

Carolina M. Siniscalchi

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Professional Preparation

Universidade de São Paulo	Biology, Botany	Ph.D. 2018
	<i>Dissertation title:</i> Systematics and Evolution of <i>Chresta</i> Vell. ex DC. (Vernonieae, Asteraceae)	
	<i>Dissertation advisor:</i> Dr. José Rubens Pirani	
	<i>Co-advisor:</i> Dr. Benoit Loeuille	
Universidade de São Paulo	Biology, Botany	M.Sc. 2012
	<i>Thesis title:</i> Dalbergieae <i>s.l.</i> (Leguminosae, Papilionoideae) at Serra do Cipó, Minas Gerais	
	<i>Thesis advisor:</i> Dr. José Rubens Pirani	
Universidade de São Paulo	Biology	Teaching Degree 2012
Universidade de São Paulo	Biology	B.Sc. 2010
	<i>Undergraduate research:</i> Tribes Swartzieae, Sophoreae, Dipterygeae, Miletieae, Brongniartieae and Desmodieae (Leguminosae, Papilionoideae) at Serra do Cipó, Minas Gerais	
	<i>Advisor:</i> Dr. José Rubens Pirani	

Appointments

Assistant Professor	MS State Univ.	2023–current
Post-Doctoral Associate	MS State Univ.	2020–2023
Research Associate	Univ. of Memphis	2018–2019
Graduate Researcher	Univ. de São Paulo	2010–2018
Visiting Research Scholar	Univ. of Memphis	2016–2017
Visiting Research Scholar	Univ. of Memphis	2015
Visiting Research Scholar	NMNH	2015
Graduate Teaching Assistant	Univ. de São Paulo	2011
Undergraduate Researcher	Univ. de São Paulo	2009–2010
Undergraduate Teaching Assistant	Univ. de São Paulo	2006
Undergraduate Researcher	Univ. de São Paulo	2005–2006

Grants and Awards

- 2022 Richard and Minnie Windler Award in Systematics for the paper “Reevaluating genetic diversity and structure of *Helianthus verticillatus* (Asteraceae) after the discovery of new populations”, Southern Appalachian Botanical Society.
- 2019 CBio Seed Grant, University of Memphis Center for Biodiversity Research, US\$1000
- 2019 Association of Southeastern Biologists Research Award for the paper “The systematic value of pollen morphology in *Chresta* Vell. ex DC. (Vernoniae, Asteraceae)”, 80th Annual Meeting of the Association of Southeastern Biologists, US\$ 1000
- 2017 Triarch Botanical Images Student Travel Award, 3rd place, US\$ 200
- 2017 Southeastern Section of the Botanical Society of America, Outstanding Student Poster, 78th Annual Meeting of the Association of Southeastern Biologists, US\$ 300
- 2017 Southern Appalachian Botanical Society, Outstanding Student Poster, 78th Annual Meeting of the Association of Southeastern Biologists, US\$ 300
- 2016 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Doctorate grant for research internship abroad, Sep/2016 – Sep/2017, US\$ 26,000 (stipend), PI
- 2014 Smithsonian Institution, NMNH, Cuatrecasas Fellowship Award, Jan/2015 – Feb/2015, US\$ 3,000
- 2014 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Doctorate grant, Jan/2014 – Jan/2018, R\$ 136,000 (stipend, ~US\$ 39,000 at 2014 exchange rate), PI
- 2010 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Master’s grant, Aug/2010 – Aug/2012, R\$ 37,000 (stipend, ~US\$ 10,000 at 2010 exchange rate), PI
- 2009 Santander Foundation, Undergraduate research grant, Oct/2009 – Jun/2010, R\$ 2,700 (stipend, ~US\$ 700 at 2009 exchange rate), PI

Peer Reviewed Publications

32. Siniscalchi, C.M., Ackerfield, J.R. & Folk, R.A. 2023. Diversification and biogeography of North American thistles (*Cirsium*: Cardioideae: Compositae): drivers of a rapid continent-wide radiation. *International Journal of Plant Science* 184(5): 322–341.

31. Joyce, E.M., Appelhans, M.S., Buerki, S., ..., **Siniscalchi, C.M.**, ..., Crayn, D.M. 2023. Phylogenomic analyses of Sapindales support new family relationships, rapid Mid-Cretaceous Hothouse diversification, and heterogeneous histories of gene duplication. *Frontiers in Plant Science* 14: 1063174.
30. Palazzesi, L., Pellicer, J., Barreda, V.D., ..., **Siniscalchi, C.M.**, ..., Hidalgo, O. 2022. Asteraceae as a model system for evolutionary studies: from fossils to genomes. *Botanical Journal of the Linnean Society* 200(2): 143–164.
29. Doby, J., Li, D., Folk, R., **Siniscalchi, C.M.** & Guralnick, R. 2022. Aridity drives diversity of nitrogen fixing plants in North America. *Global Ecology and Biogeography* 31(8): 1630–1642.
28. Gorneau, J.A., Ausich, W.I., Bertolino, S., ..., **Siniscalchi, C.M.**, ..., Esposito, L.A. 2022. Framing the future for taxonomic monography: improving recognition, support, and access. *Bulletin of the Society of Systematic Biologists* 1: 8328.
27. BFG – The Brazil Flora Group. 2021. Brazilian Flora 2020: Leveraging the power of a collaborative scientific network. *Taxon* <https://doi.org/10.1002/tax.12640>.
26. Moore, E.R., **Siniscalchi, C.M.** & Mandel, J.R. 2021. Reevaluating genetic diversity and structure of *Helianthus verticillatus* (Asteraceae) after the discovery of new populations. *Castanea* 86(2): 196–213.
- 25. Siniscalchi, C.M.**, Hidalgo, O., Palazzesi, L., Pellicer, J., Pokorny, L., Maurin, O., Leitch, I., Forest, F., Baker, W.J. & Mandel, J.R. 2021. Lineage-specific vs. universal: comparison of the Compositae1061 and Angiosperms353 enrichment panels in the sunflower family. *Applications in Plant Sciences* 9(7): e11422.
- 24. Siniscalchi, C.M.**, Edwards, R.D., Gomez, J.L., Moore, E.R. & Mandel, J.R. 2021. Photosynthesis metabolism in the Compositae: Current knowledge and future directions. *Taxon* 70(2): 339–350.
23. Kates, H., Doby, J.R., **Siniscalchi, C.M.**, Lafrance, R., Soltis, D.E., Soltis, P., Guralnick, R., Folk, R. 2021. The effects of herbarium specimen characteristics on short-read NGS sequencing success in nearly 8000 specimens: Old, degraded samples have lower DNA yields but consistent sequencing success. *Frontiers of Plant Science* 12: 669064.
22. Thode, V., Oliveira, C.T., Loeuille, B., **Siniscalchi, C.M.** & Pirani, J.R. 2021. Comparative analyses of *Mikania* (Asteraceae: Eupatorieae) plastomes and impact of data partitioning and inference methods on phylogenetic relationships. *Scientific Reports* 11:13267.
21. Folk, R. & **Siniscalchi, C.M.** 2021. Biodiversity at the global scale: The synthesis continues. *American Journal of Botany* 108(6): 1–13.

20. Antar, G.M., **Siniscalchi, C.M.**, Gonella, P.M., Monge, M. & Loeuille, B. 2021. Novelty in Lepidaploinae (Asteraceae, Vernoniae) from the easternmost campos rupestres of Minas Gerais, Brazil: two new species and a range expansion. *Plant Ecology and Evolution* 154(1): 121–136.
19. Loeuille, B., Thode, V., **Siniscalchi, C.M.**, Andrade, S., Rossi, M. & Pirani, J.R. 2021. Extremely low nucleotide diversity among thirty-six new chloroplast genome sequences from *Aldama* (Heliantheae, Asteraceae) and comparative chloroplast genomics analyses with closely related genera. *PeerJ* 9: e10886.
18. Folk, R.A., **Siniscalchi, C.M.** & Soltis, D.E. 2020. Angiosperms at the edge: Extremity, diversity, and phylogeny. *Plant, Cell & Environment* 43(12): 2871–2893.
17. Lichter-Marck, I.E., Freyman, W.A., **Siniscalchi, C.M.**, Mandel, J.R., Castro-Castro, A., Johnson, G. & Baldwin, G.B. 2020. Phylogenomics of Perityleae (Compositae) provides new insights into morphological and chromosomal evolution of the rock daisies. *Journal of Systematics and Evolution* 58(6): 853–880.
16. Watson, L.E., **Siniscalchi, C.M.** & Mandel, J. 2020. Phylogenomics of the hyperdiverse daisy tribes: Anthemideae, Astereae, Calenduleae, Gnaphalieae, and Senecioneae. *Journal of Systematics and Evolution* 58(6): 841–852.
15. Carrasco-Harris, M.F., Mandel, J.R., **Siniscalchi, C.M.**, Reichling, S. & Cole, J.A. 2020. Population Genetics of Copperheads (*Agkistrodon contortrix*) within an Urban Forest. *Herpetological Review* 51(1): 1–7.
- 14. Siniscalchi, C.M.**, Loeuille, B., Pirani, J.R., & Mandel, J.R. 2019. Using genomic data to develop SSR markers for species of *Chresta* (Vernoniae, Asteraceae) from the Caatinga. *Brazilian Journal of Botany* 42(4): 661–669.
13. Jones, K.E., Fér, T., Schmickl, R.E., Dikow, R.B., Funk, V.A., Herrando-Moraira, S., Johnston, P.R., Kilian, N., **Siniscalchi, C.M.**, Susanna, A. & Slovák, M. 2019. An empirical assessment of a single family-wide hybrid capture locus set at multiple evolutionary timescales in Asteraceae. *Applications in Plant Sciences* 7(10): e11295.
- 12. Siniscalchi, C.M.**, Loeuille, B.F.P., Funk, V.A., Mandel, J.R. & Pirani, J.R. 2019. Phylogenomics yields new insight into relationships within Vernoniae (Asteraceae). *Frontiers in Plant Science* 10: 1224.
11. Mandel, J.R., Dikow, R.B., **Siniscalchi, C.M.**, Thapa, R., Watson, L.E. & Funk, V.A. 2019. A fully resolved backbone phylogeny reveals numerous dispersals and explosive diversifications throughout the history of Asteraceae. *Proceedings of the National Academy of Sciences* 116(28): 14083–14088.
- 10. Siniscalchi, C.M.**, Loeuille, B.F.P., Siqueira Filho, J.A. & Pirani, J.R. 2019. *Chresta artemisiifolia* (Vernoniae, Asteraceae), a new endangered species from a recently created protected area in the Brazilian Caatinga. *Phytotaxa* 399(2): 119–126.

9. **Siniscalchi, C.M.**, Loeuille, B.F.P. & Pirani, J.R. 2018. Two new rupicolous species of *Chresta* (Asteraceae, Vernonieae) from the Brazilian Caatinga. *Systematic Botany* 43(4): 1059–1071.
8. BFG – The Brazil Flora Group. 2018. Brazilian Flora 2020: Innovation and collaboration to meet Target 1 of the Global Strategy for Plant Conservation (GSPC). *Rodriguésia* 69(4): 1513–1527.
7. Mandel, J.R., Barker, M.S., Bayer, R.J., Dikow, R.B., Gao, T.G., Jones, K.E., Keeley, S., Kilian, N., Ma, H., **Siniscalchi, C.M.**, Susanna, A., Thapa, R., Watson, L. & Funk, V.A. 2017. The Compositae tree of life in the age of phylogenomics. *Journal of Systematics and Evolution* 55(4): 405–410.
6. **Siniscalchi, C.M.**, Souza-Souza, R.M.B., Loeuille, B., Pirani, J.R. & Gonçalves-Esteves, V. 2017. The systematic value of pollen morphology in *Chresta* Vell. ex DC. (Vernonieae, Asteraceae). *Review of Palaeobotany and Palynology* 244: 182–191.
5. **Siniscalchi, C.M.**, Loeuille B., Semir, J. & Pirani, J.R. 2016. *Lychnophora spiciformis* (Asteraceae: Vernonieae), a new species from Bahia, Brazil. *Phytotaxa* 253(1): 48–56.
4. **Siniscalchi, C.M.**, Loeuille, B.F.P., Pirani, J.R., 2016. A new species of *Chresta* (Vernonieae, Asteraceae) endemic to the Mata Atlântica Domain, Brazil. *Phytotaxa* 244(1): 80–88.
3. BFG – The Brazil Flora Group. 2015. Growing knowledge: an overview of Seed Plant diversity in Brazil. *Rodriguésia* 66: 1–29.
2. Loeuille, B., **Siniscalchi, C.M.**, Pirani, J.R., 2014. New names in Vernonieae (Asteraceae) of northeastern Brazil. *Phytoneuron* 2014–9: 1–11.
1. Wagner, M.A., Loeuille, B.F.P., **Siniscalchi, C.M.**, Melo-de-Pina, G.F. & Pirani, J.R. 2013. Diversity of non-glandular trichomes in subtribe Lychnophorinae (Asteraceae: Vernonieae) and taxonomic implications. *Plant Systematics and Evolution* 300(5): 1219–1233.

Pre-prints

5. Folk, R.A., Charboneau, J.L.M., Belitz, M., Singh, T., Kates, H.R., Soltis, D.E., Soltis, P.S., Guralnick, R.P. & **Siniscalchi, C.M.** 2023. Anatomy of a mega-radiation: Biogeography and niche evolution in *Astragalus*. *BioRxiv*. <https://doi.org/10.1101/2023.06.27.546767>.
4. Pantinople, D.J., Conner, R., Sutton-Dauber, S., Broussard, K., **Siniscalchi, C.M.**, Engle-Wrye, N.J., Jordan, H.R. & Folk, R.A. 2023. Phylogenetic and spatial determinants of leaf endophyte microbiomes in the flowering plant genus *Heuchera* (Saxifragaceae). *BioRxiv*. <https://doi.org/10.1101/2023.05.23.541975>.
3. Folk, R.A., **Siniscalchi, C.M.**, Doby, J., Kates, H.R., Manchester, S.R., Soltis, P.S., Soltis, D.E., Guralnick, R.P. & Belitz, M. 2023. Spatial phylogenetics of Fagales: Investigating the history of temperate forests. *BioRxiv*. <https://doi.org/10.1101/2023.04.17.537249>.

2. Siniscalchi, C.M., Correa-Narvaez, J., Kates, H.R., Soltis, D.E., Soltis, P.S., Guralnick, R.P., Manchester, S.R. & Folk, R.A. 2023. Fagalean phylogeny in a nutshell: Chronicling the diversification history of Fagales. *BioRxiv*. <https://doi.org/10.1101/2023.03.06.531381>.

1. Siniscalchi, C.M., Kates, H.R., Soltis, P.S., Soltis, D.E., Guralnick, R.P. & Folk, R.A. 2022. Testing the evolutionary drivers of nitrogen-fixing symbioses in challenging soil environments. *BioRxiv*. <https://doi.org/10.1101/2022.09.27.509719>.

Technical Publications

Siniscalchi, C.M., Loeuille, B. & Roque, N. 2021. Asteraceae in a megadiverse flora: results from the Flora of Brazil 2020. *Capitulum* 1(1): 54–60.

Gonella, P., **Siniscalchi, C.M.** & Loeuille, B. 2021. Where Linnaeus meets Wallace: new botanical discoveries highlight the biological shortfalls in the easternmost “campos rupestres” of Minas Gerais, Brazil. *Capitulum* 1(1): 48–53.

Siniscalchi, C.M. *Chresta* in Flora do Brasil 2020. Jardim Botânico do Rio de Janeiro. Available at: <http://reflora.jbrj.gov.br/reflora/floradobrasil/FB25219>.

Siniscalchi, C.M. *Strophopappus* in Flora do Brasil 2020. Jardim Botânico do Rio de Janeiro. Available at: <http://reflora.jbrj.gov.br/reflora/floradobrasil/FB25266>.

Mentorship and Training

Graduate student advising:

Fábio Alves (2022 –), Universidade Federal de Pernambuco, Brazil, co-advisor

Danielle Remor (2023 –), Universidade Federal da Bahia, Brazil, co-advisor

Graduate student training:

University of Memphis: Erika Moore, Malle Carrasco-Harris, Steven Ballou, Sonia Herrando-Moraira

Undergraduate student training:

Mississippi State University: Tajinder Singh, Reagan Conner

University of Memphis: Jorge L. Gomez, Gabbie Johnson

Universidade de São Paulo: Nívea Pinheiro, Kyoshi Peralta

Teaching

2022 **Taxonomy of Spermatophytes**, advanced undergraduate/graduate level course, Mississippi State University, co-instructor of record.

- 2022 **Biodiversity data wrangling: Linking large phylogenies with species traits and ecologies**, workshop at the Botany 2022 conference, co-creator and instructor. Material available at <https://github.com/carol-siniscalchi/BiodiversityDataWrangling>.
- 2021 **Introduction to NGS and Applications to Systematics (online)**, graduate course, Universidade de São Paulo – campus Ribeirão Preto, instructor of record. Material available at <https://github.com/carol-siniscalchi/IntroNGS>.
- 2021 **Plants, People and Power (online)**, seminar-based graduate course, Mississippi State University, co-creator and instructor.
- 2019 **Bioinformatics Workshop**, training for graduate students, post-docs and professors, University of Memphis, co-creator and instructor.
- 2018 **Introduction to NGS and Applications to Systematics**, graduate course, Universidade de São Paulo, instructor of record.
- 2018 **Introduction to NGS and Applications to Systematics**, graduate course, Universidade Federal do Pernambuco, instructor of record.
- 2014 **Introduction to NGS and Applications to Systematics**, graduate course, Universidade Federal de Santa Catarina, co-instructor of record.
- 2011 **I Botânica no Inverno**, outreach course for undergraduate students organized by graduate students, Universidade de São Paulo.
- 2011 **Diversity and Evolution of Photosynthetic Organisms**, undergraduate course, Universidade de São Paulo, teaching assistant.
- 2006 **Cell Biology**, undergraduate course, Universidade de São Paulo, teaching assistant.

Invited Talks

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| May 2022 | Botanical Society of Washington, Washington D.C. (online)
An overview of the ironweed tribe: systematics, morphology and evolution of tribe Vernonieae (Asteraceae) |
| April 2022 | Rhodes College, Memphis, TN (online)
Understanding the drivers of diversification in flowering plants |
| September 2020 | University of South Alabama, Mobile, AL (online)
Phylogenomics as basis for evolutionary studies |

June 2020	Digital Symposium of Plant Systematics and Evolution, Brazil (online) Compositae Phylogenomics: where we are and where we are going next
January 2019	Plant and Animal Genome Conference, San Diego, CA Phylogenomics of <i>Chresta</i> and implications for relationships within tribe Vernoniaeae

Conference Participation and Presentations

International Botanical Congress: 2017
 Botanical Society of America: 2017, 2019, 2020, 2021, 2022
 Association of Southeastern Biologists: 2017, 2019, 2022
 The International Compositae Alliance Meeting: 2018
 Latin American Botanical Congress: 2015, 2018
 Brazilian Botanical Congress: 2010, 2013, 2014, 2015, 2023
 South American Compositae Meeting: 2011
 International Legumes Conference: 2010, 2023

Participation in Workshops/Outside Courses

2023	New Faculty Teaching Academy Mississippi State University
2021/2022	Preparing Future Faculty Program Program held at MS State University aiming to prepare graduate students and post-docs to apply for tenure track jobs.
2020	Stay-at-Home RevBayes Workshop Summer 2020 (online) Introductory workshop to Rev language and programming in the RevBayes software.
2016	Introducción a la morfología y clasificación de la familia Compositae Workshop about the sunflower family offered at Universidad de la República, Uruguay, organized by Dr. Maurício Bonifacino and Dr. Vicki Funk.

Service to the Profession

Manuscript Referee: *Acta Botanica Brasílica*, *American Journal of Botany*, *Applications in Plant Sciences*, *BMC Plant Biology*, *Botanical Journal of the Linnean Society*, *Brazilian Journal of Botany*, *Capitulum*, *CheckList*, *Cladistics*, *Edinburgh Journal of Botany*, *Frontiers in Plant Science*, *Iheringia*, *Journal of the Tennessee Academy of Sciences*, *Kew Bulletin*, *Molecular Phylogenetics and Evolution*, *Plants*, *Phytotaxa*, *Rodriguésia*, *Systematic Biology*, *Systematic Botany*, *Taxon*, *Webbia*.

Reviewing Editor at *Applications in Plant Sciences* (2020–2022).

Organizing Committee: co-creator and organizer of TICATalks, the monthly online seminar of The International Compositae Alliance (2021).

Society Membership: American Society of Plant Taxonomists (ASPT), Botanical Society of America (BSA), Association of Southeastern Biologists (ASB), Gulf South Mycological Society, The International Compositae Alliance (TICA).

Secretary/Treasurer of the Southeastern Session of the Botanical Society of America: 2023–2025.

Member of ASB Research Award Committee: 2019–2022.

Member of BSA International Affairs Committee: 2019–2021.

Evaluator for ASPT Graduate Research Awards: 2021, 2022.

Miscellaneous Contributions

TAXONOMIC CONTRIBUTIONS: **2019:** *Chresta artemisiifolia* Siniscalchi & Loeuille sp. nov.; **2018:** *Chresta heteropappa* Siniscalchi & Loeuille sp. nov., *Chresta subverticillata* Siniscalchi & Loeuille sp. nov.; **2016:** *Chresta filicifolia* Siniscalchi & Loeuille sp. nov., *Lychnophora spiciformis* Loeuille & Siniscalchi sp. nov.; **2014:** *Chresta pacourinoides* (Mart. ex DC.) Siniscalchi & Loeuille comb. nov.

HERBARIA VISITED (INDEX HERBARIORUM CODE): Botanical Research Institute of Texas (BRIT), Embrapa Recursos Genéticos e Biotecnologia (CEN), Jardim Botânico do Rio de Janeiro (RB), Harvard University Herbaria (GH, A), Herbário Centro de Pesquisas do Cacau (CEPEC), Instituto de Botânica de São Paulo (SP), Instituto Brasileiro de Geografia e Estatística (IBGE), New York Botanical Garden (NY), Mississippi State University (MISSA), Missouri Botanical Garden (MO), Museu Botânico Municipal (MBM), Museu Nacional (R), United States National Herbarium (US), Universidade de Brasília (UB), Universidade de São Paulo (SPF), Universidade de São Paulo campus Piracicaba (ESA), Universidade Estadual de Campinas (UEC), Universidade Estadual de Feira de Santana (HUEFS), Universidade Federal da Bahia (ALCB), Universidade Federal de Minas Gerais (BHCB), Universidade Federal do Ceará (EAC), Universidade Federal do Vale do São Francisco (HVASF), University of Alabama (UNA), University of Memphis (MEM).

SCRIPTS AND DATA: <https://github.com/carol-siniscalchi>

Languages

Portuguese	First language
English	Fluent
Spanish	Comprehend and read well, speak and write reasonably
French	Comprehend and read little

Last updated: 09/13/2023