

Biographical Sketch

FREISA M. JOAQUÍN OVALLE

Current Status

PhD Candidate

Department of Chemistry, UPR-RP

Email: freisa@gmail.com

Education

2008 BS Chemistry UPR-RP

2011-present Chemistry Graduate Program UPR-RP

2018 PhD Chemistry (expected)



Current Research Interests: In this project, we plan to investigate and elucidate the organization of the pigment-protein complex (Photosystem I) of the photosynthetic apparatus of the green microalga *Botryococcus braunii*. We intend to provide the fundamental knowledge on the photosynthetic apparatus of this microorganism, and also study how the reactive oxygen species that arise in the thylakoid membrane-enclosed protein complexes and the antioxidant activity of the bioactive compounds extracted from them, relate to the biophysical and biochemical properties of the protein domains and subunits identified.

Research Experience

2005 UPR-RP, Environmental Analytical Chemistry, (mentor, Dr. Osvaldo Rosario)

2007- 2010 UPR-RP, Structural and Molecular Biology, (mentor, Dr. José A. Lasalde-Dominicci)

2011 - present UPR-RP, Applied Biochemistry and Biotechnology, (mentor, Dr. Kai Griebenow)

Other Research Activities

2011 Fundamentals of Proteomics & Two-Dimensional Difference Gel Electrophoresis (2D-DIGE) Workshop

2012 UT Austin Managing Microalgal Cultures

2013 UT-STF Workshop: Industrial Recovery and Analysis of Biomass Oils

2013 SREB-State Doctoral Scholars Program

2014 Bioinformatics Workshop

2014 Fostering Collaborations between the University of Puerto Rico and the University of Central Florida

2015 Scientist Mentoring & Diversity Program for Medical Technology and AdvaMed 2015: The MedTech Conference

2016 Visiting Student Researcher, School of Life Science, University of Hyogo, Japan

Honors

2010 Alfred P. Sloan Foundation Graduate Scholarship Program

2012 Golden Key International Honour Society

2012-2013 PR NASA Space Grant Fellowship

2013 SREB State Doctoral Scholars Program

2014 (DOD) Research Center for Excellence in Renewable Energy Scholarship

2015 - present SMDP MedTech Scholar

2015 (NIH) Research Initiative for Scientific Enhancement (RISE) Fellowship

Selected Presentations at Local Meetings

Joaquín-Ovalle, F.M.; Griebenow, K. "Chloroplast isolation method of the hydrocarbon producing microalgae *Botryococcus braunii*" Universidad de Puerto Rico, Recinto de Mayagüez, (October 2012)

Joaquín-Ovalle, F.M.; Guihurt, G.; Torres-Martínez, Z.; Dávila, C.; Griebenow, K. "Photosynthetic apparatus complexes organization of Photosystem I and Photosystem II in *Botryococcus braunii*" 35th Puerto Rico Interdisciplinary Scientific Meeting & 50th Junior Technical Meeting, Universidad de Puerto Rico, Recinto de Río Piedras, (March 2015)

Torres-Martínez, Z.; De la Cruz, L.; **Joaquín-Ovalle, F.M.**; Griebenow, K. "Biochemical composition of the photosynthesis apparatus of the Caribbean marine macro algae *Chaetomorpha vieillardii*" Universidad de Puerto Rico, Recinto de Mayagüez, (March 2015)

Selected Presentations at National Meetings

Sharma, R.K.; Saxena, M.; **Joaquín-Ovalle, F.M.**; Torres-Martínez, Z. Griebenow, K. "Applications of renewable lipase nanoparticles for sustainable production of biodiesel and glycerol transformation in nonaqueous environment" 5th International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, CA, (June 2015)

Joaquín-Ovalle, F.M.; Guihurt, G.; Torres-Martínez, Z.; Morales-Lozada, Y.; Ramirez-Paz, J.; Barceló-Bovea, V.; Griebenow, K. "Purification and Biophysical Characterization of the Photosystem I Complex from *Botryococcus braunii*" Experimental Biology ASBMB Annual Meeting. San Diego CA, (April, 2016)

Joaquín-Ovalle, F.M.; Guihurt, G.; Barceló-Bovea, V.; Ramirez-Paz, J.; Doble, K.; Griebenow, K. "Antioxidant response to singlet oxygen production under light stress on the polyphasic rise of chlorophyll a fluorescence induction curves of *Botryococcus braunii*" ACS 253rd National Meeting & Exposition, San Francisco, CA, (March, 2017)

Selected Presentations at International Meetings

Joaquín-Ovalle, F.M.; Griebenow, K. "Thylakoid Membrane Solubilization of *Botryococcus Braunii* for the Isolation and Characterization of the Main Components of the Photosynthetic Apparatus" Young Algaeneers Symposium 2014, Montpellier & Narbonne, France (April 2014)