MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	30/01/2023

Part A. PERSONAL INFORMATION

First and Family name	Mariam Sahrawy Barragán		
Social Security, Passport, ID number		Age	
Researcher numbers	Researcher ID	G-77972015	
	Orcid code	0000-0001-8631-8463	

A.1. Current position

Name of University/Institution	Estación Experimental del Zaidín Spanish Council for Scientific Research (CSIC)			
Department	Biochemistry and Molecular and Cellular Biology of Plants			
Address and Country	Profesor Albareda, 1. 18008 Granada SPAIN			
Phone number	958181600	E-mail	sahrawy@eez.csic.es	
Current position	Researcher (Investigador CSIC)		From	28/08/2000
Espec. cód. UNESCO	241502			
Palabras clave	Redox regulation, photosynthesis, sugar signaling, biochemistry, molecular biology, arabidopsis, soja, strawberry, thioredoxin, fructose bisphosphatase			

A.2. Education

PhD	University	Year
Pharmacy PhD	Granada	1988
High degree Pharmacy	Granada	1984

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

Six years of research (Sexenios): 5. Five years teaching (Quinquenios): 6.
Thesis supervised last 10 years: 3
JCR articles: 43 Q1/35
Total Citations: 1329
Average cites/article: 30/article
h Index: 20

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

My research career began in the Department of Biochemistry of the EEZ-CSIC, with the doctoral thesis "The regulation by light of the synthesis of fructose-1,6-bisphosphatase (cFBP) chloroplastidial" that I defended in 1988. After three years of a postdoctoral stay at the Cambridge Laboratory of the John Innes Institute (UK), I acquired a solid background in plant molecular biology and went deeper into the study of the molecular regulation of carbon metabolism, characterizing key genes of the Calvin cycle. Another postdoctoral stay at the University of Persignan, France, I specialized in studies of the plant redox regulation by thioredoxins (TRXs). In 1998, I became a Senior Scientist (CT) of the CSIC and promoted to Scientific Researcher (IC) in 2010. The research line I followe is related to the redox regulation of the synthesis of sugars in plants, being the working model the activation of fructose-1,6-bisphosphatase by TRXs. The role of cFBP and cyFBP in the synthesis and distribution of carbohydrates (sucrose and starch) is also an important line of research. Currently, the main line of research is the identification of new target proteins and functions of the plastidial TRXs f and m. For this, physiological, molecular and biochemical studies of transgenic plants or mutants of *Arabidopsis thaliana* of FBPs and TRXs are developed. I am the author of 38 scientific papers, 28 are in the first quartile. The results obtained have been presented in more than 80 national and international congresses. I have been IP of 19 research projects, participating in 29, financed by the Spanish National Plan, by the Autonomous Community of Andalusia and by International programs. The development of the R2020 project (2013-2015) aimed at technological transfer, resulted in the design of a prototype kit that relates the

carbohydrate metabolism with the anticipated selection of strawberry varieties that could potentially have sweeter fruits; this presented to the Office of Records and Patents (P201630594). The iLink1079 project with the UBA of Argentina, originated a collaboration with the soybean seed company DONMARIO, for the identification of new markers of stress that would allow the selection of new varieties of soybeans tolerant to extreme environmental conditions. Since 2010, I am responsible for the team “Redox Regulation, sugar signaling and response of the photosynthetic process to biotic and abiotic stress” of the EEZ-CSIC. Also, since 2004, I am responsible for the research team of the Junta de Andalucía: "Plant Biochemistry and Photosynthesis" (BIO154). Likewise, from 2016 to 2020 I was treasurer and member of the Board of Directors of the SEBBM. From 2018 to 2021, I was manager in the Agricultural Sciences team of the State Research Agency (AEI) of the Ministery of Science and Research. I have directed 3 doctoral theses, 10 DEA and TFG students, 7 postdoctoral works and 5 FP students in internships. I am professor and member of the Commission of the Doctorate Program "Biochemistry and Molecular Biology" of the UGR. I am Professor of the International Course of “Edaphology, Soil Fertility and Plant Biology” at EEZ-CSIC, the Master Bioenterprise (UGR) and the Master de Biología Agraria y Acuicultura. I have been organizer of scientific events in the congresses of the SEBBM and of a Workshop "Plant Biomass for Food and Energy: future and reality" in the UNIA of Baeza. I have been a lecturer and guest speaker at congresses, research centers and scientific divulgation events (Granada Science Park, European Researchers Night). I am reviewer of scientific articles for different Journals. I have been member of jury for PhD thesis and professional exams.

Part C. RELEVANT MERITS

1.- Sahrawy, Fernández-Trijueque J, Vargas P and Serrato AJ. Comprehensive expression analyses of plastidial thioredoxins of *Arabidopsis thaliana* indicate a main role of thioredoxin *m2* in roots. Antioxidants Antioxidants **2022**, 11, 1365. https:// doi.org/10.3390/antiox11071365

2.- Hafsi C, Collado-Arenal AM, Wang H, Sanz M, Sahrawy M, Shabala S, Romero MC, Sandalio LM. The role of NADP oxidases in regulating leaf gas exchange and ion homeostasis in Arabidopsis plants under cadmium stress. 2022. Journal of Hazardous Material. doi.org/10.1016/j.jhazmat.2022.128217

3.- González MC, Cejudo FJ, Sahrawy M, Serrato AJ. Current Knowledge on Mechanisms Preventing Photosynthesis Redox Imbalance in Plants. 2021. Antioxidant, 10, 1789. doi.org/10.3390/antiox10111789.

4.- Torres-Romero D, Gómez-Zambrano A, Sahrawy M, Mérida A. Arabidopsis fibrillin 1-2 subfamily exerts their functions via specific protein-protein interactions. 2021. JXB 1-33. doi/10.1093/jxb/erab452/6397958

5.- Serrato AJ, Rojas-González, JATorres-Romero D, Vargas P, Mérida Á, Sahrawy M. Thioredoxins m are major players in the multifaceted light-adaptive response in Arabidopsis thaliana. Plant J, 1-14, OA, **2021**. 10.1111/tpj.15429. Q1 IF 6.141.

6.- Talbi S, Rojas JA, Sahrawy M, Rodriguez-Serrano M, Cárdenas KE, Debouba M, Sandalio ML. **2020**. Effect of drought on growth, photosynthesis and total antioxidant capacity of the Saharian plant *Oudeneya africana*. Environment and Experimental Botany, 176: 104099. Q1 IF 4.027. Cited: 8 (WOS)

7.- Pérez L, Soto E, Farré G, Juanos J, Villorbina G, Bassie L, Medina V, Serrato AJ, Sahrawy M, Rojas JA, Romagosa I, Muñoz P, Zhu C, Christou P. **2019**. CRISPR/Cas9 mutations in the rice Waxy/GBSSI gene induce allele-specific and zygosity-dependent feedback effects on endosperm starch biosynthesis. Plant Cell Report, 38 (3): 417-433. Q1 IF 3.18. Cited: 14 (WOS)

8.- Serrato AJ, Romero-Puertas MC, Lázaro A, Sahrawy M. **2019**. Regulation by *S*-nitrosylation of the Calvin-Benson cycle fructose-1,6-bisphosphatase in *Pisum sativum*. Redox Biology, 14: 409-416. Q1, IF: 7.126, Cited: 19 (WOS)
9.- Fernández-Trijueque J, Serrato AJ, Sahrawy M. **2019**. Proteomic analyses of thioredoxins *f* and *m* Arabidopsis thaliana mutants indicate specific functions for these proteins in plants. Antioxidant, 8(54): 119-132. Q1, IF: 4.52, Cited: 1 (WOS)
10.- Ojeda V, Pérez-Ruiz JM, González M, Nájera VA, Sahrawy M, Serrato AJ, Geigenberger P, Cejudo FJ. **2017**. NADPH thioredoxin reductase C and thioredoxins act concertedly in seedling development. Plant Physiology, 174: 1436-1448. doi: 10.1104/pp.17.00481. Q1, IF: 5.949, Cited: 23 (WOS)
11.- Soto-Súarez M, Rojas-González JA, Serrato AJ, Sahrawy M. **2016**. Transcriptomic and proteomic profiling of Arabidopsis FBPase null mutants *cfbp1* and *cyfbp* reveal different levels of gene and protein regulation in rosettes and roots. BMC Plant BIology 16:256. doi: 10.1186/s12870-016-0945-7. Q1, IF: 3.964, Cited: 5 (WOS)
12.- Rojas-González JA, Soto-Súarez M, García-Díaz A, Romero-Puertas MC, Sandalio LM, Mérida A, Thormählen I, Geigenberger P, Serrato AJ, Sahrawy M. **2015**. Disruption of both chloroplastic and cytosolic FBPases genes results in dwarf phenotype and important starch and metabolite changes in Arabidopsis thaliana. Journal of Experimental Botany 66(9):2673-2689 doi: 10.1093/jxb/erv062. Q1, IF: 5.677, Cited: 31 (WOS)
13.- Serrato AJ, Fernández Trijueque J, Barajas-López JdD, Chueca A, Sahrawy M. **2013**. Plant thioredoxins: a "one-for-all" redox-signaling system in plants. Frontiers in Plant Science. doi 10.3389/fpls.2013.00463. Q1, IF: 3.637, Cited: 63 (WOS)
14.- Ragel P, Streb S, Feil R, Sahrawy M, Annunziata MG, Lunn JE, Zeeman S, Mérida A. **2013**. Loss of Starch Granule Initiation Has a Deleterious Effect on the Growth of Arabidopsis Plants Due to an Accumulation of ADP-Glucose1. Plant Physiology 163: 75-85. doi/10.1104/pp.113.223420. Q1, IF: 7.394, Cited: 49 (Scopus)
15.- Barajas-López JdD, Tezycka J, Travaglia C, Serrato AJ, , Chueca A, Thormählen I, Geigenberger P, Sahrawy M. **2012**. Expression of the chloroplast thioredoxins *f* and *m* is linked to short-term changes in the sugar and thiol status in leaves of *Pisum sativum*. J. Exp. Botany 63(13): 4887-4900, doi 10.1093/jxb/ers163. Q1, IF: 5.364, Cited: 17 (WOS)

C.2. Research projects and grants, last 10 years

1.- Integración de la señalización redox y por azúcares mediante el complejo fotosintético NDH y caracterización de nuevos elementos reguladores de los procesos plastidiales. **PID2021-125913NB-C22** financiado por el Ministerio de Ciencia e Innovación.
2.- Bases Moleculares Redox Reguladoras de la Producción de Azúcares y de la Tolerancia al Estrés en Plantas. **PY20_00401**
Entidad financiadora: Junta de Andalucía.
Inicio: 01/07/2021. Fin: 31/12/2022 Cuantía subvención: 56.798 Euros
Investigador principal: Mariam Sahrawy Barragán
3.- Mecanismos de señalización y Regulación de la Fotosíntesis y del metabolismo del carbono en cloroplastos. **PGC2018-096851-B-C21**
Entidad financiadora: Ministerio de Ciencia, Investigación y Universidades.
Inicio: 01/01/2019. Fin: 31/12/2021 Cuantía subvención: 151.782 Euros
Investigador principal: Mariam Sahrawy Barragán y coIP Antonio Serrato Recio
4.- The effect of thiol redox regulators on seed quality and the aging process" liderado por la Profesora Ewelina Ratajczak del Institute Of Dendrology de la Polish Academy of Sciences (OPUS 16 project nº 2018/31/B/NZ9/01548), Grant from the National Science Centre of Poland.
5.- Identificación de nuevos elementos que intervienen en la respuesta/adaptación de las plantas al estrés lumínico. **BIO2015-65272-1-P**
Entidad financiadora: Ministerio de Economía y Competitividad y FEDER (2015).
Inicio: 01/01/2016. Fin: 31/12/2018 Cuantía subvención: 107.800 Euros
Investigador principal: Mariam Sahrawy Barragán y coIP Antonio Serrato Recio
6.- Estrategias biotecnológicas para potenciar los mecanismos de tolerancia a estrés en plantas de interés agronómico. **ILINK1079** (INBA-CONICET-UBA, Argentina, DONMARIO)
Entidad financiadora: CSIC (2016)

Inicio: 01/01/2016. Fin: 30/06/2018 Cuantía subvención: 17.000 Euros
Investigador principal: Mariam Sahrawy Barragán
7.- Desarrollo de estrategias tecnológicas para la mejora de la productividad y calidad de frutos y biomasa de especies de interés agrícola en Andalucía. **R2020**.
Entidad financiadora: Ministerio de Economía y Competitividad y FEDER (2013).
Inicio: 01/01/2013. Fin: 31/12/2015 Cuantía subvención: 118.000 Euros
Investigador principal: Mariam Sahrawy Barragán

C.3. Contracts

1.- Evaluación del efecto de un bioestimulante (Betaser) sobre plantas de árboles jóvenes frutales bajo estrés térmico. Contract with SERVALESA. 5 months of 2020. Budget: 10987€. IP: Mariam Sahrawy Barragán
2.- Compuestos de nueva generación basados en complejos de cobre: Estudio de la dinámica de acumulación de este metal y de su mecanismo de acción en plantas. Efectos beneficiosos frente a la resistencia de patógenos vegetales. Contract with SERVALESA. 9 months of 2021. Budget: 17136€. IP: Mariam Sahrawy Barragán
3.- Propuesta para el estudio del efecto del bioestimulante SVL-040 en plantas modelo y de interés agronómico. Contract with SERVALESA. 9 months of 2023. Budget: 9925€. IP: Antonio J Serrato Recio

C.4. Patents

Inventors: Mariam Sahrawy Barragán, Antonio Jesús Serrato Recio, José Antonio Rojas González. "Método para la determinación "*in situ"* de actividades enzimáticas relacionadas con el metabolismo del carbono en hojas". Request number: P201630594. Country Priority: España. Date of priority: 06/06/2016. Owner Entity: CSIC.

C5. Supervising and training capacity

I have directed 3 doctoral theses, 10 DEA and TFG students, 7 postdoctoral works and 5 FP students in internships. I am professor and member of the Commission of the doctorate program "Biochemistry and Molecular Biology" of the UGR. I am Professor of the International Course of "Edaphology, Soil Fertility and Plant Biology" at EEZ-CSIC and of the Masters of "Bioenterprise" and "Biología Agraria y Acuicultura" (UGR) ".

C6. Management of scientific activities and memberships of scientific societies

1.- Organizer of scientific events in the congresses of the SEBBM.
2.- Co organizer of Workshop "Entrepeneur Forum" for SEEBM meeting 2014.
3.- Organizer of Workshop "Plant Biomass for Food and Energy" UNIA of Baeza.
4.- Lecturer and guest speaker at congresses, research centers and scientific divulgation events (Granada Science Park, European Researchers Night, Women and girls in Science).
5.- Member of thesis and opposition juries.
6.- Evaluator of research project for the Grant Agency at the different Ministries (CAA-AEI).
7.- Peer Reviewer of scientific articles, grant agency.
8.- Responsible for the research group of the Junta de Andalucía: "Plant Biochemistry and Photosynthesis" (BIO154).
9.- Membership of the Spanich Society of physiology (SEFV). Membership and treasurer (2016-2020) of the Spanish Society of Biochemistry and Molecular Biology (SEBBM).
10.- Collaborator of the AEI (State Research Agency) in the CAA area Agricultural Sciences and Agrifood-2018.

C.5. Internationalization and visibility

The effect of thiol redox regulators on seed quality and the aging process. Participation in the project of Prof. Ewelina Ratajczaak. National Science Centre in Poland 2018-2021.

Colaborations: Mariam Sahrawy have formal collaborations with Dr. Eduardo Pagano (Universidad de Buenos Aires), Florence Vignols (INRA-Montpellier), Jean Philippe Reichheld (CNRS,Uni Perpignan), Christine Raines (Uni Essex), Peter Geigenberger (Uni Munchen).