

CURRICULUM VITAE

Luis Orlando Morales Suárez

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EDUCATION

March 2014 **Ph.D. in Plant Biology**

University of Helsinki, Department of Biosciences

Thesis: Molecular responses of plants to solar UV-B and UV-A radiation

March 2004 **M.Sc. in Plant Biology**, Major (Plant Biotechnology)

University of Havana, Faculty of Biology

Thesis: Isolation and molecular characterization of the *Adh* gene in *Betula pendula* Roth

July 1996 **Agricultural engineering** (equivalent to M.Sc.)

University of Pinar del Río, Faculty of Forestry, and Agriculture

Thesis: Study of biological activity of BIOBRAS 16 on *Nicotiana tabacum* explants

RESEARCH EXPERIENCE (last 10 years)

University of Helsinki, Finland

Post-doctoral researcher, Department of Biosciences (May 2014-present)

- Revealed novel roles of small RNAs and alternative splicing in regulating plant responses to ozone
- Uncovered the roles of the UV photoreceptors UVR8 and cryptochromes in regulating transcriptome wide changes, photosynthetic efficiency, accumulation of hormones and metabolites, and plant performance under UV-B, UV-A, and blue wavebands
- Produced three manuscripts as first author plus one as senior author

Aalto University, Finland

Researcher, Department of Bioproducts and Biosystems (June 2012-April 2014)

- Introduced bacterial cellulose in the lab and initiated drug and micronutrients delivery assays
- Assessed the effects of lignin and hemicelluloses on the bioconversion of lignocellulose nanofibrils
- Published two research articles, one as first author

University of Helsinki, Finland

PhD research, Department of Biosciences (April 2007-May 2012)

- Integrated transcriptome and metabolite responses of plants to solar UV radiation
- Assessed the roles of UVR8 and RCD1 in plant acclimation to solar UV radiation
- Published four research articles as first author, two of them highly cited

GRANTS AND AWARDS

- 2012. Personal research grant, University of Helsinki
- 2011. Personal research grant, Finnish Society of Forest Science
- 2010. Personal research grant, Finnish Cultural Foundation
- 2004. Personal research grant, University of Eastern Finland
- 2003. Personal research grant, Finnish Centre for International mobility
- 2000. Personal research grant, Finnish Centre for International mobility

TEACHING EXPERIENCE

- 2017. "Plant responses to UV radiation" Invited lecture, Plant photobiology (Graduate course, University of Helsinki)

- 2014. "Analysis of gene expression with Real Time Quantitative PCR" Teaching assistant, Advance Plant Physiology, and Molecular Biology (Graduate course, University of Helsinki)
- September 1999-July 2003. "Plant Physiology" Teaching assistant and lecturer (Undergraduate course, University of Pinar del Río)

PEDAGOGICAL TRAINING

- 2016. Academic supervision (5 credits), University of Helsinki
- 2015. Constructive alignment in course design (5 credits), University of Helsinki
- 2015. Teaching and learning in higher education (5 credits), University of Helsinki

STUDENT SUPERVISION

- 2014-present. Co-supervisor, PhD thesis, Neha Rai, University of Helsinki
- 2015-present. Co-supervisor, MSc student, Shafiuddin Ahmed, University of Helsinki

PUBLICATIONS (h-index of 8, 335 citations as calculated using Google Scholar)

- Dolores Verdager, Marcel Jansen, Laura Llorens, **Luis Orlando Morales**, Susanne Neugart. 2017. "UV-A radiation effects on higher plants: Exploring the known unknown" *Plant Science* 255: 72-81
- **Luis Orlando Morales**, Mikael Brosché, Julia Vainonen, Nina Sipari, Åke Strid, Anders Lindfors, Pedro José Aphalo. 2015. Are solar UV-B- and UV-A-dependent gene expression and metabolite accumulation in *Arabidopsis* mediated by the stress response regulator RADICAL CELL DEATH1? *Plant Cell and Environment* 38 (5): 878-98
- Sari M Siipola, Titta Kotilainen, Nina Sipari, **Luis Orlando Morales**, Anders V Lindfors, T Matthew Robson, Pedro José Aphalo. 2015. Epidermal UV-A absorbance and whole leaf flavonoid composition in pea respond more to solar blue light than solar UV radiation. *Plant Cell and Environment* 38 (5): 941-952
- **Luis Orlando Morales**, Mikhail Iakovlev, Raquel Martín-Sampedro, Jenni Rahikainen, Janne Laine, Adriaan van Heiningen, Orlando Rojas. 2014. Effects of residual lignin and heteropolysaccharides on the bioconversion of softwood lignocellulose nanofibrils after SO₂-ethanol-water fractionation. *Bioresource Technology* 161: 55-62
- Hannes Orelma, **Luis Orlando Morales**, Leena-Sisko Johansson, Ingrid Höeger, Ilari Filpponen, Cristina Castro, Orlando Rojas, Janne Laine. 2014. Affibody conjugation onto bacterial cellulose tubes and bioseparation of human serum albumin. *RSC Advances* 4: 51440-51450
- **Luis Orlando Morales**, Mikael Brosché, Julia Vainonen, Gareth Jenkins, Jason Wargent, Nina Sipari, Åke Strid, Anders Lindfors, Riitta Tegelberg, Pedro José Aphalo. 2013. Multiple Roles for UV RESISTANCE LOCUS8 in Regulating Gene Expression and Metabolite Accumulation in *Arabidopsis* under Solar Ultraviolet Radiation. *Plant Physiology* 161 (2): 744-759. [76 citations]
- Yohama Puentes Rodríguez, **Luis Orlando Morales**, Stephan Willför, Pertti Pulkkinen, Heli Peltola, Ari Pappinen. 2013. Wood decay caused by *Heterobasidion parviporum* in juvenile wood specimens from normal and narrow crowned Norway spruce. *Scandinavian Journal of Forest Research* 28 (4) 331-339
- Yohama Puentes Rodriguez, Helena Puhakka-Tarvainen, Ossi Pastinen, Matti Siika-aho, Leila Alvila, Ossi Turunen, **Luis Orlando Morales**, Ari Pappinen. 2012. Susceptibility of pre-treated wood sections of Norway spruce (*Picea abies*) clones to enzymatic hydrolysis. *Canadian Journal of Forest Research* 42 (1): 38-46

- **Luis Orlando Morales**, Riitta Tegelberg, Mikael Brosché, Anders Lindfors, Sari Siipola, Pedro José Aphalo. 2011. Temporal variation in epidermal flavonoids due to altered solar UV radiation is moderated by the leaf position in *Betula pendula*. *Physiologia Plantarum* 143: 261-270
- **Luis Orlando Morales**, Riitta Tegelberg, Mikael Brosché, Markku Keinänen, Anders Lindfors, Pedro José Aphalo. 2010. Effects of solar UV-A and UV-B radiation on gene expression and phenolic accumulation in *Betula pendula* leaves. *Tree Physiology* 30: 923-934. [90 citations]
- Pia Järvinen, Anna Palme, **Luis Orlando Morales**, Mika Länneppää, Markku Keinänen, Tuomas Sopenan, Martin Lascoux. 2004. Phylogenetic relationships of *Betula* species (Betulaceae) based on nuclear *Adh* and chloroplast *matK* sequences. *American Journal of Botany* 91 (11): 1833-1844

Manuscripts under preparation

- **Luis Orlando Morales**, Johanna Leppälä, Omid Safronov, Mikael Brosché “ROS-regulation of gene expression in *Arabidopsis thaliana*: Key roles for RNA processing proteins and small RNAs” *In preparation for Genome Biology*
- **Luis Orlando Morales**, Omid Omid Safronov, Jarkko Salojärvi, Mikael Brosché “Alternative splicing shapes natural variation of ozone responses in *Arabidopsis thaliana*” *In preparation for BMC Genomics*
- Neha Rai, Sari Siipola, Alexey Shapiguzov, Fang Wang, Nina Sipari, Anders Lindfors, Gareth Jenkins, Mikael Brosché, Pedro Aphalo, **Luis Orlando Morales** “UVR8 and cryptochromes promote sunlight acclimation in *Arabidopsis thaliana*” *In preparation for Plant Cell*
- Craig Brelsford, **Luis Orlando Morales**, Jakub Nezval, Titta Kotilainen, Sara Hartikainen, Pedro Aphalo, Mathew Robson. “Does simulated understory blue light and UV-A radiation provide acclimation to high-light stress in photoreceptor mutants of *Arabidopsis thaliana*?” *In preparation for Physiologia Plantarum*
- **Luis Orlando Morales**, Andrew O’Hara, Mikael Brosché, Daniel Farkas, Shafiuddin Ahmed, Rozenn Pineau, Åke Strid, Pedro Aphalo. “Synergistic interactions of *Arabidopsis* UVR8 and cryptochromes in the regulation of UV-induced gene expression” *In preparation for Plant Physiology*
- **Luis Orlando Morales**, Marina Tang, Sari Siipola, Mikael Brosché, Nina Sipari, Anders Lindfors, Pedro Aphalo. “Gene expression and metabolite accumulation in *Betula pendula* leaves grown under altered solar UV radiation” *In preparation for Tree Physiology*

CONFERENCE PRESENTATIONS

- 2018. “UVR8 and cryptochromes promote sunlight acclimation in *Arabidopsis thaliana*”. Accepted oral presentation at the 2nd Network Meeting UV4plants, Bled, Slovenia
- 2015. “Plant acclimation to sunlight: solar UV, phenolics and UV photoreceptors”. **Invited talk** at the 16th Congress of the European Society of Photobiology, Aveiro, Portugal
- 2014. “Bacterial cellulose as biomolecule carrier”. Oral presentation at the 247th American Chemical Society Meeting, Dallas, USA
- 2013. “Effects of lignin and hemicelluloses on the enzymatic hydrolysis of nanofibrillated softwood lignocellulose after SO₂-ethanol-water (SEW) fractionation”. Oral presentation at the 245th American Chemical Society Meeting, New Orleans, USA
- 2012. “UVR8 is a key regulator of gene expression and metabolite accumulation under solar UV radiation” Acclimation to UV-B, Glasgow, UK

- 2011. "Accumulation of epidermal flavonoids in *Betula pendula* leaves of different ages under altered solar UV radiation". Oral presentation at UV4growth, COST-Action FA0906, 1st Annual Network Meeting, Szeged, Hungary
- 2010. "Gene expression and accumulation of phenolic compounds in *Betula pendula* leaves under solar UV" Oral presentation at the Plant responses to UV radiation workshop, Ostrava, Czech Republic
- 2009. "Effects of solar UVA and UVB on gene expression and phenolic accumulation in *Betula pendula* leaves". Poster presented at the Annual Meeting of the Society of Experimental Biology, Glasgow, UK

LINGUISTIC SKILLS

- Spanish: Mother tongue
- English: Proficient user
- Finnish: Intermediate (Level 3, National Certificate of Language Proficiency, YKI)

PROFESIONAL ASSOCIATIONS

- European Society of Photobiology, UV4Plants, Union of Professionals in Natural, Environmental and Forestry Sciences (Loimu)

EDITORIAL ACTIVITIES

- 2013-2015. **Assistant editor** (Plant Physiology section) Spanish Journal of Agricultural Research

Referee for scientific and scholarly journals

- 2010-2017 (Annals of Botany, Environmental and experimental Botany, Phytochemical analysis, PLOS ONE, Spanish Journal of Agricultural Research, Protoplasma, Phytochemistry, Functional Plant Biology and Journal of the Science of Food and Agriculture)

MEMBER OF SCIENTIFIC COMMITTEES

- 2015. 16th Congress of the European Society of Photobiology, Aveiro, Portugal
- 2010. 6th SPPS Student Conference, Espoo, Finland

PUBLIC OUTREACH

- 2013. Fascination of Plants Day, Helsinki. Public presentation "Why Study Plants"