



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type A post-doc fellowship

Cecilia Zumajo – Cardona

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Zumajo
Name	Cecilia
Date of birth	18 – 09 - 1992

PRESENT OCCUPATION

Appointment	Structure
Researcher at New York Botanical Garden	Research in the evolution of the seed in gymnosperms by performing <i>in situ</i> hybridization and bioinformatic analyses. Manuscript preparation for the seed development in <i>Ephedra</i> species and the evolution of the <i>SPOROCTELESS</i> gene lineage (Transcriptome analyses with different bioinformatic pipelines, real Time PCR for validation of the transcriptomes, and anatomical descriptions). Outreach activities: podcast participations, blog posts, sharing science with kids and science tours through the laboratory facilities.

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
PhD	Biology – Plant sciences	City University of New York and New York Botanical Garden	June 2021
Master	Master of Philosophy - Biology	City University of New York and New York Botanical Garden	2019
Degree (Undergraduate)	Biology	Universidad de Antioquia - Colombia	2015

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
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2017	Botanical Society of America – Student representative of the International Affairs committee.	United States
2020	Society of Molecular Biology and Evolution	United States

FOREIGN LANGUAGES

Languages	level of knowledge
Spanish	Native
English	Fluent
French	Intermediate (B1)

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2020	Katherine Esau Award by The Botanical Society of America
2019	Bill Dahl Graduate Student Research Award by the Botanical Society of America
2019	Doctoral Student Research Grant - scholarship for \$1500 - The Graduate Center CUNY
2018	Eppley Foundation for Research, project 'The Origin of the Fruit' P.I. Barbara Ambrose. \$29450.
2018	BSA Development and Structural Section with the publication: ' <i>Expression and functional studies of basal eudicot REPLUMLESS homologs during flower and fruit development.</i> '
2016	First Prize, Student Research Award - with the publication ' <i>Evolution of the APETALA2 Gene Lineage in Seed Plants.</i> ' Universidad de Antioquia, Medellín, Colombia
2013	Best undergraduate Poster VII Colombian congress of botany: VII Congreso Colombiano de Botánica, Ibagué, Colombia.

TRAINING OR RESEARCH ACTIVITY

<p>Description of activity:</p> <p>My research activities and training include several different techniques across plant biology:</p> <ul style="list-style-type: none">-Bioinformatics: Transcriptomic analyses, programming languages: Bash, AWK, Python.-Phylogenetics: gene lineage evolution (softwares: JModelTest, RaxML, RASP)-Laboratory techniques: <i>in situ</i> hybridization, RNA sequencing (transcriptomes), DNA extractions, Virus Induced Gene Silencing (VIGS), gene cloning.-Plant morphology and anatomy: Scanning Electron Microscopy, Light microscopy (plant anatomy sections and stains).

PROJECT ACTIVITY

Year	Project
2016 - 2021	Evolution and development of the seed coat in gymnosperms
2014 - 2015	Evolution of the <i>APETALA2</i> gene lineage in seed plants



2013 - 2014	Young researcher project: 'Duplication of the FUL-like genes in Ranunculales and their impact in the morphological diversification of Poppies'.
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CONGRESSES AND SEMINARS

Date	Title	Place
2021	Botany (Botanical Society of America)	Virtual
2020	Botany (Botanical Society of America)	Virtual
2020	The society for Integrative and Comparative Biology, SICB	Austin, TX, USA
2019	Venice summer school 2019: Mechanism in development and evolution - EMBO	Venice, Italy
2018	Botany (Botanical Society of America)	Tucson, Arizona, USA
2018	The Genome access course TGAC - Cold Spring Harbor and CUNY	New York, NY, USA
2018	II Joint Congress on Evolutionary Biology	Montpellier, France
2017	Botany (Botanical Society of America)	Rochester, Minnesota, USA
2017	IX Latin American Society of Developmental Biology Meeting	Medellin, Colombia
2017	Course: Comparative Genomics and transcriptomics in non-model specie	Medellin, Colombia
2017	XIX International Botanical Congress	Shezhen, China
2015	Primer Encuentro Nacional de Biología del Desarrollo	Bogotá, Colombia
2015	First Panamerican Evo-Devo meeting - University of California Berkeley	California, USA
2013	VII Colombian congress of botany	Tolima, Colombia
2013	Course: 'Curso de Ómicas, Actualización en genómica, transcriptómica y proteómica'	Medellin, Colombia

PUBLICATIONS

Articles in reviews
<u>Zumajo-Cardona, C.</u> , Little, DP., Stevenson, D., Ambrose, B. Molecular genetic analyses support the hypothesis that the <i>Ginkgo biloba</i> seed is the result of sterilization of sporangia. <i>Submitted</i> .
Regulation of carotenoid and chlorophyll pools in hesperidia, anatomically-unique fruits found only in Citrus. <i>Plant physiology</i> , doi: /10.1093/plphys/kiab291
<u>Zumajo-Cardona, C.</u> , and Ambrose, B. 'Deciphering the evolution of the ovule genetic network through expression analyses in <i>Gnetum gnemon</i> ', <i>Annals of Botany</i> https://doi.org/10.1093/aob/mcab059 . 2021.
<u>Zumajo-Cardona, C.</u> , Pabon-Mora, N., and Ambrose B. 'The evolution of <i>euAPETALA2</i> genes in vascular plants: from plesiomorphic roles in sporangia to acquired functions in ovules and fruits'. <i>Molecular Biology and Evolution</i> https://doi.org/10.1093/molbev/msab027 . June 2021.
Ambrose, B., Smalls, T., and <u>Zumajo-Cardona, C.</u> 'All Type II Classic MADS-genes in the Lycophyte <i>Selaginella moellendorffii</i> are broadly yet discretely expressed in vegetative and reproductive tissues'. <i>Evolution and Development</i> ; https://doi.org/10.1111/ede.12375 . May 2021.



Zumajo-Cardona, C., and Ambrose, B. 'Phylogenetic analyses of key developmental genes provide insight into the complex evolution of seeds' *Molecular Phylogenetics and Evolution* Vol 147; doi: 10.1016/j.ympev.2020.106778. 2020. June 2020.

Zumajo-Cardona, C., Vasco, A., and Ambrose, B. *The Evolution of the KANADI Gene Family and Leaf Development in Lycophytes and Ferns*. *Plants*. 8:313. August 2019.

Zumajo-Cardona, C., Pabon-Mora, N., and Ambrose, B. 'Duplication and diversification of REPLUMLESS – a case study in the Papaveraceae'. *Frontiers in Plant Science*. doi: 10.3389/fpls.2018.01833. 2018.

Stevenson, D., and Zumajo-Cardona, C. 'From Plant Ontology to Gene Ontology and back'. *Current Plant Biology*. doi: 10.1016/j.cpb.2018.09.009. 2018.

Zumajo-Cardona, C., Ambrose, B., and Pabon-Mora, N. 'Evolution of the SPATULA/ALCATRAZ Gene Lineage and expression analyses in the Basal Eudicot, *Bocconia frutescens* L. (Papaveraceae)'. *EvoDevo* doi: 10.1186/s13227-017-0068-8. 2017.

Zumajo-Cardona, C., and Pabon-Mora, N. 'Evolution of the APETALA2 Gene Lineage in Seed Plants'. *Molecular Biology and Evolution*. doi:10.1093/molbev/msw059. 2016.

'Evolutionary Developmental Biology (Evo-Devo) Research in Latin America'. *J. Exp. Zool. B Mol. Dev. Evol.* doi: 10.1002/jez.b.22687. 2016.

OTHER INFORMATION

Outreach:

Preparing Leaders and Nurturing Tomorrow's Scientists (PLANTS) Mentor 2020 & 2021 <https://botany.org/home/awards/travel-awards-for-students/plants-grants.html#2020plants>

-Nature Careers: "My 2020 as an 'alien' PhD student in New York. Cecilia Zumajo-Cardona learnt three key lessons as an international graduate student in the United States, and is optimistic about 2021." doi: <https://doi.org/10.1038/d41586-021-00200-1>

Papers for Kids:

-Mendelson E, [Zumajo-Cardona C](#) and Ambrose B (2021) What Is a Leaf? *Front. Young Minds*. *Accepted*

-Mendelson E, [Zumajo-Cardona C](#) and Ambrose B (2020) What Is a Fruit? *Front. Young Minds*. 8:27. doi: 10.3389/frym.2020.00027.

-Podcast interview: In defense of plants- Evolution of the seed:

<https://www.indefenseofplants.com/podcast/2021/5/30/4fvzoezmxzbz791g2hh3cb7lige7oy9>

Teaching experience:

Plant Structure, NYBG - Adult Education program February 2021 - April 2021

Plant Diversity, NYBG - Adult Education program October 2020 - November 2020

Lehman College – City University of New York: Principles of Biology Lab: Organisms:

February 2020 - June 2020 Two sections, 5 hours weekly

February 2019 - June 2019 Three sections, 7.5 hours weekly

February 2019 - June 2019 Three sections, 7.5 hours weekly

February 2018 - June 2018 Two sections, 5 hours weekly

Lehman College – City University of New York: Principles of Biology Lab: Cell and Genes:

August 2019 - December 2019

August 2018 - December 2019 Three sections, 7.5 hours weekly

February 2018 - June 2018 Two sections, 5 hours weekly

Student mentoring experience:



-Undergraduate dissertation co-tutoring, to Eliana Mendelson, Brandeis University "Expression analyses of fruit genes in selected basal angiosperms" Excellence in Research Award, August 2019 - May 2020.
-Undergraduate dissertation co-tutoring, to Dominique Jeton Groffman, Columbia University Student "Evolution of the SPOROXYTELESS/SPEAR gene family across land plants" February 2018 - August 2019.

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: New York, United States, 11 July 2021

SIGNATURE

Cecilia Zunajo