

**Alexander Silva, M.Sc.**

*Curriculum vitae*

**Present Address**

Department of Biochemistry and Molecular Biology  
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**PROFESSIONAL EXPERIENCE**

April 2019 – Present. **Research Visiting Scholar. Grotewold Lab**

Department of Biochemistry and Molecular Biology  
Michigan State University, USA

- Analysis of the accumulation of specialized metabolites in maize and identification of genes associated with its biosynthesis.
- Effects of specialized metabolites of maize in the growth and development of insects

September 2013 – March 2019. **Research Assistant**

Agrobiodiversity Research Area  
International Center for Tropical Agriculture (CIAT)  
Colombia

- Developing of SNP-based molecular markers for genetic diversity analysis and marker-assisted selection in rice.
- Identification of allelic variants for genes associated with agronomic traits in rice such as yield, grain quality, biotic (rice blast and rice hoja blanca diseases) and abiotic (cold and heat tolerance) stresses.
- Analysis of Whole Genome Sequence (WGS) data using bioinformatic pipelines.
- Rice germplasm genotyping using different molecular tools (SNPs, SSRs, CAPS) for genes associated with yield components, grain quality, rice blast resistance, cold tolerance and rice hoja blanca virus (RHBV) resistance.
- Identification of QTLs involved in RHBV resistance.

## EDUCATION

2016 – 2018. **Master in Agricultural Sciences - Plant Breeding.**

Universidad Nacional de Colombia (National University of Colombia)

Thesis: “Identification of QTL associated with *Rice hoja blanca virus* (RHBV) resistance”

2008 – 2013. **B. Sc. Biology.**

Universidad Nacional de Colombia (National University of Colombia)

Thesis: “Development of a core of SNP markers in genes associated with agronomic traits in rice (*Oryza sativa*) for molecular breeding”

## COURSES

**Genomic selection, accelerating the development of elite varieties (Selección Genómica, acelerando el paso en el desarrollo de variedades elite).** International Center for Tropical Agriculture (CIAT). Palmira, Valle del Cauca, Colombia. January 30 – February 3, 2017.

**Training in Bioinformatics: Genome Assembly.** Earlham Institute, Norwich Research Park, Norwich, UK. September 5 to November 11, 2016.

**Rice Breeding Course.** International Rice Research Institute (IRRI). Los Baños, Laguna, Philippines. March 16-27, 2015.

## LANGUAGES

Spanish: Native Speaker

English: Intermediate

## PUBLICATIONS

Worthington M., Perez J.G., Mussurova S., **Silva-Cordoba A.**, Castiblanco V., Jones C., Fernandez-Fuentes N., Skot L., Dyer S., Tohme J., Di Palma F., Arango J., Armstead I. De Vega J. 2019. A new *Brachiaria* reference genome and its application in identifying genes associated with natural variation in tolerance to acidic soil conditions among *Brachiaria* grasses. bioRxiv. DOI: <https://doi.org/10.1101/843870>

Cruz-Gallego M., Rebolledo C., Cuasquer J., Cruz D., Peña-Fernández A.L., Quintero C., **Silva A.**, Álvarez M.F., Jojoa-Cruz S., Lorieux M., Stuart J. & Correa F. 2018. Identification of new sources of resistance to RHBV – rice hoja blanca virus. *Acta Agronómica*, 67(2). DOI: 10.15446/acag.v67n2.61334

Duitama J., **Silva A.**, Sanabria Y., Cruz D.F., Quintero C., Ballen C., Lorieux M., Scheffler B., Farmer A., Torres E., Oard J. & Tohme J. 2015. Whole Genome Sequencing of Elite Rice Cultivars as a Comprehensive Information Resource for Marker Assisted Selection. PLOS ONE, 10(4). DOI: 10.1371/journal.pone.0124617

### PARTICIPATION IN SCIENTIFIC EVENTS

**Silva A.**, Quintero Q., Montoya M., Graterol E., Correa F., Muñoz J.E., Tohme J., Lorieux M. & Cruz M. 2018. Identification of Quantitative Trait Locus (QTL) for rice hoja blanca resistance, the major viral disease of rice in Tropical America. [Poster]. In: XIII Conferencia Internacional de Arroz para América Latina y el Caribe. 15–18 Mayo 2018, Piura, Perú.

**Silva A.**, Mosquera P., Quintero C., Torres E., Tohme J., Correa F., Grenier C. & Mosquera G. 2018. Development of a new SNP-based marker for the broad spectrum blast resistance *Pi9* gene and its use for molecular breeding of rice [Poster]. In: XIII Conferencia Internacional de Arroz para América Latina y el Caribe. 15–18 Mayo 2018, Piura, Perú.

**Silva A.**, Quintero C., Martínez M., Mosquera P., Duitama J. Cruz M., Lorieux M., Carabalí J. & Tohme J. 2016. Design of a multilocus SNP chip for genetic improvement of valuable agronomic traits in Latin American rice. [Talk]. In: IX Encuentro Latinoamericano y del Caribe de Biotecnología – REDBIO 2016. 27th June – 1st July, Lima, Perú.

Quintero C., **Silva A.**, Lorieux M., Duitama J., Martínez M., Carabalí J., Zapata Y.P., Álvarez M.F., Correa F. & Tohme J. 2016. Selección y uso de un arreglo de SNPs para estudios de huella genética y mejoramiento de arroz latinoamericano. [Poster]. In: IX Encuentro Latinoamericano y del Caribe de Biotecnología – REDBIO 2016. 27th June – 1st July, Lima, Perú.

**Silva A.**, Duitama J.A., Quintero C., Mosquera G., Torres E.A., Tohme J. Analysis of whole genome sequence data from Latin America germplasm to identify markers associated to the blast resistance *Pi9* gene. [Poster]. In: XII Conferência Internacional de Arroz para América Latina e Caribe – XII CIAALC. 23– 26 February 2015, Porto Alegre, RS, Brasil.

Cruz M., Stuart J., Rebolledo C., Cuásquer J., Cruz D., Peña A., **Silva A.**, Quintero C., Jojoa S., Córdoba E., Morán R., Álvarez M., Lorieux M. & Torres E.A. Identificación de fuentes de resistencia a la enfermedad de la hoja blanca del arroz en materiales con amplia diversidad genética: detección de regiones genéticas. [Poster]. In: XII Conferência Internacional de Arroz para América Latina e Caribe – XII CIAALC. 23 – 26 February 2015, Porto Alegre, RS, Brasil.

**Silva A.**; C. Quintero; E. Torres; J. Duitama; J. Carabali; K. Loaiza de la Pava; M.C. Duque J.B. Cuásquer; C. López & J. Tohme. Evaluación de polimorfismos de nucleótido único (snps) ubicados en genes asociados con la calidad del grano del arroz. (Evaluation of single nucleotide polymorphisms (SNPs) located in genes associated with rice grain quality). [Poster]. In: VIII Encuentro Latinoamericano y del Caribe de Biotecnología – REDBIO2013. 18 - 22 November 2013, Mar del Plata, Argentina.

## REFERENCES

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Joe Tohme

Agrobiodiversity Research Area Director (CIAT)

[j.tohme2@cgiar.org](mailto:j.tohme2@cgiar.org)

Erich Grotewold

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Assistant Professor - Universidad de los Andes

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Gloria Mosquera

Plant Pathologist, Rice (CIAT)

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