Inaiara de Souza Pacheco

Atkinson-Walling Lab
Genomics Building,
University of California, Riverside
Eucalyptus Dr, Riverside,
92507, California, USA

E-mail: inaiarad@ucr.edu
http://lattes.cnpq.br/8823793117873634

EDUCATION

Universidade Estadual de Campinas (Unicamp), Campinas, São Paulo, Brazil — Jun. 2019
Ph.D. in Genetics and Molecular Biology
Dissertation: "Molecular aspects of the interaction between *Diaphorina citri* and *Candidatus* Liberibacter asiaticus"

Universidade Estadual Paulista (UNESP), Botucatu, São Paulo, Brazil — May 2014
M.S. in Biological Sciences, Genetics
Thesis: "Comparative study of genomic and transcriptome profiles of *Phyllosticta citricarpa* (Citrus black spot disease agent) and *Phyllosticta capitalensis*"

Universidade Estadual de Maringá (UEM), Maringá, Paraná, Brazil — Dec. 2011
B.S. in Biological Sciences

RESEARCH EXPERIENCE

Postdoctoral researcher, UC Riverside, Entomology department — 2020-
Advisor: Peter Atkinson and Linda Walling

- Optimizing CRISPR technology to perform knockouts and Knock-ins in *Homalodisca vitripennis*;
- Study of activity of *Homalodisca vitripennis* constitutive and germline promoters

Fapesp Graduate Research Fellow (M.S. and Ph.D.)
Graduate Research Assistant, Centro de Citricultura Sylvio Moreira, Plant Biotechnology. — 2012-2019
Advisor: Marcos A. Machado

- Gene silencing of *Diaphorina citri* candidate effectors via RNAi;
- Study of the metabolome from different life stages of *D. citri,* and in response to *CLas* infection through gene expression and LC- MS/MS;
- Study of the progression of *CLas* infectivity across several *D. citri* generations via Real-time quantitative PCR (RT-qPCR);
- Transcriptomic study of the differences between citrus endophytic and phytopathogenic fungi species: *Phyllosticta capitalensis* and *Phyllosticta citricarpa,* through next generation sequencing (RNA-seq) and RT-qPCR.

CNPq Undergraduate Research Fellow 2008-2011
Undergraduate Research Assistant, Univer. Estadual de Maringá, Epistemology /Agronony
Advisor: Maria Júlia Corazza

- Epistemological studies concerning the historical events that allowed the development of Next Generation Sequencing technologies.
- Studies on the Citrus Tristeza Virus complex stability on different sweet orange trees over time via Single strand conformational polymorphism (SSCP).
- *Huanglongbing* diagnosis from commercial citrus orchards of Paraná State, via conventional PCR.

PUBLICATIONS

1. **PACHECO, I.S**.; DOSS, A.N; VINDIOLA, B. G.; BROWN, D. J.; ETTINGER, C. L.; STAJICH, J. E.; REDAK, R. A.; WALLING, L. L.; ATKINSON, P. W. Efficient CRISPR/Cas9-mediated genome modification of the glassy-winged sharpshooter *Homalodisca vitripennis* (Germar) (2022). Scientific Reports, v. 12, p. 6428.

2. **PACHECO, I.D**.; WALLING, L. L.; ATKINSON, P. W. Gene Editing and Genetic Control of Hemipteran Pests: Progress, Challenges and Perspectives (2022). Frontiers in bioengineering and biotechnology, v. 10, p. 896.

3. ETTINGER, C. L.; BYRNE, F.; **PACHECO, I.S**.; BROWN, D. J.; WALLING, L. L.; ATKINSON, P. W.; REDAK, R. A.; STAJICH, J. E. Transcriptome and Population Structure of Glassy-winged Sharpshooters (*Homalodisca vitripennis*) with Varying Insecticide Resistance in Southern California (2022). *Preprint.* Research square. https://doi.org/10.21203/rs.3.rs-1964919/v1

4. **PACHECO, I.S**.; GALDEANO, D. M.; MALUTA, N. K. P.; LOPES, J. R. S.; MACHADO, M. A. Gene silencing of *Diaphorina citri* candidate effectors promotes alterations on feeding behavior (2020). Scientific reports. 10, 5992.

5. **PACHECO, I.S**.; GALDEANO, D. M, LOPES, J. R. S.; MACHADO, M. A. Development on infected citrus over generations increases vector infection by *Candidatus* Liberibacter asiaticus in *Diaphorina citri* (2020). Insects 11, 469.

6. **PACHECO, I.S***; GALDEANO, D. M.*; ALVES, G.R.; RASHIDI, M.; TURNER, D.; LEVY, A.; GRANATO, L.M.; MACHADO, M.A. Friend or foe? Relationship between *Candidatus* Liberibacter spp. and *Diaphorina citri* (2020). Tropical Plant Pathology.

7. CURTOLO, M.; **PACHECO, I. S**.; BOAVA, L. P.; TAKITA, M. A.; GRANATO, L. M.; GALDEANO, D. M.; SOUZA, A. A.; CRISTOFANI-YALY M.; MACHADO M. A.; A wide-range transcriptome analysis of Poncirus trifoliata, Citrus sunki, C. sinensis and contrasting hybrids reveals HLB tolerance mechanisms (2020). Scientific reports. 10, 20865.

8. GALDEANO, D. M.; GRANATO, L. M.; **PACHECO, I. S**.; MACHADO, M. A. RNAi tools applied to hemipteran insects that are vectors of plant pathogens (2018). Annual Review of Phytopathology, v. 26, p. 51-68.

9. DALIO, R. J. D.; MAGALHÃES, D. M.; RODRIGUES, C. M.; ARENA, G. D.; O., T. S.; SOUZA-NETO, R.R.; PICCHI, S. C.; MARTINS, P. M. M.; SANTOS, P. J. C.; MAXIMO, H. J.; **PACHECO, I.S.**; DE SOUZA, A. A.; MACHADO,M. A. PAMPs, PRRs, effectors and R-genes associated with citrus-pathogen interactions (2017). Annals of Botany p. mcw238-26.

ADDITIONAL MANUSCRIPTS

PACHECO, I.S; GALDEANO; D.M; GRANATO, L.M; MACHADO, M. A. Sensitivity and specificity

of PCR primers for *Candidatus* Liberibacter asiaticus detection. (*In preparation*…)

PACHECO, I.S; AMARAL, J.; GALDEANO, D. M.; SILVA, M.F.G.F; MACHADO, M.A. Dynamics of energetic metabolism of *Diaphorina citri* during metamorphosis. (*In preparation*…)

PACHECO, I. S.; RODRIGUES, C. M.; GOULIN, E. H.; TAKITA, M. A.; MACHADO, M. A. Under the same roof: Transcriptional insights about Citrus phytopathogenic and endophytic *Phyllosticta* species. (*In preparation*…)

SCHOLARSHIPS AND AWARDS

Bayer-Centro de Citriculura Sylvio Moreira Young Citriculture Scientist Award ($1000)	2018
Fapesp, Graduate Student Scholarship	2012-2014 / 2016-2017
CNPq/INCT, Graduate Student Scholarship	2014-2016
PIBIC/CNPq, Undergraduate Student Scholarship	2008-2011

INVITED TALKS

CRISPR-mediated Genome Editing of *Homalodisca vitripennis* as a strategy for Pierce's Disease control, *Xylella* files, UC, Berkley, Berkley (USA).	2021
Effector proteins are important for *Diaphorina citri* feeding in citrus plants, 10° Workshop of HLB management, Citrosuco, Matão, São Paulo (BR)	2019
Gene silencing of *Diaphorina citri* candidate effectors: perspectives on Plant-bacteria-vector interactions, 9° Workshop of HLB management, Citrosuco, Araraquara, São Paulo (BR)	2018

RELEVANT CONFERENCE PRESENTATIONS

Entomological Society of America annual meeting, Denver, CO, USA. Highly efficient gene editing in *Homalodisca vitripennis*: perspectives on agricultural pest management (**Oral presentation)**	2021
3rd Hemipteran-plant interaction symposium, Madrid, Spain. Gene expression of *Diaphorina citri* effectors on different life stages (**Poster presentation**)	2017
International Citrus Congress, Foz do Iguacu, Parana, Brazil. Prediction of candidate effectors of *Diaphorina citri* using transcriptome data. (**Poster presentation**).	2016

TEACHING ACTIVITIES

Highschool Teacher, Biology, Colégio Aprovado, Limeira (BR)	February-2020
Middle school Teacher, General Sciences, Colégio Coi, Araras (BR)	2019
Instructor: 12° Citrus diseases course, Centro de Citricultura, Cordeirópolis, São Paulo, (BR)	2016

Instructor: Genetic Workshop, UNESP, Botucatu, São Paulo, (BR)	2016
Instructor: Genetic Workshop, UNESP, Botucatu, São Paulo, (BR)	2015
Teacher assistant, Introduction to genetics, Universidade Federal de Sao Carlos, Araras, Sao Paulo (BR)	2013

TECHNICAL EXPERTISE

Language: Portuguese, English

Computer software: Microsoft Office suite, Photoshop, ImageJ, Quant software, GraphPad prism; Assistat, Sasm-Agri.

Bioinformatics: Sequence alignment, effector proteins prediction: signal peptide prediction, motif prediction, transmembrane domain prediction; basic genomics: annotation, gene ontologies. Galaxy Platform, Blast2Go.

Molecular biology: Conventional PCR, Real-time PCR, gene silencing by interference RNA; CRISPR, cloning, Sanger sequencing.

Entomology: rearing and maintenance of Hemipterans, development of *in vivo* and in artificial diet experiments using adult and nymphal individuals; development of pathogen transmission experiments; EPG technique; Microinjection.

Microbiology: fungi and bacterial media preparation; isolation and maintenance of fungi strains; permanent culture preparation. Development of *in vivo* and *in vitro* experiments.

Field and Greenhouse: identification and evaluation of Citrus canker and *Huanglongbing* disease symptoms.

REFERENCES

Dr. Linda L. Walling
Professor at Botany and Plant Sciences, UC, Riverside, CA
Genomics Building, University of California, Riverside, Eucalyptus Dr, Riverside, 92507
Email: linda.walling@ucr.edu

Dr. Peter W. Atkinson
Professor at Entomology, UC, Riverside, CA
Genomics Building, University of California, Riverside, Eucalyptus Dr, Riverside, 92507
Email: peter.atkinson@ucr.edu

Dr. Marcos Antonio Machado
General diretor of Instituto Agronômico de Campinas (IAC)

1481, Barão de Itapura avenue, Campinas, São Paulo, Brazil, 13020-902
Email: marcos@ccsm.br

Dr. João Roberto Spotti Lopes

Vice-Diretor of Luiz de Queiroz College of Agriculture,
University of Sao Paulo,
11, Padua dias avenue, Piracicaba, São Paulo, Brazil, 13418-900
Email: jrslopes@usp.br