

José Guillermo Chacón Jiménez, Ph.D.

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I am a plant breeder and propagator with 17 years of experience in the agroindustry. I worked on virus testing and *in vitro* propagation, mainly orchids and tropical aroids, both edible and ornamentals. Also, I have experience with citrus and berry crops. At present I am dedicated to strawberry and raspberry breeding at NCSU, including the use *in vitro* propagation, traditional and markers assisted breeding.

Education:

August 2016 to December 2019

Ph.D. program, Horticultural Science Department, North Carolina State University, Raleigh, NC.

- Areas of emphasis: Plant Breeding.
- Dissertation: "Strawberry Studies: Screening of Germplasm and Identification of Quantitative Trait Loci for Necrotrophic and Hemibiotrophic Resistance to Anthracnose Diseases, and Validation of a Set of SSR Fingerprinting Markers".

June 2005 to June 2013

M.Sc. in Biotechnology, Agricultural Science and Natural Resources, Universidad de Costa Rica, San José, Costa Rica.

- Areas of emphasis: *in vitro* culture, plant genetic resources.
- Thesis: "Systematic description of *Xanthosoma* Schott accessions from Costa Rica and wild species *in vitro* culture".

March 1999 to December 2002

Licentiate in Biology with emphasis in Genetics and Biotechnology, Universidad de Costa Rica, San José, Costa Rica.

- Areas of emphasis: plant virology, *in vitro* culture, genetics, physiology and anatomy.
- Thesis: "Identification of virus affecting native orchids at two greenhouses in the Central Valley of Costa Rica".

March 1993 to March 1999

B.Sc. in Biology, Universidad de Costa Rica, San José, Costa Rica.

Affiliations:

- American Society for Horticultural Science
- North American Plant Breeders Association
- North Carolina Strawberry Association

Scholarships and Grants

- The NC Strawberry Association's Scholarship Program, Fall 2018 - Spring 2019.
- Fulbright - LASPAU Scholarship grantee for Ph.D. studies in Horticultural Science, 2016 - 2018.
- CONICIT Costa Rica, Scholarship for M.Sc. Studies, 2007-2009.

Professional experience

January 2020 to present

Postdoctoral Research Scholar, Strawberry and Rubus Breeding programs, Horticultural Science Department, NCSU, Raleigh, NC. *Main achievements:*

- I worked with the breeding of strawberries and raspberries, producing the crosses, seeds and seedlings, evaluation selections and cultivars, phenotyping new seedling populations and selecting plants for further breeding.
- Preparation of research proposals.
- Recollection of information for patents and writing of them.
- Bioinformatic work for GWAS analysis of octoploid strawberry resistance to anthracnose diseases.

August 2016 to December 2019

Graduate Assistant, Strawberry and Rubus Breeding programs at the Horticultural Science Department, NCSU, Raleigh, NC. *Main achievements:*

- I worked in crossing, seed extraction, conditioning and germination of strawberry and *Rubus* crops.
- I micropropagated and phenotyped a mapping population of 280 strawberry clones *in vitro*.
- I prepared and conducted phytopathology research with *Colletotrichum* on strawberry.
- I analyzed disease resistance traits' data using Linear Mixed Model.
- I genotyped strawberry accessions with SSR and a mapping population using Genotyping by Sequencing and bioinformatic tools for SNP discovery and calling.
- I used molecular markers data analysis with R tools in the octoploid genomic context for phylogenetic approaches and parentage evaluation.
- I mentored one undergrad student in field, greenhouse and laboratory work and skills for 2 years.
- I participated actively on extension events for divulgation of scientific and technical developments.

January 2006 to January 2016

Fix term (adjunct) Professor, Agronomy Department and Fabio Baudrit M. Agricultural Experiment Station, Costa Rica, Universidad de Costa Rica. Position with teaching, extension and research responsibilities.

Main achievements:

- I strived to improve the integral formation of future agronomist by participating in educational opportunities directly in the classroom and individual mentoring. I taught several basic and applied courses and used a competence-based method and the use of multiple source information for the production decision process.
- I mentored eight students into their transition to industry.
- I participated on the graduation project of six Licentiate level students (required in Costa Rica for many jobs).
- I applied my experience on the development of multiple extension events, including an annual orchid production course (2007-2013), and semesterly capacitation on Huanglongbing (HLB) monitoring and control for farmers (2013-2015), and nurserymen on propagation of citrus and HBI prevention.
- Committee member for the organization of the "Inter-American Citrus Net meeting and Workshops in Citrus Market and the Impact of HLB in Latin America" committee, San José, Costa Rica in 1st - 6th, December 2011.
- Co-chair of the Workshop "Profitable and Responsible Coexistence of Costa Rican Citrus Production with Huanglongbing", Inter-American Institute for Cooperation on Agriculture, San José, Costa Rica, 11th - 13th, November 2014.
- I coordinated two research and extension grants proposals that achieved \$280,000.00 from local agencies in Costa Rica for Citrus HBI research and control.

- I coordinated an *in vitro* propagation unit that produced 20.000 baby orchids annually for local farmers in Costa Rica.
- I directed the research project (2007-2011) "Improved commercial production of Itabo (*Yucca guatemalensis* Regel) as an ornamental" as a service for Coopelndia R.L.

January 2004 to September 2005

Laboratory Instructor and Adjunct Professor, Biological Sciences Department, Universidad Nacional, Heredia, Costa Rica.

- Collaboration in the basic instruction of Biology and Agronomy students.
- Instructor of Plant Tissue Culture Techniques and Plant Growth Regulators and Phytohormones courses.
- Laboratory instructor for Botany and Plant Physiology courses.

August 2003 to December 2003

Adjunct Professor, Biology Department, Instituto Tecnológico de Costa Rica, Cartago, Costa Rica.

- I taught basic and applied plant physiology.

Skills

- Languages: Spanish (Native Speaker), English (working command).
- Microsoft Office software working knowledge.
- Statistical analysis data ANOVA and Linear Mixed Models with R, SAS, and ASReml softwares for plant breeding.
- Molecular Biology laboratory general techniques.
- Basic bioinformatic tools use for QTL analysis.
- Broad knowledge in plant tissue culture.
- Experience in culture maintenance, generic recognition, cultural and chemical control of fungal plant pathogens.
- Plant taxonomic knowledge applied to plant genetic resources.
- Proactive, excellent interpersonal relations and capacity for teamwork.
- Experience in organizing groups for professional, social and community work.
- Experience organizing local and international workshops and seminars.
- Capacity to write and apply for grants.
- Capacity to write plant patents and good knowledge of intellectual rights.
- NC Driver's License to date.

Consultantship

- Innovaplant de Costa Rica S.A. (Kientzler Group, Germany), sporadic advising in physiology and micropropagation culture of ornamentals. CEO Thomas Schuster (thomas@innovaplant.com). www.innova.innovaplant.com
- Agroorchids S.A., consultancy in 2015, 9 visits on site about orchid micropropagation, nutrition and pathogen control. CEO Rodolfo Gil. www.agroorchids.com.

Publication

Adhikari, T.B., Chacon, J.G., Fernandez, G.E. and F.J. Louws. 2019. First Report of Anthracnose Causing Both Crown and Fruit Rot of Strawberry by *Colletotrichum siamense* in North Carolina. Plant Disease 103:1775. DOI: <https://doi.org/10.1094/PDIS-02-19-0314-PDN>.

Fernandez, G., Pattison, J., Perkins-Veazie, P., Ballington, J.R., Clevinger, E., Schiavone, R., Gu, S., Samtani, J., Vinson, E., McWhirt, A. and J.G. Chacón. 2020. 'Liz' and 'Rocco' Strawberries. HortScience 55:597-600.