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Edwin Daniel Navarro Monserrat

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Education:

Ph.D. Plant Pathology – The Ohio State University ***(2019 - Present)***
MS. Plant Pathology – The Ohio State University ***(2019 - 2023)***
BS Cellular and Molecular Biology – Universidad de Puerto Rico, Rio Piedras (UPR-RP) ***(2013 - 2019)***

Experience:

Graduate Research Associate – The Ohio State University Department of Plant Pathology
Dr. Taylor Lab - Root-Biotic Interactions Lab ***(2019 - Present)***

- Screened a collection of *Pseudomonas* spp. for biocontrol activity against *Pythium* for control of root rot in hydroponically grown leafy greens using in-lab/in vitro testing and greenhouse/hydroponic trials.
- Employed bioinformatic approaches to identify various potential modes of action, including putative secondary metabolites, secretion system-related effectors, and volatiles.
- Wrote and successfully secured grants to support research projects.
- Presented research outcomes at various conferences and meetings.

Research Assistant – The Ohio State University Department of Plant Pathology
I-CORPS@Ohio, Entrepreneur Lead ***(April 2019 - May 2019)***

- Market research of business model centered around commercialization of university-owned microbes and/or natural products.
- Conducted interviews with over 100 relevant stakeholders across universities, the biotechnological industry, and organizations that also work towards commercialization of university material.

Undergraduate Research Assistant – Universidad de Puerto Rico, Rio Piedras
*Dr. Bayman Lab, Department of Biology (****August 2016 - August 2018****)*

- Performed DNA extractions on a substantial collection of *Pseudocercospora griseola* isolates.
- Executed PCR amplification of four conserved genes, utilizing multi-locus sequencing analysis for genetic characterization.
- Contributed to pathogenicity trials, playing a key role in assessing the virulence of isolates against differential bean lines to determine their races.

Summer Research Opportunities Scholar – The Ohio State University
Dr. Ujor Lab, Department of Animal Science ***(May 2016 - Aug 2016)***

- Assessed the viability of novel strains of *Clostridium beijerinckii* through ribonuclease P-mediated knockdown of a targeted gene.
- Conducted extensive anaerobic fermentation studies and utilized gas chromatography to quantify butanol production.

Dr. Taylor Lab, Department of Plant Pathology ***(May 2015 - Aug 2015)***

- Performed in vitro and in planta assays to determine the efficacy of *Pseudomonas* spp. strains as biocontrol agents against *Agrobacterium rhizogenes*.

Undergraduate Research Assistant – Universidad de Puerto Rico, Rio Piedras

Dr. Tinoco Lab, Department of Chemistry ***(August 2014 - May 2014)***

- Troubleshooted various methods for protein crystallization of Titanium (IV) bound serum-transferrin. Specifically vapor diffusion and microdialysis methods were tested and optimized.

Professional Memberships:

- Sociedad de Microbiólogos de Puerto Rico ***(August 2024 - Present)***
- Microbiology Society Member ***(March 2024 - Present)***
- SACNAS member ***(October 2021 - Present)***
- American Phytopathological Society ***(August 2019 - Present)***
- Golden Key International Honour Society ***(May 2017 - May 2019)***
- American Society for Biochemistry and Molecular Biology (ASBMB) ***(August 2016 - May 2018)***

Leadership experience:

- Served as the Plant Pathology Dept. Representative at the Wooster Campus for the College of Food, Agricultural, and Environmental Sciences (CFAES) Graduate Student Advisory Committee ***(October 2020 - August 2022)***
- Active member of the Plant Pathology Graduate Student Association (PPGSA) at The Ohio State University ***(August 2019 - Present)***
- **Roles served as part of PPGSA:**
    - Dept. Vision Committee PPGSA Representative ***(August 2023 - August 2024)***
    - Plant Pathology Search Committee (for department chair position) PPGSA Representative ***(April 2023 - May 2023)***
    - Social Chair ***(August 2022 - May 2023)***
    - Spring Symposium Chair ***(Aug 2022 - May 2023)***
    - President ***(May 2021 - May 2022)***
    - Academic Affairs Committee PPGSA Representative ***(August 2020 - May 2021)***
    - Student Exchange Seminar Co-chair ***(August 2020 - May 2021)***
    - Plant Sale Co-chair ***(August 2020 - May 2021)***
    - Student Exchange Seminar Committee Member ***(August 2019 - May 2020)***

- Served as Outreach Coordinator for the American Society for Biochemistry and Molecular Biology UPR-RP Chapter ***(August 2016 - May 2018)***

Teaching, outreach, communication, and service to the community:

Led and contributed to various expositions – The Ohio State University

- OSU Fall Student Involvement Fair: Plant Pathology Exposition ***(August 2024)***
- "We Grow Scientist" outreach event: Plant Pathology Exposition ***(May 2024)***
- CFAES Celebration of Nations: Puerto Rico Exposition ***(April 2022, April 2023, April 2024)***

Implemented, organized and/or assisted in various dynamics to benefit the career development of my peers – The Ohio State University

- Led the "Mentoring-Up Discussion Workshop" at the 2023 PPGSA Spring Symposium ***(May 2023)***
- Organized the 2023 PPGSA Spring Symposium ***(May 2023)***
- Organized Career Paths Panel for plant pathology graduate students ***(June 2022)***

- Organized and implemented the PPGSA Buddy System Initiative ***(May 2021)***
- Poster Judge for OSU Plant Sciences Symposium ***(April 2021)***

Prepared materials, and illustrations and gave talks explaining key concepts and practices in the fields of agriculture, microbiology, and bioinformatics – The Ohio State University

- Gave a presentation for CienciaPR (directed at K-12 audience). Presentation titled "Aplicando la rama de la bioinformática en escenarios agrícola" ***(September 2023)***
- Gave a presentation for CienciaPR (directed at K-12 audience). Presentation titled: "El uso de microorganismos beneficiosos en la agricultura" ***(November 2022)***
- Gave a presentation (directed to undergraduates) for the Sociedad Estudiantil de Microbiología Industrial at the University of Puerto Rico, Mayaguez Campus ***(February 2023)***

Prepared slides, lab materials and assisted in experiential learning experiences – The Ohio State University

- Master Gardeners Training: Introduction to Plant Pathology Lecture ***(March 2022)***
- Phytobacteriology Lab Teaching Assistant ***(August 2021- October 2021)***

Led and organized experiential learning experiences for K-12 students in low-income communities – Universidad de Puerto Rico, Rio Piedras

- **Outreach Coordinator** ASBMB-UPRRP (15+ schools impacted) ***(May 2017- May 2018)***

Mentoring:

- PPGSA Buddy System – Senior Buddy ***(August 2021- May 2022)***
- PPGSA Buddy System – Senior Buddy ***(August 2021- May 2022)***
- SACNAS MAS Program – Mentee ***(June 2024 – September 2024)***

Oral Presentations:

- Genome-wide analysis of biocontrol Pseudomonas for the identification of Type VI secretion system-related elements – ICPBB and Biocontrol 2024 Conference (Lightning talk) ***(July 2024)***
- El uso de una colección de *Pseudomonas* como agentes de control biológico – Instituto de Genética Barbara McClintock (Virtual) ***(December 2023)***
- Knowing thyself: Understanding the biocontrol potential of a collection of *Pseudomonas* by genomic and phenotypic characterization - University of Minnesota, Dept. of Plant Pathology Seminar ***(October 2023)***
- Examining the biocontrol potential of a collection of *Pseudomonas* spp. against *Pythium* spp.- Spring Symposium- The Ohio State University, Department of Plant Pathology ***(May 2020)***
- Team 13: Natural Products and Microorganisms at OSU - ICORPS@Ohio NSF Program ***(July 2019)***
- Downregulation of DNA integrity scanning protein A (DisA) for enhanced butanol production in *Clostridium beijerinckii*- Summer Research Opportunities Program- OSU ***(July 2017)***
- Testing the Efficacy of *Pseudomonas* spp. as a Biological Control Agent against *Agrobacterium*- Summer Research Opportunities Program- The Ohio State University ***(July 2016)***

Poster Presentations:

- Genome-wide analysis of biocontrol Pseudomonas for the identification of Type VI secretion system-related elements – ICPBB and Biocontrol 2024 Conference ***(July 2024)***
- Identification of type VI secretion systems, a potential key for *Pseudomonas* success in biocontrol – OSU Plant Sciences Symposium ***(March 2024)***
- Uncovering T6SSs in a collection *Pseudomonas* spp.-PPGSA Spring Symposium ***(May 2023)***
- *In vitro* testing of *Pseudomonas* for antagonism against *Pythium aphanidermatum* and assessment of plant growth promotion on hydroponically grown spinach -- APS Annual Meeting ***(August 2021)***
- Evaluation of a *Pseudomonas* spp. collection for antagonistic potential against *Pythium* spp. and generation of a consortia - APS Annual Meeting ***(August 2020)***
- Evaluation of a *Pseudomonas* spp. collection for antagonistic potential against *Pythium* spp. and generation of a consortia- OSU Plant Sciences Symposium **(July 2020)**
- Scientific Community Outreach: Promoting Science to Students at the K-12 Level and STEM Students in ASBMB UPR-RP- Experimental Biology Annual Meeting ***(April 2018)***
- Downregulation of DNA integrity scanning protein A (DisA) for enhanced butanol production in *Clostridium beijerinckii.* Summer Research Opportunities Program- OSU ***(July 2017)***
- Identification of *Pseudocercospora griseola* races in Puerto Rico. XVIII Annual Mycology Congress- Mycology Society of Puerto Rico ***(March 2017)***
- Testing the Efficacy of *Pseudomonas* spp. as a Biological Control Agent against *Agrobacterium*. Summer Research Opportunities Program- The Ohio State University ***(July 2016)***

Funding, Honors and Awards:

- PPGSA Patricia Ngwira Travel Award (500.00USD) and supplemental award (250.00 USD) ***(March 2024)***
- Programming funds for PPGSA Spring Symposium (1,402.00 USD) ***(April 2023)***
- OSU-IDI Trainee Transformative Research Grant Award-Co applicant (2,000.00 USD) ***(February 2023)***
- CFAES Internal Grants Program (4,891.00 USD) ***(March 2021)***
- PPGSA Patricia Ngwira Travel Award (266.00 USD) ***(June 2021)***
- Patrick S. Osmer Fellowship, OSU ***(2019- Present)***
- SROP Scholar, The Ohio State University ***(May 2017 - July 2017)***
- SROP Scholar, The Ohio State University ***(May 2016 - July 2016)***

Publications:

- **Navarro-Monserrat, E.D**.; Taylor, C.G. T6SS: A Key to Pseudomonas's Success in Biocontrol? *Microorganisms* **2023**, *11*, 2718.
- Serrato-Diaz, L.M., **Navarro-Monserrat, E.D.,** Rosas, J.C. *et al.* Phylogeny of *Pseudocercospora griseola* from Puerto Rico, Central America and Tanzania confirms the existence of an Afro-Andean clade. *Eur J Plant Pathol* **157**, 533–547 **(2020)**
- Serrato-Diaz, L. M.; Rivera-Vargas, L. I.; Goenaga, R.; **Navarro, E. D.;** French-Monar, R. D. First Report of Colletotrichum Fructicola and C. Queenslandicum Causing Fruit Rot of Rambutan (Nephelium Lappaceum). *Plant Disease* **2017**, *101* (6), 1043.

Skills and abilities:

- Advanced knowledge in R and various bioinformatic packages (Bioconductor)
- Experience working in Unix/Linux and HPC environments

- Experience in comparative genomics, phylogenetics, and whole-genome sequencing analysis
- Problem-solving skills & strong foundation in experimental design and statistical analysis
- Strong data visualization skills (ggplot, RShiny, and other R-related packages)
- Experience in bacterial transformation methods, standard molecular biology techniques, and experience working with bacteria, fungi, and oomycetes.
- Experience in phenotypic screening of microorganisms for plant-beneficial related traits
- Experience in greenhouse, soil, and water (hydroponic) based crop production systems
- Knowledgeable in application, usage, and commercialization of beneficial microbes
- Strong communication skills for technical and broader audiences.
- Bilingual (Spanish and English)

References available upon request