

## CURRICULUM VITAE

*MONICA MOSQUERA ORTEGA Ph.D.*

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**Publicaciones:** <https://www.researchgate.net/profile/Monica-Mosquera/research>

**SCOPUS:** <https://www.scopus.com/authid/detail.uri?authorId=36729785700>

**ORCID:** <https://orcid.org/0000-0003-3542-3495>

### POSTDOC

- October 2024 – Present**    **Postdoctoral researcher at Laboratory of Bionalytical Chemistry-**  
Dipartimento di Scienze Agroalimentari Ambientali e Animali (Di4A)  
Università degli Studi di Udine – Italia.  
Advisor: Dra. Sabina Susmel  
Sviluppo di sensori per la determinazione di inquinanti prioritari e emergenti di interesse per la qualità del mare Adriatico ..." - DRN 627 del 04/07/2024 - Codice Concorso 24A056
- May 2023 – October 2024**    **Postdoctoral researcher at Laboratory of Bionalytical Chemistry-**  
Dipartimento di Scienze Agroalimentari Ambientali e Animali (Di4A)  
Università degli Studi di Udine – Italia.  
Advisor: Dra. Sabina Susmel  
Electrochemical methods used to detect environmental pollutants. Environmental quality control through seawater analysis using electrochemical techniques.
- April 2021 – April 2023**    **Postdoctoral researcher at CONICET - IQUBICEN – Laboratory of Biosensors and Bioanalysis**  
Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires  
Advisor: Dr. Eduardo Cortón  
Quantitation, Characterization, and biological effects of microplastics by microfluidic techniques and App mobile  
Electrochemical characterization of conductive inks obtained from biomass.

### EDUCATION

- 2015 – 2020**                      **PhD in Chemistry – Biological Chemistry Area**  
 Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.  
 Toxicology of Chemical Mixtures Laboratory. (IQUIBICEN-CONICET-UBA)  
 Dissertation: [Relationship between administered dose, internal dose and adverse effects of acute exposure to pyrethroids pesticides in rats.](#)  
 Advisors: Dr. Marcelo Wolansky and Professor Dr Edda Villaamil.”
- 1997 – 2004**                      **MSc and BSc. in Chemistry**  
 Facultad de Ciencias Naturales y Matemáticas, Universidad de Nariño.  
 Colombia  
 Dissertation: [“Synthesis and characterization of 2 and 4-methylen dioxiphenyl-6-methyl-8-phenyl-2,3dihydropyrazol\[3,4-b\]\[1,4\] diazepines obtained in the reaction of 4,5-diamino-1-phenyl-3-methyl-pyrazol with 1 and 3-methylendioxi-chalcones.](#)  
 Advisor: Professor Dr Braulio Insuasty Obando – Universidad del Valle – Colombia

## RESEARCH EXPERIENCE

- 2020 - 2023**                      **Researcher Category D.** National Technology University - Argentina  
 Director Project Innovation and Development 2021 - 2023  
 Study of functional properties of conductive inks obtained from low-cost materials (biomass).
- 2016 – 2018**                      **Collaborating researcher** - INTI and Gutenberg Foundation - Argentina  
 TU Chemnitz, Institute for Print and Media Technology -Germany  
 Development of printed sensors using base optimization of printing pattern (Layout4Sense)  
 Director: [Dr Leandro Monsalve](#)
- 2015 – 2016**                      **Collaborating Researcher**  
**PDTS CIN, CONICET - Argentina**  
 Development of photonic techniques for the inks characterisation and coating using the graphics process.  
 Director: [Professor Dr Jorge Torga](#) - UTN Delta – Gutenberg Foundation
- 2014 - 2016**                      **Director and Principal Researcher**  
 Gutenberg Foundation. [Federal Council of Science and Technology \(COFECYT\) Project 008/2012, Argentina.](#)
- Development and standardisation of graphics inks in Argentina.
  - Implementation of ISO/IEC 17015 in the Printing Applications Laboratory.
  - Characterisation and quality control of conductive inks, printed electronics, security printing, functional labels and tax stamps.
- 2014 -2015**                      **Co-director of research projects**  
 Argentinean Nanotechnology Foundation (FAN), Seed grant.  
 Printing and Characterisation of Electronic Printed using Flexographic Technique.  
 Director: M.I Julia Fossati - Gutenberg Foundation

## TEACHING EXPERIENCE

- 2023 - 2024** University of Udine, Department of Agri-food Sciences, Environmental and Animals  
Teaching Assistant in Analytical chemistry - Modulo di [AG0247] Controllo E Gestione Della Qualita' Dei Prodotti Vitivinicoli
- 2021 - 2023** University of Buenos Aires, Faculty an Exacts and Natural Science  
Teaching Assistant in Biological Chemistry and Toxicology, part time (10 h/week)
- 2015 - 2023** National Technology University  
Adjunct Professor in General Chemistry, part time (10 h/week)
- 2020 - 2021** National University Raul Scalabrini Ortíz  
Teaching Assistant in General Chemistry, part time (10 h/week)
- 2008 - 2014** University of Buenos Aires, Faculty of Engineering  
Teaching Assistant in General and Inorganic Chemistry, part time (10 h/week)
- 2004-2007** University of Nariño, Faculty of Natural Science  
Adjunct Professor in General and Organic Chemistry, part time (20 h/week)

## SUPERVISED STUDENTS

- 2022** Ismael Sanchez Radjondjopulo. Ph.D student. Microplastics detection assays.
- 2017** Erick Román s. Graduate student  
Analysis and characterization of inks and printed product in chemistry laboratory.
- 2015** Fernando Fin. Graduate student  
Analysis and characterization of inks and printed product in chemistry laboratory.
- 2013** Monica Taquez-Delgado. MSc student. Analysis and quantitation of pyrethroids pesticides by Gas Chromatography (GD-ECD). Toxicology and legal Department.

## GRANTS AND FELLOWSHIPS

- October 2024- Present** Postgraduate fellowship. Research grant entitled "INTERREG IT-HR 2021-2027 BRIGANTINE titolo "Chemico-physical and multispectral Data fusion for Adriatic sea monitoring by autonomous vessel – ID: ITHR0200237" P.I Dr. Sabina Susmel – cod. CUP G93C23000990007- Università degli Studi di Udine – Italy
- May 2023- October 2024** Postgraduate fellowship. Research grant entitled "Environmental quality control using results from wastewater and seawater analyses" Università degli Studi di Udine – Italy
- 2022** UNU-BIOLAC fellowship programme. Tema: Design, microfabrication, and start-up of microfluidic systems with low-cost materials, to detectand quantify microplastics (MPs) present in drinking water. Federal University of Goiania-Brazil . Supervisor: Dr. Wendel Coltro.

<b>2021 – 2023</b>	Postgraduate fellowship funded by CONICET - Argentina
<b>2016</b>	Graduate fellowship funded by CONICET – Argentina
<b>2015</b>	European Union - MINCYT Argentina

## PUBLICATIONS IN INTERNATIONAL AND NATIONAL JOURNALS

1. Bernassani, F., **Mosquera-Ortega, M.**, Sánchez, I., Susmel, S., Cortón, E., & Figueredo, F. (2025). Sustainability from the start: biochar-based conductive inks enable the streamlined fabrication of green electroanalytical devices. *Analytical Methods*, 17(33), 6565–6576. <https://doi.org/10.1039/D5AY00740B>
2. **Mosquera-Ortega, M.**, Figueredo, F., Fernandez, F., Arnal, P., Cortón, E., & Susmel, S. (2025). Peanut shell biochar for plastic electrodes: Green E-sensors for sensitive heavy metal detection. *Carbon Trends*, 20, 100520. <https://doi.org/10.1016/J.CARTRE.2025.100520>
3. Figueredo, F., **Mosquera-Ortega, M.**, di Lullo, F., Schaumburg, F., Susmel, S., & Cortón, E. (2024). A Smartphone Label-Free and Automated Thermo-Analytical Method Based on Image Analysis to Detect Microplastics. <https://doi.org/10.1016/j.scitotenv.2024.178114>
4. **Mónica Mosquera-Ortega**, Lucas Rodrigues de Sousa, Sabina Susmel, Eduardo Cortón, Federico Figueredo. (2023). When microplastics meet electroanalysis: Future analytical trends for an emerging threat. *Analytical Methods*, 15, 5972-5999. <https://doi.org/10.1039/d3ay01448g>
5. Salles, M., Tabla, P., Morel, Eneas, **Mosquera-Ortega, M.**, Fossati, J. Torga, J. Characterization of printed electronics and coatings by optical coherence tomography. (2022). *Revista Tecnología y Ciencia*, (43), 52–62. <https://doi.org/10.33414/rtyc.43.52-62.2022>.
6. **Mosquera-Ortega, M.E.**, Romero, D.M., Pato, A.M., Sosa-Holt, C.S., Alvarez, G., Ridolfi, A., Villaamil Lepori, E., Wolansky, M.J. (2019). Relationship between the dose administered, target tissue dose and toxicity level after acute oral exposure to Bifenthrin and Tefluthrin in young adult rats. *Toxicol. Sci.* 172(2), 2019, 225–234. <https://doi.org/10.1093/toxsci/kfz204>.
7. **Mosquera-Ortega, M.E.**, Romero, D.M., Pato, A.M., Sosa-Holt, C.S., Ridolfi, A., Villaamil Lepori, E., Wolansky, M.J. (2018). Relationship between exposure, body burden and target tissue concentration after oral administration of a low-dose mixture of pyrethroid insecticides in young adult rats. *Toxicology* 409, 53-62. <https://doi.org/10.1016/j.tox.2018.07.006>.
8. **Mosquera-Ortega, M.E** and Fossati J. (2017). Desarrollo y Estandarización de Tintas Gráficas en Argentina. Estudio comparativo entre tintas offset nacionales e importadas. *Argentina Gráfica Cromática*. ISSN - Nº 0004-105X. 441, 32-36. [http://www.faiga.com/documentofaiga/123\\_document\\_faiga-agc-441-bajares2.pdf](http://www.faiga.com/documentofaiga/123_document_faiga-agc-441-bajares2.pdf)
9. **Mosquera-Ortega, M.**, Pato, A., Sosa-Holt, C., Ridolfi, A., Wolansky, M.J., Villaamil, E. (2013). Relationship between administered dose, target tissue levels and thermoregulatory response

alterations after acute oral exposure to the potent tremor-inducing pyrethroid bifenthrin in rats. *The Toxicologist* 132, 1412. <https://www.toxicology.org/pubs/docs/Tox/2013Tox.pdf>

10. Insuasty, B., Quiroga, J., Abonia, R., Insuasty, H., **Mosquera, M.**, Cruz, S., Nogueras, M., Sortino, M., Zacchino, S. (2004). Synthesis induced by microwave irradiation and in vitro antifungal evaluation of new dihydropyrazolo[3,4-b][1,4]diazepines. *Heterocycl. Commun.* 10, 103–108. doi: 10.1515/HC.2004.10.1.103.
11. Insuasty, B., **Mosquera, M.**, Cobo, J. (2003). 5-(1,3-Benzodioxol-5-yl)-3-methyl-1,7-diphenyl-1,6,7,8-tetrahydro-pyrazolo[3,4-b][1,4]diazepine. *Acta Crystallographica Section E: Structure Reports Online*, E59, o614-o615. <https://doi.org/10.1107/S1600536803007542>
12. Low, J.N., Cobo, J., Nogueras, M., Sánchez, A., Insuasty, B., **Mosquera, M.** (2003). 5-(Benzo[1,3]dioxol-5-yl)-7-(4-chlorophenyl)-3-methyl-1-phenyl-1,6,7,8-tetrahydropyrazolo[3,4-b][1,4]diazepine. *Acta Crystallogr. Sect. E Struct. Reports Online* 59, o18–o20. <https://doi.org/10.1107/S1600536802022092>

#### BOOK CHAPTER

1. Figueredo, F., **Mosquera-Ortega, M.**, Cortón, E. (2023). Micro-Nano Structured Materials for DNA/RNA Amplification-Based Electrochemical Tests. In: Azad, U.P., Chandra, P. (eds) *Handbook of Nanobioelectrochemistry. Application in Devices and Biomolecular Sensing*. Springer, Singapore. [https://doi.org/10.1007/978-981-19-9437-1\\_19](https://doi.org/10.1007/978-981-19-9437-1_19)

#### PRESENTATIONS

##### Poster presentations

- 2025 **Euroanalysis- XXII European Conference on Analytical chemistry Date: August 31 to September 5, 2025. Barcelona, Spain. Poster**  
Title: Exploring the detection limits of a thermo-analytical method based on image analysis of microplastics.  
Dominguez, Melissa Romina; Kalnay, Mateo; **Mosquera-Ortega; Mónica**; Susmel, Sabina; Corton, Eduardo; Figueredo, Federico.
- 2025 **XIII Congreso Argentino de Química Analítica. 12 to 15 August. Tucuman - Argentina. Poster**  
Title: Title presentation: Tintas conductoras a base de biocarbón: fabricación simplificada de dispositivos electroanalíticos con perspectivas sustentables.  
Title in english: Biochar-Based Conductive Inks: Simplified Manufacturing of Electroanalytical Devices with Sustainable Prospects  
Bernassani, F., Mosquera-Ortega, M., Sánchez, I., Susmel, S., Rodrigues de Sousa L., Cortón, E., & Figueredo, F.
- 2024 **Ibersensor 2024- 13er Congreso Iberoamericano de Sensores. 21 al 24 de octubre de 2024. Buenos Aires - Argentina. Poster**  
Title: Enhanced performance of plastic electrodes doped with chemically activated biochar from peanut shells.  
**Monica Mosquera Ortega**, Federico Figueredo, Florencia Bernassani, Eduardo Cortón, Sabina Susmel.

- 2024 **Ibersensor 2024- 13er Congreso Iberoamericano de Sensores. 21 al 24 de octubre de 2024. Buenos Aires - Argentina. Poster**  
 Title: Use of peanut shell biochar in the formulation of inks for screen-printed electrodes.  
 Florencia Bernassani, Federico Figueredo, Pablo Arnal , **Mónica Mosquera Ortega**, Eduardo Cortón
- 2024 **Ibersensor 2024- 13er Congreso Iberoamericano de Sensores. 21 al 24 de octubre de 2024. Buenos Aires - Argentina. Poster**  
 Title: Quantification and Characterization of Microplastics Using an App and Smartphone  
 Francisco Di Lullo, **Monica Mosquera Ortega**, Federico Schaumburg, Eduardo Cortón  
 Federico Figueredo.
- 2023 **Workshop of the Gruppo Interdivisionale Sensori - Societa Chimica Italiana .Rome from December 13-15, 2023. Poster**  
 Title: Low carbon footprint biochar composite electrodes for point of need environmental analysis. A promising material to manufacture flexible electrodes.  
**Mosquera-Ortega, Monica**, Figueredo Federico, Arva Alejandro, Gonzalez Pabon Maria Jesus, Saavedra Albert, Long Leonel, Arnal Pablo, Cortón Eduardo, Susmel Sabina.
- 2018 **Environmental Journeys, University of Buenos Aires - Argentina**  
 Title: Adverse impact of mixtures of pesticides. Early detection of permanent disorders and development of nanotechnology prevention strategies. Verrengia Guerrero, Noemí, Wolansky, Marcelo, Rovedatti, Gabriela, Fuchs, Julio, Cáceres Wenzel, Marcela, Kandel Gambarte, Paula, Ghiglione, Ornela, Martínez, María Laura, Gigena, Julián, Rueda, Lis, Longoni, Victoria, **Mosquera-Ortega, Mónica**, Varela, Agustina
- 2017 **XX Argentine Congress of Toxicology, Argentine Society of Toxicology - Argentina**  
 Title: Relationships between exposure level, body temperature and target tissue concentration after acute oral administration of low-doses mixture of pyrethroids insecticides in young adult rats.  
**Mosquera Ortega Mónica**, Romero Delfina, Ridolfi Adriana, Villaamil Lepori Edda, Wolansky Marcelo.
- 2013 **52<sup>nd</sup> Annual Meeting of the Society of Toxicology (SOT) San Antonio Texas – USA**  
 Title: Relationship between administered dose, target tissue levels and thermoregulatory response alterations after acute oral exposure to potent tremor-inducing pyrethroid bifenthrin in rats. **Mosquera-Ortega, M.**, Pato, A., Sosa-Holt, C., Ridolfi, A., Wolansky, M., Villaamil Lepori, E.
- 2012 **32<sup>nd</sup> Annual Meeting Society for Risk Analysis (SRA) Sn Francisco – USA**  
 Relationships between administered dose, body burden and thermoregulatory response after acute oral exposure to multiple pyrethroid insecticides in rats. **Mosquera-Ortega, M.**, Pato, A., Romero, D., Sosa Holt, C., Alvarez, G., Ridolfi, A., Villaamil Lepori, E., Wolansky, M.
- 2012 **II Annual Meeting. Society for Risk Analysis of Latin America, University of the Andes – Colombia**  
 Oral Presentation - Poster.  
 Thermoregulatory response depends of exposure time, doses and chemical structure of pyrethroids. Alejandro Martin Pato., **Mónica Mosquera-Ortega.**, Carla Solange Sosa-Holt., Marcelo Javier Wolansky.
- 2011 **XII Argentine Congress of Toxicology. Argentine Society of Toxicology ATA – Tandil - Argentina**  
 Interdisciplinary study in neurotoxicity-cumulative risk by exposition of mixtures of pesticides in humans. **Mosquera-Ortega, Mónica E.**, Romero, Delfina M., Pato, Alejandro M., Sosa Holt, Carla S., Bujak, Nicolás L., Villaamil Lepori, E., Kotler, Mónica L., Wolansky, Marcelo J.
- 2011 **XII Argentine Congress of Toxicology. Argentine Society of Toxicology ATA. Tandil Argentina**

- Development of a fast and sensitive protocol for determination of neurotoxic pyrethroids insecticides in target tissues using GC-ECD. **Mosquera-Ortega, Mónica**, Wolansky, Marcelo, Álvarez, Gloria, Villaamil Lepori, Edda.
- 2010 **1<sup>st</sup> Regional Meeting. Society for Risk Analysis of Latin America. University of Diego Portales – Santiago de Chile**  
Basis for the design of cumulative neurotoxicity studies for exposition to insecticides mixtures with environmental relevance. Romero, D.M., **Mosquera-Ortega, M.**, Pato, A.M., Wolansky, M.J.
- 2010 **VII National Symposium of Organic Chemistry (XVI SINAQO) - Argentina**  
New heterocyclic of D-Ribofuranose derivatives. Mirta L. Fascio, **Mónica E. Mosquera**, Norma B. D'Accorso.

## Oral presentations and proceedings

- 2025 **Euroanalysis- XXII European Conference on Analytical chemistry Date: August 31 to September 5, 2025. Barcelona, Spain. Oral Presentation.** Title: Biochar to produce plastic electrodes. Electrochemical approach to environmental monitoring. Monica Mosquera-Ortega, Gherard Soja, Federico Figueredo, Eduardo Cortón and Sabina Susmel
- 2025 **Giornate di Bioanalitica Nuovi Orizzonti per la Bioanalitica: Salute, Nutrizione e Sport. April 7 to 9, 2025, Roma – Italy- Full oral presentation.** Title: Biochar-based plastics electrodes for sustainable electrochemical detection of marine pollutants. Monica Mosquera-Ortega, Gherard Soja, and Sabina Susmel.
- 2024 **International Congress on Advanced Materials Sciences and Engineering-2024 (AMSE-2024). Opatija-Croazia.** Title: Activated Biochar-Chitosan Composites: A New Electrode Material for Environmental Pollutant Detection. Monica Mosquera Ortega, Margherita Vit and Sabina Susmel
- 2022 **Webinar “Bioelectrochemistry Systems” Universidad del Magdalena - Group on Environmental Systems Modeling**  
Title: Carbon materials as electrodes and their application in printing techniques  
Monica Mosquera Ortega
- 2018 **2nd International Workshop in Security Printing, Gutenberg Foundation - Argentina**  
Title: Innovation in electronic printed and exposure safety controls.  
Monica Mosquera Ortega
- 2016 **WCPC Annual Technical Conference – Swansea – United Kingdom**  
Title: Optical method for measuring the thickness and profile of conductive inks for flexographic printing. Marcelo D. Sallese, Pablo Tabla, Eneas Morel, Jorge Torga, Mónica Mosquera-Ortega, Julia Fossati
- 2015 **Nanomercosur, Fifth Edition - Argentina**  
Title: Experience in conductive inks in productions machines. Mónica Mosquera Ortega, Julia Fossatti y Jorge Torga
- 2015 **8th Colour Forum, Gutenberg Foundation- Argentina**  
Title: Standardization of graphic inks in Argentina  
Monica Mosquera Ortega

## INTERNSHIPS

### International Training

- 2015**      **Micro- and nanotechnology-printing inks applied to printed electronics**  
Welsh Centre for Printing and Coating, Swansea University- United Kingdom. August-September.
- 2013**      **Analysis of catecholamines using chromatography, immunohistochemistry and immunotransfers techniques to rat brain samples.**  
Department of Behavioral and Cognitive Neurobiology, Autonomous National University of Mexico. México -Juriquilla. September -December.
- ### National Training
- 2015**      **Quality management system implementation, ISO 17025**  
Gutenberg Foundation, Argentina, January-April.
- 2009**      **Evaluation of persistent organic compounds in biological samples using liquid and gas chromatography.**  
University of Buenos Aires, Faculty of Pharmacy and Biochemistry, September-December.

## PROFESSIONAL COURSES

- Python. June 1 to September 21 of **2022**. Coder House Argentina
- Theoretical and practical workshop on biosystems for sustainable energy production. Instituto Tecnológico de Durango - México. 29th November to 3rd December of **2021**. UNU – BIOLAC.
- Electroanalysis. Fundamentals and development of methodologies, applications. 40hs. 1st July to 1st December of **2021**. Universidad Nacional de Rio Cuarto, Córdoba, Argentina.
- Preparation of flexographic inks, Gutenberg Foundation, 40 h, October-November **2017**, Buenos Aires, Argentina.
- Laboratory Internal Auditor, ISO IEC 17025:2005, Gutenberg Foundation, 40 h, November **2014**, Buenos Aires, Argentina.
- General Requirements for Laboratory Competence, ISO/ IEC 17025:2005, Gutenberg Foundation, 20 h, July **2014**, Buenos Aires, Argentina.

## POSTGRADUATE COURSES

- Instrumental Analysis, Science School, University of Buenos Aires (FCEN-UBA), Department of Biological Chemistry, March–June 2013, Argentina.
- Liquid Chromatography (HPLC), FCEN-UBA, Organic Chemistry Department, 40 h, June 2013.
- Free Radicals and Oxygen Toxicity, FCEN-UBA, Department of Biological Chemistry, February–March 2012.
- Statistics with R Program, Calculus Institute, FCEN-UBA, 40 h, July 2011.
- Multivariate Calibration, FCEN-UBA, Department of Biological Chemistry, February–March 2011.
- Mass Spectrometry, Faculty of Pharmacy and Biochemistry-UBA, Department of Toxicology and Forensic Chemistry, 30 h, December 2010.

- Environmental Contamination, FCEN-UBA Department of Biological Chemistry. February–March 2010.
- Organic Chemistry Mechanisms, FCEN-UBA, Organic Chemistry Department, March–July 2010.
- Toxicology and Forensic Chemistry, FCEN-UBA, Department of Biological Chemistry, August–December 2009.

## **LANGUAGES**

- English B2
- Italian B2
- Spanish (native language)