

Part A. PERSONAL INFORMATION

CV date 15/10/21

First and Family name	María Soledad Cárdenas Aranzana		
Social Security, Passport, ID number	██████████	Age	██
Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0002-4155-8284	
	SCOPUS Author ID (*)	7005241591	
	WoS Researcher ID (*)	B-7795-2008	

(*) Optional. (**) Mandatory

A.1. Current position

Name of University/Institution	University of Córdoba		
Department	Analytical Chemistry Department		
Address and Country			
Phone number	+34957218616	E-mail	scardenas@uco.es
Current position	Full Professor	From	2009
Key words	Affordable and sustainable sample treatment, polymeric (nano)composites; cellulose-based sorptive phases; mass spectrometry		

A.2. Education

PhD, Licensed, Graduate	University	Year
Chemistry, Bachelor Degree	University of Córdoba	1992
Sciences (Chemistry) PhD	University of Córdoba	1996

A.3. General indicators of quality of scientific production (see instructions)

Indicator	Value
Six-year research periods (CNEAI)	4 out of 4 possible (last: 2016)
Doctoral Thesis (co)supervised (2010-2020)	10, all under the modality of compendium of articles, 8 with international mention, 1 with extraordinary award
Total scientific articles	236 (80% Q1)
Total citations	7404 (source Scopus)
Citations/year (2016-2020)	577 (source Scopus)
H-index	49 (source Scopus)
Percentage of cited articles (2016-2020)	98%
Normalized impact factor*	1,69

*Calculated following the methodology of the 2019 call for "Centros de Excelencia Severo Ochoa" y "Unidades de Excelencia María de Maeztu", using data of average world citations of Scopus, being 1 the world reference value for the normalization.

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

M^a Soledad Cárdenas Aranzana is Full Professor at the Department of Analytical Chemistry (University of Córdoba, UCO). She obtained her Degree in Chemistry (1992) and Doctorate in Sciences (1996) with European mention and extraordinary award, in the UCO. She has developed her teaching career under different positions, being currently Full Professor (2009). Since 2016, she is the head of the FQM-215 research group (<https://www.uco.es/grupos/FQM-215/>). The research group belongs to the Instituto Universitario de Química Nanoquímica". Her research interests have been deeply related to the synthesis and characterization of novel nanomaterials, mainly of hybrid nature to be exploited in sample treatment. The new materials include nanoparticle-based ones and polymeric (nano)composites. Once prepared, they can be used either in the dispersive microextraction format or as sorptive phases in planar substrates (paper or membranes). Currently, the immobilization of the polymeric phases over other lignocellulosic substrates is under evaluation. Recently, the analysis of the synthesized substrates by ambient mass spectrometry (either by direct infusion or paper spray) is under development. In the field of sample treatment, she is the coordinator of the national thematic network "Red Nacional para la innovación en

técnicas de tratamiento de muestras miniaturizadas (2020-2021) member of the European Committee of the EuChemS-DAC Sample Treatment Study Group (<https://www.sampleprep.tuc.gr/en/home>). Since the beginning of her scientific career (1993), she has co-authored 236 research articles in JCR journals, which have received 7404 citations. Her h-index is 49 (July 2021, Scopus). She has also published 21 book chapters and presented 210 communications in national and international scientific meetings under different formats. Concerning competitive funding, she has participated as researcher in eight national and four regional research projects. Since 2014, she is principal investigator in three national projects (execution periods 2015-2017, 2018-2020 and 2021-2024), two regional ones and a thematic network on sample treatment (2020-2021), all obtained in competitive calls. She has supervised 8 PhD students granted with an FPU-program fellowship and co-supervised 19 Doctoral Thesis, 15 with European/International mention and 4 with extraordinary doctorate award. The research group headed by her has received international predoctoral students from Iran, Argentina, Germany, Portugal, Chile, Brazil and Tunisia. In the international context, she has participated in 5 european research projects and acted as external adviser of two ones funded by the Indigo Program (one of them currently under development). Also, she has been involved in 8 contracts with private (6, one international with Henkel KGaA) and public (2) companies. Additionally, she participates in a collaborative project established between the research group and the International University of Florida. She has coauthored two patents and was founded partner of the spin-off Sinatec (2007-2013), at the moment detached from the UCO. Concerning academic management activities, she is currently Vice-Chancellor for Academic Affairs and Competitiveness at the University of Córdoba.

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

C.1. Publications (*see instructions*)

Selection of 10 publications

1. Benedé, J.L., Chisvert, A.; Lucena, R.; Cárdenas, S. (2021). Carbon fibers as green and sustainable sorbent for the extraction of isoflavones from environmental waters. *Talanta*, 233, 122582
2. Benedé, J.L., Chisvert, A.; Lucena, R.; Cárdenas, S. (2021). Synergistic combination of polyamide-coated paper-based sorptive phase for the extraction of antibiotics in saliva. *Anal. Chim. Acta*, 1164, 338512.
3. Casado-Carmona, F. A., Lucena, R., Cárdenas, S. (2021). Magnetic paper-based sorptive phase for enhanced mass transference in stir membrane environmental samplers. *Talanta*, 228, 122217.
4. Fresco-Cala, B.; Gálvez-Vergara, A.; Cárdenas, S. (2021). Magnetic hydrophobic solids prepared from Pickering emulsions for the extraction of polycyclic aromatic hydrocarbons from chamomile tea. *Talanta*. 224, 121915.
5. Ríos-Gómez, J.; García-Valverde, M.T.; López-Lorente, Á.I.; Toledo-Neira, C.; Lucena, R.; Cárdenas, S. (2020). Polymeric ionic liquid immobilized onto paper as sorptive phase in microextraction. *Anal. Chim. Acta*. 1094, 47-56.
6. Fresco-Cala, B.; Gálvez-Vergara, A.; Cárdenas, S. (2020). Preparation, characterization and evaluation of hydrophilic polymers containing magnetic nanoparticles and amine-modified carbon nanotubes for the determination of anti-inflammatory drugs in urine samples. *Talanta*, 218, 121124
7. Casado-Carmona, F.A., Alcudia-León, M.C., Lucena, R., Cárdenas, S. (2019). Portable stir membrane device for on-site environmental sampling and extraction. *J. Chromatogr. A*. 1606, 1-6.
8. Mehmandost, N., Soriano, M.L., Lucena, R., Goudarzi, N., Chamjangali, M.A., Cardenas, S. (2019) Recycled polystyrene-cotton composites, giving a second life to plastic residues for environmental remediation. *Journal of Environmental Chemical Engineering* 7, 103424.
9. García-Valverde, M.T., Rosende, M., Lucena, R., Cárdenas, S., Miró, M. (2018). Lab-on-a-valve mesofluidic platform for on-chip handling of carbon-coated titanium dioxide nanotubes in a disposable microsolid phase-extraction mode. *Anal. Chem.*, 90, 4783-4791.
10. Ghambari, H., Reyes-Gallardo, E.M., Lucena, R., Saraji, M., Cárdenas, S. (2017) Recycling polymer residues to synthesize magnetic nanocomposites for dispersive micro-solid phase extraction. *Talanta*, 170, 451-456.

C.2. Research projects

As Principal Investigator

1. PDI2020-112862RB-I00. Sustratos (bio)poliméricos para la determinación de opioides en biofluidos mediante espectrometría de masas ambiental. Ministerio de Ciencia e Innovación Períod: 2021-2024. Subvención: 145.200,00 €.
2. PY20-00461. Soportes planos para la extracción de alteradores endocrinos de muestras ambientales: de la extracción in-situ a los muestreadores biomiméticos. Consejería de Economía, Conocimiento, Empresa y Universidad (Junta de Andalucía). Períod: 2021-2022. Subvención: 70.000,00 €.
3. RED2018-102522-T. Red nacional para la innovación en las técnicas de tratamiento de muestras miniaturizadas. Ministerio de Ciencia, Innovación y Universidades. Period: 2020-2021. Funding: 20.000,00 €.
4. UCO-1262884. Nuevos materiales para la degradación/eliminación de contaminantes en aguas naturales. Junta de Andalucía. Period. 2020-2021. Funding: 35.000,00 €.
5. CTQ2017-83175R. Avances en técnicas de microextracción y nanoplataformas sensoras. Ministerio de Economía, Industria y Competitividad. Period: 2018-2020. Funding: 156.090,00 €.
6. CTQ2014-52939R. Aproximaciones nanotecnológicas y miniaturizadas para la generación de información (bio)química de calidad. Ministerio de Ciencia e Innovación. Period: 2015-2017. Funding: 336.380,00 €.

As researcher

7. CTQ2011-23790. Aproximaciones miniaturizadas y nanotecnológicas a los sistemas analíticos de vanguardia-retaguardia. Ministerio de Ciencia e Innovación. Period: 2012-2015. Funding: 465.850,00 €.
8. FP7-280550. (INSTANT). Innovative Sensor for the fast Analysis of Nanoparticles in Selected Target Products. European Commission. Period: 2012-2015. Funding: 442.140,00 €.

C.3. Contracts, technological or transfer merits

As responsible

1. Company: Aguas de Córdoba. Calidad de las aguas de la provincia de Córdoba. 2016-2018. 80.582,00 €
2. Company: COVAP. Asesoramiento en el tratamiento de muestras de leche en el marco del proyecto BIOFOS. 2016-2016. 1.996,00 €

As researcher

3. Company: EMPROACSA. Calidad de las aguas de la provincia de Córdoba. 2010-2015. 197.938 €.
4. Asociación Nacional de Criadores de Ganado Bovino de Raza Cárdena Andaluza. Puesta a punto de técnicas de nanosexaje del esperma de toros de la raza bovina Cárdena Andaluza. 2018-2019. 2.500,00 €.

C.4. Patents and Transference activities

1. Cárdenas, S.; Lucena, R.; Alcudia-León, M.C.; Casado-Carmona, F.C.; Lasarte-Aragonés, G. Dispositivo y procedimiento de muestreo y monitorización de componentes volátiles en aire. Applications nº: P202030192. Date: 06/03/2020 and PCT/ES2021/070166. Date 08/03/2021, no ha llegado a fases nacionales).
2. Founded partner of the spin-off Sinatec (2007-2013), at the moment detached from the UCO.

C.5. Co-supervised doctoral Thesis (last 10 years)

1. PhD student: Julia Ríos Gómez. Title: Soportes planos modificados con nuevos materiales sorbentes en técnicas de microextracción. Thesis defense: December 2018. Mark: Sobresaliente cum laude, international mention. FPU grant
2. PhD student: María Teresa García Valverde. Title: Potencial de nanomateriales tubulares no convencionales en el tratamiento de muestra. Thesis defense: November 2018. Mark: Sobresaliente cum laude, international mention, FPI grant.

3. PhD student: Beatriz Fresco Cala. Title: Evaluación del potencial de sólidos monolíticos modificados con nanopartículas de carbono en técnicas de microextracción. Thesis defense: October 2018. Mark: Sobresaliente cum laude, international mention. FPU grant.
4. PhD student: Emilia María Reyes Gallardo. Title: Empleo de nanopartículas híbridas en el contexto de las técnicas de microextracción. Thesis defense: April 2017. Mark: Sobresaliente cum laude, onal mention. FPU grant.
5. PhD student: Mercedes Roldán Pijuán. Title: Innovaciones en técnicas de microextracción con agitación integrada. Thesis defense: April 2015. Mark: Sobresaliente cum laude, intenational mention. FPU grant.
6. PhD student: Guillermo Lasarte Aragonés. Title: Mejora de las técnicas de microextracción mediante el diseño de nuevas modalidades asistidas por CO₂. Thesis defense: October 2014. Mark: Sobresaliente cum laude. FPU grant
7. PhD student: Isabel Márquez Sillero. Title: Nuevas aplicaciones en detectores analíticos no convencionales basados en procesos de ionización. Thesis defense: September 2013. Mark: Sobresaliente cum laude, international mention, extraordinary award.
8. PhD student: Francisco Galán Cano. Title: Innovaciones en técnicas de extracción miniaturizadas. Thesis defense: March 2013. Mark: Sobresaliente cum laude.
9. PhD student: Juan Manuel Jiménez Soto. Title: Los nanocuernos y nanoconos de carbono como objetos y herramientas en nanociencia y nanotecnología analíticas. Thesis defense: September 2013. Mark: Sobresaliente cum laude, international mention. FPU grant.
10. PhD student: M^a del Carmen Alcudia León. Title: Innovaciones en técnicas de microextracción combinadas con técnicas espectroscópicas y cromatográficas. Thesis defense: July 2011. Mark: Sobresaliente cum laude, international mention. FPU grant.

C.6. Evaluation activities

Reviewer of JCR journals

Evaluation of Research projects for the following agencies:

ANEP/AEI, since 2003.

Agencia para la Calidad del Sistema Universitario de Castilla y León, since 2017.

Plan Gallego de Investigación, Desarrollo e Innovación Tecnológica, call 2010.

Portuguese Foundation for Science and Technology, calls 2012 and 2106

National Agency for Scientific and Technological Promotion (Argentina), call 2012.

Czech Science Foundation, call 2018.

Evaluation of Researchers: Member of the following Commissions/Panels

Juan de la Cierva 2012 and 2015 (formation) programs.

FPU fellowship (2014-2017) programs.

Commission of Accreditation (CU-Ciencias) of the ACADEMIA program (ANECA), from March 2015 until the end of the program.

President of the A3-Chemistry Commission of the new ACADEMIA program, 15/04/2016-15/11/2019.

External evaluator for the Portuguese Foundation for Science and Technology (FCT), call 2014.

C.7. Internacional collaborations

1. Member of the European Committee of the EuChemS-DAC Sample Preparation Study Group and Network.
2. 20 publications (2015-2020) coauthored with researchers of Portugal, Germany, Italy, Greece, Sweden, Norway, United Kingdom, United States of America, Argentina, Brazil, Chile, Dominican Republic, Iran and Egypt. The percentage of articles coauthored with researchers of international groups (19) represents 39% out of the total published papers in the period 2017-2020. This value raised up to 53% in 2020 considering the contributions accepted at the closing date of this call.
3. Member of the International Scientific Committee of the 23rd International Symposium on Advances in Extraction Technologies, to be held in Alicante, Spain, June 29th-July 2nd, 2021.