

## Edwin Daniel Navarro Monserrat

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### Education:

- Doctor of Philosophy in Plant Pathology- The Ohio State University (OSU) (2019- Present)
- Master of Science in Plant Pathology – The Ohio State University (2019-2023)
- Bachelor of Science in Molecular and Cell Biology (Honors)- University of Puerto Rico, Rio Piedras Campus (UPR-RP) (2013- 2019)

### Funding, Honors and Awards

- PPGSA Patricia Ngwira Travel Award (500.00\$) and supplemental award (250\$) (March 2024)
- Programming funds for PPGSA Spring Symposium (1,402\$) (April 2023)
- OSU-IDI Trainee Transformative Research Grant Award-Co applicant (2,000\$) (February 2023)
- CFAES Internal Grants Program (4,891.00\$) (March 2021)
- PPGSA Patricia Ngwira Travel Award (266.00\$) (June 2021)
- Patrick S. Osmer Fellowship, OSU (2019- Present)
- SROP Scholar, The Ohio State University (Summer 2017)
- SROP Scholar, The Ohio State University (Summer 2016)

### Work Experience:

- Research Assistant, Dr. Christopher Taylor's lab, OSU (April-Aug 2019)
- I-CORPS@Ohio, Entrepreneur Lead, Team Natural Products and Microorganisms (May-July 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.

### Research Experience:

- Genome-wide analysis of *Pseudomonas* for T6SS elements and genome mining for biocontrol and plant growth-promoting traits. Evaluation for antagonistic potential against *Pythium* spp. at Dr. Christopher Taylor's lab, Dept. of Plant Pathology, OSU (Aug 2019-)
  - Performed various types of *in vitro* testing and greenhouse trials for identification of biocontrol activity of a *Pseudomonas* collection against *Pythium* spp. Utilized various bioinformatic software and created workflows and pipelines for genome-wide analysis. Identified putative biocontrol-related genes, plant growth-promoting traits, secretion systems and performed extensive analysis of Type VI secretion systems using the genomes of a collection of *Pseudomonas* spp.
- Knockdown of DNA integrity scanning protein A (DisA) to delay sporulation of *Clostridium beijerinckii* with concomitant extension of vegetative growth and butanol production at Dr. Victor Ujor's lab, Department of Animal Science, OSU (Summer 2017)
  - Work consisted of assessing the viability of novel strains of *Clostridium beijerinckii* following ribonuclease P-mediated knockdown of a targeted gene. For this work, I performed extensive anaerobic fermentation studies, gas chromatography, and bacterial transformation.
- Studied the use of *Pseudomonas* spp. as a biological control agent against *Agrobacterium rhizogenes* and *Agrobacterium tumefaciens*. at Dr. Taylor's lab, Department of Plant Pathology, OSU (Summer 2016)

- Performed *In vitro* and *in vivo* assays to determine the efficacy of *Pseudomonas* spp. strains as biocontrol agents against *Agrobacterium rhizogenes*.
- Classification of *P. griseola* isolates found in Puerto Rico into either of two major groups (Mesoamerican and Andean), and determination of subspecies (races) in these isolates at Dr. Paul Bayman's lab, Department of Biology, UPR-RP (Aug 2016-Aug 2018)
  - Performed DNA extractions of a large collection of *P. griseola* isolates. PCR amplification of 4 conserved genes for multi-locus sequencing analysis. In addition, aided in conducting pathogenicity trials against differential bean lines for the determination of races in these isolates.
- Protein crystallography techniques to determine the structure of Titanium (IV) bound serum-transferrin at Dr. Arthur Tinoco's lab, Department of Chemistry, UPR-RP (Jan 2014-May 2014)
  - Troubleshoot various methods for protein crystallization of Titanium (IV) bound serum-transferrin. Specifically vapor diffusion and microdialysis methods were tested and optimized.

### **Teaching, Outreach and Volunteer Experience:**

- Outreach Coordinator ASBMB-UPRRP (15+ schools impacted) (May 2017- May 2018)
- Poster Judge for OSU Plant Sciences Symposium (April 2021)
- Phytobacteriology Lab Teaching Assistant (Aug 2021- Oct 2021)
- Master Gardeners Training: Introduction to Plant Pathology Lecture (March 2022)
- Organized and implemented the PPGSA Buddy System Initiative (May 2021)
- Organized Career Paths Panel for plant pathology graduate students (June 2022)
- CienciaPR: El uso de microorganismos beneficiosos en la agricultura (November 2022)
- Sociedad Estudiantil de Microbiología Industrial- UPRM: Seminar talk (February 9, 2023)
- 2023 PPGSA Spring Symposium Organizer (May 18, 2023)
- 2023 PPGSA Spring: Mentoring-Up Discussion Workshop (May 18, 2023)
- CienciaPR: Aplicando la rama de la bioinformática en escenarios agrícolas (Sep. 26, 2023)
- CFAES Celebration of nations: Puerto Rico Exposition (April 2022 – 2024)
- “We Grow Scientist” outreach event: Plant Pathology (May, 2024)
- **Pending: MicroBites**

### **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)

### **Professional Memberships:**

- Microbiology Society Member (Mar 2024 - )
- SACNAS member (Oct 2021 - )
- American Phytopathological Society (APS) (Aug 2019 -)
- Golden Key International Honour Society (May 2017-2019)
- American Society for Biochemistry and Molecular Biology (2016-2018)

### **Student Organizations:**

- CFAES Graduate Student Advisory Committee (Oct 2020- August 2022)
- -Plant Pathology Dept. Representative-Wooster Campus (Oct 2020- August 2022)
- Plant Pathology Graduate Student Association at The Ohio State University (PPGSA) (Aug 2019-)
- - Student Exchange Seminar Committee Member (Aug 2019-May 2020)
- - Plant Sale Co-chair (Aug 2020-May 2021)
- - Student Exchange Seminar Co-chair (Aug 2020-May 2021)
- - Academic Affairs Committee PPGSA Rep (Aug 2020-May 2021)

- President (May 2021-May 2022)
- Spring Symposium Chair (Aug 2022-May 2023)
- Social Chair (Aug 2022 – May 2023)
- Plant Pathology Search Committee PPGSA Rep (April 2023- May 2023)
- Dept. Vision Committee PPGSA Rep (August 2023 -)
- American Society for Biochemistry and Molecular Biology UPR-RP Chapter (2016- 2018)
- Outreach Coordinator (2016-2018)

### Oral Presentations:

- **Pending:** Genome-wide analysis of biocontrol *Pseudomonas* for the identification of Type VI secretion system-related elements – ICPBB and Biocontrol 2024 Conference (Lightning talk)
- 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)
- 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:

- **Pending:** Genome-wide analysis of biocontrol *Pseudomonas* for the identification of Type VI secretion system-related elements – ICPBB and Biocontrol 2024 Conference
- 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)

### Publications:

- First report of *Colletotrichum fruticola* 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.

- **Pending: T6SS paper**
- **Pending:Pythium biocontrol paper**
- **Pending:Genome mining paper?**
- **Pending: ICORPS preprint?**