TATIANA ARIAS
Ph.D. Biological Sciences
Phone: +57 300 845 6250
email: tatiana.tatianaarias@gmail.com

Homepage: https://sites.google.com/site/tatianatatianaarias/home
Github: https://github.com/TheAriasLab

I see myself contributing to the understanding of the molecular and genetic basis of plant form for horticulturally important species while breaching the gap between ornamentals breeding, academic research, teaching and genomics. To become such an individual I have set educational and professional goals that will hone my skills as both a teacher and a scientist.

Current academic appointments

● 2020- Present: Associate Researcher and Adjunct professor, Tecnológico de Antioquia. Biothecnology and conservation. Medellín, Colombia

● 2017- Present: Associate Researcher, Sociedad Colombiana Orquideología.

Other Academic appointments and professional experience

● 2020- Present: Associate Researcher, Universidad de la Amazonia, Florencia, Caquetá. Finance by: MinCiencias, Ideas para el Cambio. Horticulture and conservation of Orchids from the Andean Foothills.

● 2019- Present: Associate Researcher, Colomborquídeas ltda. Finance by: BCF-LifeSciences, France. Orchid horticulture and the effect of biostimulants. Medellín, Colombia.

● 2019: Associate Researcher, Sociedad Colombiana Orquideología. Finance by: Arribada Initiative and Shuttleworth Foundation UK. Monitoring the reintroduction of threatened species from the extraordinary diverse Orchidaceae. Medellín, Colombia

● 2016- 2019: Group leader, Comparative Biology Laboratory, Center for Biological Research (CIB). Plant evolution and biodiversity in Colombia. Medellín, Colombia.

● 2019: ICCS Oxford Biodiversity Fellow, University of Oxford, UK. Interdisciplinary Center for Conservation Sciences (ICCS). Colombian orchids conservation and trade. 2017: Visitor researcher, NEWTON FUND. Earlham Institute, UK. Systems biology lab
A network biology approach to Colombia's agriculture: The case of Brassica crops

● 2015- 2016: Associate Researcher, Colombian Center for Bioinformatics and Computational Biology BIOS, Colombia. Plant bioinformatics and genomics

● 2014: Visitor scholar, The University of Washington, USA. Plant development and evolution laboratory Genomics and transcriptomics of Thalictrum (Ranunculaceae)

● 2013-2014: Postdoctoral fellow, The University of Hong Kong, HK. Plant systematics and phylogenetics laboratory. Evolutionary development of Annonaceae

Prizes and distinctions

● 2017: Young Scientists Prize 2017 Biology, Colombia. The world Academy of Sciences (TWAS) and The Colombian Academy of Exact, Physical and Natural Sciences

● 2012: National Science Foundation Dissertation Improvement Grant (NSF-DIGG), USA. 2012. (USD $15,000)

Education

● 2007-2012: Ph D. Division of Biological Sciences, University of Missouri, USA. Advisor: J. Chris Pires
● 2005-2007: M. S. Ecology and Evolutionary Biology, University of Tennessee, USA. Advisor: Joseph H. Williams.
●1995-2002: B. S. Botany, Universidad de Antioquia, Medellín, Colômbia. Advisor: Ricardo Callejas

Teaching experience

● 2020: Adjunct professor, Botany. Institución Universitaria Tecnológico de Antioquia. Medellín, Colombia
● 2019: Intro to Orchid Biology Course instructor, Banco de la Republica. Florencia, Colombia
● 2019: Intro to Orchid Biology and Botany Course instructor, Reserva Orquídeas, Jardín, Colombia. Sociedad Colombiana de Orquideología and American Orchid Society
● 2019: Intro to Orchid Biology Course instructor, Congreso Colombiano de Botánica. Universidad de la Amazonia, Florencia, Colombia
● 2018: Bioinformatics Course instructor, Master in Biotechnology. Universidad de Libre, Barranquilla, Colombia
● 2015: Course instructor. Biotechnology and Information and Communications Technology (ICT): An Opportunity for solving problems in Colombia BIOS. Biotechnology tendencies and applications in agriculture and its relation to the ICT. Manizales Colombia
● 2015: Course instructor. Escuela LatinoAmericana de Evolución (ELAEVO). Universidad del Quindío, Colombia. Red Colombiana de Biologia Evolutiva (COLEVOL). Modules on: introduction to Bioinformatics, transcriptomics and genomics. Armenia, Colombia
● 2008-2012: Teaching assistant. General Botany, Plant Systematics and General Biology: responsible for designing and conducting lab instruction, assessment and authored lab activities. University of Missouri, USA
● 2005-2007: Teaching assistant. General Botany. University of Tennessee, USA

Publications

280 citations, h-index: 7, i10-index: 7

● Morales-Briones, D.F., T. Arias, V. Di Stilio, D. Tank. 2019. The Complete Plastome of Thalictrum thalictroides (Ranunculaceae) and Chloroplast Primers for Clade-Wide Phylogenetic Studies. Applications in Plant Sciences 7(10): e11294.
● T. Arias. 2019. Perspectivas globales sobre la conservación de orquídeas. Orquideologia. 36 (1): 59-65.
● Botero, K., T. Arias. 2018. Uso de las ciencias ómicas para el mejoramiento genético de cultivos. Revista de Ciencias Agricolas, Universidad de Nariño. Volumen 34(1):64-78.

- Arias, T. 2017. Inventario preliminar de las orquídeas de la reserva biológica de la Sociedad Colombiana de Orquideología y perspectivas para el desarrollo de un programa de investigación enfocado a la conservación. Orquideologia. 34 (2): 235-246.
- Arias, T. 2017. Masdevallia hortensis Luer & R. Escobar. Orquideologia. 34 (2):165.
- Zhi-Yan D., T. Arias, W. Meng, and M.-L. Chye. 2016. Plant acyl-CoA-binding proteins: an emerging family involved in plant development and stress responses. Progress in Lipids Research. 63:165–181 doi: 10.1016/j.plipres. 2016.06.002 . IF:11.2
- Henriquez C L, T. Arias, J. C. Pires, T. B. Croat, B. A. Schaal. 2014. Phylogenomics of the plant family Araceae. Molecular Phylogenetics and Evolution. 75: 91-102. IF:4.0
- Arias T., M. Beilstein, M. Tang, M. R. McKain, J. C. Pires. 2014. Diversification times among Brassic crops suggest hybrid formation after twenty million years of divergence. American Journal of Botany 101:86-91. IF: 2.5
- Mayfield D., J. D Washburn, T. Arias, P. Edger, C. Pires, G. C. Conant. 2013. Watching the grin fade: How polyploidy can illuminate cell biology. Seminars in Cell and Developmental Biology 24: 320-331. IF: 5.9
- Arias T. and J. C. Pires. 2012. A fully resolved and dated chloroplast phylogeny of the brassica crops and wild relatives (Brassiceae: Brassicaceae): Novel clades and taxonomic implications. TAXON: 61 (5) • October 2012: 980–988. IF:2.4
- Arias T. and J. H. Williams. 2008. Embryology of Manekia naranjoana (Piperaceae) and the origin of tetrasporic, sixteen-nucleate female gametophytes in Piperales. American Journal of Botany 95(3): 1-16. IF: 3.1
- Arias T., R. Callejas & A. Bornstein. 2006. New Combinations in Manekia, an earlier name for Sarcorhachis (Piperaceae). NOVON 16(2): 205-208. IF:0.2
- Arias T., 2003. Architectural analysis of Vismia baccifera (roots and shoots) and Vismia macrophylla (roots) Clusiaceae. CALDASIA 26(2): 333-358. IF: 0.3

Ongoing contributions

- Arias, T. D. M. Riaño-Pachon, V. S. Di Stilio. Submitted. Facilitating candidate gene discovery in an emerging model plant lineage: Transcriptomic and genomic resources for Thalictrum (Ranunculaceae). . Available in Bio-Archives: https://www.biorxiv.org/content/10.1101/2020.06.25.171215v1
- Muñoz-Perez, J. M., G. P. Cañas, L. Lopez, T. Arias. In review. Genome-wide diversity of northern South America cultivated Coconut (Cocus nucifera L.) uncovers diversification times and targets of domestication of coconut globally. Communications Biology. Available in Bio-Archives: bioRxiv 825398; doi: https://doi.org/10.1101/825398
- Serna-Sánchez, M. A., A. C. Alvarez-Yela, J. Arcila, O. A. Pérez Escobar, S. Dodsworth, T. Arias. In review. Plastid phylogenomics of the orchid family: Solving phylogenetic ambiguities within Cymbidieae and Orchidoideae. Scientific Reports. Available in Bio-Archives: https://www.biorxiv.org/content/biorxiv/early/2019/09/18/774018.full.pdf
- Arcila, JE, R. Arango, J. Torres, T. Arias. 2019. In review. Revisiting the origin of the Sigatoka disease complex using fossil calibrated phylogenies: mitochondrial genomes suggest later diversification times and pathogen host-tracking evolution. BMC Genomics. Available in Bio-Archives: https://www.biorxiv.org/content/biorxiv/early/2019/07/08/694562.full.pdf

Invited presentations

- 34 oral presentations at conferences and universities around the world: 12 as invited speaker.

Over 10 popular science contributions (talks, popular science articles, public blogs, movies)

● 2019: Recent progress in genomics and biotechnology of orchids: Implications in development of bioeconomies in Colombia. Invitada Encuentro de Orquídeas, Jardín Botánico Jose Celestino Mutis. Bogotá, Colombia.
● 2019: Horticulture and biotechnology as strategies for in-situ and ex-situ conservation.
7th International Orchid Conservation Congress | Kew - Kew Gardens, UK.
● 2019: Protecting Colombia's extraordinary Orchid Biodiversity: Horticulture and biotechnology as strategies for in-situ and ex-situ conservation. Zoology Department. University of Oxford, UK.
● 2019: Orchid horticulture trade and conservation in Colombia. Workshop & Internal Advisory Committee Meeting: Oxford Martin Programme on the Illegal Wildlife Trade. University of Oxford, UK.
● 2018: Using Compartive Biology for studying and taking advantage of the Colombia genetic diversity. SIMABID VI, Florencia, Caqueta.
● 2018: In-situ and ex-situ orchid diversity conservation in the Colombian Andes. Comahue University, Bariloche, Argentine.
● 2017. The Evolution of Brassica Crops and Wild Relatives: Using comparative biology to understand major challenges of Brassica vegetables cultivation in Colombia. INRA, Angers, France.
● 2015. Methodological approaches for plant phylogenomics: examples in Brassicaceae, Araceae and Annonaceae. The New York Botanical Garden. The Bronx, New York.
● 2014. Methodological approaches for plant phylogenomics: examples in Brassicaceae, Araceae and Annonaceae. The University of Hong Kong, School of Biological Sciences, Plant evolution and Adaptation Workshop.
● 2013. Evolutionary studies of the Brassica crops and wild relatives: phylogeny, development and domestication. The University of Hong Kong, School of Biological Sciences Seminar Series.
● 2012. A fully resolved and dated chloroplast phylogeny of the brassica crops and wild relatives (Brassiceae: Brassicaceae): Testing biogeographical and diversification hypothesis in the tribe. American Society of Plant Biologist Meeting (ASPT). Austin, Texas, USA.

Grants and Awards

● 2020: Protecting Colombia's extraordinary orchid diversity at La Reserva Orquideas, Antioquia: Plant ecoturism and horticulture as strategy for rural development. Van Thien Foundation for International nature Protection. PI (10,000 EURO)
● 2020: Investigación sobre los insectos coleópteros problema que enferman a las palmas y afectan a las palmas y el cultivo de platano en el departamento del Caquetá. Regalias y Ministerio de Ciencia Tecnología e Innovación, PI (2,500 million COP)
● 2020: Horticultura y conservación de Orquídeas Andino-Amazónicas como una estrategia para el desarrollo rural durante el posconflicto. Regalias y Ministerio de Ciencia Tecnología e Innovación, CoPI (2,500 million COP)
● 2020: Turismo comunitario y horticultura como una estrategia para el desarrollo rural de Florencia, Caquetá durante el posconflicto. Colciencias, Colombia, CoPI (150 million COP).
● 2019: American Orchid Society Orchid Conservation Grant. Protecting Colombia's extraordinary orchid diversity at La Reserva Orquídeas, Antioquia. Colombia. (USD7 ,500)
● 2019: 7TH International Orchid Conservation Congress. Royal Botanic Gardens, Kew 28 May – 1 June 2019 (£ 1000).
● 2019: The effect of Leafamine as floral biostimulant: Agronomic experiments in cut and pot orchids. BCF-LifeSciences, France (€ 9,395)
● 2019: Monitoring the reintroduction of threatened species from the extraordinary diverse plant family Orchidaceae using ultra-low powered Tensorflow-enabled camera traps. Arribada Initiative, Shuttleworth Foundation (£ 10,000).

● 2019: Illegal Wildlife Trade at the Martin Oxford School Fellowship. In-situ and Ex-situ Conservation of Colombian Andean Orchids. University of Oxford (£ 5000).
● 2019-2021: Colciencias Research Grant. Co-I. Biotechnological strategies for the rehabilitation of mining soils in the dry Colombian Caribbean region: Examining productive systems with aromatic species in microcosms. (300 million COP.)
● 2018-2019: Internationalization grant: INRA-CIB. Funding from Colciencias, Colombia – EcosNORD, France, for trips to both countries related with collaboration and research. (60 million COP)
● 2017: International post-doctoral positions of the regional program RFI Objectif Vegetal. GERMRESIST: Functional genetic approach in Arabidopsis to describe adaptive mechanisms controlling both seed germination and resistance to the seed-born necrotrophic fungal Alternaria brassicola.. INRA (€127,978)
● 2017: Newton Fund Researcher Links Travel Grant. A network biology approach to Colombia's agriculture: The case of Brassica crops. Visit to Earlham Institute (£ 7700).
● 2016: Promotion of regional micro-economies through the production and valorization of aromatic species essential oils cultivated during the rhizorremediation process of soils degraded by the mining. CoPI, Fontagro – Inter-American Development Bank (USD 400,000).
● 2016: Preparatory grant r4d, Switzerland: Cacao based agroforestry systems for enhanced pollination and increased livelihoods of small-scale farmers. CoPI (CHF 5500).
● 2016: Morphoagronomic and molecular characterization of Cocos nucifera L. and biological control strategies for the main phytosanitary problem of cultivation in producing areas of the Caribbean and Pacific Colombian coasts. Colciencias, Colombia, CoPI (399 million COP).
● 2015: Reconstruction of the paleoelevation history from the Upper Miocene in the Colombian Andes by biological data and hydration analysis of volcanic glass. Colciencias. CoPI. (USD $ 70,000)
● 2014: General Research Fund (GRF), Hong Kong research grant council (RGC). Principal Investigator: Richard Saunders, Co-Investigator: Tatiana Arias. Perianth evolution in the Annonaceae, an early-divergent family of flowering plants: integrating floral development, comparative transcriptomics and pollination ecology (USD $70,000)
● 2014: Research and conference grants administration system (RCGAS), The University of Hong Kong. Small Project Funding (USD $7,000)

Service

● 2019- to date: Member of the Orchid Seed Science and Sustainable Use (OSSSU), http://osssu.org/HTML/index.html
● 2019- to date: Member of the IUCN Orchid Specialists Group. Trade Group and ex-Situ Conservation group.
● 2017- to date: Member and scientific advisor, Colombian Society of Orchidology.
● 2015- to date: Member of COLEVOL scientific committee (Colombian evolutionary network).
● 2017: Organizer Course, metabarcoding and metagenomics for the study of Colombia's biodiversity.
● 2017-2018: Member of The Corporation for Biological Research (CIB) research committee.
● 2016-2018: Editorial board of Frontiers: Plant Evolution and Development.
● 2014: Organizer, Annonaceae colloquium Botany integrating molecules, biogeography and ecology. Botanical Society of America Meeting, Boise, USA.

Supervisory roles

● As main supervisor/mentor: 2 PhD student (current); 1 undergraduate student (current); 3 undergraduate students (previous)
● As co-supervisor/mentor: 1 post-doc (previous); 1 PhD students (previous); 1 MSc student (current)

Hosting of guest researchers and students

● Philippe Grappin. Institute Nationale of Recherche Agronomic (INRA), France (Professor; Dec. 2018)

● Nubia Velasquez. Institute Nationale of Recherche Agronomic (INRA), France (Postdoc; Oct-Jan 2018)
● Lucia Fernandez. Universidad de La Pampa, Argentina (PhD student; Oct-Dec 2018)

Peer reviews completed

● Tropical Plant Biology, Molecular Phylogenetics and Evolution, International Journal of Plant Sciences, BMC Evolutionary Biology, TAXON, Turkish Journal of Botany, the French National Science of Research (ANR), PLOS ONE, Edinburgh Journal of Botany, Physiologia Plantarum, BMC Genomics, Phytotaxa, Scientific Data,

Expert advisory roles

● External editor Universidad Nacional de Colombia, Minciencias- Colombia Grant referee, CONACYT Mexico, Universidad de Antioquia, Colombia, Universidad Militar de Nueva Granada, Bogotá, Colombia.

Postgraduate and career development courses

● 2019: Diploma in University Teaching. Universidad Pontificia Bolivariana UPB, Medellín, Colombia. 2019
● 2020: ICT tools to implement university teaching processes.

Research experiences and technical skills

● Field work in Colombia (1995-2004-2018), Costa Rica (2004-2007), Spain (2011), Australia (2013), Hong Kong (2013-2014).
● Greenhouse work: Mustards, endagereed trees from the Andean cloud forest and Orchids.
● Extensive experience in laboratory techniques, including microscopy, high-throughput next-generation techniques for RNAseq experiments, metagenomics and metabarcoding experiments, Genome sequencing and Genotyping by Sequencing.
● Intermediate knowledge of programming (R, Perl). Phylogenetic inference and phylogenetic comparative methods. Genome analysis workflows, RNAseq workflows, GBS workflows.

Media coverage and outreach

●Herbario virtual SCO-HUMBOLDT-CIB: http://herbario.sco.org.co/orquideas/
●La reserva orquídeas en Jardín: https://reserva.sco.org.co/
●I am part of the Interdisciplinary Center for Conservation Science (ICCS-Oxford University) as a biodiversity fellow: https://www.iccs.org.uk/ and my profile: https://www.iccs.org.uk/index.php/person/tatiana-arias
Visiting Fellow of the Oxford Martin Program on the Illegal Wildlife Trade: http://www.illegalwildlifetrade.net/visiting-fellows/
●Conferencia Andina de Orquideas 2019 - Presentacion Tatiana Arias: https://www.youtube.com/watch?v=PgE5790sisU
● 2018: Organizer, Bioblitz, Estación Biológica de Orquídeas, Jardín, Antioquia. https://reserva.sco.org.co/orquidblitz/
● Serna, A., J. Arcila, T. Arias. 2018. ¿Por qué estudiar las orquídeas desde la biología molecular? Tres casos que le interesarían a cualquier orquideólogo. Orquideologia. 35 (1): 120-133.
● T. Arias. 2019. Today's role of horticultural societies in Colombian orchid trade and conservation. Oxford Martin Programme on Illegal Wildlife Trade. Traiding Ideas: Issue 7.
●Our conservation efforts have been feature in people not poaching: https://www.peoplenotpoaching.org/protecting-colombias-extraordinary-orchid-biodiversity-horticulture-and-biotechnology-strategies
●Open source monitoring systems for pollinators and orchids: https://blog.arribada.org/2020/06/07/open-source-monitoring-systems-for-pollinators-orchids/

● Video for children education orchids and the cloud forest: https://vimeo.com/433384945
● Conservation Careers interview 2020: https://www.conservation-careers.com/conservation-jobs-careers-advice/conserve-an-orchid-conserve-an-ecosystem-protecting-colombias-biodiversity/

Languages
● Spanish (proficient), English (proficient), Mandarin (beginner).

References
● J. Chris Pires, Associate Professor, Biological Sciences, University of Missouri, piresjc@missouri.edu Phone: +1 (573)882-0619, 371B Christopher S. Bond Life Sciences Center, Columbia, MO 65211
● Leonardo Mariño, Associate researcher, National Center for Biotechnology Information (NCBI) marino@ncbi.nlm.nih.gov Phone: +1-301-402-3708. Building 38A, Room 6S614-M, 8600 Rockville Pike MSC 6075, Bethesda, MD 20894-6075
● Veronica di Stilio, Associate professo. Department of Biology, The University of Washington, distilio@uw.edu. Phone: (206) 616-556. Hitchcock Hall 506A, Seattle, WA 98195