

PERSONAL DETAILS

Name: VÍCTOR MATAMOROS MERCADAL
Address: Department of Environmental Chemistry-
IDAEA-CSIC, Jordi Girona, 18-26, 08034-
Barcelona (Spain)
Birth data: 07/09/1975
E-mail: vmmqam@gmail.com

RESEARCH EXPERIENCE

2018-Currently: Científico Titular (permanent position, tenured scientist) at the Institute of Environmental Assessment and Water Research (IDÆA) of the Spanish National Research Council (CSIC), Barcelona, Spain.
2015-2018: Ramon y Cajal research contract funded by Spanish government.). Department of Environmental Chemistry. IDAEA-CSIC, Spain
2012-2014: *JAE-DOC* postdoctoral contract funded by *CSIC* (Spanish Government). Department of Environmental Chemistry. IDAEA-CSIC, Spain
2009-2011: *Juan de la Cierva* postdoctoral contract funded by *Ministerio de Ciencia e Innovación* (Spanish Government). Department of Chemistry. University of Girona, Spain
2007-2008: Research contract in IIQAB-CSIC, Barcelona, Spain.
2003-2007: PhD student fellowship from Spanish Government (FPI). IIQAB-CSIC, Barcelona, Spain.

UNIVERSITY STUDIES

2007: PhD degree. Department of Environmental Chemistry. IIQAB-CSIC, Barcelona, Spain.
2005: Msc in Analytical Chemistry. University of Barcelona (UB), Barcelona, Spain.
2002: Bachelor's Degree in Biology, University of Valencia (UV), Valencia, Spain.
2000: Bachelor's Degree in Biochemistry, University of Valencia (UV), Valencia, Spain.

RESEARCH LINES

-Fate and removal of microcontaminants in nature-based wastewater treatment systems such as constructed wetlands, waste stabilization ponds and microalgae systems.
-Microcontaminants in reclaimed water and their potential crop uptake. Human and crop health implications
-Effect of microcontaminants of plant metabolism and exudome.

PROJECTS PARTICIPATION: 10 projects related to removal of emerging organic contaminants by CWs and 2 other projects related to the occurrence of contaminants in reclaimed water. Principal investigator of 4 national projects.

PUBLICATIONS

70 papers in peer reviewed scientific journals with more than 3400 citations (author h-index of 34, Scopus source), 5 book chapters and 5 papers in non-indexed journals.

2019

Solé-Bundó, M., Garfí, M., Matamoros, V., Ferrer, I. Co-digestion of microalgae and primary sludge: Effect on biogas production and microcontaminants removal (2019) *Science of the Total Environment*, 660, pp. 974-981. [10.1016/j.scitotenv.2019.01.011](https://doi.org/10.1016/j.scitotenv.2019.01.011).
Cerqueira, F., Matamoros, V., Bayona, J., Elsinga, G., Hornstra, L.M., Piña, B. Distribution of antibiotic resistance genes in soils and crops. A field study in legume plants (*Vicia faba* L.) grown under different watering regimes (2019) *Environmental Research*, pp. 16-25. [10.1016/j.envres.2018.12.007](https://doi.org/10.1016/j.envres.2018.12.007).
Margenat, A., Matamoros, V., Díez, S., Cañameras, N., Comas, J., Bayona, J.M. Occurrence and human health implications of chemical contaminants in vegetables grown in peri-urban agriculture (2019) *Environment International*, pp. 49-57. [10.1016/j.envint.2018.12.013](https://doi.org/10.1016/j.envint.2018.12.013).
Cerqueira, F., Matamoros, V., Bayona, J., Piña, B. Antibiotic resistance genes distribution in microbiomes from the soil-plant-fruit continuum in commercial *Lycopersicon esculentum* fields under different agricultural practices (2019) *Science of the Total Environment*, 652, pp. 660-670. [10.1016/j.scitotenv.2018.10.268](https://doi.org/10.1016/j.scitotenv.2018.10.268)

2018

García-Galán, M. J.; Gutiérrez, R.; Uggetti, E.; Matamoros, V.; García, J.; Ferrer, I. Use of Full-Scale Hybrid Horizontal Tubular Photobioreactors to Process Agricultural Runoff. *Biosyst. Eng.* 2018, 166. <https://doi.org/10.1016/j.biosystemseng.2017.11.016>.
Margenat, A.; Matamoros, V.; Díez, S.; Cañameras, N.; Comas, J.; Bayona, J. M. Occurrence and Bioaccumulation of Chemical Contaminants in Lettuce Grown in Peri-Urban Horticulture. *Sci. Total Environ.* 2018, 637-638. <https://doi.org/10.1016/j.scitotenv.2018.05.035>.
Matamoros, V.; Franco, J. Assessing the Use of Sand, Peat Soil, and Pine Bark for the Attenuation of Polar Pesticides from Agricultural Run-off: A Bench-Scale Column Experiment. *Environ. Sci. Pollut. Res.* 2018. <https://doi.org/10.1007/s11356-018-2213-x>.

2017

- Hurtado, C.; Parastar, H.; Matamoros, V.; Piña, B.; Tauler, R.; Bayona, J. M. Linking the Morphological and Metabolomic Response of *Lactuca Sativa* L Exposed to Emerging Contaminants Using GC × GC-MS and Chemometric Tools. *Sci. Rep.* 2017, 7 (1). <https://doi.org/10.1038/s41598-017-06773-0>.
- Izadmanesh, Y.; Garreta-Lara, E.; Ghasemi, J. B.; Lacorte, S.; Matamoros, V.; Tauler, R. Chemometric Analysis of Comprehensive Two Dimensional Gas Chromatography–Mass Spectrometry Metabolomics Data. *J. Chromatogr. A* 2017, 1488. <https://doi.org/10.1016/j.chroma.2017.01.052>.
- Margenat, A.; Matamoros, V.; Díez, S.; Cañameras, N.; Comas, J.; Bayona, J. M. Occurrence of Chemical Contaminants in Peri-Urban Agricultural Irrigation Waters and Assessment of Their Phytotoxicity and Crop Productivity. *Sci. Total Environ.* 2017, 599–600. <https://doi.org/10.1016/j.scitotenv.2017.05.025>.
- Matamoros, V.; Rodríguez, Y. Influence of Seasonality and Vegetation on the Attenuation of Emerging Contaminants in Wastewater Effluent-Dominated Streams. A Preliminary Study. *Chemosphere* 2017, 186. <https://doi.org/10.1016/j.chemosphere.2017.07.157>.
- Matamoros, V.; Rodríguez, Y.; Bayona, J. M. Mitigation of Emerging Contaminants by Full-Scale Horizontal Flow Constructed Wetlands Fed with Secondary Treated Wastewater. *Ecol. Eng.* 2017, 99. <https://doi.org/10.1016/j.ecoleng.2016.11.054>.

2016

- Solé, A., Matamoros, V. Removal of endocrine disrupting compounds from wastewater by microalgae co-immobilized in alginate beads (2016) *Chemosphere*, 164, pp. 516-523.
- Franco, J., Matamoros, V. Mitigation of polar pesticides across a vegetative filter strip. A mesocosm study (2016) *Environmental Science and Pollution Research*, pp. 1-10. Article in Press.
- Matamoros, V., Rodríguez, Y. Batch vs continuous-feeding operational mode for the removal of pesticides from agricultural run-off by microalgae systems: A laboratory scale study (2016) *Journal of Hazardous Materials*, 309, pp. 126-132. Cited 2 times.
- Matamoros, V., Uggetti, E., García, J., Bayona, J.M. Assessment of the mechanisms involved in the removal of emerging contaminants by microalgae from wastewater: A laboratory scale study (2016) *Journal of Hazardous Materials*, 301, pp. 197-205.
- Matamoros, V., Rodríguez, Y., Albaigés, J. A comparative assessment of intensive and extensive wastewater treatment technologies for removing emerging contaminants in small communities (2016) *Water Research*, 88, pp. 777-785.
- García-Rodríguez, A., Fontàs, C., Matamoros, V., Almeida, M.I.G.S., Cattrall, R.W., Kolev, S.D. Development of a polymer inclusion membrane-based passive sampler for monitoring of sulfamethoxazole in natural waters. Minimizing the effect of the flow pattern of the aquatic system (2016) *Microchemical Journal*, 124, pp. 175-180.

2015

- García-Rodríguez, A., Matamoros, V., Kolev, S.D., Fontàs, C. Development of a polymer inclusion membrane (PIM) for the preconcentration of antibiotics in environmental water samples (2015) *Journal of Membrane Science*, 492, pp. 32-39.
- García-Rodríguez, A., Matamoros, V., Fontàs, C., Salvadó, V. The influence of *Lemna* sp. and *Spirogyra* sp. on the removal of pharmaceuticals and endocrine disruptors in treated wastewaters (2015) *International Journal of Environmental Science and Technology*, 12 (7), pp. 2327-2338
- Matamoros, V., Gutiérrez, R., Ferrer, I., García, J., Bayona, J.M. Capability of microalgae-based wastewater treatment systems to remove emerging organic contaminants: A pilot-scale study (2015) *Journal of Hazardous Materials*, 288, pp. 34-42.

2014

- A. García-Rodríguez; V. Matamoros; C. Fontàs; V. Salvadó. The influence of *Lemna* sp. and *Spirogyra* sp. on the removal of pharmaceuticals and endocrine disruptors in treated wastewaters. *International journal of Environmental Science and Technology* (**Impact Factor: 1.84**). 05/2014; DOI: 10.1007/s13762-014-0632-x.
- A. García-Rodríguez; C. Fontàs V. Matamoros. Formation potential of N-nitrosamines during the disinfection of treated wastewaters with sodium hypochlorite. *Desalination and water treatment* 52 (16-18), pp. 3019-3026. 2014 (**0.85**).
- C. Ávila; V. Matamoros; C. Reyes-Contreras; B. Piña; M. Casado; L. Mita; C. Rivetti; C. Barata; J. García; J.M. Bayona. Attenuation of emerging organic contaminants in a hybrid constructed wetland system under different hydraulic loading rates and their associated toxicological effects in wastewater. *Science of the Total Environment*. 470-471, pp. 1272 - 1280. 2014. (**3.258**).
- A. García-Rodríguez; V. Matamoros; C. Fontàs; V. Salvadó. The ability of biologically based wastewater treatment systems to remove emerging organic contaminants-a review. *Environmental Science and Pollution Research*. 21 (20), pp. 11708-11728. 2014 (**2.618**).

2013

- Calderón-Preciado, D., Matamoros, V., Biel, C., Save, R., Bayona, J.M. 2013. Foliar sorption of emerging and priority contaminants under controlled conditions. *Journal of Hazardous Materials*, 260, pp. 176-182. (**3.925**).
- Calderón-Preciado, D., Matamoros, V., Savé, R., Muñoz, P., Biel, C., Bayona, J.M. 2013 Uptake of microcontaminants by crops irrigated with reclaimed water and groundwater under real field greenhouse conditions. *Environmental Science and Pollution Research*, 20 (6), pp. 3629-3638. (**2.618**).
- Regueiro, J., Matamoros, V., Thibaut, R., Porte, C., Bayona, J.M. 2013. Use of effect-directed analysis for the identification of organic toxicants in surface flow constructed wetland sediments. *Chemosphere*, 91 (8), pp. 1165-1175. (**3.137**).
- Fernández-Gómez, C., López-López, J.A., Matamoros, V., Díez, S., García-Vargas, M., Moreno, C. 2013. Atmospheric influence on the distribution of organic pollutants in the Guadalquivir River estuary, SW Spain. *Environmental Monitoring and Assessment*, 185 (4), pp. 3209-3218. (**1.592**).
- Matamoros, V., Salvadó, V. 2013 Evaluation of a coagulation/flocculation-lamellar clarifier and filtration-UV-chlorination reactor for removing emerging contaminants at full-scale wastewater treatment plants in Spain. *Journal of Environmental Management*, 117, pp. 96-102. (**3.057**).
- García-Rodríguez, A., Matamoros, V., Fontàs, C., Salvadó, V. 2013. The influence of light exposure, water quality and vegetation on the removal of sulfonamides and tetracyclines: A laboratory-scale study. *Chemosphere*, 90 (8), pp. 2297-2302. (**3.137**).
- Chamorro, S., Hernández, V., Matamoros, V., Domínguez, C., Becerra, J., Vidal, G., Piña, B., Bayona, J.M. 2013. Chemical characterization of organic microcontaminant sources and biological effects in riverine sediments impacted by urban sewage and pulp mill discharges. *Chemosphere*, 90 (2), pp. 611-619. (**3.137**).

2012

- Matamoros, V., Arias, C.A., Nguyen, L.X., Salvadó, V., Brix, H. 2012. Occurrence and behavior of emerging contaminants in surface water and a restored wetland. *Chemosphere*, 88 (9), pp. 1083-1089. **(3.137)**.
- Matamoros, V., Nguyen, L.X., Arias, C.A., Nielsen, S., Laugen, M.M., Brix, H. 2012. Musk fragrances, DEHP and heavy metals in a 20 years old sludge treatment reed bed system. *Water Research*, 46 (12), pp. 3889-3896. **(4.655)**.
- Matamoros, V., Nguyen, L.X., Arias, C.A., Salvadó, V., Brix, H. 2012. Evaluation of aquatic plants for removing polar microcontaminants: A microcosm experiment. *Chemosphere*, 88 (10), pp. 1257-1264. **(3.137)**.
- Matamoros, V., Calderón-Preciado, D., Domínguez, C., Bayona, J.M. Analytical procedures for the determination of emerging organic contaminants in plant material: A review (2012) *Analytica Chimica Acta*, 722, pp. 8-20. **(4.387)**.
- Calderón-Preciado, D., Renault, Q., Matamoros, V., Cañameras, N., Bayona, J.M., 2012. Uptake of Organic Emergent Contaminants in Spath and Lettuce: An In Vitro Experiment. *Journal of Agricultural and Food Chemistry* 60, 2000-2007. **(2.906)**.
- Matamoros, V., Salvadó, V., 2012. Evaluation of the seasonal performance of a water reclamation pond-constructed wetland system for removing emerging contaminants. *Chemosphere* 86, 111-117. **(3.137)**.
- Matamoros, V., Sala, L., Salvadó, V., 2012. Evaluation of a biologically-based filtration water reclamation plant for removing emerging contaminants: A pilot plant study. *Bioresource Technology* 104, 243-249. **(4.750)**.

2011

- Hijosa-Valsero, M., Matamoros, V., Sidrach-Cardona, R., Pedescoll, A., Martín-Villacorta, J., García, J., Bayona, J.M., Bécares, E., 2011. Influence of design, physico-chemical and environmental parameters on pharmaceuticals and fragrances removal by constructed wetlands. *Water Science and Technology* 63, 2527-2534. **(1.102)**.
- Istenič, D., Arias, C.A., Matamoros, V., Vollertsen, J., Brix, H., 2011. Elimination and accumulation of polycyclic aromatic hydrocarbons in urban stormwater wet detention ponds. *Water Science and Technology* 64, 818-825. **(1.102)**.
- Calderón-Preciado, D., Jiménez-Cartagena, C., Matamoros, V., Bayona, J.M., 2011. Screening of 47 organic microcontaminants in agricultural irrigation waters and their soil loading. *Water Research* 45, 221-231. **(4.655)**.
- Calderón-Preciado, D., Matamoros, V., Bayona, J.M., 2011. Occurrence and potential crop uptake of emerging contaminants and related compounds in an agricultural irrigation network. *Science of the Total Environment* 412-413, 14-19. **(3.258)**.
- Hijosa-Valsero, M., Matamoros, V., Pedescoll, A., Martín-Villacorta, J., Bécares, E., García, J., Bayona, J.M., 2011. Evaluation of primary treatment and loading regimes in the removal of pharmaceuticals and personal care products from urban wastewaters by subsurface-flow constructed wetlands. *International Journal of Environmental Analytical Chemistry* 91, 632-653. **(1.240)**.
- Reyes-Contreras, C., Matamoros, V., Ruiz, I., Soto, M., Bayona, J.M., 2011. Evaluation of PPCPs removal in a combined anaerobic digester-constructed wetland pilot plant treating urban wastewater. *Chemosphere* 84, 1200-1207. **(3.137)**.

2010

- Hijosa-Valsero, M., Matamoros, V., Martín-Villacorta, J., Bécares, E., Bayona, J.M., 2010. Assessment of full-scale natural systems for the removal of PPCPs from wastewater in small communities. *Water Research* 44, 1429-1439. **(4.655)**.
- Hijosa-Valsero, M., Matamoros, V., Sidrach-Cardona, R., Martín-Villacorta, J., Bécares, E., Bayona, J.M., 2010. Comprehensive assessment of the design configuration of constructed wetlands for the removal of pharmaceuticals and personal care products from urban wastewaters. *Water Research* 44, 3669-3678. **(4.655)**.
- Ávila, C., Pedescoll, A., Matamoros, V., Bayona, J.M., García, J., 2010. Capacity of a horizontal subsurface flow constructed wetland system for the removal of emerging pollutants: An injection experiment. *Chemosphere* 81, 1137-1142. **(3.137)**.
- García, J., Rousseau, D.P.L., Morató, J., Lesage, E., Matamoros, V., Bayona, J.M., 2010. Contaminant removal processes in subsurface-flow constructed wetlands: A review. *Critical Reviews in Environmental Science and Technology* 40, 561-661. **(3.383)**.
- Matamoros, V., Jover, E., Bayona, J.M., 2010. Part-per-Trillion determination of pharmaceuticals, pesticides, and related organic contaminants in river water by solid-phase extraction followed by comprehensive two-dimensional gas chromatography time-of-flight mass spectrometry. *Analytical Chemistry* 82, 699-706. **(5.695)**.
- Matamoros, V., Jover, E., Bayona, J.M., 2010. Occurrence and fate of benzothiazoles and benzotriazoles in constructed wetlands. *Water Science and Technology* pp. 191-198. **(1.102)**.

2009

- Matamoros, V., Duhec, A., Albaigés, J., Bayona, J.M., 2009. Photodegradation of carbamazepine, ibuprofen, ketoprofen and 17 α -ethinylestradiol in fresh and seawater. *Water, Air, and Soil Pollution* 196, 161-168. **(1.748)**
- Matamoros, V., Arias, C., Brix, H., Bayona, J.M., 2009. Preliminary screening of small-scale domestic wastewater treatment systems for removal of pharmaceutical and personal care products. *Water Research* 43, 55-62. **(4.655)**.
- Llorens, E., Matamoros, V., Domingo, V., Bayona, J.M., García, J., 2009. Water quality improvement in a full-scale tertiary constructed wetland: Effects on conventional and specific organic contaminants. *Science of the Total Environment* 407, 2517-2524. **(3.280)**
- Jover, E., Matamoros, V., Bayona, J.M., 2009. Characterization of benzothiazoles, benzotriazoles and benzosulfonamides in aqueous matrixes by solid-phase extraction followed by comprehensive two-dimensional gas chromatography coupled to time-of-flight mass spectrometry. *Journal of Chromatography A* 1216, 4013-4019. **(4.612)**
- Matamoros, V., Hijosa, M., Bayona, J.M., 2009. Assessment of the pharmaceutical active compounds removal in wastewater treatment systems at enantiomeric level. Ibuprofen and naproxen. *Chemosphere* 75, 200-205. **(3.137)**.
- Matamoros, V., Jover, E., Bayona, J.M., 2009. Advances in the determination of degradation intermediates of personal care products in environmental matrixes: A review. *Analytical and Bioanalytical Chemistry* 393, 847-860. **(3.659)**

2008

- Matamoros, V., García, J., Bayona, J.M., 2008. Organic micropollutant removal in a full-scale surface flow constructed wetland fed with secondary effluent. *Water Research* 42, 653-660. **(4.655)**
- Matamoros, V., Caselles-Osorio, A., García, J., Bayona, J.M., 2008. Behaviour of pharmaceutical products and biodegradation intermediates in horizontal subsurface flow constructed wetland. A microcosm experiment. *Science of the Total Environment* 394, 171-176. **(3.258)**

2007

- Matamoros, V., Mujeriego, R., Bayona, J.M., 2007. Trihalomethane occurrence in chlorinated reclaimed water at full-scale wastewater treatment plants in NE Spain. *Water Research* 41, 3337-3344. **(4.655)**

Matamoros, V., Arias, C., Brix, H., Bayona, J.M., 2007. Removal of pharmaceuticals and personal care products (PPCPs) from urban wastewater in a pilot vertical flow constructed wetland and a sand filter. *Environmental Science and Technology* 41, 8171-8177. (5.257)

Matamoros, V., Puigagut, J., García, J., Bayona, J.M., 2007. Behavior of selected priority organic pollutants in horizontal subsurface flow constructed wetlands: A preliminary screening. *Chemosphere* 69, 1374-1380. (3.137).

2006

Matamoros, V., Bayona, J.M., 2006. Elimination of pharmaceuticals and personal care products in subsurface flow constructed wetlands. *Environmental Science and Technology* 40, 5811-5816. (5.257)

2005

Matamoros, V., García, J., Bayona, J.M., 2005. Behavior of selected pharmaceuticals in subsurface flow constructed wetlands: A pilot-scale study. *Environmental Science and Technology* 39, 5449-5454. (5.257)

García, J., Aguirre, P., Barragán, J., Mujeriego, R., Matamoros, V., Bayona, J.M., 2005. Effect of key design parameters on the efficiency of horizontal subsurface flow constructed wetlands. *Ecological Engineering* 25, 405-418. (2.958).

Book chapters:

Navarro, E. ; Pastor, R.; Matamoros, V.; Bayona, JM. .Evaluation of treatment wetlands of different configuration for the sugarcane-mill effluent under tropical conditions. *Constructed Wetlands for Industrial Wastewater Treatment - CWIWT*. Wiley Publishers, 2017.

Matamoros, V.; Bayona, JM. Wastewater reuse: Uptake of contaminants of emerging concern by crops. *Wastewater and Biosolids management*. IWA, 2017.

Matamoros, V. Equipment for water sampling including sensors (2012) *Comprehensive Sampling and Sample Preparation*, 1, pp. 247-263.

Matamoros, V.; Bayona, J.M. 2007. Behavior of emerging pollutants in constructed wetlands. Emerging contaminants from industrial and municipal wastewater. *The Handbook of Environmental Chemistry. Volume 5: Water Pollution 5 S2*, pp. 199-217

Matamoros, V.; Bayona, J.M. 2013. Removal of pharmaceutical compounds from wastewater and surface water by natural treatments. *Comprehensive Analytical Chemistry*. 62, pp. 409 - 437. Elsevier.

Non-indexed journals:

Cristina Ávila; Víctor Matamoros; Joan García. Depuración natural de aguas residuales. *Investigación y Ciencia*. 473, 2016. Tipo de producción: Artículo de divulgación. Tipo de soporte: Revista

Víctor Matamoros; Josep M Bayona. "Los contaminantes emergentes" en: Hacia una gestión sostenible del agua en la Subcuenca del río Nexapa, México. *Diagnóstico. Gaceta Universitaria*. 2013. Tipo de producción: Artículo de divulgación. Tipo de soporte: Revista

Durà, J.O., Canals, G.M., Matamoros, V., Martín, V.S., Bosch, J.C., Genóher, L.S., Matas, J.C., Kampf, R., 2011. Use of filtration with *Daphnia* for reclaiming water in the mesocosm system of Empuriabrava WWTP. Regeneración de agua mediante filtración por cultivos de *Daphnia* en el sistema de mesocosmos de la EDAR de Empuriabrava. *Tecnología del agua* 31, 57-65

Matamoros, V., Reyes, C., Bayona, J.M., Valsero, M.H., 2010. Use of constructed wetlands to eliminate organic microcontaminants in domestic effluents. Eliminación de microcontaminantes orgánicos presentes en efluentes domésticos mediante humedales construidos. *Tecnología del agua* 30, 22-26.

Matamoros, V.; Bayona, J.M. 2007. *Catalonian Chemical Society* (8), 28.

PRESENTATIONS AT SYMPOSIA: More than 60 presentations at international and national congresses.

RESEARCH PLACEMENTS: University of Århus (Institut for Bioscience)

Behaviour of emerging organic contaminants in constructed wetlands. 2004 (4 months).

Evaluation of aquatic plants for removing emerging organic contaminants in restored wetlands. 2010 (6 months)

RESEARCH AWARDS

1. Extraordinary thesis award 2007-2008

Title: Behaviour of organic pollutants in constructed wetlands and occurrence of disinfection by-products in reclaimed water

2. Award for the best poster presentation at Micropol & Ecohazard congress (2007) celebrated in Frankfurt (Germany)

Title: Removal of pharmaceutical and personal care products by subsurface flow constructed wetlands: a secondary treatment

3. Award for the best oral presentation at IV Symposium for Young Catalonian Researchers (2006). Catalonian Chemical Society

Title: Removal of pharmaceutical and personal care products by constructed wetlands.