CLARA M. CRUET-BURGOS

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RESEARCH INTERESTS

Molecular genetics of complex traits and the application of genomic technologies to crop improvement

EDUCATION

January 2021- Present	Colorado State University (CSU)	Fort Colins, CO
Degree:	**PhD in Horticulture (Transfer student)**	
GPA:	**4.0 on a 4.0 scale**	
May 2018- December 2020	Kansas State University (K-State)	Manhattan, KS
Degree:	**PhD in Agronomy**	
GPA:	**4.0 on a 4.0 scale**	
August 2015- May 2018	University of Puerto Rico Mayaguez (UPRM)	Mayagüez, PR
Degree:	**M.S in Biology**	
GPA:	**4.0 on a 4.0 scale**	
August 2010-May 2015	University of Puerto Rico Mayaguez (UPRM)	Mayagüez, PR
Degree:	**B.S in Industrial Biotechnology**	
GPA:	**3.5 on a 4.0 scale**	

RESEARCH EXPERIENCE

Graduate Researcher

May 2018- Present — **Nutritional Genomics, Colorado State University** — Fort Collins, CO

Development of molecular breeding tools for increase grain pro-vitamin A carotenoids in sorghum

Graduate Researcher

August, 2015- January 2018 — **Sorghum Research Lab, USDA TARS** — Mayagüez, PR

Genomic dissection of anthracnose resistant loci in sorghum differential lines from Sudan, India and Ethiopia

Research Assistant

May, 2014-August, 2014 — **Kerfeld Lab, Michigan State University** — East Lansing, MI

Modification and expression of carboxysomal proteins into heterologous systems in order to understand their formation and function

Research Assistant

May, 2013-August, 2013 — **Kochian Lab, USDA ARS, Cornell University** — Ithaca, NY

Assessment of the membrane topology of TaALMT1 anion transporters mediating aluminum tolerance in Wheat

Undergraduate Researcher

August 2014- May 2015 — **Siritunga Lab, University of Puerto Rico Mayagüez** — Mayagüez, PR

Isolation, purification and characterization of Cassava Cysteine Synthase and β-Cyanoalanine Synthase proteins from different Cassava variants, to analyze and compare their enzymatic activity.

August 2011- May 2014 — **Siritunga Lab, University of Puerto Rico Mayagüez** — Mayagüez, PR

Characterization of two novel cassava genes involve in cyanide detoxification, β-Cyanoalanine Synthase and Cysteine Synthase, using Arabidopsis thaliana mutants.

PUBLICATIONS

2021	Cuevas, H.E., **Cruet-Burgos, C.M.,** Prom, L.K. et al. **The inheritance of anthracnose (Colletotrichum sublineola) resistance in sorghum differential lines QL3 and IS18760**. *Sci Rep* 11, 20525 (2021). https://doi.org/10.1038/s41598-021-99994-3
2020	**Cruet-Burgos, C.,** Cox, S., Ioerger, B. P., Perumal, R., Hu, Z., Herald, T. J., Bean, S. R., & Rhodes, D. H. (2020). **Advancing provitamin A biofortification in sorghum: Genome-wide association studies of grain carotenoids in global germplasm.** *The Plant Genome*, *13*(1), e20013. https://doi.org/10.1002/tpg2.20013
2020	**Cruet-Burgos, C. M.**, Cuevas, H. E., Prom, L. K., Knoll, J. E., Stutts, L. R., & Vermerris, W. (2020). **Genomic Dissection of Anthracnose (Colletotrichum sublineolum) Resistance Response in Sorghum Differential Line SC112-14.** *G3: Genes|Genomes|Genetics*, *10*(4), 1403 LP – 1412. https://doi.org/10.1534/g3.120.401121
2019	Cuevas, H. E., Prom, L. K., & **Cruet-Burgos, C. M**. (2019). **Genome-Wide Association Mapping of Anthracnose (Colletotrichum sublineolum) Resistance in NPGS Ethiopian Sorghum Germplasm.** *G3: Genes|Genomes|Genetics*, *9*(9), 2879 LP – 2885. https://doi.org/10.1534/g3.119.400350

PRESENTATIONS

2020 **PAG XXVIII**	(Poster) **Development of molecular breeding resources for increased grain pro-vitamin A carotenoids in sorghum** Cruet, Clara, Rhodes Davina
2019 **NAPB Annual Meeting**	(Poster) **Development of molecular breeding resources for increased grain pro-vitamin A carotenoids in sorghum** Cruet, Clara, Rhodes Davina
2018 **ASA-CSSA-ESA Annual Meeting**	(Oral) **Development of molecular breeding resources for increased grain pro-vitamin A carotenoids in sorghum** Cruet, Clara, Rhodes Davina
2018 **The 2050 Challenge, K-State**	(Poster) **Development of molecular breeding resources for increased grain pro-vitamin A carotenoids in sorghum** Cruet, Clara, Rhodes Davina
2017 **PAG XXV**	(Poster) **Genome mapping of anthracnose resistant loci in Ethiopia, India and Sudan sorghum populations** Cruet, Clara, Cuevas Hugo
2014 **Mid-SURE**	(Poster) **A synthetic biology approach to modify and express bacterial microcompartments into heterologous systems** Cruet, Clara, Gonzalez, Raul and Kerfeld, Cheryl.
2013 **ABRCMS**	(Poster) **Membrane Topology of the TaALMT1 Anion Transporter Mediating Aluminum Tolerance in Wheat.** Cruet, Clara, Piñeros, Miguel and Kochian, Leon.
2013 **Plant Biology**	(Poster) **Characterization of two novel cassava genes involve in cyanide detoxification, β-Cyanoalanine Synthase and Cysteine Synthase, using Arabidopsis thaliana mutants** Cruet, Clara, Babilonia, Kevin and Siritunga, Dimuth.

RELEVANT COURSEWORK

Fall 2018	**Plant Molecular Biology**
Fall 2018	**Integrative Genomics Analysis**
Spring 2019	**Population Genetics**
Fall 2019	**Advanced Plant Genetics**
Fall 2019	**Advanced Plant Breeding I**
Spring 2020	**Genetic Analysis for Crop Improvement**

AWARDS

Fall 2019-Spring 2021	**John H. Parker Scholarship**
Fall 2019-Spring 2020	**Louis P. and Elva G. Reitz Scholarship**
Fall 2018-Spring 2019	**Schrader/Massier Graduate Excellence Fund in Agronomy**
2010-2018	**University of Puerto Rico Mayaguez Campus Honor Roll**
2013-2015	**MARC Trainee**
2013	**HHMI Travel Award**
2012	**HHMI Undergraduate Research Award**

TEACHING EXPERIENCE

Spring 2021	**Horticulture Laboratory, Colorado State University**
Spring 2016- Fall 2017	**Genetics Laboratory, University of Puerto Rico Mayagüez**
Fall 2015	**General Biology Laboratory, University of Puerto Rico Mayagüez**

WORKSHOPS

November 2018	**ASA-CSSA-ESA R Bootcamp**	**Dr. Yujin "Eugene" Wen**
May 2018	**Genomic Technologies Workshop** *Kansas State*	**Dr. Alina Akhunova**
May 2016	**U.S. Borlaug Summer Institute on Global Food Security** *Purdue*	**Dr. Gebisa Ejeta** **Dr. Gary Burniske**
May 2013	**The History, Isolation and Mechanism of Plant Small RNAs** *University of Puerto Rico Mayagüez*	**Dr. Keith Slotkin**
May 2013	**Gateway Cloning and Bioinformatics** *University of Puerto Rico Mayagüez*	**Dr. John Gray**