

# PRECIOUS RODRIGUEZ GUEVARRA

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## EDUCATIONAL BACKGROUND

### Master of Science in Genetics

March 2021

(major Plant Breeding)

#### University of the Philippines Los Baños

College, Batong Malake, Laguna Philippines 4031

Relevant courses: Advanced Molecular Biology, Research Techniques in Molecular Biology I, Genomics Breeding, Population Genetics, Advanced Plant Breeding I

### Bachelor of Science in Agricultural Biotechnology

July 2015

(major Food Biotechnology)

#### University of the Philippines Los Baños

College, Batong Malake, Laguna 4031

*elected member of Phi Sigma Biological Sciences Honor Society - Alpha Chi Chapter*

Relevant courses: Recombinant DNA Technology, Molecular Markers

## RESEARCH EXPERIENCE

### Graduate Research Associate\*/University Research Associate II

06 Aug 2018 – 31 Mar 2021

#### Genetics Laboratory, Institute of Plant Breeding

Project Title: Targeted Genome Editing using CRISPR/Cas9 Technology: Capacity Building and Proof-of-Concept in Rice, Corn and Tomato

*\*under DOST-PCAARRD GREAT Scholarship Program*

### University Research Associate II

01 Apr 2018 – 01 Aug 2018

#### Plant Tissue Culture Laboratory,

#### National Plant Genetic Resources Laboratory, Institute of Plant Breeding

Project Title: Utilization of *in vitro* Technology for Conservation and Micropropagation for Quality Seed/Planting Material Production for Sugarcane Variety Improvement and Enhanced Farm Productivity

### University Research Associate I

01 Dec 2015 – 31 Dec 2017

#### Genetics Laboratory, Institute of Plant Breeding

Project Title: Molecular characterization of Philippine native maize (*Zea mays* L.) Populations under the program Corn Germplasm Utilization Thru Advance Research and Development (CGUARD)

### Undergraduate Thesis Student

01 Jan 2015 – 30 Jun 2015

#### Enzyme Laboratory, National Institute of Microbiology and Biotechnology (BIOTECH)

Research Title: Parametric and optimization studies of *Monascus purpureus* M1018 in solid substrate fermentation

## RESEARCH AND TECHNICAL SKILLS

**Molecular biology techniques:** DNA and RNA extraction, Polymerase Chain Reaction (PCR), Reverse transcription – polymerase chain reaction (RT-PCR), Polyacrylamide Gel Electrophoresis (PAGE), SDS-PAGE, DNA cloning and transformation, TILLING (Targeting Induced Local Lesions in Genomes), Protein expression

**Bioinformatics:** Design SSR marker, gene-specific marker and single guide RNA; off-target identification, sequence data analysis (sanger)

**Programming:** Basic knowledge in Linux and R Statistical Software

**Software:** NTSYSpc, SnapGene, QTL Cartographer, MapMaker

## WORK EXPERIENCE

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### **Technical Writer** **Endec, Inc.**

02 Feb 2021 – 31 Mar 2021

- Determine the needs of end-users of technical documentation.
- Organize and write documents and reports in compliance to project contract.
- Use photographs, drawings, diagrams, animation, and charts that increase users' understanding.
- Select appropriate medium for message or audience, such as manuals or online videos.
- Standardize content across platforms and media.
- Revise documents as new issues arise; and
- Performs other related tasks and duties that may be assigned by the immediate superior/s

### **Graduate Research Associate/University Research Associate II** **Genetics Laboratory, Institute of Plant Breeding**

06 Aug 2018 – 31 Mar 2021

- Optimize SNP validation protocol using Cel1 endonuclease in agarose gel electrophoresis
- Perform sequence validation of target tomato fruit color genes present in genotypes in study.
- Design single-guide RNA (sgRNA) targeting fruit color genes of interest for CRISPR/Cas9 gene editing, construct assembly, transformation, cloning and insert validation
- Collect phenotypic data on selected fruit characters of commercial and Philippine native tomato varieties.
- Quantify carotenoid levels of these accessions using colorimetric/spectrophotometric assay
- Generate mapping populations for tomato fruit colors.
- Draft reports for funding agency and biosafety application

### **University Research Associate II** **Plant Tissue Culture Laboratory,** **National Plant Genetic Resources Laboratory,** **Institute of Plant Breeding**

01 Apr 2018 – 01 Aug 2018

- Design experiments to optimize *in vitro* conservation strategies of Philippine sugarcane germplasm collection
- Develop micropropagation techniques for mass production of disease-free planting materials
- Perform routine plant tissue culture experiments including media preparation, introduction, and subculture maintenance of *in vitro* Philippine sugarcane germplasm collection

### **University Research Associate I** **Genetics Laboratory, Institute of Plant Breeding**

01 Dec 2015 – 31 Dec 2017

- Genotyping of Philippine native corn varieties collection using SSR markers
- Determine allelic diversity of Philippine native corn populations resistant and susceptible to corn borer (*Ostrinia furnacalis*) and downy mildew (*Peronosclerospora philippinensis*)
- Perform routine laboratory experiments on DNA extraction, quantification, PCR and PAGE
- Collection and analysis of genotypic data of selected native corn collection
- Serve as resource person during training activities, funding agency visits and student visits
- Supervise and oversee performance of research technicians and project staff
- Draft reports, publications and presentations for local conferences and peer-reviewed journals
- Oversee procurement process of reagents, chemicals, and equipment
- Provide technical supervision to thesis students and on-the-job trainees as required

### **Quality Assurance Analyst** **Bel Mondo Italia Corporation (Makers of Novellino Wines)**

17 Aug 2015 – 28 Nov 2015

- Inspection and analysis of all materials to be used for production, including raw materials, packaging materials, and processing materials
- Analysis of in-process materials/ products, and finished products (Alcohol determination, TTA analysis etc.)
- Stability monitoring of finished goods
- Line inspection during bottling and labelling/ packing
- In-charge of the laboratory including all the materials being used for analyses, instruments, and equipment

- Microbial analysis of finished goods before transfer to the distributor
- Inspection of product returns and providing disposition
- Preparation of documents for applications in FDA
- Accomplishes and makes, reports, checklists, memos, certifications, and research, among others

## CONFERENCE PRESENTATIONS

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### Oral presentations

**Guevarra, PR**, Gardoce, RR, Soyotong, S, Mateo, JMC, Aglibot, CC and Galvez, HF. (September 2019). Mining Natural Sequence and Carotenoid Variation in Tomato to Design sgRNA Towards CRISPR/Cas9 Gene-Editing. Oral session presented at 25th FCSSP/1st FPSAP Scientific Conference on 16- 21 September 2019 at Davao City.

Alcachupas, CG, **Guevarra, PR**, Descalsota, MLV, Huelgas, VC and Damasco, OP. Growth Enhancement and Control of Culture Media Browning using Activated Charcoal in *in vitro* Conserved Sugarcane (*Saccharum officinarum*). Oral session presented at 25th FCSSP/1st FPSAP Scientific Conference on 16- 21 September 2019, at Davao City.

**Guevarra, PR**, Uy, JNR, Valle, MLS., Descalsota, JC, Huelgas, VC & OP Damasco (July 2018). Genotypic Response of Selected Philippine Sugarcane (*Saccharum officinarum*) Accessions to Various Concentrations of 6-Benzylaminopurine (BAP) Under *in vitro* Conditions. Oral session presented at the PAPTCB Scientific Convention, Bohol

### Poster Presentations

Alcachupas, **CG, Guevarra, PR**, Descalsota, MLV, Huelgas, VC and Damasco, OP. Approaches to *in vitro* conservation of the Philippine sugarcane (*Saccharum officinarum*). Poster session presented at 25th FCSSP/1st FPSAP Scientific Conference on 16- 21 September 2019, Davao City. (**Awarded as best poster for crop production and management/protection category**)

**Guevarra, PR**, Diaz, DC. & Canama, AO. (July 2018). Allelic diversity of selected Philippine native maize (*Zea mays* L.) populations resistant and susceptible to corn borer. Poster session presented at the NAST Annual Scientific Meeting, Manila.

**Guevarra, PR**, Uy, JNR, Valle, MLS., Descalsota, JC, Huelgas, VC & OP Damasco (July 2018). *in vitro* Initiation of Four Commercial Varieties of Sugarcane (*Saccharum officinarum*) Subjected to Various Concentrations Of 6-Benzylaminopurine (BAP). Poster session presented at the PAPTCB Scientific Convention. Bohol.

**Guevarra, P.R.**, Uy, JNR, Valle, MLS., Descalsota, JC, Huelgas, VC & OP Damasco (July 2018). Assessment of shoot culture browning responses of sugarcane (*Saccharum officinarum*) accessions during *in vitro* initiation and conservation. Poster session presented at the PAPTCB Scientific Convention, Bohol.

**Guevarra, PR**, Diaz, DC. & Canama, AO. (November 2017). Assessment of genetic diversity based on individual samples from selected traditional corn germplasm using SSR Markers. Poster session presented at the PSBMB Annual Convention, Tagaytay City.

**Guevarra, PR**, Diaz, DC. & Canama, AO. (June 2017). Molecular characterization of native corn populations in the Philippines based on SSR Markers. Poster session presented at the 24th FCSSP Scientific Conference, Iloilo City

## TRAININGS ATTENDED

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### **QX200™ Droplet Digital PCR End-User Training**

Institute of Plant Breeding (IPB) and Lifeline Diagnostics Supplies, Inc.

28 – 29 Aug 2019

### **Training-Workshop on Technical Writing for Publication in a Refereed Journal**

Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD)

01– 05 Jul 2019

### **Gene Editing with CRISPR: 5 Day Training-Workshop**

Philippine Genome Center Program for Agriculture and International Rice Research Institute (IRRI)

17 Sep 2018 –  
26 Nov 2018

**Bioinformatics Workshop Series 3 Genome Database and Mining**  
Philippine Genome Center Program for Agriculture and  
Boyce Thompson Institute (BTI)

14 -15 Jan 2016

## TRAININGS CONDUCTED

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**Gene editing with CRISPR: A 5-day virtual training workshop**  
Institute of Plant Breeding (Virtual)  
*Facilitator*

22 – 26 Mar 2021

**Training-Workshop on Genetic Diversity Analysis and DNA Fingerprinting**  
Cavite State University, Indang, Cavite  
*Speaker/Facilitator*

17 – 18 Jul 2017

**Regional Capacity Building Towards Germplasm Utilization (Visayas and Mindanao Cluster) Training: Evaluating for Biotic and Molecular Diversity in Corn**  
Alpa City Suites Hotel, Cebu City, Philippines  
*Speaker*

21 – 24 Mar 2017

**Regional Capacity Building Towards Germplasm Utilization (Luzon Cluster) Training: Evaluating for Biotic and Molecular Diversity in Corn**  
Hotel Supreme, Baguio City, Philippines  
*Speaker*

20 – 23 Feb 2017

## AFFILIATIONS AND MEMBERSHIPS IN SCIENTIFIC ORGANIZATIONS

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**Junior Researchers Organization (JRO), IPB**

Secretary, 2018

Crop Biotech Division Representative, 2020

**Philippine Society of Molecular Biology and Biotechnology (PSBMB)**

**Crop Science Society of the Philippines (CSSP)**

**Philippine Association for Plant Tissue Culture & Biotechnology (PAPTCB)**

**The University of the Philippines Los Baños (UPLB) Genetics Society**

## OTHER SKILLS

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Philippine driver's license

## CHARACTER REFERENCES

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**HAYDE F. GALVEZ, PhD**

Assistant Professor 6/Genetics Lab Head  
Institute of Crop Science/Institute of Plant Breeding  
University of the Philippines Los Baños

**ALMA O. CANAMA, MSc**

*University Researcher II*  
Institute of Plant Breeding  
University of the Philippines Los Baños

**ANTONIO C. LAURENA, PhD**

*Research Associate Professor*  
Institute of Plant Breeding

University of the Philippines Los Baños

*\*contact details available upon request*