GABRIEL GUSTAVO T. N. MONTEIRO

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EDUCATION

M.Sc., Sciences: Biology in the Agriculture and Environment, University of São Paulo, Piracicaba, Brazil. Thesis: *Agroforestry systems as an alternative for the restoration of the biological potential of Amazonian soils* (Advisor: Professor Dr. Tsai Siu Mui) 01/11/2022 – present.

B.Sc., Agronomy, Federal Rural University of the Amazon, Belem, Brazil. Thesis: *Molecular evidence of methane oxidation stimulation by ammonia-oxidizing communities in Amazonian floodplain soils* (Advisor: Professor Dr. Vania Neu / Co-advisor: Professor Dr. Acácio Navarrete). 15/07/2017 - 17/07/2022, degree awarded 30/07/2022.

PROFESSIONAL EXPERIENCE

Research Internship – Molecular Biogeochemistry
01/06/2024 – Present. Supervisor: Dr. Gerd Gleixner
Department Biogeochemical Processes (BGP)
Max-Planck Institute for Biogeochemistry (MPI-BGC), Jena, Germany.

Scientific Initiation Scholarship
01/09/2021 – 01/08/2022. Advisor: Professor Dr. Joyce Kelly do Rosário
Federal University of Pará (UFPA), Belem, BR.
National Council for Scientific and Technological Development (CNPq)

Scientific Initiation Scholarship
01/09/2019 – 01/09/2021. Advisor: Professor Dr. Cândido Ferreira de Oliveira Neto
Federal Rural University of the Amazon (UFRA), Belem, BR.
National Council for Scientific and Technological Development (CNPq)

LANGUAGES

- **Portuguese:** Native speaker
- **English:** Full professional proficiency – Certified as Level C1 (Effective Operational) in the CEFR.

RESEARCH GRANTS

2024. FAPESP/SP/Brazil (Code: 2024/02443-1), Graduate Scholarship – International Exchange Internship (BEPE). “Trees, microbes, and molecules: Understanding the role of tree biodiversity in the microbial carbon fluxes of Amazonian agroforest soils”. R$ 92.276,51.

2023. FAPESP/SP/Brazil (Code: 2022/10276-2), Graduate Scholarship - National. “Agroforestry systems as an alternative for the restoration of the biological potential of Amazonian soils”. R$ 40.094,67.

2021. UFRA/CNPQ/Brazil, Undergraduate Scholarship. “Production of secondary metabolites in Piperaceae species associated with symbiotic rhizospheric microorganisms”. R$ 4.800,00.

2019. UFRA/CNPQ/Brazil, Undergraduate Scholarship. “Use of brassinosteroids and different rhizobacteria for mitigating water stress in cowpea [*Vigna unguiculata* (L.) Walp.]. R$ 14.400,00.

RESEARCH CONTRIBUTIONS

2020 – 2022. Dynamics of production and consumption of methane by active microbiota in Amazonian wetlands – PI: Acácio Aparecido Navarrete – Young Investigators Research Program on Global Climate Change (FAPESP 2016/ 16687-3).

2021 – Present. Influence of hydrodynamic processes on carbon and nitrogen exchanges in the Pará River estuarine system – PI. Vania Neu – Guamá Research Foundation (002/2021).

2022 – Present. Linking soil health to food quality: addressing the value of Amazonian agroforestry systems under an innovative bioeconomic approach – PI: Tsai Siu Mui – Regular Research Grants (FAPESP 2022/13186-4).

2023 – Present. National Institute of Science and Technology for Forensic Metrology and Traceability in Agri-Environmental Quality – PI: Luiz Antonio Martinelli – National Institutes of Science and Technology (CNPq 55/2022).

TECHNICAL COURSES

2023. School in Agricultural Microbiology - Microorganisms and Sustainability: Challenges and Perspectives. Jaboticabal (SP), Brazil.

2023. 8th workshop on Emerging Bioinformatics Approaches for Microbial Ecogenomics (EBAME). Brest, France

2023. 1st Workshop of the National Institute of Science and Technology for Forensic Metrology (MRFor), ZF-2 Research Station (AM), Brazil

TECHNICAL SKILLS

Field sampling Soil, water, and gas sampling in the Amazon region (floodplains, rivers, and land).

Biogeochemistry Soil and plant elemental analysis, total organic carbon (TOC) analysis, ^{13}C and ^{15}N IRMS analysis, soil organic matter fractioning, soil dissolved organic matter extraction, greenhouse gas collection in water and soil (field static chambers).

Plant physiology and biochemistry Leaf gas exchange (Infrared Gas Analysis), leaf chlorophyll A fluorescence, leaf water potential, leaf osmotic potential, plant tissue sugar extraction and quantification, GC-MS analysis of plant volatile organic compounds.

Soil ecology and Molecular biology Extracellular enzyme activity, DNA extraction, qPCR, Next-generation high-throughput amplicon sequencing, Next-generation high-throughput metagenome sequencing.

Data analysis R programming, python, big univariate and multivariate data analysis, gas time series data analysis, data visualization, bioinformatics (amplicon and metagenome data).

AWARDS

2022. Best Poster – Research area: Soil Microbiology - XXXII Brazilian Congress of Microbiology (CBM), Foz do Iguaçu (PR), Brazil.

2019. Commendation in recognition of the significant services rendered for the development of the State of Pará, Legislative Assembly of the State of Pará (2019).

SELECTED PEER-REVIEWED PUBLICATIONS

Pellegrinetti, T. A., **Monteiro, G. G. T. N.**, Lemos, L. N., dos Santos, R. A. C., Barros, A. G., & Mendes, L. W. (2024). PGPg_finder: A comprehensive and user-friendly pipeline for identifying plant growth-promoting genes in genomic and metagenomic data. *Rhizosphere*, 30, 100905. https://doi.org/10.1016/j.rhisph.2024.100905

Souza, L.C., **Monteiro, G.G.T.N.**, Marinho, R.K.M., Souza, E.F.L., Oliveira, S.C.F., Ferreira, A.C.S., Oliveira Neto, C.F., Okumura, R.S., Souza, L.C., 2023. Nitrogen metabolism in maize plants submitted to drought, brassinosteroids and azospirillum. Brazilian Journal of Biology 83. https://doi.org/10.1590/1519-6984.276264

Sousa, L.I.S., Brito, A.E.A., Souza, L.C., Teixeira, K.B.S., Nascimento, V.R., Albuquerque, G.D.P., Oliveira, C.F., Okumura, R.S., Nogueira, G.A.S., Freitas, J.M.N., **Monteiro, G. G. T. N.**, 2023. Does silicon attenuate PEG 6000-induced water deficit in germination and growth initial the seedlings corn. Brazilian Journal of Biology 83, e265991. https://doi.org/10.1590/1519-6984.265991

Monteiro, G.G.T.N., Barros, D.J., Gabriel, G.V.M., Venturini, A.M., Veloso, T.G.R., Vazquez, G.H., Oliveira, L.C., Neu, V., Bodelier, P.L.E., Mansano, C.F.M., Tsai, S.M., Navarrete, A.A., 2022. Molecular evidence for stimulation of methane oxidation in Amazonian floodplains by ammonia-oxidizing communities. Front Microbiol. 13. https://doi.org/10.3389/fmicb.2022.913453

Sousa, D.J.P., Nogueira, G.A.S., Teixeira, K.B.S., **Monteiro, G. G. T. N.**, Brito, A.E.A., Nascimento, V.R., Albuquerque, G.D.P., Oliveira, T.J.M., Souza, L.C., Freitas, J.M.N., 2022. Mitigation of the effects of salt stress in cowpea beans through the exogenous application of brassinosteroids. Brazilian Journal of Biology 82, e260818. https://doi.org/10.1590/1519-6984.260818

Souza, L.C., **Monteiro, G.G.T.N.**, Monteiro Marinho, R.K., Lima de Souza, E.F., de Oliveira, S.C.F., Ferreira, A.C. de S., Neto, C.F. de O., Okumura, R.S., da Silva, G.P., 2022. Growth and physiology of maize plants subjected to water deficit and to different brassinosteroids and azospirillum concentrations. Aust J Crop Sci 16, 357–364. https://doi.org/10.21475/ajcs.22.16.03.p3381

PRESENTATIONS

Selected Contributed Presentations and Posters

Monteiro, G. G. T. N.; Domini, J. A.; Mandro, J. A.; Martins, G. L.; Pellegrinetti, T. A.; Coutinho, L. L.; Tsai, S. M. Beneath the agroforest floor: understanding the role of litter-associated fungi community structures and functions under agroforestry systems in the Eastern Amazon. In: 5th Plant Microbiome Symposium, Amsterdam, Netherlands (2024).

Monteiro, G. G. T. N.; Barros, D. J.; Venturini, A. M.; Neu, V.; Tsai, S. M.; Navarrete, A. A. Active anaerobic oxidation of methane in Amazonian floodplains: a possible link between the methane and nitrogen cycles. In: 32º Brazilian Congress of Microbiology (2023), Foz do Iguaçu (PR), Brazil (2023).

Monteiro, G. G. T. N.; Barros, D. J.; Pellegrinetti, T. A.; Neu, V.; Tsai, S. M.; Navarrete, A. A. Methane metabolism associated genes and their microbial species in anaerobic incubated Amazonian floodplain soils with four different carbon sources. In: 32º Brazilian Congress of Microbiology, Foz do Iguaçu (PR), Brazil (2023).

32º CONGRESSO BRASILEIRO DE MICROBIOLOGIA

FOZ DO IGUAÇU / PR | 18 A 22 DE OUTUBRO DE 2023

CERTIFICADO

Certificamos que o trabalho intitulado METHANE METABOLISM ASSOCIATED GENES AND THEIR MICROBIAL SPECIES IN ANAEROBIC INCUBATED AMAZONIAN FLOODPLAIN SOILS WITH FOUR DIFFERENT CARBON SOURCES com a autoria de: MONTEIRO, G. G. T. N., BARROS, D. J., PELLEGRINETTI, T. A., NEU, V., TSAI, S. M, NAVARRETE, A. A. foi apresentado na forma de poster durante o 32 Congresso Brasileiro Microbiologia 2023, realizado no periodo de 18 de outubro de 2023 a 22 de outubro de 2023, no Rafain Palace Hotel & Convention, na Avenida Olimpio Rafagnin, 2357 - Parque Imperatriz – CEP 85862-210, na cidade de Foz do Iguaçu – estado do Parana.

Foz do Iguaçu (PR), 22 de outubro de 2023.

Prof. Dr. Luis Henrique Souza Guimarães
Presidente

Profa. Dra. Roxane Maria Fontes Piazza
1º Secretária

realização

SBM Sociedade Brasileira de Microbiologia

32º CONGRESSO BRASILEIRO DE MICROBIOLOGIA

FOZ DO IGUAÇU / PR | 18 A 22 DE OUTUBRO DE 2023

CERTIFICADO

Certificamos que o trabalho intitulado ACTIVE ANAEROBIC OXIDATION OF METHANE IN AMAZONIAN FLOODPLAINS: A POSSIBLE LINK BETWEEN THE METHANE AND NITROGEN CYCLES com a autoria de: MONTEIRO, G. G. T. N, BARROS, D. J., VENTURINI, A. M. , NEU, V., TSAI, S. M., NAVARRETE, A. A. foi apresentado na forma de poster durante o 32 Congresso Brasileiro Microbiologia 2023, realizado no periodo de 18 de outubro de 2023 a 22 de outubro de 2023, no Rafain Palace Hotel & Convention, na Avenida Olimpio Rafagnin, 2357 - Parque Imperatriz – CEP 85862-210, na cidade de Foz do Iguaçu – estado do Parana.

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