





CAROLINA LOBATO

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Düsseldorf, North Rhine-Westphalia, Germany

Education

PhD Molecular Biosciences and Biotechnology <i>Graz University of Technology</i>  <i>Thesis: Microbiome-Driven Sustainability in Cannabis Seeds</i> , defended with distinction	2021 – 2025 Austria
MSc Molecular Biomedicine <i>University of Aveiro</i>  <i>Thesis: Alternative Initiation Codons in Candida cylindracea</i>	2014 – 2016 Portugal
BSc Biotechnology <i>Polytechnic University of Coimbra</i> 	2009 – 2014 Portugal
Internship LLLP-Erasmus <i>University of Veterinary Sciences Brno (Czechia)</i> 	

Professional Experience

Postdoctoral Researcher <i>Heinrich-Heine University Düsseldorf</i>  <i>with Prof. Dr. Björn Usadel</i>	2025 – present Germany
Graduate University Assistant <i>Graz University of Technology</i>  <i>with Univ.-Prof. Dipl.-Biol. Dr.rer.nat. Gabriele Berg</i>	2021 – 2024 Austria
Research Assistant <i>Graz University of Technology</i>  <i>with Univ.-Prof. Dipl.-Biol. Dr.rer.nat. Gabriele Berg & Dr. Tomislav Cernava</i>	2020 Austria
FCT Research Fellow <i>University of Lisbon</i> <i>with Dr. Leonor Morais-Cecílio</i>  <i>& with Dr. José Carlos Rodrigues & Dr. Ana Alves</i> 	2017 – 2019 Portugal
Undergraduate Research Intern <i>Polytechnic University of Coimbra</i>  <i>with Dr. Sandra Gamboa</i>	2013 – 2014 Portugal

Funding & Awards

• Early Career Grant <i>HHU Düsseldorf Strategic Research Fund (SFF)</i>	2026
• Seal of Excellence, score: 96.6/100 <i>Horizon Europe MSCA Postdoctoral Fellowships</i>	2026

Mentorship

Supervision of 4 Master's and 4 Bachelor's students, including experimental design, molecular and microbiological techniques, and data analysis.

Teaching

• Lecturer at HHU Düsseldorf – Applied Microbial Ecology & Sustainability (M-2216)	2026
• Teaching Assistant at HHU Düsseldorf – Seed Biology (V-525)	2026
• Guest Lecturer at TU Graz – Environmental Microbiology (MOL.963UF)	2023–2024
• Graduate Teaching Assistant at TU Graz – Microbiome Analysis (MOL.972UF)	2021–2024


- Environmental Biotechnology (MOL.935UF)
- Biodiversity and Applied Microbiology (MOL.731UF & PLA.221UF)
- Biotechnology (CHE.177UF)
- Environmental Microbiology (MOL.963UF)
- Microbiology (MOL.209UF)
- Bioinformatics (MOL.923UF)

- **Undergraduate Preceptor** at IP Coimbra
 - Genetic Engineering

2013

Professional Development & Service

Co-founder & Coordinator

- Seed Microbiome Working Group (SMWG) 

2022–present

Conference Organization

- Session Organizer at SeedCon26 
- Session Chair at Theodor Escherich Symposium 

2026

2022–2024

Memberships

- International Society for Microbial Ecology (ISME) 
- Austrian Association of Molecular Life Sciences and Biotechnology (ÖGMBT) 

Peer Review

Environmental Microbiome, Scientific Reports, Frontiers in Microbiology, Plant and Soil

Training

- Genome Reconstruction from Metagenomic Data (CEPLAS/UoC) 2025
- Reproducible Research with R and Quarto (ETH Zürich) 2024
- University Didactics Certificate (TU Graz) 2022
- Metagenomics Training School (ARI/CyI/CA16110) 2021
- Command Line Certificate (Code Academy) 2021
- Metagenomics Applied to Surveillance of Pathogens and AMR (DTU/Coursera) 2020
- Programming Initiation for Biologists Certificate (EPCV/Portuguese Order of Biologists) 2019
- Cytogenetics and Genomics in Diagnosis and Research (CIMAGO/FMUC) 2018

Community Outreach

- **Speaker** at TU Graz [Science Day](#) 2023
- **Organizer**
 - TU Graz [Long Night of Research](#) 2024
 - [Ciência Viva](#) outreach program [PEC 282](#) 2014
- [Research blog](#) and [science communication](#) ongoing

Research Output

Peer-reviewed Publications

- Chen X., Olimi E., **Lobato C.**, Cernava T. & Berg G. *mSystems*, 2025
[The tomato seed microbiome is mainly shaped by host genotype and production site.](#)
 Defined a seed core microbiome in tomato and predicted host and environment links to microbial composition.
- Olimi E., Wuggenig R., **Lobato C.**, et al. *Environmental Microbiology Reports*, 2025
[Insights into the *Mondia whitei* microbiome across geographic regions in Eastern Africa.](#)
 Revealed location-specific microbial and metabolomic signatures with implications for bio-prospecting and conservation of natural resources.
- Lobato C.**, Abdelfattah A., Berg G. & Cernava T. *Environmental Microbiome*, 2025
[Defining the cultured and uncultured bacterial fractions in *Cannabis* seeds.](#)
 Demonstrated the role of microbial abundance and interactions in culturability, highlighting strategies to recover uncultured taxa.
- Lobato C.**, Freitas J.M., Habich D. et al. *Microbiome*, 2024
[Wild again: Recovery of a beneficial *Cannabis* seed endophyte from low domestication genotypes.](#)
 Showed that low-domestication genotypes harbor higher diversity and retain beneficial microbial associations lost during domestication.
- Abdelfattah A., Tack A., **Lobato C.**, et al. *Trends in Microbiology*, 2023
[From seed to seed: The role of microbial inheritance in the assembly of the plant microbiome.](#)
 Proposed a conceptual framework describing seed microbial transmission across plant life stages and its evolutionary implications.

6. Inácio V., **Lobato C.**, Graça J. & Morais-Cecílio L. *Tree Physiology*, 2021

[Cork cells in cork oak periderms undergo programmed cell death and proanthocyanidin deposition.](#)

Identified key molecular and cellular processes underlying cork formation and stress responses.

Selected Presentations

- *Symbiotic Futures: Leveraging Seed Microbiomes for Sustainable Cannabis Cultivation.* LANDSCAPE Berlin (2024)
- *Healthy Cannabis Seeds Harness Geno- and Chemotype-Specific Microbial Signatures.* SMNS Maribor (2023)
- *Exploring the Cannabis Seed Microbiome Through Domestication.* Young AMICI Symposium (2023)
- *Characterization of the Cannabis Seed Microbiome.* Virtual Cannabis Research Conference (2021)

Selected Posters

- Plant Microbiome Symposium, Amsterdam (2024)
- BAGECO, Copenhagen (2023)
- ISS Congress, Lyon (2022)
- miCROPe Symposium, Vienna (2022)

Additional Information

Languages: Portuguese (native), English (proficient), Spanish (intermediate), German (A2)

Programming: R, Bash, Python (basic)

Driving License: B