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|--------------------------------------|-------------------------|---------------------|----|------------|
| <b>Part A. PERSONAL INFORMATION</b>  |                         | <b>CV date</b>      |    | Junio 2018 |
| First and Family name                | Myriam Catalá Rodríguez |                     |    |            |
| Social Security, Passport, ID number |                         | Age                 | 48 |            |
| Researcher numbers                   | Researcher ID           | A-3830-2009         |    |            |
|                                      | Orcid code              | 0000-0002-5114-6988 |    |            |

**A.1. Current position**

|                                |   |        |                       |  |
|--------------------------------|---|--------|-----------------------|--|
| Name of University/Institution | Rey Juan Carlos University  |        |                       |  |
| Department                     | Biology & Geology, Physics and Inorganic Chemistry                        |        |                       |  |
| Address and Country            | Dptal II-237, Campus de Móstoles, Tulipán s/n                             |        |                       |  |
| Phone number                   | +34 91 488 73 97  | E-mail | Myriam.catala@urjc.es |  |
| Current position               | Associate Professor   | From   | 1/10/2003             |  |
| Espec. cód. UNESCO             | 230217, 230219, 240701, 320706/0400/0410                                  |        |                       |  |
| Palabras clave                 | Nitric Oxide, Biomarkers, Oxidative Stress, Emerging Pollutants, Toxicity |        |                       |  |

**A.2. Education**

| PhD                                | University            | Year |
|------------------------------------|-----------------------|------|
| Biochemistry and molecular biology | Complutense de Madrid | 2002 |

**A.3. JCR articles, h Index, thesis supervised...**

Research “Sexenios”: 2 (Last granted 23 June 2013)

Doctoral thesis supervised: 3

Defense 2014 **Dr. Sara Esteban García-Navas**: “Levels of pharmaceuticals and endocrine disruptors in fluvial and drinking waters in Spain. Ecotoxicological and health risks

Under execution **Ms. Rosa de las Heras**: Development of bioassays and biomarkers for the assessment of abiotic stress and environmental toxicity. **Ms. Joana Exposito**: NO synthesis in lichens

Publications and citations

Total Items in Publication List: 50      Items With Citation Data: 41  
 Article: 40, Book Chapter: 6, Article in Press: 0, Review: 2, Conference Paper: 1, Letter: 1  
 Sum of the Times Cited: 739 WOS / 797 Scopus  
 Average Citations per publication: 20,5 WOS/ 36,2 Scopus  
 Total Q1 publications: 20      h-index: 16 WOS/ 17 Scopus

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

I have published 40 articles in international journals and 6 chapters of international books. The mean impact factor of the journals that published my works after peer review is near 3, most of them Q1 of the JCR. My h factor is 16 according to WOS, 17 according to Scopus and 19 according to Google Scholar. I have been the main researcher of 2 projects funded by companies and have participated as researcher in 6 projects funded in competitive calls, both by public entities (MEC, FIS, FISCAM) and private companies (Mutua Madrileña). I hold three biotechnological patents. I have been awarded with 2 *Sexenios*. I was responsible for two Government Contracts for the assessment of human health risks of phytochemicals with the Health Ministry (MSSSI, SEG 1311/15) and the National Institute of Agronomy Research (INIA, SEG 1180/14) budgeted 307 750€ and 685 400€ respectively.

My interest for oxidative stress and nitric oxide metabolism dates back to my PhD research work, when the research on free radicals in biomedicine had just begun. I worked on glutathione quantification and the determination of the enzymatic activity of classical antioxidants such as cytosolic and mitochondrial

SOD, glutathione reductase and glutathione peroxidase. I also studied the role of NO in hepatic regulation of oxidative status and the release of intracellular free radicals by flow cytometry.

Nowadays, my interest in free radicals and NO metabolism and regulation is as strong as previously but the models for my research have widened, from invertebrates to vertebrates, from mammals to fish and from plants to lichens. The development of new sensitive biomarkers for the assessment of environmental toxicity has led me to study free radical release and lipid peroxidation in response to micro- and emerging pollutants. One of my recent lines of research has addressed the oxidative balance and regulation of NO during lichens rehydration stress, an extremely new approach that has deserved several Q1 publications. Our results on lichen NO physiology supply the first evidences to support the hypothesis formulated by Martin & Feelisch in Trends in Ecology and Evolution, postulating a role for NO as a key molecule in the evolution of biological symbioses including mitochondrion-eukaryote cell endosymbiosis.

During 2016, I was designated as Head of the Environmental Toxicology Area (TA) of the National Centre for Environmental Health (CNSA). I participated in an European Human Biomonitoring Initiative to a H2020 call backed by the E. Commission where CNSA leads 1 of the 3 pillars and 2 WP. Currently I have returned to URJC where I continue with my previous research lines, especially involved in lichen symbiosis cell biology and abiotic stress tolerance mechanisms. I currently participate in a Spanish National Plan funded project and in an Excellence Prometeo project of the Comunitat de València.

## Part C. RELEVANT MERITS

### C.1. Publications (including books)

\*Undergraduate students supervised, \*\*Master students supervised, \*\*\*PhD student advised

González-Alonso, S., Merino, L.M., Esteban, S., López de Alda, M., Barceló, D., Durán, J.J., López-Martínez, J., Aceña, J., Pérez, S., Mastroianni, N., Silva, A., **Catalá, M.**, Valcárcel, Y. (2017) Occurrence of pharmaceutical, recreational and psychotropic drug residues in surface water on the northern Antarctic Peninsula region. *Environmental Pollution*, 229, pp. 241-254.

Cruz de Carvalho, R., **Catalá, M.**, Branquinho, C., Marques da Silva, J., Barreno, E. (2017) Dehydration rate determines the degree of membrane damage and desiccation tolerance in bryophytes. *Physiologia Plantarum*, 159 (3), pp. 277-289.

Traba, H. M\*\*.; Domínguez-Morueco, N.\*\*; Barreno, E.; **Catalá, M.** (2017) Lichen microalgae are sensitive to environmental concentrations of atrazine. *J. Environ. Sci. Heal. Part B*, 1234, 1-6.

Hichri, I.; Boscari, A.; Meilhoc, E.; **Catalá, M.**; Barreno, E.; Bruand, C.; Lanfranco, L.; Brouquisse, R. *Nitric Oxide: A Multitask Player in Plant-Microorganism Symbioses*. In Gasotransmitters in Plants. The Rise of a New Paradigm in Cell Signaling; Lamattina, L.; García-Mata, C., Eds.; Springer International Publishing, 2016; pp. 239-268.

Esteban, S; Llamas, PM\*\*; García-Cortés, H\*\*; **Catalá, M.** (2016) The endocrine disruptor nonylphenol induces sublethal toxicity in vascular plant development at environmental concentrations: A risk for riparian plants and irrigated crops? *Environmental Pollution* (in press)

Esteban, S; Moreno-Merino, L; Matellanes, R; **Catalá, M.**; Gorga, M; Petrovic, M; de Alda, M López; Barceló, D; Silva, A; Durán, JJ; (2016) Presence of endocrine disruptors in freshwater in the northern Antarctic Peninsula region. *Environmental research* 147: 179-192.

García-Camero, JP, García-Cortés, H\*\*, Valcárcel, Y, **Catalá, M.** (2015) Environmental concentrations of the cocaine metabolite benzoylecgonine induced sublethal toxicity in the development of plants but not in a zebrafish embryo-larval model. *Journal of Hazardous Materials* 300: 866-872

**Catalá, M.**; Domínguez-Morueco\*\*, N; Migens\*\*, A; Molina, R; Martínez, F; Valcárcel, Y; Mastroianni, N; de Alda, M López; Barceló, D; Segura, Y; (2015) Elimination of drugs of abuse and their toxicity from natural waters by photo-Fenton treatment. *Science of the Total Environment* 520: 198-205.

Álvarez, R.; del Hoyo, A.; Díaz-Rodríguez, C.\*\*; Coello, A. J.\*; del Campo, E.M.; Barreno, E.; **Catalá, M.**†; Casano, L.† (2015) Lichen Rehydration in Heavy Metal-Polluted Environments: Pb

Modulates the Oxidative Response of Both *Ramalina farinacea* Thalli and Its Isolated Microalgae. *Microbiological Ecology* 69 (3): 698-709. †Both authors contributed to the same extent

Domínguez-Morueco, N.\*\*; Moreno, H.\*\*; Barreno, E.; **Catalá, M.** (2014). Preliminary assessment of terrestrial microalgae isolated from lichens as testing species for environmental monitoring: lichen phycobionts present high sensitivity to environmental micropollutants. *Ecotoxicology and Environmental Safety* 99: 35-44.

**Catalá, M.**; Gasulla, F.; Pradas del Real, A. E.\*\*; García-Breijo, F.; Reig-Armiñana, J. (2013). The organic air pollutant cumene hydroperoxide interferes with NO antioxidant role in rehydrating lichen. *Environmental Pollution* 179: 277-284.

Esteban, S.\*\*\*; Fernández Rodríguez, J.\*\*; Díaz López, G.; Núñez, M.; Valcárcel, Y.; **Catalá, M.** (2013). New microbioassays based on biomarkers are more sensitive to fluvial water micropollution than standard testing methods. *Ecotoxicology and Environmental Safety* 93: 52-59.

Feito\*\*, R.; Valcárcel, Y.; **Catalá, M.** (2012) Biomarker assessment of toxicity with miniaturised bioassays: diclofenac as a case study *Ecotoxicology* 21(1): 289-296

## C.2. Research projects and grants

**“New multidisciplinary perspective about the complexity of lichenic symbioses: genomic and functional study of microalgae and bacteria” Funding: MINECO (CGL2016-79158-P)**

Institutions: Universitat de València, Universidad Politécnica de Valencia, Universidade de Lisboa, Charles University of Prague. Period, 2016-2019. Director: Dra. Eva Barreno Rodríguez (Univ. Valencia). Number of researchers: 9. Researcher.

**“Lichen symbiosis as a complex mutualistic association and paradigm of resilience to adverse environments. Genomic, structural and functional diversity” (Proyecto de excelencia PROMETEO/2017/039 2017-2021)**

Institutions: Universitat de València, Universidad Politécnica de Valencia, Universidade de Lisboa, Charles University of Prague. Perio 2017-21. Director Dra. Eva Barreno Rodríguez (Univ. Valencia). Number of researcher 9. Researcher.

**“Coexistence of different microalgae in a single thallus: posible implications on functioning and adaptive ability of lichen symbioses” Funding: MINECO (CGL2012-40058-C02-01).**

Institutions: Universitat de València, Universidad Politécnica de Valencia, Universidad Nacional Autónoma de México, Goethe Universität. Period, 2013-2016. Director: Dra. Eva Barreno Rodríguez (Univ. Valencia). Number of researchers: 9. Funds: 164 000€ Researcher, half dedication.

**“Presence of emerging pollutants in fluvial and drinking waster of Madrid Region. Possivle effects on public health and ecotoxicology”. Funding: FIS (PI11/00180).**

Institutions: Universidad Rey Juan Carlos, Instituto Carlos III, Hospital de Fuenlabrada, Guelph University (Canada). Period 2011-2014. Director: Dra. Yolanda Valcarcel (URJC). Number of researchers: 6. Funds: 57 001,89€ Researcher half dedication.

**“Diversity in lichen algae of genus Trebouxia: phenotypic and molecular characterization.**

**Responses to adverse conditions”. Funding: MEC (CGL2009-13429-C02-01/BOS)**

Institutions: Universitat de València, Universidad de Alcalá, Universidad de León, Universidad Politécnica de Valencia, Universidad Nacional Autónoma de México, Instituto de Investigaciones Agrarias. Period, 2009-2012. Director: Dra. Eva Barreno Rodríguez (Univ. Valencia). Funds: 160000€ Researcher half dedication.

**“Determination of the presence of human pharmaceuticals in fluvial and drinking waters in**

**Tagus basin and possible ecotoxicological effects”. Funding: Fiscam (PI-2007/28,**

Fundación para la investigación sanitaria en Castilla-La Mancha). Institutions: Instituto de Ciencias de la Salud de Talavera de la Reina, Universidad Rey Juan Carlos. Period, 2008-2010. Director: Dr. Juan Carlos Montero Rubio (Instituto CC Salud de Talavera de la Reina). Funds: 25 775,4€ Researcher.

## C.3. Contracts

**Desarrollo y aplicación de nuevas técnicas basadas en el empleo de bioindicadores para determinar la calidad de las aguas de riego y sus efectos ecotoxicológicos y en la salud ambiental.**

Technological research. Funding: TRAGSATEC (SEPI). 30 meses (2008-10). Director: Myriam Catalá y Yolanda Valcarcel. Funds: 48.949,43€

### **Toxicidad de residuos de medicamentos en aguas continentales de consumo humano.**

Tecnological service (Artículo 83). Funding: Centro de Investigaciones Submarinas, S.L. 24 months (2006-8). Director: Myriam Catalá. Funds: 12.000€

**Scientific examination and assessment of the área of toxicology, metabolism and risk assessment for workers of active substances.** Government contract. INIA. 36 meses (2015-7) Director (from 1/12/15): Myriam Catalá. Funds: 685.400,00 €

### **Execution of technical-scientific Works on human health risk assessment of phytochemicals.**

Government contract MSSSI.6 meses (2015-6). Director: Myriam Catalá. Funds: 309.750,00 €

## **C.4. Patents**

M. Catalá Rodríguez, H. Moreno Traba, N. Domínguez Morueco, E. Barreno Rodríguez. Application: P201330654 (06-05-13). Publication number: ES2534955 Title: “Bioensayo de toxicidad ambiental basado en ficobiontes aislados de líquenes”. Priority country: E. Titular entities: Universidad Rey Juan Carlos, Universidad de Valencia

M. Catalá Rodríguez, M. Esteban López, L. García Quintanilla Application number: P200702680 (11-10-07). Publication number 2323401 Priority date: 5-3-2010. Title: “Bioensayo de toxicidad ambiental basado en helechos”. Priority country: E. Titular entity: Universidad Rey Juan Carlos

M.E.Jiménez Hernández, M.T.Portolés Pérez, G.Orellana Moraleda, F.Montero Carnerero, M.Catalá Rodríguez. N. de solicitud: 9801936 (15-09-98). Nº de Publicación ES 2 151 420 B1. Fecha de prioridad: 16-1-2001. Título: “Utilización de los compuestos de coordinación de rutenio que contienen dipiridofenazina como marcadores luminiscentes de la viabilidad celular”. País de prioridad: E. Entidad titular: Universidad Complutense de Madrid

## **C.5 Thesis supervision**

Oficial Master theses: 6, average calification 8.7, they have rendered 5 international papers

Master theses (Practicum Licenciatura/Proyecto Fin de Carrera Ing. Sup.): 13, average calification 9.0, they have rendered 9 international papers. The Practicum of Patricia Morales was finalist in the 2nd edition of the Prize awarded by the Association of Environmentalists of Madrid (AAM) to the best Master thesis.

Graduate theses: 3, they have rendered 1 international paper.

## **C.6 Institutional responsibilities**

2010-15 Coordinator of 1st year of the Grade in Biology (URJC)

2010-15 Member of the Quality Commission of the Grade in Biology (URJC)

2015 Member of the Quality Commission of the Doctorate Science Programme

2018 Member of the Ethics Committee of Research (URJC)

## **C.7 Memberships of scientific societies**

Member of the Society of Environmental Toxicology and Chemistry (since 2006)

Member of the Spanish Group for Research on Free Radicals (since 2012)

Member of the Society for Free Radical Research – Europe (since 2015)

Member of the International Symbiosis Society

Member of the Spanish Society for Environmental Health (SESA, since 2016)

## **C.8 Revisions**

**Research projects:** Reviewer for the Argentinian Ministerio de Ciencia, Tecnología e Innovación Productiva (FONCyT) and the Hungarian Scientific Research Fund (OTKA)