Curriculum Vitae

Personal Information

Complete name	Kelmer Martins da Cunha
Place and date of birth	Florianópolis (Santa Catarina, Brazil), May 7, 1999
Occupation	Biologist, Mycologist, Master's student in plant, algae, and fungal biology
Nationality	Brazilian
Institutional Address	Federal University of Santa Catarina, Botany Department – Mycology Lab, MIND.Funga. Campus Universitário Prof. João David Ferreira Lima, Trindade, 88040-900, Florianópolis, SC, Brazil.
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Education

M.Sc. Plant, Algae, and Fungal Biology. Botany Department. Federal University of Santa Catarina (Florianópolis, Brazil).
August 2024 – Present (due date: August 2026).
Advisor: Elisandro Ricardo Drechsler-Santos.
Co-advisor: Domingos Cardoso (Rio de Janeiro Botanical Gardens).
Project: Leveraging the public digitalized Funga data for shortfalls characterization and fungal conservation development in the Neotropics.

B.S. Biology. Biological Sciences, Biology Department. Federal University of Santa Catarina (Florianópolis, Brazil). Final grade: 9 out of 10 (converted to cumulative GPA: 3.633).
July 2018 – November 2023.
Advisor: Elisandro Ricardo Drechsler-Santos.
Thesis: Taxonomical and functional mycobiota characterization of highland grassland soils in the Santa Catarina state mountain range (in Portuguese, english publication in review).

Additional formation

Training program in Quantitative Ecology. Serrapilheira Institute & International Centre for Theoretical Physics, South American Institute for Fundamental Research (São Paulo, Brazil).
https://serrapilheira.org/en/training-program-in-quantitative-biology-and-ecology/.
January 2023 – March 2023 (theoretical part).
July 3, 2023 – July 13, 2023 (practical part).
February 25, 2024 – March 8, 2024 (scientific retreat).
Final project: Spatial spread and persistence of confined chemotactic populations in response to a toxic point source.

Professional

Research assistant & Laboratory technician (Mohamed bin Zayed Species Conservation Fund project 222530589 and Indianapolis Zoo Global Conservation Grant project 2221.4904. Granted for the MIND.Funga Initiative).
November 2023 – Present.

Undergraduate research scholarship (National Council for Scientific and Technological Development, CNPq, Brazil).
December 2019 – October 2023.

Skills

Programming: Proficient knowledge in R, Python, bash scripting, Linux/Unix local and server interfaces usage. Basic knowledge of GitHub project management and AWS clouding computing.

Data and statistical analysis: Proficient knowledge and comfortable with general univariate and multivariate frequentist statistics, hypothesis testing, big data handling, data quality filtering, organization, and visualization. Experienced with several routine software and pipelines for sequencing data analysis (both shotgun metagenomics and metabarcoding-oriented sequencing).

Scientific writing: Experienced in writing reports, scientific articles, and scientific communication texts in Portuguese and English.

Red-Listing (IUCN criteria application): Proficient knowledge in applying IUCN criteria for global assessments of species extinction risk, assessing fungal species extinction risk since 2020. Experience with teaching assessment processes in several Brazilian and Latin America workshops, being an assessment reviewer of the Global Fungal Red List Initiative. Familiarity and basic knowledge of IUCN criteria for assessing risks to ecosystems.

Wet laboratory procedures: Experienced with DNA extraction (environmental DNA and macrofungal specimens), DNA purification, PCR, gel electrophoresis, DNA quantification, and fungal cultures.

Languages: Native speaker of Portuguese, fluent in English, and basic knowledge of Spanish.

Team and interpersonal relationships: Can work and establish well within teams, being always respectful with colleagues. Proactive, fast, and interested learner, willing also to share knowledge with colleagues. Likes to solve problems and has good critical thinking.

Affiliations

Certificate IUCN Red List Unit trainer.
October 2022 – Present.

Member of the IUCN SSC Brazil Fungal Specialist Group. https://www.iucnbrazfun.com/.
April 2023 - Present.

Research experience

PELD–BISC (Long Term Ecological Research in Santa Catarina state highland grasslands) – Investigating the traditional land management impacts on biodiversity for restoring and conservation of the Atlantic Forest (financial support: FAPESC 2018TR0928). https://peldbisc.ufsc.br/.
January 2020 – October 2023.
Coordinators: Selvino Neckel & Elisandro Ricardo Drechsler-Santos.
Roles: Field expedition planning and execution, sampling design, soil sampling and processing, DNA extraction, bioinformatics (shotgun metagenomics data processing), statistical analysis, and writing.

Trindade Island Funga – Revealing the hidden soil fungal diversity in the most isolated Brazilian island (financial support: CNPq 443319/2019-8).
September 2021 – December 2023.
Coordinator: Aristóteles Góes-Neto.
Roles: Sampling design, bioinformatics (metabarcoding Illumina sequencing data processing), statistical analysis, literature review, and writing.

Brazilian Funga – Taxonomical revision and bioinformatics for the inclusion of Brazilian fungal diversity information in the Catalogue of Life (financial support: CNPq 403547/2023-7).
December 2023 – Present.
Coordinators: Elisandro Ricardo Drechsler-Santos & Domingos Cardoso.
Roles: Data mining, quality filtering, data processing, statistical analysis, geospatial analysis, and pipeline construction.

Establishment of the first ex-situ collection of threatened fungal species in Brazil – A synergetic approach with PAT Planalto Sul (Territorial Action Planning for Critically Endangered species) and fungal interactions with native fauna (financial support: Indianapolis Zoo project 2221.4904 & Mohammed bin Zayed Species Conservation Fund project 222530589 – https://www.speciesconservation.org/case-studies-projects/wrightoporia-araucariae/30589; https://www.indianapoliszoo.com/conservation/field-support/).
November 2023 - Present.
Coordinators: Elisandro Ricardo Drechsler-Santos & Genivaldo Alves-Silva.
Roles: Field expedition planning and execution, macrofungal specimens collection, specimen isolation and cultivation in-vitro, DNA extraction, PCR, phylogenetic inferences, macro fungal identification (macro and microscopic morphological features screening), and writing.

Peer-reviewed publications

Drechsler-Santos, E. R., M**artins-Cunha, K.**, Kossmann, T., Alves-Silva, G., Bittencourt, F., Cardoso, D., ... & Costa-Rezende, D. H. (2025). Brazil as a global player in fungal conservation: A rapid shift from neglect to action. *Perspectives in Ecology and Conservation*.

García, G. J. Y., Badotti, F., Ferreira-Silva, A., Dutra, J. D. C. F., **Martins-Cunha, K.**, Gomes, R. F., ... & Góes-Neto, A. (2025). Microbial diversity of the remote Trindade Island, Brazil: a systematic review. *PeerJ*, *13*, e19305.

Salvador-Montoya, C. A., Alves-Silva, G., Kossmann, T., Bittencourt, F., Werner, D., **Martins-Cunha, K.**, ... & Drechsler-Santos, E. R. (2024). A new and threatened species of Bondarzewia from the Brazilian cloud forests. *Mycologia*, *116*(5), 775-791.

Chaves, T., Xavier, J. S., Dos Santos, A. G., **Martins-Cunha, K.**, Karstedt, F., Kossmann, T., ... & Drechsler-Santos, E. R. (2024). Innovative infrastructure to access Brazilian fungal diversity using deep learning. *PeerJ*, *12*, e17686.

Karstedt F., Bergemann, S. E., Gates, G., Ratkowsky D., **Cunha, K. M.** & Capelari, M. (2024). Species of Entoloma (Entolomataceae) with cuboidal basidiospores from Brazil. *Phytotaxa, 654*(1), 1-76.

Antonelli, A., Fry, C., Smith, R. J., Eden, J., Govaerts, R. H. A., Kersey, P., Nic Lughadha, E., Onstein, R. E., Simmonds, M. S. J., Zizka, A., Ackerman, J. D., Adams, V. M., Ainsworth, A. M., Albouy, C., Allen, A. P., Allen, S. P., Allio, R., Auld, T. D., Bachman, S. P., … **Martins-Cunha, K.**, … Zuntini, A. R. (2023). State of the World's Plants and Fungi, 2023. Royal Botanic Gardens, Kew. https://doi.org/10.34885/WNWN-6S63

Niskanen, T., Lücking, R., Dahlberg, A., Gaya, E., Suz, L. M., Mikryukov, V., Liimatainen, K., Druzhinina, I., Westrip, J., Mueller, G., **Martins-Cunha, K.**, Kirk, P., Tedersoo, L. & Antonelli, A. (2023). Pushing the frontiers of biodiversity research: Unveiling the global diversity, distribution, and conservation of fungi. *Annual Review of Environment and Resources*, *48*, 149-176.

de Rezende, D. H. C., **Martins-Cunha, K.**, Monteiro, M., Alves-Silva, G., Drechsler-Santos, E. R., Fernandes, G. W., & Góes-Neto, A. (2023). Lost in the Voidness of the Atlantic Ocean: a Synthesis of Publication Trends, Biological Diversity, and Conservation in Trindade Island. *Biodiversidade Brasileira, 13(1)*.

Mueller, G. M., **Martins-Cunha, K.**, May, T. W., Allen, J. L., Westrip, J. R., Canteiro, C., ... & Dahlberg, A. (2022). What do the first 597 global fungal red list assessments tell us about the threat status of fungi?. *Diversity*, *14*(9), 736.

Martins-Cunha, K., Kossmann, T. & Drechsler-Santos, E. (2021). *Skeletocutis roseola*. *The IUCN Red List of Threatened Species 2021*. https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T196135960A196846291.en.

Martins-Cunha, K., Kossmann, T., Drechsler-Santos, E. & Leopoldo, E. (2021). *Cinereomyces dilutabilis*. *The IUCN Red List of Threatened Species 2021*. https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T196135662A196845697.en.

Bittencourt, F., Neves, M.A., Kossmann, T., **Martins-Cunha, K.**, Baltazar, J.M., Costa-Rezende, D.H., Trierveiler-Pereira, L., Vieira de Miranda, M. & Drechsler-Santos, E.R. (2021). *Ophiocordyceps ainictos*. *The IUCN Red List of Threatened Species 2021.* https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T209595557A209597943.en.

Calle, A., Drechsler-Santos, E.R., Funez, L., Kossmann, T., **Martins-Cunha, K.**, Pfister, D., Robledo, G., Sandoval-Leiva, P., Sanjuan, T. & Vasco-Palacios, A. (2020). *Rickiella edulis*. *The IUCN Red List of Threatened Species 2020.* https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T172818281A172861317.en.

Kossmann, T., **Martins-Cunha, K.**, Santos, P. & Drechsler-Santos, E. (2021). *Stropharia venusta. The IUCN Red List of Threatened Species 2021*. https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T196136132A196845821.en.

Robledo, G., Drechsler-Santos, E.R., Kossmann, T., Bittencourt, F. & **Martins-Cunha, K**. (2020). *Wrightoporia araucariae*. *The IUCN Red List of Threatened Species 2020.* https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T187000299A187004575.en.

Bittencourt, F., Calle, A., Drechsler-Santos, E.R., **Martins-Cunha, K.**, Kossmann, T., Sandoval-Leiva, P. & Vasco-Palacios, A. (2020). *Aegis luteocontexta*. *The IUCN Red List of Threatened Species 2020.* https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T172817975A172861292.en.

Other publications

Drechsler-Santos, E. R., Calaça, F. J. S., **Martins-Cunha, K.**, Costa-Rezende, D. H., Bezerra, J. D., Trierveiler-Pereira, L., ... & Mueller, G. M. (2023). A new specialist group for Brazilian fungi. *Oryx*, *57*(4), 421-422. (Conservation news)

Drechsler-Santos, E. R., Karstedt, F., Zimmermann Loureiro Chaves, T., Titton, M., Martins-Cunha, K., Leopoldo, E., Alves-Silva, G., Rezende, D., Kossmann, T., Gumboski, E. & von Wangenheim, A. (2022). MIND.Funga App: images dataset from Neotropical macrofungi used to train an artificial neural network to recognize fungal species. *Mendeley Data*. (Dataset) [doi: 10.17632/sfrbdjvxcc.1].

Costa-Rezende, D., Kossmann, T., Bittencourt, F., Titton, M., Comin, M., Salvador-Montoya, C., Monteiro, M., Kalyne, D., Gumboski, E., **Martins-Cunha, K.**, … & Drechsler-Santos, E. (2022). Funga do Parque Nacional de São Joaquim: não basta conhecer, algo maior tem que acontecer. *O parque das memórias infinitas*. 1 ed. Acaprena. (Book Chapter).

Titton, M., Alves-Silva, G., Kossmann, T., Kalyne, D., Costa-Rezende, D., **Martins-Cunha, K.**, … Drechsler-Santos, E. (2022). Construindo redes entre pessoas e biodiversidade: resultados do 1° programa de ciência cidadã com fungos do Brasil. *Anais do II Workshop da Rede Brasileira de Ciência Cidadã*. (Conference Paper).

Meetings

X Brazilian Mycology Congress.
Belo Horizonte, Brazil, 2024. Organizer of the “2nd Brazilian Workshop on Assessing Fungal and Lichen Species for the IUCN Global Red List”.

Brazilian Edible Mushrooms Conservation Initiative.
Hybrid (Online and Florianópolis, Brazil), 2023. Organizer and fungal species assessment reviewer.

2023 Congress of Argentine Mycologists.
Hybrid (Online and Córdoba, Argentina), 2023. Fungal species assessment reviewer.

XI Latin American Mycology Congress.
Ciudad de Panamá, Panamá, 2023. Organizer of the “3rd IUCN Latin American Workshop for the Assessment of Fungal and Lichen Species”. Speaker of the talk entitled “Ex-situ Fungal Conservation in Brazil: First steps and perspectives of an in-vitro approach”.

1st Brazilian Workshop on Assessing Fungal and Lichen Species for the IUCN Global Red List.
Online, 2021. Organizer.

1st Symposium of Fungal Diversity and Conservation in Cloud Forests
Online, 2021. Organizer of the workshop “Applying IUCN criteria for the recognition of threatened fungal species”). Speaker of the talk entitled “Is *Rigidoporus ulmarius* (Sowerby) Imazek a species complex? Preliminary results”.

X Latin American Mycology Congress.
Online, 2020. Speaker of the talk entitled “Preliminary evidence of a species complex within *Rigidoporus ulmarius* (Sowerby) Imazeki”.