". Editorial Springer, Switzerland. pp. 273-302. (2016). 978-3-319-13521-5.
- Esclapez, J.; Camacho, M.; Pire, C.; **Bonete, M.J.** "Biochemical Analysis of Halophilic Dehydrogenases Altered by Site-Directed Mutagenesis" En: Genetic Manipulation of DNA

and Protein: Examples from Current Research. Editorial Intech, India. pp. 17-42. (2013). 978-953-51-0994-5

- **Bonete, M.J.**; Martínez–Espinosa, R.M. "Enzymes from halophilic Archaea: Open questions" en "Halophiles and Hypersaline Environments." Springer–Verlag, pp. 359–371, (2011). 978–3–642–20197–4.

C.2. Research projects and grants

- Búsqueda de redes implicadas en la regulación del metabolismo bajo condiciones de estrés en Haloarchaea. (GRE20-02-C). Calidad en que ha participado: Coordinador/a científico/a. Entidad de realización: Universidad de Alicante. **IP: María José Bonete**. Fecha de inicio: 01/12/2020. Duración del proyecto: 1 año. Cuantía total: 8.000 €.
- Bioquímica y Biología Molecular de Archaea(PEJ2018-003063-P) Calidad en que ha participado: Coordinador/a científico/a. Investigador/es responsable/es: **María José Bonete**; Sandra Pastor Soler. Entidad/es financiadora/s: Ministerio de Economía y Competitividad. Fecha de inicio: 01/11/2019 Duración del proyecto: 2 años Cuantía total: 39.200 €.
- "Biotecnología de extremófilos" (BiotecExtrem) (VIGROB-016) University of Alicante. **IP: María José Bonete** Period: 01/01/2017- 31-12-2019. Budget: 2268,00 €.
- "Biotecnología de Extremófilos (BiotecExtrem)" (VIGROB-016). Universidad de Alicante. Principal investigator: **María José Bonete**. Period: 01/01/2015 - 31/12/2016. Budget: 2198,00 €.
- Detection and characterization of new CRISPR-Cas systems. **IP: Francisco Martínez Mojica**. Conselleria de Educació, Investigació, Cultura y Deporte. (PROMETEO/2017/129). Participación: Investigador grupo. Desde 01/11/2017 hasta el 31/10/2021. 390000€.
- Metabolic adaptations of haloarchaea in response to different nutritional conditions. (BIO2013-42921-P). **IP: María José Bonete**. Entidad financiadora: Ministerio de Economía y Competitividad. From 01/01/2014 until 31/12/2017. Funds: 84.700 €.
- Genomics and proteomics for the study of the regulation of the assimilation of nitrogen in halophilic archaea. (BIO2008-00082).). **IP: MJBonete**. Entidad financiadora: Ministerio de Ciencia e Innovación. 01/01/2009 hasta: 31/12/2011. Cantidad:133.100€.
- Analysis of the structural determinants of the stability of halophilic proteins (BIO200508991C0201). Ministerio de Educación y Ciencia. **IP: MJBonete**. Duración: 31/12/2005 al 31/12/2008. Cantidad: 124.950 €
- National Extremophile Microorganisms Network (BIO200627047E). Ministerio de Educación y Ciencia. **IP: MJBonete**. Duración: 01/10/2006 al 31/09/2008. Cantidad: 21000€.

C.3. Contracts

- Avance en la expresión recombinante de C-Ficocianina(Cpc) en un huésped mesófilo y estandarizado como *E. coli* (GLOBALBIOTECH1-20TPA). Type of contract: I+D Empresa / Administración financiadora: GLOBAL BIOTECH, S.L Period, from: 13/11/2020 to: 12/11/2021; **IP: Zafrilla Requena, Basilio**; Budget: 10000 €
- Desarrollo de un microarray de expresión génica para *Haloferax mediterranei* (BIOARRAY2-10D). Type of contract: I+D Empresa / Administración financiadora: BIOARRAY, S.L. Period, from: 01/04/2010 to: 30/06/2010; **IP: Bonete Perez, María José**; Budget: 5300 €
- Desarrollo de un microarray de expresión génica para *Haloferax mediterranei* (BIOARRAY2-09I).Type of contract: I+D Empresa / Administración financiadora: BIOARRAY, S.L. Period, from: 01/10/2009 to: 01/01/2010; **IP: Bonete Pérez, María José**; Budget: 5810 €

C.4. Patents

Martínez Espinosa, Rosa María; **Bonete Pérez, María José**; Martínez Martínez, Paula. N°P200700272. Compuesto a base de membranas celulares liofilizadas. España. 01/02/2007.

C.5. Institutional responsibilities:

- Head of Department Agrochemistry & Biochemistry (2009-2017),
- Director of Research Technical Services (1998-2004).
- IP of Biotechnology of Extremophiles Research Group (VIGROB-016) . Universidad de Alicante (2002 -).

C.6. Doctoral Thesis supervised, Master's and undergraduate Final year undergraduate projects:

Doctoral thesis supervised and/or co-supervised (over the past 10 years): 5

Thesis in course:

1. Gloria Payá Cuadra. Title: “sRNAs y proteínas reguladoras implicadas en la regulación del metabolismo del nitrógeno en *Haloferax mediterranei*”
2. Sandra Pastor Soler. Title:” Regulación a nivel transcripcional de la vía asimilativa del ciclo del nitrógeno en haloarqueas”.
3. Laura Sánchez Matarredona. Title: “Respuesta de *Haloferax mediterranei* en condiciones de estrés”.

TFG/TfMs supervised and/or co-supervised (over the past 5 years): **20**

C.7. Teaching work

Biology Degree. Subjects: Fundamentos de Biotecnología Molecular y Microbiana, Bioquímica II. Bioquímica I.

Chemistry Degree. Subject: Bioquímica

Master Degree. Subjects: Laboratorio de Biotecnología, Seminarios de Biociencias, Introducción a Técnicas Avanzadas de Análisis Molecular y Diagnóstico.

Doctoral Degree: Biología experimental y aplicada

C.8. Memberships of scientific societies:

- Sociedad Española de Bioquímica y Biología Molecular (SEBBM);
- Sociedad Española de Biotecnología (SEBIOT);
- The Biochemical Society;
- Sociedad Española de Microbiología (SEM);
- Red Valenciana de Genómica y Proteómica. (RVGP).

C.9. R & D Projects Expert Evaluator for:

- Union European in H2020, Experts BBI
- BBSRC research grants. Research Councils from United Kingdom.
- Agencia Nacional de Evaluación y Prospectiva (ANEP).
- FONCyT (Fondo para la Investigación Científica y Tecnológica) Buenos Aires (Argentina). COLCIENCIAS (Departamento Administrativo de Ciencias, Tecnología e Innovación) Colombia.
- Agencia Andaluza de Evaluación de la Calidad y Acreditación Universitaria (AGAE). INSTITUTO DE CULTURA JUAN GIL-ALBERT (DIPUTACIÓN PROVINCIAL DE ALICANTE).
- ANECA, evaluación becas FPU 2020.

C.10. Reviewer of Journals

Science Citation Index: Frontiers in Microbiology, FEBS Letters, Microbiology, Journal Bacteriology, Applied and Environmental Microbiology, Biomacromolecules, Biochemistry, Journal Molecular Biology, Molecular Microbiology, Journal Biological Chemistry, Archaea, FEMS Microbiology Letters, Process Biochemistry, Biotechnology Progress, Trends in Microbiology.