

PERSONAL INFORMATION	<p><b>Full Name:</b> Rafael da Silva Cruz  <b>Birthday:</b> 29-Dec-1986  <b>Nationality:</b> Brazilian  <b>Birthplace:</b> São Paulo, SP, Brazil</p>	<p>Dukelská 135  379 01, Třeboň  Czech Republic</p>
CONTACT INFORMATION	<p><b>E-mail:</b> rafaeldscruez@gmail.com  <b>Mobile:</b> +420 722 493 831  <b>Google Scholar</b>  <b>Website:</b> <a href="https://rafaeldscruez.com/">https://rafaeldscruez.com/</a>  <b>ResearcherID:</b> L-5502-2016  <b>ORCID:</b> 0000-0001-7624-0172</p>	
CURRENT POSITION	<p><b>Czech Academy of Sciences</b>  Postdoctoral fellow</p>	<p>Třeboň, Czech Republic  2021-present</p>
RESEARCH INTERESTS	<p>Evolution of Development, Comparative Plant Anatomy, Gene Expression, Plant Microtechnique, Seed-free Plants, Plants with Unusual Morphologies.</p>	
SKILLS	<p>Plant anatomy, light and electron microscopy, RNA extraction, cDNA cloning, gene expression (<i>in-situ</i> hybridization and qRT-PCR analyses), phylogenetic reconstruction (maximum parsimony, maximum likelihood, and Bayesian analyses) with morphological and molecular data (DNA, RNA, and AA), character optimization.</p>	
EDUCATION	<p><b>University of São Paulo, São Paulo, Brasil</b></p> <ul style="list-style-type: none"> <li>• <b>Ph.D., Botany</b> (2013-2018): <i>Development of leaves in ferns under the Agnes Arber's continuum view of plant morphology</i>. Advisor: <b>Gladys Flavia Melo-de-Pinna</b>. Co-advisor: <b>Jefferson Prado</b>. Internship abroad at the New York Botanical Garden . Supervision: <b>Barbara Ambrose</b>.</li> <li>• <b>M.Sc., Botany</b> (2011-2013): <i>Morphoanatomic and ontogenetic leaf characters of <u>Metrodorea</u> A.St.-Hil. and related species (Rutaceae) under a phylogenetic view</i>. Advisor: <b>Gladys Flavia Melo-de-Pinna</b>. Co-advisor: <b>José R Pirani</b>.</li> <li>• <b>Bachelor and Teaching Degrees, Biological Sciences</b> (2007-2012): <i>Stem and nodal anatomy of five species of <u>Pilocarpus</u> Vahl (Rutaceae)</i>. Advisor: <b>Gladys Flávia Melo-de-Pinna</b>.</li> </ul>	
RESEARCH EXPERIENCE	<p><b>Czech Academy of Sciences, Třeboň, Czech Republic</b></p> <ul style="list-style-type: none"> <li>• <b>Postdoctoral Fellow</b>, 2021-present: <i>Morphological evolution of South-American <u>Valeriana</u> (Caprifoliaceae)</i>.</li> </ul> <p><b>Institute of Botany, São Paulo, Brazil</b></p> <ul style="list-style-type: none"> <li>• <b>Postdoctoral Fellow</b>, 2019-2020: <i>Marginal cells of leaves in the great clades of ferns and their role in the evolution of megaphylls</i>.</li> </ul> <p><b>Federal University of Santa Catarina, Florianópolis, Brazil</b></p> <ul style="list-style-type: none"> <li>• <b>Postdoctoral Fellow</b>, 2019: <i>Evolution of root characters in Pleurothallidinae (Orchidaceae)</i>.</li> </ul>	

## PEER-REVIEWED

JOURNAL  
ARTICLES

- [1] Cortez, P.A.; Ferreira, C.L.; Santos, G.N.H.; Pirani, J.R.; Devechi, M.F.; **CRUZ, R.**; Gabia, V.S.; Melo-de-Pinna, G.F.A. 2021. Strategies for the protection of shoot buds in phanerophyte and geophyte species of Homalolepis Turcz. (Simaroubaceae, Sapindales). *Brazilian Journal of Botany*, online.
- [2] Rodrigues, A.C.; Oliveira, F.M.C.; Kedrovski, H.R.; **CRUZ, R.** 2021. Within the roots of Pleurothallidinae (Orchidaceae): an evolutionary analysis. *Flora*, 282, 151883.
- [3] **CRUZ, R.**; Prado, J.; Melo-de-Pinna, G.F. 2020. Leaf development in some ferns with variable dissection patterns (Dryopteridaceae and Lomaripsidaceae) *Flora*, 271, 151658.
- [4] **CRUZ, R.**; Melo-de-Pinna, G.F.; Vasco, A.; Prado, J.; Ambrose, B.A. 2020. Class I KNOX is related to determinacy during leaf development of the fern Mickelia scandens (Dryopteridaceae) *International Journal of Molecular Sciences*, 21, 4295.
- [5] Hirai, R.; **CRUZ, R.**; Prado, J. 2018. A new species of Hemionitis (Pteridaceae) from central Brazil *Willdenowia*, 48, 371-380.
- [6] **CRUZ, R.**; Duarte, M.; Pirani, J.R.; Melo-de-Pinna, G.F. 2017. Phylogenetic analysis and evolution of morphological characters in Metrodorea and related species in Rotoideae (Rutaceae) *Plant Systematics and Evolution*, 303, 927-943.
- [7] **CRUZ, R.**; Duarte, M.; Pirani, J.R.; Melo-de-Pinna, G.F. 2015. Development of leaves and shoot apex protection in Metrodorea and related species (Rutaceae) *Botanical Journal of the Linnean Society*, 178, 267-284.
- [8] Muntoreanu, T.G.; **CRUZ, R.**; Melo-de-Pinna, G.F. 2011. Comparative leaf anatomy and morphology of some neotropical Rutaceae: Pilocarpus Vahl and related genera *Plant Systematics and Evolution*, 296, 87-99.

## SUBMITTED

## MANUSCRIPTS

- [9] Matos, T.M.; ; **CRUZ, R.**; Peralta, D.F.; Melo-de-Pinna, G.F.A.; Santos, D.Y.A.C. Cuticle analysis in Phaeoceros laevis (L.) Prosk (Notothyladaceae, Anthocerotophyta). *Submitted to Frontiers in Plant Science*.

## BOOK CHAPTERS

- [10] Melo-de-Pinna, G.F.A.; **CRUZ, R.** 2020. Leaf Development in Vascular Plants. In: Demarco, D. (Org.). *Plant Ontogeny: Studies, Analyses and Evolutionary Implications*. Nova Sciences Publishers Inc, 83-105.
- [11] Nunes, A.S.; Brasileiro, J.C.B.; Baena, M.S.; **CRUZ, R.** 2013. Folha: desenvolvimento e estrutura. In: Lopez, A.M. et al. (Org.). *Botânica no Inverno 2013*. Institute of Biosciences, 23-33.
- [12] Tamakoshi, A.T.; Iha, C.; De Sordi, L.P.; **CRUZ, R.** 2012. O que estamos comendo?. In: Ursi, S.; Bizerra, A.F.; Visconti, M.A. (Org.). *Ambiente Marinho e biodiversidade: estratégias de ensino para a Educação Básica*. Institute of Biosciences, 84-89.
- [13] Nunes, A.S.; Hamashi, L.; Baena, M.S.; Pereira, R.N.; Mioto, P.T.; **CRUZ, R.** 2012. Folha: desenvolvimento, estrutura e função. In: Righi, A.A. et al. (Org.). *Botânica no Inverno 2012*. Institute of Biosciences, 23-42.

PRODUCTIVITY  
INDICES (2021)

	Google Scholar	Web of Science
Citations	55	32
h index	3	3

ORAL AND  
POSTER  
PRESENTATIONS

- **CRUZ, R.** *Evolução do desenvolvimento de folhas*. Oral presentation. In: Encontro de Inverno de Fungos, Algas e Plantas. Florianópolis, Brazil, 2019.
- **CRUZ, R.** *Apical and marginal meristems in ferns as an evidence of modified shoots*. Oral presentation. In: XII Congresso Latinoamericano de Botânica. Quito, Ecuador, 2018.
- **CRUZ, R.** *Folha como sistema caulinar parcial: Determinação reduzida no desenvolvimento de frondes de samambaias*. Oral presentation. In: 69<sup>o</sup> Congresso Nacional de Botânica. Cuiabá, Brazil, 2018.
- **CRUZ, R.** *Determinacy and apical cells in developing leaves of Dryopteridaceae species*. Oral presentation. In: 68<sup>o</sup> Congresso Nacional de Botânica. Rio de Janeiro, Brazil, 2017.
- **CRUZ, R.** *New evidence of complex shoot and leaf meristems in ferns*. Oral presentation. In: XIX International Botanical Congress. Shenzhen, China, 2017.
- **CRUZ, R.** *Anatomical development of fern leaves: apical and marginal cells in *Mickelia scandens* (Dryopteridaceae)*. Oral presentation. In: 66<sup>o</sup> Congresso Nacional de Botânica. Santos, Brazil, 2015.
- **CRUZ, R.** *Anatomical development of leaves in *Mickelia scandens* (Dryopteridaceae)*. Oral presentation. In: Next Generation Pteridology Conference. Washington DC, USA, 2015.
- **CRUZ, R.** *Redução do número de folíolos a partir de um ancestral com folhas compostas: morfogênese foliar em *Metrodorea* A. St.-Hill e espécies relacionadas (Rutaceae)*. Oral presentation. In: XI Congresso Latinoamericano de Botânica. Salvador, Brazil, 2014.
- **CRUZ, R.**; Pirani, J.R.; Melo-de-Pinna, G.F.A. *Ontogênese foliar de espécies de *Metrodorea* A. St.-Hil. (Rutaceae, Sapindales)*. Poster. In: 63<sup>o</sup> Congresso Nacional de Botânica, Joinville, Brazil, 2012.
- **CRUZ, R.**; Muntoreanu, T.G.; Melo-de-Pinna, G.F.A. *Anatomia nodal de cinco espécies de *Pilocarpus* Vahl (Rutaceae) e a sua relação com a morfologia foliar*. Poster. In: 60<sup>o</sup> Congresso Nacional de Botânica. Feira de Santana, Brazil, 2009.
- **SILVA, R.M.**; **CRUZ, R.**; Melo-de-Pinna, G.F.A. *Anatomia foliar de espécies de *Jatropha* L. (Euphorbiaceae)*. Poster. In: 60<sup>o</sup> Congresso Nacional de Botânica. Feira de Santana, Brazil, 2009.
- **CRUZ, R.** *Caracteres anatômicos nodais e caulinares de cinco espécies de *Pilocarpus* Vahl (Rutaceae)*. Poster. In: 17<sup>o</sup> Simpósio Internacional de Iniciação Científica. Ribeirão Preto, Brazil, 2009.

## TEACHING

**Lecturer***Graduate Level*

- Patterns in time and space: evolution, anatomy and genic control of the plant development. Invited lecturer. Course offered by the Graduate Program in Botany, Insituto de Biociências, University of São Paulo. (2020)
- Anatomy of vegetative organs of vascular plants. 60 hours. Invited lecturer. Course offered by the Graduate Program in Biology of Fungi, Algae and Plants. Federal University of Santa Catarina. 2020.
- Structure and function of plants in Brazilian environments. 75 hours. Invited lecturer. Course offered by the Graduate Program in Biology of Fungi, Algae and Plants. Federal University of Santa Catarina. 2019.
- Techniques on microscopic studies in Plant Biology. 75 hours. Invited lecturer. Course offered by the Graduate Program in Biology of Fungi, Algae and Plants. Federal University of Santa Catarina. 2019.
- Anatomy of vegetative organs of vascular plants. 60 hours. Invited lecturer. Course offered by the Graduate Program in Biology of Fungi, Algae and Plants. Federal University of Santa Catarina. 2019.
- Structural biology of fungi, algae and plants. 45 hours. Invited lecturer. Course offered by the Graduate Program in Biology of Fungi, Algae and Plants. Federal University of Santa Catarina. 2020.

*Undergraduate Level*

- "Plant anatomy". 68 hours. Hired as a substitute lecturer by the Federal University

of Mato Grosso do Sul. 2020.

- "Primary development in the shoot system of vascular plants". 4 hours. Invited lecturer. University of São Paulo. 2019.
- "Primary development in the shoot system of vascular plants". 8 hours. Invited lecturer. University of São Paulo. 2017.

#### Short courses

- Primary development of the shoot system in vascular plants: structural and molecular aspects. 16 hours. 69<sup>o</sup> Congresso Nacional de Botânica. Cuiabá. 2018.
- Evolution of vegetal reproduction. 12 hours. 17<sup>a</sup> Semana Temática da Biologia. São Paulo. 2014.
- Update course for basic education teachers. Institute of Biosciences, University of São Paulo. 2009.

### Teacher's Assistant

#### Undergraduate Level

- Comparative anatomy and morphology of vascular plants, Institute of Biosciences, University of São Paulo. 2014.
- Diversity and evolution of vascular plants, Institute of Biosciences, University of São Paulo. 2012.
- Comparative anatomy and morphology of vascular plants, Institute of Biosciences, University of São Paulo. 2012.
- Diversity and evolution of vascular plants, Institute of Biosciences, University of São Paulo. 2010.
- Comparative anatomy and morphology of vascular plants, Institute of Biosciences, University of São Paulo. 2010.
- Diversity and evolution of photosynthesizing organisms, Institute of Biosciences, University of São Paulo. 2009.
- Form and function in vascular plants, Institute of Biosciences, University of São Paulo. 2008.

#### MANUSCRIPT REVIEWER

- *Acta Botanica Brasilica*
- *Annals of the Brazilian Academy of Sciences*
- *Biodiversitas Journal of Biological Diversity*
- *Brazilian Journal of Botany*
- *Flora*
- *Hoehnea*
- *Iheringia Serie Botanica*
- *Plant Signaling & Behavior*
- *Plant Systematics and Evolution*
- *Rodriguésia*
- *Systematic Botany*

#### EVALUATION COMMITTEES

#### PhD Dissertation Defenses

- Gomes, S.M.; Nowak, J.; **CRUZ, R.**; Zappi, D.C.. Defense committee of André Silva Pinedo "*Anatomical and ontogenetic variations among palms (Arecaceae)*". University of Brasília. (2021)

#### Masters Thesis Defenses

- Lusa, M.G.; Meirelles, J.; Rodrigues, A.C.; **CRUZ, R.**; Oliveira, M.F.C. Defense committee of Everton Richetti "*Morfoanatomia foliar comparada entre espécies de Oxalis sect. Polymorphae (Prog.) Lourteig com problemas de delimitação taxonômica.*". Federal University of Santa Catarina. (2019)
- Lusa, M.G.; Simioni, C.; Oliveira, M.F.C.; Caddah, M.; **CRUZ, R.** Defense committee of Josiane Wolff "*Ocorrência e evolução da fitomelanina em caules aéreos de Vernoniae e análise dos mecanismos celulares envolvidos em sua síntese.*". Federal University of Santa Catarina. (2019)

**Qualifying Evaluation of Ph.D. candidates**

- Santos, M.F.; Ancantara, S.F.; **CRUZ, R.** Evaluation committee of Mariana de Andrade Wagner "*Sistemática do clado de Myrcia amazonica DC. (Myrcia sect. Aulomyrcia (O. Berg) Griseb. – Myrtaceae)*". Federal University of Santa Catarina. (2019)
- Caddah, M.; Vasconcelos, T.N.C.; **CRUZ, R.** Evaluation committee of Luciana Pereira da Silva "*Estudo integrativo do diverso Cyperus s.l. (Cyperaceae)*". Federal University of Santa Catarina. (2019)

COMPLEMENTARY  
EDUCATION

- *Programming for Everybody (Getting Started with Python)*. University of Michigan. 2020
- *Teaching in Higher Education: A First Approach*. University of São Paulo. 2018
- *Molecular mechanisms on plant reproductive development: transcription factors and genome editing*. Center of Nuclear Energy in the Agriculture of the University of São Paulo. 2017
- *Developmental Patterns and Evolutionary Developmental Biology ("Evo-Devo") of Flowering Plants with Unusual Morphologies, e.g. Lentibulariaceae (Bladderworts & allies) and Podostemaceae (Riverweeds)*. Institute of Biology of the University of Campinas. 2015
- *Computational phylogenetic analysis*. Butantan Institute. 2013
- *Techniques on plant anatomy*. Institute of Biosciences of the University of São Paulo. 2011
- *Phylogenies and their applications*. Institute of Biosciences of the University of São Paulo. 2009
- *Identification of angiosperms*. Institute of Biosciences of the University of São Paulo. 2009
- *Herbarium*. Institute of Biosciences of the University of São Paulo. 2009
- *Ecology of plants in extreme environments*. Institute of Biosciences of the University of São Paulo. 2008
- *Wood identification*. Institute of Biosciences of the University of São Paulo. 2008
- *Didactic material*. Institute of Biosciences of the University of São Paulo. 2007
- *Curatorship of biological collections*. Institute of Biosciences of the University of São Paulo. 2007

STUDENTS  
REPRESENTATIVE

- Students Representative within Council of the Department of Botany, Institute of Biosciences of the University of São Paulo - Elected for two terms (2010-2011).
- Students Representative within commission for management of the didactic center, Institute of Biosciences of the University of São Paulo - Elected for two terms (2008-2009).

## OUTREACH

- **CRUZ, R.**; Chaves, B.E.; Cortez, P.; Melo-de-Pinna, G.F.A. Organizing committee of the YouTube Channel "AnatoEncontros" - A weekly series of Plant Anatomy lectures, in Portuguese (2020-current).
- Ceccantini, G.; Pirani, J.R.; Oliveira, P.E.; Motta, J.C.; Teixeira-Costa, L.; Godoy-Veiga, M.; Alecio, P.; **CRUZ, R.**; Justino, T.; Alves-Santos, T. Organization of the exposition "Evolutionary tree of land plants". Institute of Biosciences of the University of São Paulo. 2017-2018.

## LANGUAGES

- **Portuguese**: Native speaker
- **English**: Fluent
- **Spanish**: Reading
- **Latin, Czech**: Basic knowledge