Angélica Marie González Martínez

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ACADEMIC BACKGROUND

Master's degree in Science in Biology — August 2019 – Current
University of Puerto Rico at Mayagüez Campus — **(**Expected graduation date: May 2022)

Baccalaureate Degree in Industrial Microbiology — August 2014 – May 2019
University of Puerto Rico at Mayagüez Campus

RELEVANT COURSES

Immunology, Clinical Microbiology, Biological Sequence Analysis, Organic Chemistry, Biochemistry I, Microbial Physiology, Genetics with laboratory, Microbiology with laboratory, Enhancing Verbal, Analytical Reading and Writing Skill of Cancer Research, Bacterial Genetics with laboratory, Metagenomic with laboratory, Biology and Technology of Plasmids with laboratory, Prokaryotic Molecular Genetics and Gene Regulation.

WORK EXPERIENCE

August 2019 to February 2020 – University of Puerto Rico Mayagüez Campus
Teaching Assistant:
BIOL4365 – Microbial Ecology Laboratories
BIOL3770 – General Microbiology Laboratories

RESEARCH EXPERIENCES

Graduate Research - University of Puerto Rico at Mayagüez

- **Isolation and Characterization of Specific Bacteriophages for *Pseudomonas aeruginosa* and *Staphylococcus aureus* from a Wastewater Treatment Plant in Mayagüez, Puerto Rico.**
  August 2019 – Present, PI: Carlos Ríos-Velázquez, Ph.D.
  - Objective: Isolate *P. aeruginosa* and *S. aureus* bacteriophages. Given these bacteria are found in wastewaters and bacteriophages can survive with their host, samples from a wastewater treatment plant in Mayagüez, Puerto Rico were collected and used as sampling sites.
  - To increases the bacteriophages concentration, an enrichment was performed by inoculating wastewaters filtrate with their respective hosts (*P. aeruginosa* (ATCC 19660) and *S. aureus* (ATCC 25923)), after amplification, the presence of the phages was confirmed using bacterial lawn-spotted test and plaque assays.
  - The specificity test of the isolated bacteriophages of *P. aeruginosa* and *S. aureus* was tested with a bacterial group that included certifies strains of *P. aeruginosa*, *S. aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella aerogenes*, *Bacillus subtilis*, and *Salmonella diarizonae*. The presence of plaques was only found in their respective host.

- The genetic material of the *S. aureus* and *P. aeruginosa* bacteriophages has been successfully extracted.

- **Isolation and Characterization of Bacteriophages of *Salmonella sp.* from a Wastewater Treatment Plant in Mayagüez, Puerto Rico.**
  August 2021 – Present, PI: Carlos Ríos-Velázquez, Ph.D.
  - Objective: Isolate *Salmonella diarizonae* bacteriophages. Given these bacteria are found in wastewaters and bacteriophages can survive with their host, samples from a wastewater treatment plant in Mayagüez, Puerto Rico were collected and used as sampling sites.
  - To increases the bacteriophages concentration, an enrichment was performed by inoculating wastewaters filtrate with their respective hosts (*S. diarizonae* (ATCC 107496), after amplification, the presence of the phages was confirmed using bacterial lawn-spotted test and plaque assays.

- **Generation of small size metagenomic libraries (4 to 24 kilo base) of soil samples below the reflector plate of the Arecibo Observatory, in Puerto Rico.**
  January 2021 – May 2021, PI: Carlos Ríos-Velázquez, Ph.D.
  - Objective: Generating metagenomic libraries with DNA inserts between 4 to 24 kilo bases, using the vector pCF430.
  - Using direct DNA extraction methods, DNA was extracted from soil samples from of soil samples below the reflector plate of the Arecibo Observatory, in Puerto Rico.
  - But due to different conditions in the laboratory that were used, it was not possible to generate any clone.

Undergraduate Research - University of Puerto Rico at Mayagüez

- **Mycological bioprospects isolated from soil samples below the reflector plate of the Arecibo Observatory that are capable of tolerating metals**
  January 2019- May 2019, PI: Carlos Ríos-Velázquez, Ph.D.
  - Objective: Resistance to high concentrations of copper was detected in the isolated fungi under the reflector plate of the Arecibo Observatory, and the total biosorption capacity of these fungi towards copper was evaluated.

- **Biomedical and biotechnological applications of mycological bioprospects isolated from water samples, soils of the periphery and the center, located under the 305m reflector plate of the Arecibo Observatory.**
  January 2017-December 2018, PI: Carlos Ríos-Velázquez, Ph.D.
  - Objective: Isolation and characterization of mycological bioprospects underneath the Arecibo Observatory 305m reflector dish using culture dependent approaches.
  - They were characterized the isolated fungi macroscopically, and microscopically using wet mount technics.
  - Antibiosis tests of a selection of isolated fungi were performed, using radial techniques.

- **Isolation and Identification of Tetracillin and Ampicillin Resistant Bioprospects in a Metagenomic Library of the Gut Microbiota of *Caracolus marginella***
  June 2016 – December 2016, PI: Carlos Ríos-Velázquez, Ph.D.
    - Objective: The amount of microorganisms present in the intestine of *Caracolus marginella* and the microbial group they belonged (fungus or bacteria) was determined, using culture-dependent techniques.
    - Identification of tetracycline and ampicillin resistance genes by transposon mutagenesis in metagenomic libraries of *Caracolus marginella* intestine from different parts of Puerto Rico (South, North, East, and West).

UNDERGRADUATE STUDENT MENTORING

August 2021 - present – Advisor of International Genetically Engineered Machine (iGEM) – Group representative of University of Puerto Rico, Mayaguez Campus - "R-DetoX: A Biodegradation Solution for RDX Contamination in the Anones Lagoon in Vieques, Puerto Rico"

- Gold medal in Giant Jamboree 2021 - (November 2021).

August 2021 – present - Carlos Ocasio - Isolation and Characterization of Specific Bacteriophages for *Pseudomonas aeruginosa* from Mayagüez, Puerto Rico Wastewater Treatment Plant.

January 2021 to May 2021 - Estefania Rubio - Isolation and characterization of specific bacteriophages for *Klebsiella pneumoniae* and *Staphylococcus aureus* from water samples from the treatment plant in Mayagüez, Puerto Rico with biomedical impact.

August 2020 – December 2020 - Gabriela M. Figueroa - Isolation and characterization of specific bacteriophages for *Klebsiella pneumoniae* from the water sample of the treatment plant in Mayagüez, Puerto Rico with biomedical impact.

June 2020 – July 2020 - Eric Pérez - Isolation of bacteriophages specific for *Klebsiella pneumoniae* from stool samples from the Experimental Farm belonging to the Faculty of Agricultural Sciences of the University of Puerto Rico, Mayagüez Campus; located in the municipality of Lajas, Puerto Rico with biomedical impact.

June 2020 – July 2020 - Paola F. Rivera - Isolation and characterization of specific bacteriophages for *Klebsiella pneumoniae* from the water sample of the treatment plant in Mayagüez, Puerto Rico with biomedical impact.

January 2020 to May 2020 - Angel Hernandez - Isolation of specific bacteriophages for *Klebsiella pneumoniae* with biomedical impact.

January 2019- May 2019 - Nilka I. Lorenzo - Isolated mycological bioprospects from soil samples below the reflector plate of the Arecibo Observatory that are capable of tolerating metals

PRESENTATIONS

2021 – Angélica M. González Martínez. Isolation and Characterization of Specific Bacteriophages for *Pseudomonas aeruginosa* and *Staphylococcus aureus* from a Wastewater Treatment Plant in Mayagüez, Puerto Rico.
PI: Carlos Ríos-Velázquez, PhD.

- **Poster presentation**
  Annual Biomedical Research Conference for Minority Students 2021 (ABRCMS) (November 10-13, 2021)

  American Society for Microbiology (ASM) Microbe 2021 (June 23, 2021)

  XXIV Sigma Xi Poster Day (May 10, 2021)

  39th Puerto Rico Interdisciplinary Scientific Meeting and the 54th ACS Junior Technical Meeting (April 24, 2021)

  Annual Biomedical Research Conference for Minority Students 2020 (ABRCMS) (November 9-13, 2020)

  AAAS Caribbean Division Virtual Annual Meeting (October 24, 2020)

  Society for Advancement of Chicanos/Hispanics & Native Americans in Science (October 16, 2020)

- **Oral presentation**

  63rd PRSM Annual Conference 2021 (June 3, 2021)

  RUM Research Fair (March 11, 2021)

  43rd Senior Technical Meeting, 54th Junior Technical Meeting & PR-LSAMP Fall Meeting (December 5, 2020)

2019 – Angélica M. González Martínez. Mycological bioprospects isolated from soil samples below the reflector plate of the Arecibo Observatory that are capable of tolerating metals.
PI: Carlos Ríos-Velázquez, PhD.

- **Poster presentation**
  XXIII Sigma Xi Poster Day (April 25, 2019)
- **Oral presentation**
  38th Puerto Rico Interdisciplinary Scientific Meeting and the 53rd Junior Technical Meeting (May 4, 2019)

  Biology Research Symposium (May 9, 2019)

2018 – Angélica M. González Martínez. Biomedical and biotechnological applications of mycological bioprospects isolated from water samples, soils of the periphery and the center, located under the 305m reflector plate of the Arecibo Observatory.

PI: Carlos Ríos-Velázquez, PhD.

- **Poster presentation**
  XXII Sigma Xi Poster Day (May 10, 2018)
- **Oral presentation**
  7mo Symposium of Undergraduate Research in Biology (May 19, 2018)

AWARDS

2021-Present Department of Homeland Security-Academic Research Initiative (DHS-ARI) UPR-M, Innovative Wide Area Sensing-Mitigation Technologies for Countering Weapons of Mass Destruction Office (CWMD)

2020-Present PR-LSAMP Bridge to the Doctorate Program Cohort XIII fellowship at UPR-Mayagüez

2018-2019 Puerto Rico Louis Stokes Alliance for Minority Participation (PR-LSAMP)

2014-2016 Biology Honor at UPR- Mayagüez

SKILLS

Personal:

- Ability to work with minimal supervision and under pressure
- Fast learner
- Teamwork
- Organized, responsible and punctual.
- Time management
- Responsible
- Leadership
- Design Thinking

Scientific:

- Nucleic acid isolation, manipulation, and analysis.
- Metagenomic Libraries generation.
- Use of recombinant DNA technology such as PCR, cloning and use of Restriction enzymes.
- Spectrophotometry
- General microbiological techniques for the isolation, and manipulation of microbes.

Computer Proficient:

- Using spreadsheet programs.
- Using word processing tools and software.
- Using programs for preparation of presentations

POSITION

2021 - Graduate leadership in Microbial Biotechnology and Bioprospecting Laboratory.

2021 - Part of the focus group of PR-LSAMP Bridge to the Doctorate Program Cohort XIII fellowship at UPR- Mayagüez.

2019 – Present - Lab supervisor in CHEMATIX elaboration.

EXTRACURRICULAR ACTIVITIES

2021 - Community Involvement Workshops – Public School Vicente Acevedo Ballester, Barceloneta P.R. "STEAM: Science and Art in action..."

2021 - Community Involvement Workshops – Public School José Rojas Cortés, Orocovis P.R. "STEAM: Science and Art in action..."

2021 - Community Involvement Workshops – Colegio San Juan Bautista, Orocovis P.R. "Latinas Moving STEAM"

2021 - Community Involvement Workshops – Virtual, Synthetic Biology Summer Camp SynBio101. "STEAM: Science and Art in action..."

2020 - Scientific fair judge - Colegio Southwestern Educational Society ("SESO") Mayagüez P.R.

2019 - Community Involvement Workshops – University of Puerto Rico, Mayagüez Campus (UPRM). Laboratory and Techniques of Genetic Engineering and Recombinant DNA.

2018 - Undergraduate Internships in Cardiovascular Surgery at the Mayagüez Medical Center Dr. Ramón Emeterio Betances

2018 - Undergraduate Internships in Internal Medicine at the Mayagüez Medical Center Dr. Ramón Emeterio Betances

2014 – 2018 - Member of the dance team of the University of Puerto Rico, Mayagüez Campus (UPRM)

- Co-Captain.

TRAINING/SEMINARS

2021 – Be More Creative Certification

- Certified

2021 - Analysis of biological images using Image J and Cell Profiler programs.

- Virtual Workshop

2021 - Virtual Knowledge Board: Race and Census 2020: And where are white people? Analysis of results and proposals for the future.

- Certified

2021 - Proposals Preparation Certification
- Certified

2021 - Design Thinking Certification
- Certified

2020 - Creation of Security Protocols for Research Laboratories During COVID-19
- Workshop

2020 - Biomedical Responsible Conduct of Research
- Certified

2020 - 19th PR-LSAMP Best Practices Conference on Teaching and Learning
- Certified

2020 - Structuring a Manuscript for Peer- Reviewing
- Workshop

2020 - Research Ethics
- Workshop provided by Dr. Carmen S. Maldonado-Vlaar

2020 - Creation of Emergency Plans for Laboratories
- Workshop

2020 - Chemical Waste Management in Laboratories
- Workshop

2020 - Analog Organization Tool: Bullet Journal
- Workshop

PROFESSIONAL ASSOCIATIONS

2021 - American Association for the Advancement of Science (AAAS)

2021 - American Society for Microbiology (ASM)

2021 - Puerto Rico Society of Microbiologists (PRSM)

2016-2018 - National Biological Honor Society ßßß, Zeta Alpha Chapter.

REFERENCE

- Available upon request