

# Edwin D. Navarro Monserrat

Biologist with expertise in bioinformatics, microbiology, and plant pathology

Biologist with an analytical mindset and considerable experience in lab, greenhouse and bioinformatic analysis. Aiming to apply knowledge in a challenging position with opportunities for career growth.



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## Experience

### Graduate Research Associate | The Ohio State University Department of Plant Pathology

Dr. Taylor Lab - Root-Biotic Interactions Lab

August 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 in 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 who also work towards commercialization of university material.

### Undergraduate Research Assistant - University of Puerto Rico- Río Piedras Campus

Dr. Bayman Lab, Department of Biology

Aug 2016 - Aug 2018

- Conducted 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.
- Trimming and filtering of DNA sequences.
- Aided in manuscript preparations.

Dr. Tinoco Lab, Department of Chemistry

Jan 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.
- Utilized HPLC for purification of proteins.

### 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.
- Utilized gas chromatography for quantification of butanol production.

Dr. Taylor Lab, Department of Plant Pathology

May 2015 - Aug 2015

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

## Leadership



- Led several committees as part of the Plant Pathology Graduate Student Association (PPGSA) at Ohio State.
- Led the implementation of a buddy system for incoming graduate students and organized academic events such as symposiums, retreats and workshops.
- Served in various departmental committees as student representative including search committees for potential hires.

## Awards



- OSU-IDI Trainee Transformative Research Grant Award-Co applicant (2,000\$)
- CFAES Internal Grants Program (4,891.00\$)
- PPGSA Patricia Ngwira Travel Award (266.00\$)
- Patrick S. Osmer Fellowship, OSU

## Education

### The Ohio State University Department of Plant Pathology

PhD - Plant Pathology  
2019 - Present

MS - Plant Pathology  
2019 - 2022

### University of Puerto Rico, Río Piedras Campus

BS Biology - Cellular and Molecular Biology  
2013 - 2019

# Teaching, Outreach and Volunteer Experience



- CienciaPR: Aplicando la rama de la bioinformática en escenarios agrícolas (Sep. 26, 2023)
- 2023 PPGSA Spring: Mentoring-Up Discussion Workshop (May 18, 2023)
- 2023 PPGSA Spring Symposium Organizer (May 18, 2023)
- Sociedad Estudiantil de Microbiología Industrial- UPRM: Seminar talk (February 9, 2023)
- CienciaPR: El uso de microorganismos beneficiosos en la agricultura (November 2022)
- Master Gardeners Training: Introduction to Plant Pathology Lecture (March 2022)
- Phytobacteriology Lab Teaching Assistant (Aug 2021- Oct 2021)
- Poster Judge for OSU Plant Sciences Symposium (April 2021)

## Presentations



### Oral Presentations

- El uso de una colección de *Pseudomonas* como agentes de control biológico – Instituto de Genética Barbara McClintock (Virtual) (Dec. 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 (Oct. 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)

### Poster Presentations

- 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 (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)

## Professional Memberships/Student Organizations



- CFAES Graduate Student Advisory Committee (Oct 2020-May 2022)
- Plant Pathology Graduate Student Association at The Ohio State University (PPGSA) (Aug 2019-Present)
- American Phytopathological Society (APS) (Aug 2019-Present)
- Golden Key International Honour Society (May 2017-2019)
- American Society for Biochemistry and Molecular Biology (2016-2018)

## Skills and Abilities

- Advance knowledge in R and various bioinformatic packages.
- Experience working in Unix/Linux and HPC environments.
- Experience in comparative genomics, phylogenetic and whole-genome sequencing analysis.
- Experience in standard NGS bioinformatic tools.
- Problem solving skills & strong foundation in experimental design and statistical analysis.
- Strong data visualization skills (ggplot, and RShiny).
- Experience in bacterial transformation methods, standard molecular biology techniques and deep experience working with bacteria, fungi and oomycetes.
- Experience in greenhouse assays
- Knowledgeable in application, usage and commercialization of beneficial microbes.
- Strong communication skills for technical and broader audiences.
- Bilingual (Spanish and English)

## Publications

- First report of *Colletotrichum fructicola* and *C. queenslandicum* causing fruit rot of rambutan (*Nephelium lappaceum* L.) L. M. Serrato-Diaz, L. I. Rivera-Vargas, R. Goenaga, **E.D. Navarro**, R. D. French-Monar.
- Phylogeny of *Pseudocercospora griseola* from Puerto Rico, Central America and Tanzania confirms the existence of an Afro-Andean clade. Serrato-Diaz, L.M., **Navarro-Monserrat, E.D.**, Rosas, J.C., Chilagane, L.A., Bayman, P. and Porch T.G
- T6SS: A Key to *Pseudomonas*' Success in Biocontrol? **Navarro-Monserrat, E.D.**, Taylor, C.G.