

<b>CV date</b>	05/06/2023
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**Part A. PERSONAL INFORMATION**

First and Family name	Soledad Rubio Bravo
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**A.1. Current position**

Name of University	University of Córdoba		
Department	Analytical Chemistry		
Address and Country	Edificio Anexo Marie Curie, Campus de Rabanales, 14071, Spain		
Current position	Full Professor	From	2006
Key words	Analytical Chemistry, Supramolecular solvents, extraction processes, biomass valorization, food and environmental analysis		

**A.2. Education**

PhD, Licensed, Graduate	University	Year
Licensed in Chemistry	Córdoba	1979
PhD in Chemistry	Córdoba	1982

**CV SUMMARY**

Soledad Rubio is full professor of Analytical Chemistry at the University of Córdoba where she leads the research group Supramolecular Analytical Chemistry (SAC). Her research has mainly focused on the design and synthesis of supramolecular systems, based on the spontaneous self-assembly of amphiphiles, and their application to the development of innovative and sustainable extraction strategies in chemical analysis and industrial processes. Her current research interest lies in the design of supramolecular solvents with targeted properties and interactions that meet programmed, specific requirements for a particular purpose. Her inputs have contributed to develop innovative tailored solvents that constitute a valuable alternative to organic solvents to improve process economics, selectivity and yield in extraction processes. Main field of applications include the extraction of contaminants from environmental, biological and agrifood samples prior to their analysis by liquid chromatography-mass spectrometry, the extraction bioactives from vegetal biomass, and the removal of pollutants from environmental waters

On these topics, she has published 191 peer-reviewed articles, a book (Environmental Analytical Chemistry, Elsevier, three impressions from 1999 to 2003) and 15 book chapters. She has contributed with around 200 presentations in international and national congresses (15 invited conferences), and has been involved in 24 national and international research projects, acting as principal investigator in 14 of them. Among scientific distinctions, it is worth mentioning the invitation of the American Chemical Society to write the topic Environmental Analysis in the Biannual Reviews in two editions [Analytical Chemistry 81 (2009) 4601 and 83 (2011) 4579], and the invitation of Analytical Bioanalytical Chemistry to contribute in the special issue Female Role Models in Analytical Chemistry (2020).

Activities of transfer of knowledge in the last decade have focused on simplifying analytical methodologies for epidemiological studies, developing supramolecular extraction technologies to be coupled to ELISA kits, and extracting bioactive compounds from plants and microalgae for the cosmetic and food industry. On these topics, she is the responsible of several research contracts with public organisms and private companies and is author of an international patent.

Regarding the training of students, she has supervised 22 doctoral thesis (6 undergoing) and 31 master thesis. The capacity for recruitment of human resources of the SAC group in highly competitive calls has resulted in the incorporation in the last five years of 1 Ramón y Cajal; 1 Juan de la Cierva, 1 three-year post-doc contract and 3 FPU (national scholarships for doctorate studies). Training of foreign doctors and PhD students is also a main activity of Dr. Rubio. In the last ten years, the SAC group has received 8 doctors and 16 PhD students from Europe, Asia and Africa.

## RELEVANT MERITS

### C.1. Publications

1. Caballero-Casero N, Rubio S. **2021**. Comprehensive supramolecular solvent-based sample treatment platform for evaluation of combined exposure to mixtures of bisphenols and derivatives by liquid chromatography-tandem mass spectrometry. **Analytica Chimica Acta**, 1144, 14-25 (FI: 5,977; rank 10/86 in Chemistry, Analytical).
2. Romera-García E, Ballesteros-Gómez A, Rubio S. **2020**. *Supramolecular biosolvents made up of self-assembled rhamnolipids: synthesis and characterization*. **Green Chemistry**, 22, 6115-6126 (FI: 9,480; rank 20/177 in Chemistry, Multidisciplinary)
3. Dueñas-Mas MJ, Ballesteros-Gómez A, Rubio S. **2020**. Supramolecular solvent-based microextraction of aryl-phosphate flame retardants in indoor dust from houses and education buildings in Spain. **Science of Total Environment**, 733, 139291 (FI: 6,551; rank 22/265 in Environmental Sciences)
4. Keddar MN, Ballesteros-Gómez A, Amiali M, Siles JA, Zerrouki D, Martín MA, Rubio S. **2020**. *Extraction of hydrophilic and lipophilic antioxidants from microalgae with supramolecular solvents*. **Separation and Purification Technology**, 251, 117327 (FI: 5,107; rank 14/138 in Engineering Chemical)
5. Salatti-Dorado JA, García-Gómez D, Rodríguez-Ruiz V, Gueguen V, Pavon-Djavid G, Rubio S. **2019**. *Green supramolecular solvents for cost-effective production of highly stable astaxanthin-rich formulations from Haematococcus pluvialis*. **Food Chemistry** 279, 294-302 (FI: 4,946; rank 7/133 in Food Science and Technology).
6. Torres-Valenzuela L.S, Ballesteros-Gómez A, Sanin A, Rubio S. **2019**. *Valorization of spent coffee grounds by supramolecular solvent extraction*. **Separation and Purification Technology** 228, 115759 (FI: 5,107; rank 14/138 in Engineering Chemical)
7. Ballesteros-Gómez A, Caballero-Casero N, García-Fonseca S, Lunar, L, Rubio S. **2019**. *Multifunctional vesicular coacervates as engineered supramolecular solvents for wastewater treatment*. **Chemosphere** 223, 569-576. (IF: 5.778. rank: 32/251 in Environmental Sciences).
8. Naous, M.; García-Gómez, D.; López-Jiménez, F; Bouanani, F.; Lunar, L.; Rubio, S. **2017**. Multicore Magnetic Nanoparticles Coated with Oligomeric Micelles: Characterization and Potential for the Extraction of Contaminants over a Wide Polarity Range. **Analytical Chemistry** 89, 1353-1361. (FI: 5,886; journal rank 4/75 in Chemistry, Analytical).
9. Ballesteros-Gómez, A, Rubio, S. **2012**. *Environment-Responsive Alkanol-Based Supramolecular Solvents: Characterization and Potential as Restricted Access Property and Mixed-Mode Extractants*. **Analytical Chemistry** 84, 342-349. (FI: 5.695; 3/75 in Chemistry, Analytical).
10. Ballesteros-Gómez, A, Rubio, S. **2011**. *Recent Advances in Environmental Analysis*. **Analytical Chemistry** 83, 4579-4613. (FI: 5.856; 3/73 in Chemistry, Analytical).

### C.2. Research projects

1. **Code:** PID2020-113743RB-I00. **Title:** Tailoring green supramolecular solvents for the design of eco-efficient processes in food analysis and biomass valorization. **Role:** PI. **Funding body:** Ministerio de Ciencia e Innovación. **Start-end:** 01/09/2021-30/08/2024. **Total amount:** 157.300 €
2. **Code:** 2019R1000388G. **Title:** Hyphenating SUPRAS and LC-MS-MS for high-throughput universal testing of banned substances in urine. **Role:** PI. **Funding body:** Partnership for Clean Competition, USA. **Start-end:** 01/10/2019-30/09/2022. **Total amount:** 195,500 \$
3. **Code:** LIFEWATCH-2019-04-AMA-01. **Title:** LifeWatch-ERIC Scientific Infrastructure for Global Change Monitoring and Adaptation in Andalusia (INDALO). **Coordinator:** Environment and Water Agency of Andalusia (Total budget: 11.195.347 €); **Coordinator of WP3** (Mediterranean Forest

Observatory, MedWatch, 991.015 €): University of Córdoba. **Role:** Responsible for water and air monitoring infrastructure within MedWatch. **Funding body:** European Commission. **Start-end:** 01/01/2021-31/12/2023.

4. **Code:** P18-RT-2654. **Title:** Tailoring supramolecular solvents for generalized sample treatments in food quality control. **Role:** PI. **Funding body:** Andalusian Department of Knowledge, Innovation and University. **Start-end:** 01/01/2020-31/12/2022. **Total amount:** 140.500 €

5. **Code:** 1261999-R. **Title:** Multifunctional supramolecular systems for the sustainable production of carotenoid- rich foods from agroindustrial residues and microalgae. **Role:** PI. **Funding body:** Andalusian Department of Economy, Knowledge, Enterprises and University. **Start-end:** 01/01/2020-31/12/2021. **Total amount:** 50.356 €

6. **Code:** RED-2018-102522T. **Title:** National Network for innovation in miniaturized sample treatment techniques. **Role:** Team member. **Funding body:** Spanish Ministry of Science, Innovation and Universities. **Start-end:** 01/01/2020-31/12/2021. **Total amount:** 20.000 €

7. **Code:** CTQ2017-83823R. **Title:** Bio-based functional supramolecular solvents for development of sustainable extraction technologies in the agri-food sector. **Role:** PI. **Funding body:** Spanish Ministry of Science, Innovation and Universities. **Start-end:** 01/1/1/2018- 31/12/2020. **Total amount:**123.420 €

8. **Code:** CTQ2014-53539-R. **Title:** Environment-responsive nanostructured liquid phases for development of innovative extraction technologies in the agrifood sector. **Role:** PI. **Funding body:** Spanish Ministry of Economy and Competitiveness. **Start-end:** 01/01/2015-31/12/2017. **Total amount:** 119.790 €

9. **Code:** CTQ2011-23849-R. **Title:** Supramolecular Analytical Chemistry: Nanostructured solvents, gels and sorbents for innovative applications. **Role:** PI. **Funding Body:** Spanish Ministry of Science and Innovation. **Start-End:** 01/01/2012-31/12/2014. **Total amount:**134.310 €

10. **Code:** P09-FQM-515. **Title:** Supramolecular Chemistry in the liquid state: Nanostructured solvents in analytical and industrial extraction processes. **Role:** PI. **Funding Body:** Andalusian Department of Innovation, Science and Enterprise. **Start-End:** 03/02/2010- 02/02/2014. **Total amount:** 208.531 €.

### C.3. Contracts, technological or transfer merits

1. **Title:** Design and productions of supramolecular solvents for the extraction of bioactive compounds from biomass for the cosmetic industry. **Funding company:** Provital S.A. (Spain). **Role:** PI. **Start-end:** 13/11/2020– 13/11/2021. **Total amount:** 31.481,78 €

2. **Title:** Manufacturing on clean up/concentration kits for its use in combination with detection technologies based on the “SUPRAS” technology. **Funding company/body:** Abraxis LLC, USA. **Role:** PI. **Start-end:** 16/09/2010 – 15/09/2020. **Total amount:** 40.000 €

3. **Title:** Evaluation of the levels of bisphenol A and their determinants in children. **Funding company/body:** Fundación Pública Andaluza Para la Investigación Biosanitaria de Andalucía Oriental "Alejandro Otero" (FIBAO). **Role:** PI. **Start-end:** 25/07/2012-24/03/2014. **Total amount:** 11.349 €

4. **Title:** Evaluation of the levels of bisphenol A and their determinants in pregnant woman and their children. **Funding company/body:** Fundacio centre de recerca en epidemiologia ambiental (CREAL); **Role:** PI. **Start-end:** 21/12/2010-22/01/2012. **Total amount:** 29.932€

### C.4. Patents

**Reference:** ES2694600 B2. **Authors:** Caballero-Casero, N.; Caballo, C.; Gueguen, V.; Bastias, J. Pavon-Djavid, G.; Sicilia, M.D.; Rubio, S. **Title:** Procedure for carotenoid extraction using nanostructured liquid phases. **Priority country:** Spain. **Grant date:** 09/05/2019. **Owning body:** University of Córdoba. **International Application:** PCT/ES2018/070434; WO/2018/234603.

### C.5. European Programmes

**Reference:** 512007-1-2010-1-UK-ERA MUNDUS-EMMC; **Title:** Erasmus Mundus Master in Forensic Science; **Role:** Responsible of Advanced Instrumental Analysis and supervision of 9 master thesis

**Funding body:** European Commission; **Start-End:** 01/07/2011- 31/08/2016; **Total amount:** 3.300.000 €.

### **C.6. Talent recruitment and foreign students supervision**

**Incorporation** at the SAC group in the last five years of 1 Ramón y Cajal; 1 Juan de la Cierva, 1 three-year post-doc contract and 3 FPU. Stay of the following **foreign PhD students** at the SAC group: (1) Nouman Almofti (Siria, 3 years, July 2020-present). (2) Zainab Herchi (Morocco, 18 months, March-2020-present). (3) Mohame Nadir Keddar (Algeria, 18 months 2018-2019). (4) Laura Sofía Torres Valenzuela (Colombia, 18 months, 2018-2019). (5) Francesca Accioni (Italy, 20 months, 2018-2019). (6) Nour el Houda Berrouane (Algeria, 2 months, 2019). (7) Neda Feizi (Iran, 6 months, 2017); (8) Naous Mohamed (Algeria, 14 months, 2014-2015). (9) John Wilman Rodríguez Acosta (Colombia, 2 months, 2017). (10) Gedifew Nigatu Beza (Ethiopia, 6 months, 2016). (11) Jaffar Kisitu (Ethiopia, 6 months, 2015). (12) Samaneh Raouf Yazdinezhad (Iran, 9 months 2011-2012). (13) Rocío Duchén Bocangel (Chile, 6 months, 2014), (14) Kunal Verma (6 months, 2014), (15) Adekunle Alabi (Nigeria, 6 months, 2013), (16) Eliza Nuit Jara Negrete (Chile, 6 months, 2013). Stay of the following **foreign doctors** at the SAC group: (1) Melisa Yonny (Argentina, 3 months, 2018). (2) Manuela Martinefski (Argentina, 3 months, 2018). (3) Graciela Pavon-Djavid (France, 15 days, 2018). (4) Virginie Gaugen (France, 15 days 2018). (5) Shukai Zheng (China, 1 year, 2014-2015); (6) Hasan Çabuk (Turkey, 4 months, 2014); (7) Ummuhan Ocak (Turkey, 3 months, 2011-2012). (8) Mirac Ocak (Turkey, 3 months, 2011-2012)

### **C.7. Management of scientific activity**

(1) Coordinator (December 2008-September 2013) and responsible (October 2013-March 2020) of the Area of Evaluation of RDI of the Andalusian Agency of Knowledge. (2) Member of the Research Commission of the University of Córdoba (November 2006-September 2013). (3) Member of the Panel of Experts for the Ramón and Cajal Programme, Area of Chemistry, 2014-2015, Spanish Ministry of Economy and Competitiveness. (4) Member of the Editorial Advisory Board of the international scientific journals Chromatographia (January 2016-present), and World Journal of Methodology (January 2016-December 2018). (5) Member of the Board of the Spanish Society for Analytical Chemistry (June 2013-present). (6) Member the External Advisory Committee of the Center for Research in Sustainable Chemistry, University of Huelva (January 2017-2018). (7) Member of the Judging Panel for the Prizes awarded by the Association of Basic Chemistry Industries of Huelva (2012-2018).

### **C.8. Others**

A. **Member of the Scientific Committee** of the following Conferences: (1) 23rd International Symposium on Advances in Extraction Technologies (Alicante, 29 June- 2 July, 2021). (2) International Conference & Expo on Analytical Sciences & Instrumentation, (Barcelona, November 6-8, 2017). (3) XX, XXI, and XXII Meetings of the Spanish Society of Analytical Chemistry: XX (1-3 July, 2015, Santiago de Compostela); XXI (5-7 September, 2017, Valencia); XXII (17-19 July, 2019, Valladolid). (4) IV, V and VI Workshops on Nanoscience and Nanotechnology (NANOUCO) (Córdoba, 7-8 February 2013, 5-6 February 2015, 25-26 January 2017).

B. **Distinctions.** Invitation from Analytical Bioanalytical Chemistry to contribute in the special issue Female Role Models in Analytical Chemistry (2020).