Felipe de Paula Nogueira Cruz, Ph.D.
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Graceland University
Natural and Physical Sciences Department
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March 4th, 2025

To
Hiring Committee
Fort Hays State University
Department of Biological Sciences

Dear Dr. Michael Gruenstaeudl,

My name is Dr. Felipe de Paula, and I am enthusiastically formalizing my application for the position of Assistant Professor at the Department of Biological Sciences (Job no: R-04516).

I am currently an Assistant Professor at Graceland University-Natural and Physical Sciences Department, and I am responsible for the Anatomy and Physiology courses at the Institution. In addition, I have a strong background in Microbiology, a passion for microbial natural products, and a commitment to impactful teaching. For this position, I also offer my knowledge and a unique set of academic and soft skills which I gained in over a decade of experience in multidisciplinary environments, which I believe I am an excellent investment for the needs of your Department.

Throughout my doctoral studies at Universidade Federal de Sao Carlos (Brazil) and at University of Michigan, my research focused on the study of the endophytic and rhizospheric microbiome associated with Brazilian medicinal plants and their potential to tackle human and plant pathogens., culminating in major visibility. This research has allowed me to develop expertise in microbial natural products and fortifying relationships between other research groups in Brazil, United States, and United Kingdom.

Back at the University of Michigan in 2022 as a postdoctoral researcher, I had the opportunity to serve the community during the SARS-CoV-2 pandemic. As a member of Dr. Krista Wigginton's group on the SEWER project, I was responsible for designing methods of monitoring respiratory viruses in wastewater systems.

I am particularly excited about the potential to further explore microbial natural products and wastewater-based epidemiology within the robust research environment at University Kentucky.

Beyond research, I dedicate massive efforts to provide support, engaging, and student-centered learning experience. As a Professor at Fenix Technical School (2013) I was

responsible for seven courses in Nursing, Radiology, and Work and Environmental Safety majors. Further, I could develop my teaching abilities during the Ph.D. and postdoctoral periods at Universidade Federal de Sao Carlos, where I could successfully mentor undergraduate students and teach Microbiology classes.

I can say that my motivation, willingness to learn and teach, passion, adaptability, and a set of interpersonal abilities are my most valuable virtues. I am confident that my skills and enthusiasm would allow me to make a meaningful impact on the academic community.

Enclosed you will find my Curriculum Vitae and references, and I am looking forward to providing more details to aid you in the evaluation of my application.

Kind regards,

Felipe de Paula Nogueira Cruz, Ph.D.
Assistant Professor of Biology
Graceland University
Natural and Physical Sciences Department

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Education

Ph.D. in Biotechnology, Universidade Federal de São Carlos, Brazil **2018**
Thesis title: Isolation of the endophytic and rhizospheric microbiome associated to *Polygala* sp.: Evaluation of the biotechnological potential and antimicrobial activity.
Thesis advisors: Dr. Cristina Paiva de Sousa & Dr. Fernanda de Freitas Aníbal.

MSc. in Biosystems, Universidade Federal do ABC, Brazil **2012**
Thesis title: Genetic variability in the human cytomegalovirus (HCMV) glycoprotein B (gB) gene in blood samples from kidney transplant patients.
Thesis advisor: Dr. Maria Cristina Carlan da Silva.

B.A. in Biomedical Sciences, Universidade de Mogi das Cruzes, Brazil **2007**

Research Experience

Postdoctoral Research, University of Michigan 2022-2023

SEWER Network Project
Research aimed for the comparison of the occurrence of SARS-CoV-2 in settled solids and liquid partitions in wastewater treatment plants (WWTP) from southeast Michigan.

Samples were received weekly from the wastewater treatment plants of Ann Arbor, Flint, Jackson, Tecumseh, and Ypsilanti have been processed using a combination of automated, molecular, and analytical techniques.

Designed a droplet digital RT-PCR (ddRT-PCR) protocol to detect the N gene of SARS-CoV-2 and other viruses including Monkeypox, Respiratory syncytial virus, and Influenza A. Data was published at the University of Michigan dashboard.
(um.wastewatermonitoring.dataepi.org).

Postdoctoral Research, Universidade Federal de São Carlos 2018-2022

Evaluation of antimicrobial and antileishmanial potential of microorganisms associated with medicinal plants of the Brazilian coast.

Designed a natural products extract library derived from microbes associated with the medicinal plant *P. paniculata*. Samples were collected from Peruíbe, Brazil.

Discovered a new microbial lineage which is capable to inhibit *Leishmania* spp. and phytopathogenic fungi.

Research Assistant, Universidade de São Paulo **2019**

Research on the evaluation of activity of natural products and other compounds against multidrug resistant bacteria and their biofilms.

Visiting scholar, University of Michigan **2017-2018**

Chemical profiling and evaluation of the antimicrobial potential of *Streptomyces* spp. derived compounds from Brazilian medicinal plant *Polygala paniculata*.

Discovered microbial lineages which were capable to inhibit multiresistant bacteria, including *Bacillus anthracis.*

Graduate Research, Universidade Federal de São Carlos **2014-2018**

Isolation and evaluation of antimicrobial potential of microorganisms associated with *Polygala paniculata*.

Designed a natural products extract library derived from microbes associated with the medicinal plant *P. paniculata*. Samples were collected from Peruíbe, Brazil.

Designed methods for detection of enzyme production.

Graduate Research, Universidade Federal do ABC **2010-2012**

Study aimed on detection of genetic variability in glycoprotein B gene of HCMV isolated from kidney transplanted patients.

Research Assistant, Instituto Pasteur de São Paulo **2009-2013**

Activities performed at the Laboratory of Molecular Biology focusing on the molecular diagnosis of rabies viruses and equine encephalitis.

Teaching Experience

Assistant Professor, Graceland University **2024-present**

Demonstrated commitment to a culture that nurtures diverse forms of inquiry, scholarship and equal opportunity

Teaching generally twenty-four semester hours per academic year, including other functions such as administrative responsibilities, academic advising, and participation in University's committees.

Designed unique material containing self-authored illustrations and diagrams for Anatomy and Physiology courses.

Teaching portfolio at Graceland - Department of Physical and Natural Sciences.

Human Anatomy (BIOL3420)
Human Anatomy and Physiology (BIOL2300)
Human Physiology (BIOL3440)
Microbiology (BIOL2160)
Integrated Sciences (SCIE1200)
Capstone Research I (BIOL4111)
Capstone Research II (BIOL4120)
Capstone Research III (BIOL4111)
Digital Fluency and Citizenship (UNVI 1100)

Graduate Teaching Assistant, Department of Morphology and Pathology, Universidade Federal de São Carlos 2014-2022

Taught Microbiology classes (theory and laboratory) for undergraduate students under supervision of Dr. Cristina Paiva de Sousa.

Biotechnology Post-Graduation Program: Taught Environmental Biotechnology (BIT-758) classes (theory) for graduate students under supervision of Dr. Paulo Teixeira Lacava.

Biotechnology Post-Graduation Program: Taught Bioethics and Biosafety Applied in Multidisciplinary Laboratories and Their Interfaces with Biotechnology (BIT-757) classes (theory) for graduate students under supervision of Dr. Cristina Paiva de Sousa.

Professor, Fenix Technical School, Praia Grande, Brazil 2013-2014

Courses taught at technical level in Nursing, Radiology, and Work and Environmental Safety majors.

Teaching portfolio at FTS

Human Physiology
Human Anatomy
Parasitology
Microbiology

Pathology
Biosafety

Awards

National Council Research (CNPq) scholarship recipient (140125/2015-9), Universidade Federal de São Carlos (2015-2018).

CAPES Foundation - Ministry of Education of Brazil scholarship recipient (PDSE - 88881.134648/2016-01) (2017-2018).

Publications

1. João José de Freitas Ferrari, Maria Conceição Aparecida Macedo Souza, Rafael de Novaes Oliveira, Fumio Honna Ito, Felipe de Paula Nogueira Cruz, Marco Aurélio Barros, Murilo Novaes Gomes, Mauro Toledo Marrelli. Influence of landscape and land use on the occurrence of Rabies virus in the municipalities of Jacareí and Santa Branca, Vale do Paraíba, State of São Paulo (SP), between 2002 and 2009. Rev. Soc. & Nat., 2011.

2. Oliveira, R.N., Castilho, J.G., Batista, H.B.C.R., de Paula, F.C., Carnieli Jr, P., Lima, J.Y.O., Macedo, C.I., Menozzi, B.D., Carrieri, M.L., Kotait, I., Miranda, C.C.P., Brandão, P.E. A review of the classification of Rabies virus lineages maintained by insectivorous bats in Brazil. Revista de Educação Continuada em Medicina Veterinária e Zootecnia, São Paulo, v. 10, n. 2/3, p.96, res. PT.084, 2012.

3. Stangherlin, L.M., de Paula, F.N., Icimoto, M.Y., Ruiz, L.G.P., Nogueira, M.L., Braz, A.S.K., Juliano, L., da Silva, M.C.C. Positively Selected Sites at HCMV gB Furin processing region and their effects in cleavage efficiency. Front Microbiol. May 23;8: 934, 2017.

4. Henrique, C. Alves, Felipe de P. N. Cruz, Pamela C. P. de Assis, José D. C. Pessoa, Luis C. Trevelin, Angela M. de O. Leal, and Cristina P. de Sousa. Antibiotic resistance among *Escherichia coli*: isolates and novel approaches to the control of *E. coli* infections. In: Recent Advances on Physiology, Pathogenesis and Biotechnological Applications. InTech, July (2017). DOI: 10.5772/67400, .2017.

5. Silva, A.D.; Ambrozin, A.R.P.; de Camargo, A.F.S.; Cruz, F.P.N.; Ferreira, L.L.G.; Krogh, R.; Silva, T.L.; Camargo, I.L.B.D.C.; Andricopulo, A.D.; Vieira, P.C. Liquid Fungal Cocultivation as a Strategy to Access Bioactive Metabolites. Planta Med. (2020) Jul 9. doi: 10.1055/a-1200-2046.

6. Nogueira-Cruz, F.P.; Bogas, A.C.; Sousa, C.P. Plant-derived microorganisms as a potent biofactory of molecules against multiresistant pathogens. In: Antimicrobial Resistance. InTech, September (2020). DOI: 10.5772/intechopen.93598.

7. Nogueira-Cruz, F.P.; de Paula, A.F.; Nogueira, C.T.; Andrade, P.H.M.; Borges, L.M.; Lacava, P.T.; Camargo, I.L.B.C.; Aníbal, F.F.; Sousa, C.P. Discovery of a novel lineage *Burkholderia cepacia* ST 1870 endophytically isolated from medicinal *Polygala paniculata* which shows potent *in vitro* antileishmanial and antimicrobial effects. Int. J. Microbiol. (2021) Feb 17; 2021:6618559. doi: 10.1155/2020/6618559.

8. Nogueira-Cruz, F.P.; Bogas, A.C.; Sousa, C.P. Light and phages on tackle of infectious diseases. In: Bacteriophages. InTech, March (2021). doi: 10.5772/intechopen.96425.

9. Nogueira-Cruz, F.P.; Sousa, C.P.; Lacava, P.T. Pipelines for characterization of microbial-producing drugs. In: Encyclopedia of Infection and Immunity. Elsevier, July (2022). doi: 10.1016/B978-0-12-818731-9.00093-8.

10. Lacava, P.T.; Bogas, A.C.; Nogueira-Cruz, F.P. Plant growth promotion and biocontrol by
endophytic and rhizospheric microorganisms from the tropics: A review and perspectives. Front. Sustain. Food Syst., 21 March 2022, Sec. Crop Biology and Sustainability. doi:10.3389/fsufs.2022.796113.

11. de Paula, A.F.; Cruz, F.P.N.; Dinato, N.B.; de Andrade, P.H.M.; de Moraes, A.C.P.; Junior, W.B.; Bernardi, A.C.C.; Vigna, B.B.Z.; Fávero, A.P.; Lacava, P.T. Endophytic and rhizospheric bacteria associated with Paspalum atratum and its potential for plant growth promotion with different phosphate sources. Front Plant Sci. 2022 Jul 28;13: 884716. doi:10.3389/fpls.2022.884716.

12. Sousa, M.D.B.; Pereira, M.L.; Cruz, F.P.N.; Romano, L.H.; Albuquerque, Y.R.; Correia, R.O.; Oliveira, F.M.; Primo, F.L.; Baptista-Neto, Á.; Sousa, C.P.; Anibal, F.F.; Moraes, L.A.B.; Badino, A.C. Red biocolorant from endophytic *Talaromyces minnesotensis*: production, properties, and potential applications. Appl Microbiol Biotechnol. 2023 Apr 21. doi: 10.1007/s00253-023-12491-7.

13. Argentin, M.N; Nogueira Cruz, F.P.; Souza, A.B.; D'Aurea, E.MO.; Bastos, J.K.; Ambrosio, S.R.; Veneziani, R.C.S.; Camargo, L.L.B.C.; Mizuno, C.S. Synthesis and antibacterial activity of polyalthic acid analogs. Antibiotics 2023. doi: 10.3390/antibiotics12071202.

14. Ammerman, M.L.; Mullapudi, S., Gilbert, J.; Figueroa, K.; de Paula Nogueira Cruz, F.; Bakker, K.M.; Eisenberg, M.C.; Foxman, B.; Wigginton, K.R. Norovirus GII wastewater monitoring for epidemiological surveillance. PLOS Water. 2024 Jan 18;3(1): e0000198. doi: 10.1371/journal.pwat.0000198.

15. Nogueira-Cruz, F.P.; Andrade, P.H.M.; Sousa, C.P.; Lacava, P.T. Complete genome sequence of *Bacillus velezensis* endophytically isolated from roots of *Polygala paniculata*. Microbiol Resour Announc. 2024 Sep 16:e0082624. doi: 10.1128/mra.00826-24).

Presentations

1. **Faculty Research & Pedagogy Colloquium.** Isolation of the endophytic and rhizospheric microbiome associated with *Polygala paniculata*: Evaluation of the biotechnological potential and identification of antimicrobial metabolites, Graceland University, United States, 2024.

2. **Ciclo de seminários PGRN/CERNA/UEMS.** Strategies for the obtention of microbial natural products, Universidade Estadual do Mato Grosso do Sul, Brazil, 2024. https://www.youtube.com/live/vlTs4IvEYZE?si=yxIPKVYa5t0bHk1j.

3. **Open House of Pharmacognosy.** Strategies for the obtention of microbial natural products Universidad del Valle, Bolivia, 2023. (*Invited oral presentation*).

4. **Lecture at Environmental biotechnology course of Biotechnology Post Graduation Program.** Isolation of the endophytic and rhizospheric microbiome associated with *Polygala paniculata*: Evaluation of the biotechnological potential and identification of antimicrobial metabolites, Universidade Federal de Sao Carlos, Brazil, 2021.

5. **17ª National Week of Science and Technology.** Isolation of the endophytic and rhizospheric microbiome associated with *Polygala paniculata*: Evaluation of the biotechnological potential and identification of antimicrobial metabolites, Universidade Federal de São Carlos, 2020. (*Invited oral presentation*).

6. **17ª National Week of Science and Technology.** Mini course Strategies for the obtention of microbial natural products, Universidade Federal de Sao Carlos, 2020.

Professional Development

Co-mentored Andreia Pinto Gouveia, an undergraduate in Professor Cristina Paiva de Sousa's group. **Project:** Inhibitory potential of pathogenic microorganisms using nanocomposite with silver (FDU-12/LIG/AG) and bioactive compounds metabolized by endophytic microorganisms (2019).

Co-mentored Michelly Bondancia, an undergraduate in Professor Cristina Paiva de Sousa's group. **Project:** Evaluation of enzymes and bioactive metabolites associated with *Miconia albicans* isolated from the Cerrado of São Carlos-SP for biotechnological application (2015).

Collaborators

Dr. Paulo Teixeira Lacava – Universidade Federal de São Carlos, Brazil.
Dr. Cristina Paiva de Sousa – Universidade Federal de São Carlos, Brazil.
Dr. Junior Reis Silva – Universidade Estadual do Mato Grosso do Sul, Brazil.

Academic & Community Service

Manuscript Peer Review

Ad hoc reviewer for the journals (2022-present) Frontiers in Microbiology, Brazilian Archives of Biology and Technology, Brazilian Journal of Microbiology, International Journal of Microbiology, and Microbiology Spectrum.

Ad hoc reviewer for Undergraduate level projects of PIBIC, PIBIC-Af, PIBITI, and ICT SR - Universidade Federal de Sao Carlos, 2020.

Ad hoc reviewer for Undergraduate level projects of PIBIC, PIBIC-Af, PIBITI, and ICT SR - Universidade Federal de Sao Carlos, 2019.

Graceland University - Academic advisor

Callie Lynn Dennis 2025

Kariana Michelle Hernandez Cruz 2025

Graceland University - Faculty Advisory Council (FAC): Elected at 02/03/2025

Graceland University, Faculty Search Committee for Computer Science & Information Technology 2024

References

Graceland University – Natural and Physical Sciences Department

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University of Michigan - Life Sciences Institute

Mentors during the Scholarship (2017-2018)

Prof. Dr. Ashootosh Tripathi
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University of Michigan - Civil and Environmental Engineering

Supervisor (2022-2023)

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Universidade Federal de São Carlos - Brazil

Mentors and Supervisors (2014-2022)

Prof. Dr. Cristina Paiva de Sousa
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Department of Morphology and Pathology

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