

## **Flor Y. Garcia-Becerra, P.Eng. (ON, Canada), Ph.D., M.Biotech, B.Eng.**

Office telephone: +1 250 960 5403 | Email: June.Garcia-Becerra@unbc.ca|

LinkedIn Profile: <https://www.linkedin.com/in/florygarciabecerra/> |

---

### **SUMMARY**

Expert in technological and interdisciplinary sustainable and resilience-building solutions for the provision of water and sanitation services. Her research interests include:

- Ecological engineering and on-site nature-based solutions and biotechnologies focused on water and sanitation.
- Innovative small-scale water and sanitation socioecosystemic-based solutions for cities and peri-urban areas.
- Sustainable and resilient socio-technological adaptation processes to the urban and peri-urban megatrends of climate change and accelerated urbanization.

She has led and collaborated in multiple Mexican and internationally funded interdisciplinary research projects related to sustainable and resilient urban development, as well as technology-based entrepreneurship.

---

### **EDUCATION**

**Ph.D.**, Department of Chemical Engineering and Applied Chemistry (Environmental Engineering Graduate Collaborative Program), University of Toronto (**UofT**), Toronto, Canada, 2010.

**Master of Biotechnology**, UofT, Toronto, Canada, 2005.

**Bachelor of Chemical Engineering**, Graduated with Honors, Universidad Iberoamericana (UIA) Santa Fe, Mexico City, Mexico, 2002.

---

### **ACADEMIC EXPERIENCE**

**Assistant Professor (2021 to date)**. School of Engineering (Environmental Engineering Program) at University of Northern British Columbia. Prince George, Canada.

**CONACyT<sup>1</sup> Contract Researcher-Professor** (Cátedra CONACyT Fellowship), **2014 to 2021**.

Department of Processes and Technology (Biological Engineering Undergraduate Program), Metropolitan Autonomous University, Cuajimalpa Campus (abbreviated **UAM-C**), Mexico City. Developed and project managed a research portfolio of funded projects to investigate disruptive and viable water and sanitation technologies along with their business models aimed at sustainably and resiliently address the needs of peri-urban and urban areas. Teach undergraduate and graduate courses. Supervised undergraduate and master's students, and a postdoctoral fellow.

**Postdoctoral Research (2013-2014)**. Department of Biotechnology and Bioengineering (Laboratory of Xenobiotics), at CINVESTAV-IPN. Developed fungal granular wastewater treatment to reduce waste sludge production.

**Doctoral Research (2005-2010)**. Thesis: [Recovery of Surface Active Material from Municipal Wastewater Activated Sludge \(WAS\)](#). Supervisors: Acosta, E.J. & Allen D.G, UofT. Developed a simple and effective technique to extract WAS biopolymers, enhancing WAS dewatering; Developed a membrane fractionation scheme to recover WAS extract constituents; Produced and tested WAS derived detergents and wood adhesives comparable to commercial products.

---

<sup>1</sup> Mexico's National Council of Science and Technology, abbreviated CONACyT for its name in Spanish, Consejo Nacional de Ciencia y Tecnología.

## INDUSTRY EXPERIENCE

---

**Co-Founder**, Parakata R.S.R. (start-up), Mexico City, Mexico, **2018 to date**. Lead the development of business models and analytical frameworks to implement sustainable and resilient eco-enterprises in Central Mexico. Conduct review studies of megatrends of sustainable and resilient urban development and associated new product-services systems with the potential to create innovative sustainable entrepreneurial activities and local green jobs.

**Project Consultant, CH2M Hill Canada Ltd. (now Jacobs)**, Toronto, Canada; **2010–2013**. Assisted in multiple wastewater sanitation design and asset management projects, and in coordinating the Sustainability Initiative in the Toronto office. Managed 20 requests for proposals for wastewater and asset management projects in Ontario. Representative Projects:

- Impact of Food Waste Grinders in the Sewer and Wastewater Treatment System; Regional Municipality of York, ON (2012–2013)
- Risk-based Sampling of Industrial Dischargers for Sewer Use Bylaw; Regional Municipality of York, ON (2012–2013)
- Peterborough Wastewater Treatment Plant Cogeneration Pilot Project; City of Peterborough, ON (2012)
- Duffin Creek Water Pollution Control Plant Stage I&II Expansion; Regional Municipality of York and Regional Municipality of Durham (2011).
- Development of Corporate Asset Management Plan (CAMP); City of London, ON (2012–2013);
- Coordinated the Public Sector Accounting Board Ontario Municipalities Sharing Group; ON (2010–2013).

**Regulatory Affairs Intern** (submission and amendments to Health Canada, FDA and EMEA), **CANREG Inc.**, Hamilton, Canada; **2004**.

**Protein Purification Chemist** (downstream purification for intra and extracellular proteins, mammalian, and bacterial cells; implementation of ISO 9000), **PROBIOMED**, Mexico City, Mexico; **2002–2003**.

## AWARDS & RECOGNITIONS

---

### Academia

Selected Delegate, “WASHing Away Inequalities: From Recovery to Resilience” Frontiers of Engineering for Development Event (Royal Academy of Engineering, UK)	2019
Selected team, 2018 Cohort of the I-Corps Program, National Science Foundation (USA)-CONACYT (Mexico) Energy Innovation Binational Node	2018
Selected Attendee, “Enhancing Regional Water Security in Semi-arid Regions through Improved Metropolitan Design” Workshop (UK Newton Fund-CONACyT)	2017
Candidate Level Award, Mexican Researchers’ National System	2015–2018
CONACyT Researcher-Professor Fellowship (Cátedra CONACyT)	2014 to date
CONACyT Postdoctoral Scholarship	2013–2014
Doctoral Completion Award, UofT School of Graduate Studies	2010
The Delta Kappa Gamma Society International World Fellowship	2009–2010
Adel S. Sedra Distinguished Graduate Award Finalist and Graduate Scholar, UofT Alumni Association	2008
Frances Bradfield Graduate Fellowship in Environmental Engineering, UofT	2008
Water Environment Association of Ontario (WEAO) Student Scholarship	2007
Scholarship from CONACyT (Mexican National Advisory Board for Science and Technology) for graduate studies	2002–2009

## Industry

Selected member of Water Leadership Institute's 2013 Class (Water Environment Federation)	2013
WEAO Service Award for Young Professional	2013
Winning team of CH2M Hill's Annual Junior and Midlevel Professionals Conference Competition (Proposal - Conceptual Design for Water Renewal Facility)	2012
CH2M Hill Reward and Recognition Award for work on the Woodward Ave WWTP Water Quality Upgrade Study	2012
CH2M Hill Reward and Recognition Award for work on the Golden Pheasant WWTP Project	2011

## INVENTION DISCLOSURE

---

Garcia-Becerra F.Y., Acosta, E.J. and Allen, D.G., "Adhesives from Alkaline Biomass Extracts", Invention Disclosure RIS#10001996, Nov 11, 2009.

## PUBLICATIONS

---

### Academic Publications

#### **Refereed Journal Articles**

Alfie M. & Garcia-Becerra F.Y. A multi-stakeholder participatory methodology to facilitate socio-ecological climate change vulnerability–adaptation–resilience strategies: application of the Q Method. *Accepted* in Mitigation and Adaptation Strategies for Global Change. *In Press*  
<https://doi.org/10.1007/s11027-021-09988-9>

Garcia-Becerra, F.Y., Alfie Cohen, M., Pérez Reyes J. (2021). The Socio-technical Adoption of Dry Toilets at a Public University in Mexico City (prototype). *Sociedad y Ambiente* 24 (2021):1-29.  
<https://doi.org/10.31840/sya.vi24.2394>

Garcia-Becerra F.Y., Ortiz I. (2018). Biodegradation of emerging organic micropollutants in nonconventional biological wastewater treatments: a critical review. *Environmental Engineering Science* 35(10):1012-1036. <https://doi.org/10.1089/ees.2017.0287>

Alfie M., Garcia-Becerra, F.Y. (2018). Rise and fall of a sustainable Mexican public university: the case of UAM-C. *Advances in Higher Education*, 2(1). DOI: 10.18686/ah.v2i1.1068

Garcia-Becerra F.Y., Acosta E.J., Allen D.G. (2012). Wood adhesives based on alkaline extracts from wastewater biosolids and mustard protein. *Journal of the American Oil Chemists' Society*, 89 (7):1315-1323. <https://doi.org/10.1007/s11746-012-2024-z>

Garcia-Becerra F.Y., Acosta E. J., & Allen, D. G. (2010). Alkaline extraction of wastewater activated sludge biosolids. *Bioresource Technology*, 101(18):6983-6991.  
<https://doi.org/10.1016/j.biortech.2010.04.021>

Garcia-Becerra F.Y., Acosta E. J., & Allen, D. G. (2009). Surfactant-like properties of alkaline extracts from wastewater biosolids. *Journal of Surfactants and Detergents*, 13(3):261-271.  
<https://doi.org/10.1007/s11743-009-1164-0>

#### **Journal Manuscripts in Submission**

Alfie-Cohen M., Reyes-Perez J., Garcia-Becerra F.Y., Salinas-Toledano M. Socio-hydrological vulnerability and adaptive capacity in Cuajimalpa Municipality, Mexico City. Submitted to *Economía, Sociedad y Territorio*, a peer-reviewed journal.

#### **Journal Manuscripts in Preparation**

Garcia-Becerra F.Y., Gomez-Borraz T.L., Belmont M., Salinas-Toledano, M. Coupling treatment capabilities of GHGs reduction and microcontaminant removal in constructed wetlands, a review.

Soto C., Revah-Moiseev S., Garcia-Becerra F.Y. Bioremediation of carbamazepine by *Trametes sp.*, *Pseudomonas putida*, and *Sphingobacterium sp.*, as pure cultures and in fungal-bacterial pairs.

Molina-Flores O., Dickhaut W., Garcia-Becerra F.Y. Cost-benefit analysis for implementing decentralized waste to energy biodigesters in urban residential areas in megacities like Mexico City.

### **Refereed Book Chapters**

Garcia-Becerra F.Y., Alfie-Cohen A. (2020) Sociotechnical transformation for the implementation of decentralized sanitation in the Cuajimalpa Campus of the Autonomous Metropolitan University, in *Metropolitan Sustainable Water Management Actions* (In Spanish: Transformación sociotécnica para la implementación de saneamiento descentralizado en la Unidad Cuajimalpa de la Universidad Autónoma Metropolitana, en Acciones metropolitanas para la gestión sustentable del agua) ANUIES Press, Mexico City, 123-129. ISBN: 978-607-451-154-3

Olóriz-Sanjuán C., Garcia-Becerra F.Y., Villada-Canela M., Ramírez J.A., Aguilar-Benítez I., Barkwith A. (2020) Assessing Socio-Hydrological Resilience in Urban Metropolitan Environments: a Mexican Perspective in *Water Availability and Management: Regional and Local Approaches*, Water Science and Technology Series. Springer, 413-442. [https://doi.org/10.1007/978-3-030-24962-5\\_20](https://doi.org/10.1007/978-3-030-24962-5_20)

Garcia-Becerra F.Y. (2017) Sustainability and Outreach at UAM-C, in *Sustainability: Analyzing the Environmental Impacts of Higher Education Institutions* (In Spanish: La Sustentabilidad y Vinculación en la UAM-C, en Sustentabilidad: Analizando los Impactos Ambientales Generados por las Instituciones de Educación Superior), UAM Press, Mexico City, 112-120. ISBN: 978-607-28-1089-1.

Garcia-Becerra F.Y. (2016). Sustainability Indexes, in *Sustainability a Multidisciplinary Approach* (In Spanish: Índices de Sustentabilidad, en el libro Sustentabilidad, una visión multidisciplinaria). Edited by: Peñalosa-Castro & Quintero R., UAM Press, Mexico City, 237-250. [ISBN: 978-607-28-0806-5](#)

Garcia-Becerra F.Y., Landa Ordaz, R. (2016). Water Issues at a Glance, in *Sustainability a Multidisciplinary Approach* (In Spanish: Algunos elementos sobre la problemática del agua, en el libro Sustentabilidad, una visión multidisciplinaria). Edited by: Peñalosa-Castro & Quintero R., UAM Press, Mexico City, 261-274. [ISBN: 978-607-28-0806-5](#)

Parry D., Strehler J., Garcia-Becerra F.Y. (2014). Chapter 7: Considerations for Selecting and Evaluating Resource Recovery Options, in *Moving Towards Resource Recovery Facilities*. Water Environment Federation. [ISBN:978-1-57278-303-4](#)

Toffey W., Khunjar W. & Garcia-Becerra F.Y. (2012). Section: Catalyzing Innovation, in *The Energy Roadmap, A Water and Wastewater Utility Guide to More Sustainable Energy Management*. Water Environment Federation. [ISBN-10: 1572782730](#)

Garcia-Becerra F.Y., Allen D.G., & Acosta E.J. (2010). Chapter 9: Surfactants from Waste Biomass, in *Surfactants from Renewable Resources*. Edited by M. Kjellin and I. Johansson, John Wiley & Sons, Ltd., Wiltshire, Great Britain, 167-185. [DOI: 10.1002/9780470686607.ch9](#)

### **Submitted Book Chapters**

Garcia-Becerra F.Y. (2017). Investing in the Flipped Classroom Approach, in *Evolution and Perspectives of the Use and Appropriation of Information Technology in Higher Education Teaching* (In Spanish: Invirtiendo en la Clase Inversa, en el libro Evolución y Prospectiva del uso y apropiación tecnológica en la formación universitaria), UAM Press. *Submitted in January 2020, in review*

## **Industry Publications**

Garcia-Becerra F.Y. (2016). Global Sanitation (Wastewater) Practices and Future Trends. WEAO's Influent Magazine, Summer Issue, Summer Issue, 50-52.

<http://www.kelmanonline.com/httpdocs/files/WEAO/influentssummer2016/index.html>

Garcia-Becerra F.Y. (2013). Leadership and Innovation: Impressions from the Windy City - WEFTEC 2013. WEAO's Influent Magazine, Winter Issue, 46-47.

<http://www.kelmanonline.com/httpdocs/files/WEAO/influentswinter2013/index.html>

Garcia-Becerra F.Y., Pilobello A. (2013). WEAO YP Committee: Our Team Building Retreat. WEAO's Influent Magazine, Spring Issue, 16-17.

<http://www.kelmanonline.com/httpdocs/files/WEAO/influentsspring2013/index.html>

Garcia-Becerra F.Y. (2012). The New Professionals Committee 2012: We Have Come so Far, Let's Continue to Go Even Further. WEAO's Influent Magazine, Summer Issue, 15-14.

<http://www.kelmanonline.com/httpdocs/files/WEAO/influentssummer2012/index.html>

White C., Johnson A., Garcia-Becerra F.Y. (2011). Condition Assessment of York Region's Forcemain. WEAO's Influent Magazine, Winter Issue, 34.

<http://www.kelmanonline.com/httpdocs/files/WEAO/influentswinter2011/index.html>

Chau V., Garcia-Becerra F.Y. (2011). Beyond Tangible Capital Asset Reporting to Effective Asset Management. WEAO's Influent Magazine, Winter Issue, 54-55.

<http://www.kelmanonline.com/httpdocs/files/WEAO/influentswinter2011/index.html>

---

## **INVITED TALKS**

Garcia-Becerra F.Y. Life as a woman in Science and Engineering. International Women's Day Colloquium, Universidad Latinoamericana, Mexico City, Mexico. March 2021. Keynote speech

Garcia-Becerra F.Y. Water and Sanitation Engineering Solutions for 21st Century Cities. World Water Day Interdisciplinary Colloquium, UAM, Lerma Campus, Toluca, Mexico. March 2018. Keynote speech.

Garcia-Becerra F.Y. Resilient and sustainable management of urban resources. 3<sup>rd</sup> Annual Symposium of Water Resources. UAM, Iztapalapa Campus, Mexico City, Mexico. September 2017. Keynote speech.

Garcia-Becerra F.Y. Sustainability and resiliency. 11<sup>th</sup> Mexican Conference in Resiliency. Universidad Nacional Autónoma de México (UNAM), Iztacala Campus, Mexico City, Mexico. June 2015. Keynote speech.

Garcia-Becerra F.Y. Panel Discussion: Climate change: Can we stop it? UAM's Continuing Studies Centre and Rafael Galván Cultural House, Mexico City, Mexico. July 2015. Panelist.

---

## **CONFERENCE PARTICIPATION**

### **Academic Conferences**

#### **Conference Organization**

Lead organizer of the Sociohydrological Vulnerability, Adaptation and Resilience in Mexico City: Towards a Vital Equilibrium Conference (on-line), November 2020,

<https://vimeo.com/showcase/7813147> (password: UAM2020).

Member of Scientific Selection Committee of the 2nd International Resource Recovery Conference, International Water Association, New York City, USA. August 2017.

Member of the Organizing Committee of the Annual CEIMEXCAN (Confederation of Mexican Students and Researchers in Canada) Conference, Toronto, Canada. August 2011.

### **Conference Presentations with Extended Abstracts**

Garcia-Becerra F.Y. & Alfie Cohen. Sociotechnological transformation for the implementation of decentralized sanitation systems at UAM-C. Metropolitan Water Issues Forum (Regional Council of the National Association of Universities and Higher Education Institutions), Mexico City, Mexico. September 2018.

Garcia-Becerra F.Y. & Alfie Cohen. Poster: Sociotechnological transformation for the implementation of an urban dry toilet in a university in Mexico City. 2nd International Resource Recovery Conference (IWA), New York City, USA. August 2017.

Soto, C., Revah-Moiseev S., Garcia-Becerra F.Y. Poster: Development of fungal-bacterial granular sludge as secondary treatment for simultaneous biodegradation of organic loading and carbamazepine in domestic wastewater. Frontiers International Conference on Wastewater Treatment (IWA), Palermo, Italy. May 2017.

Soto, C., Revah Moiseev, S., Garcia-Becerra F.Y. Design of fungal/bacterial granules for wastewater treatment (bioremediation). 10th International Society of Environmental Biotechnology (ISEB) Conference, Barcelona, Spain. June 2016.

Soto, C., Revah-Moiseev, S., Garcia-Becerra F.Y. Design of fungal/bacterial granules for wastewater treatment. 37<sup>th</sup> Conference of the Mexican Association of Chemical Engineering Research and Teaching (AMIDIQ in Spanish) Conference, Puerto. Vallarta, Mexico. May 2016.

Garcia-Becerra F.Y., Sarabia-Rodríguez L.E., Aguilar-Melo C.M., Tapia-Orozco N.G. Rodríguez-Vázquez R. Novel treatment of municipal wastewater for water reuse with green coffee bean microbial consortium and Nano-TiO<sub>2</sub>/UV photocatalysis. International Water Association (IWA) Water, Energy and Climate Conference 2014, Mexico City, Mexico. May 2014.

Garcia-Becerra F.Y., Acosta E.J, Allen D.G. Production of Detergents from Wastewater Sludge. Presented at the 8th World Conference of Chemical Engineering, Montreal, Quebec. August 2009.

Garcia-Becerra F.Y., Acosta E.J, Allen D.G. Poster: Extraction of Value-Added Products from Waste Activated Sludge. Poster session presented at the 82nd Annual Water Environment Federation Technical Exhibition Conference (WEFTEC), Orlando, Florida. October 2009.

Garcia-Becerra F.Y., Acosta E.J, Allen D.G. Production of Biosurfactants from Wastewater Sludge. Presented at the 82nd Colloid and Surface Science Symposium from the American Chemical Society Division of Colloid and Surface Science. June 2008.

### **UAM-C Conference Organization**

Lead organizer of the Socio-technological transformation for sustainable water management Conference (Transformación socio-tecnológica para el manejo sustentable del agua), October 2019,

<https://www.youtube.com/watch?v=zgdd9ppweUQ>

Lead organizer of the Water Issues in Mexico City Conference (Problemática del agua en la Ciudad de México), UAM-C, November 2019. <https://www.youtube.com/watch?v=8jPLkXqYtBs>

### **UAM-C Conference Presentations**

Garcia-Becerra F.Y. University, its Reach and Surroundings. 2nd Academic Forum on the Development of Mexico's City Western Zone; Mexico City, Mexico. November 2016.

Garcia-Becerra F.Y. Panel Discussion: The Sustainability Centre at Santa Rosa Xochiac. Conference on Environmental Projects in the Western Towns and Neighborhoods of Mexico City. Mexico City, Mexico. May 2016.

Garcia-Becerra F.Y. Wastewater Treatment Plants: Towards a sustainable sanitation and urbanization. On our way to COP21 Paris, Mexico City, Mexico; October 2015.

### **Industry Conferences**

Hu Z., Porter D., Garcia-Becerra F.Y. Energy Optimization is Not Just Electrical - A Holistic Approach for Energy Optimization in WWTPs. Presented at the WEO 2013 Annual Conference, Toronto, Ontario, April 2013.

Iampietro M., Chau V., Garcia-Becerra F.Y. Business Review of the Asset Inspection Group Connections Program for the Regional Municipality of York. Presented at the WEO 2013 Annual Conference, Toronto, Ontario, April 2013.

Chau V., Lifton G., Garcia-Becerra F.Y. Levels of Service - What is Your Willingness to Pay? Presented at the WEO 2013 Annual Conference, Toronto, Ontario, April 2013.

### **RESEARCH GRANTS**

---

Note: The amount in parenthesis represents what is allocated to Dr. Garcia-Becerra as a collaborator.

#### **Academia**

Rational biological design and transdisciplinary evaluation of constructed wetlands as a sustainable decentralized sanitation solution in Mexico City, Project No. FF\1920\1\43, \$513,917 CAD (\$102,825 CAD). Funding agency: Frontiers Follow-on, Royal Academy of Engineering (RAEng), United Kingdom (UK); 2020–2023. <https://www.raeng.org.uk/global/sustainable-development/frontiers/frontiers-follow-on-grants/awardees-2019-2020/rational-biological-design-and-transdisciplinary-e>

Adaptation and socio-hydrological resilience in the peri-urban environment of Mexico City: Artificial Wetlands, Project No. 2019-209, \$401,775 CAD (\$123,643 CAD). Funding agencies: Mexico City's Ministry of Education, Science, Technology, and Innovation (SECTEI for its abbreviation in Spanish) and the British Council; 2019–2021. <https://www.fluxus-equilibrium.com/>

Optimising constructed wetlands by biological design, Project No. FoE7\19207, \$51,378 CAD (\$22,553 CAD). Funding agency: Frontiers of Engineering, RAEng, UK; 2019–2021.

Sanitation for urban inclusion, transformation and equity, Project No. FoE7\ 19204, \$51,364 CAD (\$5,140 CAD). Funding agency: Frontiers of Engineering, RAEng, UK; 2019–2021.

Socio-technological transformation for a sustainable peri-urban water management via constructed wetlands (**Regenerative Constructed Wetlands Project**), Project No. 7065, \$174,949 CAD. Funding agency: CONACyT, MX; 2018–2021; Principal investigator: Garcia-Becerra F-Y., Link to project's website: <http://www.cua.uam.mx/proyectos-sustentables/humedales-regenerativos-periurbanos>

Climate change vulnerability and resiliency analysis in peri-urban socio-ecological systems, Project No. 263102, \$120,551 CAD (\$6,184 CAD). Funding agencies: CONACyT and SEMARNAT (Mexico's National Ministry of the Environment and Natural Resources); 2016–2018

Socio-technological transformation for the sustainable management of organic waste (**Urine-Diverting Dry Toilet Project**), \$42,656 CAD. Funding agency: UAM-C Rectory; 2015–2017; Principal investigator: Garcia-Becerra F-Y., Link to project's website: <http://cua.uam.mx/proyectos-sustentables/programa-manejo-sustentable-de-residuos-organicos>

Process integration to recover materials and energy from wastewater treatment plants, Project No. 2989, Garcia-Becerra's salary (fellowship). Funding agency: CONACyT, MX; Cátedra CONACyT research project; 2014–2021.

## **Industry**

Junior professional's knowledge transfer/management assessment initiative for the North American water business group, \$3,900 CAD. Research lead: Garcia-Becerra F-Y. Funded by CH2M Hill. Winning proposal of the Mentorship and Professional Development for Junior Professionals Committee contest. 2011–2012.

---

## **SERVICE TO PROFESSION**

### **Academia**

Member, Evaluating Committee of the doctoral thesis “Degradation of DDT and its intermediaries through biostimulation of native soil populations as a subsequent treatment to the use of galvanic iron-copper corrosion” of Velasco Trejo J.A at UAM-C. Examination Date: November 9, 2017.

Evaluator, UIA's Evaluation and Selection of Research Projects for Internal Funding Committee. November 2017.

Member, Academic Quality Evaluating Committee. Evaluated audiovisual material: Preservation and Sustainability: The Size of the Challenge (In Spanish: Conservación y sustentabilidad: la magnitud del reto). UAM, Lerma Campus. February 2017.

Evaluator, Biotechnology Committee for the 2016 Call for Proposals, CONACyT-Ministry of Economy Technological Innovation Fund. August 2016 and November 2017.

Evaluation Coordinator, Water Pollution and Management. Committee of the 2015 Call for Proposals, CONACyT-Scientific Research to Address National Problems Fund. June 2016.

Evaluator, Water Pollution and Management Committee of the 2015 Call for Proposals, CONACyT-Scientific Research to Address National Problems Fund. May 2016.

### **Industry**

Member, Board of Directors of the Water Environment Association of Ontario (WEAO, WEF's Ontario Member Association); 2012–2013.

Chair, Young Professionals (YP) Committee, WEAO; 2012 to 2013. Led the development of the strategic annual work plan through a participatory process. Increased and restructured committee operating roles (from 8- to 15-person team). Developed Communications and Social Media Strategy (managed 19 YP publications, implemented LinkedIn and Twitter spaces). Enhanced quantity and quality of technical and social events, resulting in 125% increase in events' attendance (80-120 attendees). Organized the YP activities at the 2013 WEAO Conference. Managed a \$10,000 CAD budget.

### **Government**

Member, Job Competencies for Ecotechnological Green Jobs Committee, Mexico City's Ministry of Labour (STyFE in Spanish) and Water and Wastewater Secretariat (September 2020 to date). This multi-institutional and multi-stakeholder committee is currently developing the job competency requirements and guidelines for the emerging rainwater harvesting sector in Mexico City.

Evaluator/Mentor of Climate Change Initiatives, Women and Girls' Post-COVID 2020 Hackathon, Women's National (Mexico) Institute (INMUJERES in Spanish, July 2020).

Member, Working Group of the Green Action Program, Mexico City's Ministry of Labour (STyFE in Spanish, 2019). This multidisciplinary working group outlined the action plan to foster green jobs and entrepreneurship within the jurisdiction of Mexico City.

Member, Working Group of the Environmental Standardization Committee, Mexico City's Ministry of the Environment, developing Mexico City's 2019 Bylaw Draft PROY-NADF-011-AMBT-2018 (2018–2019). This multidisciplinary working group established the criteria for the reduction of atmospheric VOC emissions from commercial and industrial point sources within the jurisdiction of Mexico City.

## **ACADEMIC COMMITTEES**

---

### **Universidad Autonoma Metropolitana**

Member Curriculum Reviewing Committee of the Biological Engineering Undergraduate Program, Jan to July 2017.

Member of Evaluating Committee. UAM-C's Environmental Management. January to April 2017.

Member of Organizing Committee. 2nd Academic Forum on the Development of Mexico's City Western Zone. July to November 2016.

Organizing Committee Chair, Technological Innovation Panel Discussion and Women in Science and Engineering Panel Discussion, in the 3rd Annual Biological Engineering Week. May to July 2016.

Member of Organizing Committee of the SEPARACION Program (Waste Source Sorting Program). July to December 2015.

## **TEACHING EXPERIENCE**

---

### **Graduate Courses**

Advance Environmental Biotechnology (Spring 2018, Spring 2019), Instructor, Natural Sciences and Engineering Graduate Program (abbreviated PCNI for its name in Spanish), UAM-C, Mexico  
Environmental Chemistry (Summer 2016), Instructor, PCNI Graduate Program, UAM-C, Mexico  
Principles of Chemical Engineering for Non-Engineers (Fall 2010), Teaching Assistant (TA), Chemical Engineering and Applied Chemistry Graduate Program, UofT, Canada

### **Undergraduate Courses**

Engineering Design III, Municipal Engineering (Winter 2022), Instructor, Environmental Engineering, UNBC, Canada  
Groundwater Flow and Contaminant Transport (Fall 2021), Instructor, Environmental Engineering, UNBC, Canada  
Sustainable Entrepreneurship and Ecotechnologies (**online**, Spring 2020), Instructor, Elective Interdisciplinary Course (Undergraduate degrees: Biological Engineering and Molecular Biology), UAM-C, Mexico  
Separation Processes (Spring 2019), Instructor, Biological Engineering, UAM-C, Mexico  
Ecotechnologies (Spring, 2017 and 2018), Instructor, Elective Interdisciplinary Course (Undergraduate degrees: Biological Engineering, Molecular Biology and Design), UAM-C, Mexico  
Ecotechnologies I (Fall, 2016), Instructor, Elective Interdisciplinary Course (Undergraduate degrees: Biological Engineering, Molecular Biology and Design), UAM-C, Mexico  
Environmental Engineering (Summer, 2016), Instructor, Biological Engineering, UAM-C, Mexico  
Physical Chemistry (Spring, 2015, 2018), Instructor, Biological Engineering, UAM-C, Mexico  
Sustainability Seminar (in person and **online**, Fall, 2014–2020), Instructor, Biological Engineering, UAM-C, Mexico  
Engineering Practices and Strategies (Fall, 2006–2008), TA, 1st year undergraduate engineering students, UofT, Canada  
Analytical Chemistry Laboratory (Spring, 2001–2003), TA (sole taught), Chemical Engineering, UIA, Mexico

*Note: UAM has three terms throughout the year: Spring (January to March), Summer (May to July) and Fall (September to December)*

## **SUPERVISION EXPERIENCE**

---

### **Postdoctoral Researcher**

Gómez Borraz, T.L. (Mexican Researcher ID: CVU 347764). Evaluation of three peri-urban treatment wetland systems, through the characterization of microbial communities (2019 to 2021), UAM-C.

### **Master's Thesis**

Cruz-Rangel C. Biodegradation of carbamazepine as a wastewater micropollutant by a microbial consortium from the Lerma River (2018 to date). PCNI, UAM-C. Co-supervised with Ortiz I.

Soto-Guzmán C. Design of fungal/bacterial granules for wastewater bioremediation (2014–2017). PCNI, UAM-C. Co-supervised with Revah-Moiseev S.

Molina-Flores O. Analysis of the potential for implementing decentralized waste to energy biodigesters in urban residential areas in megacities like Mexico City (2016–2017). REAP Master Program, HafenCity University, Hamburg. Co-supervised with Dickhaut W.

### **Undergraduate Thesis**

Salinas-Toledano M. Evaluation and monitoring of three small-scale domestic constructed wetlands (2020 to date), Biological Engineering, UAM-C

Hernández-Osorno E., Design, construction and startup of a small-scale constructed wetland (2018), Biological Engineering, UAM-C

Romero-Contreras M., Growth of fungal/bacterial granules in a bench-scale external-loop airlift bioreactor (2018), Molecular Biology, UAM-C

Caballero-Zúñiga I., Emerging contaminants: Microplastics in laundry greywater (2016–2017), Molecular Biology, UAM-C

Vázquez-Ortiz U., Identification of value-added biopolymers in fungal-bacterial granules (2016), Biological Engineering, UAM-C

Zhao L., Alkaline extraction for triglycerides and polyunsaturated fatty acid from microalgae (2008–2009), co-supervised with Acosta E.J., Chem. Eng., UofT

Liu S, Characterization of wastewater sludge extract as biosurfactant (2007–2008), co-supervised with Acosta E.J., Chem. Eng., UofT

Wong R., Assessing the adhesiveness of extracted biopolymers from wastewater activated sludge (2007–2008), co-supervised with Allen D.G., Chem. Eng., UofT

Maniyali Y, Extraction of exopolymeric substances from wastewater sludge (2006–2007, co-supervised with Acosta E.J.), Chem. Eng., UofT

### **Undergraduate 6-month Research Projects**

Bautista-Hinojosa L.E., Sampling and characterization of microplastics from domestic wastewaters in the community of San Mateo Tlaltenango (2019-2020), co-supervised with Rivera-Becerril E., Molecular Biology, UAM-C

Rocha Ojeda R., On-line monitoring of a small-scale constructed wetland (2019), Chem. Eng., UIA

Crosswell-Patlan A., Design, construction and startup of a small-scale constructed wetland (2019), Chem. Eng., UIA

Griesz A., Design of microbial fuel cells using sterilized urine (2018), Exchange student from TU Berlin at UAM-C

Silis-Segura J.A., Prototype of an automated dry toilet (2017), Design Studies, UAM-C

Soto-Ortega H.E., Ergonomics and design of the user interface in a dry toilet (2017), Design Studies, UAM-C

### **Research Assistants**

Galeno-Rincón, S. V., Regenerative Constructed Wetlands Project (2019–2020), Biological Engineering, UAM-C

Escobar-Maitrett Y., Regenerative Constructed Wetlands Project (2019–2020), Design Studies, UAM-C

Guzmán-Ponce M.V., Regenerative Constructed Wetlands Project (2019), Communications Science, UAM-C

Pesqueira-Mateos L., Urine-Diverting Dry Toilet Project (2017), Molecular Biology, UAM-C

Sánchez-Segura A., Urine-Diverting Dry Toilet Project (2015–2016), Socioterritorial Studies, UAM-C

### **Summer Students**

D'Costa C., 2010, Chem, Eng., UofT

Lai M., 2009, Chem, Eng., UofT

Xuan C., 2008, Chem, Eng., UofT

Maniyali Y., 2007, Chem, Eng., UofT

## **MEDIA COVERAGE**

---

### **World Water Day**

Mexican women facing climate change (Mexicanas frente al Cambio Climático), 2021:

[https://www.facebook.com/watch/live/?v=554159282198321&ref=watch\\_permalink](https://www.facebook.com/watch/live/?v=554159282198321&ref=watch_permalink)

### **Regenerative Constructed Wetlands Project**

Radio Educación (see after 32:42), 2020: <https://youtu.be/Tqn0IGeNOvQ?t=1962>

Radio UAM (see after 20:10), 2020: <https://www.facebook.com/uam.mx/videos/517598019168923/>

Procesos Magazine, 2019: <https://www.proceso.com.mx/606749/la-uam-impulsa-proyecto-para-el-manejo-sustentable-de-agua>

La Prensa Magazine, 2019: <https://www.la-prensa.com.mx/doble-via/ecologia/impulsa-la-uam-el-manejo-de-aguas-residuales-y-la-preservacion-de-ecosistemas-4440742.html>

UAM Videos, Water Issues in Mexico City, 2019:

[https://www.youtube.com/watch?v=LH\\_Xac3aidc&feature=youtu.be](https://www.youtube.com/watch?v=LH_Xac3aidc&feature=youtu.be)

Televisión Azteca, 2019: <https://twitter.com/AztecaNoticias/status/1200184456151101441?s=08>

### **Sustainable and Resilient Entrepreneurship**

Mexican Women Scientists' Podcast, Interview on sustainable entrepreneurship, 2020:

<https://open.spotify.com/episode/1SSVXozkWSaM7LPZPzOsPB?si=xeBFWcSYSuaxK3uSrQXQ0Q>

CRER (NGO), Interview on Sustainability and Resilience, 2020:

[https://www.instagram.com/tv/CA\\_nKFqjbmS/?utm\\_source=ig\\_web\\_copy\\_link](https://www.instagram.com/tv/CA_nKFqjbmS/?utm_source=ig_web_copy_link)

Empresas Verdes, 31 Mujeres Comprometidas con el Medio Ambiente, 2020:

<http://lasempresasverdes.com/>

UAM Videos, Sustainable and resilient entrepreneurship, 2019:

<https://www.youtube.com/watch?v=5Zy4bMTTtMM&feature=youtu.be>

### **Urine-Diverting Dry Toilet Project**

Televisa, 2017: <http://noticieros.televisa.com/videos/uam-cuajimalpa-realiza-prototipo-bano-seco/>

Flor Y. Garcia-Becerra, P.Eng., Ph.D., M.Biotech, B.Eng.

## **VOLUNTEERING EXPERIENCE**

---

**Co-Founder**, Blue Drinks Mexico City; 2018 to date. Promote the entrepreneurial ecosystem in Mexico City devoted to sustainable business initiatives in the Global South. Organize multi-stakeholder discussions within the quintuple innovation helix (activists, government, academia, local communities, businesses) to identify and evaluate unlocked opportunities in entrepreneurial activities to achieve triple bottom-line profits.

**Committee Chair**, Projects Committee, Mexican Talent Network (Toronto Chapter); 2009 to 2013. Projects Committee Chair (4-person team). Founding member and part of the steering committee.

**World Water Corp**, Mexico Scoping Study Team Lead for Water for People (WFP); 2006 to 2007. Assessed the sustainability and scalability of water and sanitation projects for Mexican marginalized populations with WFP's capacity-building model. Surveyed Mexican academics, local governments, NGOs, and marginalized communities about water and sanitation issues/projects. Presented the Scoping Study report and provided detailed recommendations to the International Programs Committee and the WFP Board of Directors.

## **PROFESSIONAL DEVELOPMENT**

---

### **Engineering and Entrepreneurship Training.**

2018 Cohort of the National Science Foundation-CONACyT I-Corp Academic Entrepreneurship Program (Energy Innovation Binational Node (US-Mexico), 2018, 2.5 months)

Diploma on Ecotechnologies for Sustainable Development (National Autonomous University of Mexico, 2016-2017, 6 months)

Diploma on Upper-management Skills (National Polytechnic Institute, Mexico, 2015, 8 months)

Entrepreneurship for Scientists and Engineers Workshop (Mesoamerican Centre for Theoretical Physics, 2013, 1 week)

1st Regional Forum on Bioengineering for Composting (Postgraduate Collegiate, 2013, 2 days)

WEAO's Sustainable Energy in Perspective, Capitalizing on Wastewater Workshop (2013, 1 day)

Sustainable Engineers Association Conference (UofT, 2013, 1 day)

WEF Preliminary Treatment Course (2012, 1 week)

OWWA/WEAO Asset Management Committee's Workshop 'Planning and Managing Risks' Workshop (2012, 2 days)

WEAO's Whole WWTP Modeling Workshop (2011, 1 day)

AIChE's Current Trends in Industrial Sustainability Web Forum (2011, 1 day)

OWWA-YP's Advances in Asset Management Workshop (2011, 1 day)

Certificate of MaRS Entrepreneurship 101 (2008, 4 months)

### **Teaching and Leadership Training.**

Diploma on UAM-C Student-Centered/Active-Learning Teaching (UAM-C, 2015, 6 months)

Acumen+ Adaptive Leadership (2013, 3 months)

Certificate of Prospective Professors-in-Training Program from the Faculty of Applied Science and Engineering, UofT (2008, 6 months)

Toronto Leadership Forum, UofT (2007, 1 day)

## **SPECIALIZED COMPUTER SKILLS**

---

PQMETHOD software; PRO2D™ (wastewater treatment simulation program); Minitab 15; Polymath; Matlab; Control Station; Aspen Plus; Visio; SharePoint; Microsoft Office; Microsoft Project; Adobe Acrobat; Adobe Photoshop; Corel.

## **LANGUAGES**

---

English (native proficiency in reading, speaking, and writing)

Spanish (native proficiency in reading, speaking, and writing)

## **PROFESSIONAL ACCREDITATIONS AND AFFILIATIONS**

---

Professional Engineers Ontario (Professional Engineer License No.: 100187344).

UK–Mexico Urban Water Security Research Network

CONACyT's Interdisciplinary Water Management and Research Network (RetGIA)

Ontario Water Environment Federation (WEF Member Association: WEAO)