

# CAROLINA LOBATO

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Graz, Steiermark, Austria

## ABOUT ME

My expertise spans microbiology, biotechnology, and bioinformatics. I have conducted extensive research on seed-associated microbiomes, focusing on developing bacterial inoculants to promote plant growth and improve plant health sustainably.


## EXPERIENCE

- **Institute of Environmental Biotechnology – TU Graz**  Jan 2021 - Dec 2024  
*University Assistant – PhD candidate* Graz, Austria
  - Extensive work carried out in the microbiology lab, covering state-of-the-art technologies and approaches in microbiome research.
  - Gained proficiency in [bioinformatics and analysis](#) of metabarcoding, whole genome and metagenomic data.
  - Supervision and advice for students in bachelor-level and master-level programmes.
  - Assistance in planning and preparing different lectures and lab courses, contributing to lecturing and evaluating students.
  - University assistant clerical tasks.
- **Institute of Environmental Biotechnology – TU Graz**  Apr - Dec 2020  
*Project Assistant – HydroBioBis* Graz, Austria
  - Microbiome analysis with cultivation-dependent and -independent methods, GC-MS and FISH-CLSM
  - Bacterial transformation and colonization analysis *in planta*;
  - Data analysis using the command line and R
  - Management and monitoring of field trials
  - Co-wrote a proposal to FFG for the [Cannabiom](#) project.
- **Plant Science and Crop Production group, LEAF – ISA, UL**  Apr 2018 - Nov 2019  
*Research fellow – HybridOak* Lisboa, Portugal
  - Preparation and analysis of histological samples.
  - Primer design, RFLP, cloning, PCR and FISH.
- **Forest Ecology group, CEF – ISA, UL**  May 2017 - Mar 2018  
*Research fellow – BIOTECH II* Lisboa, Portugal
  - Wet lab procedures of chemical extraction and IR spectroscopy.
  - PLS modeling.

## EDUCATION

- **TU Graz** 2021 - ongoing  
*PhD., Environmental Biotechnology* Graz, Austria
- **Universidade de Aveiro** 2014 - 2016  
*MSc., Molecular Biomedicine* Aveiro, Portugal
- **VFU Brno** May - Sep 2013  
*Internship - Erasmus* Brno, Czechia
- **Escola Superior Agrária, IP Coimbra** 2009 - 2013  
*BSc. Biotechnology* Coimbra, Portugal

## PROJECTS

- **Seed Microbiome Working Group (SMWG)** 2022 - ongoing  
*Co-founder and organizing member* 
  - Facilitate a community of early career scientists for knowledge, skills, and information exchange (+40 participants) to advance our field collaboratively.
  - Organize quarterly meetings and mini-colloquia, moderate discussion, and presentations.
  - Create and maintain the dissemination platforms for enhancing group accessibility.

- [S]      Lobato C., Abdelfattah A., Berg G., Cernava T. "Bridging the gap: Addressing the uncultured microbiota in *Cannabis* seeds" ISME, 2025
- [J]      Lobato C., Freitas J.M., Habich D., Kögl B., Berg G., Cernava T. "Wild again: recovery of a beneficial *Cannabis* seed endophyte from low domestication genotypes" Microbiome, 2024
- [O]      Lobato C., Freitas J.M., Habich D., Kögl B., Berg G., Cernava T. "Symbiotic Futures: Leveraging Seed Microbiomes for Sustainable *Cannabis* Cultivation", LANDSCAPE Berlin, 2024
- [P]      Lobato C., Freitas J.M., Habich D., Kögl B., Berg G., Cernava T. "Symbiotic Futures: Leveraging Seed Microbiomes for Sustainable *Cannabis* Cultivation", 5th Plant Microbiome Symposium Amsterdam (PMS), 2024
- [O]      Lobato C., Freitas J.M., Habich D., Berg G., Cernava T. "Healthy *Cannabis* seeds harness a geno- and chemotype specific microbial signature" Slovenian Microbiome Network Symposium (SMNS) 2023
- [O]      Lobato C., Freitas J.M., Habich D., Berg G., Cernava T. "Exploring the microbiome of *Cannabis* seeds through domestication and breeding stages" 2nd Young AMICI Symposium, 2023
- [P]      Lobato C., Freitas J.M., Habich D., Berg G., Cernava T. "Uncovering *Cannabis* seed endophytic diversity and composition across varieties" 16th Symposium on Bacterial Genetics and Ecology (BAGECO), 2023
- [J]      Abdelfattah A., Tack A., Lobato C., Wassermann B., Berg G., "From seed to seed: the role of microbial inheritance in the assembly of the plant microbiome" TIM, 2022
- [P]      Lobato C., Cernava T., Berg G., "Exploring the *Cannabis* seed microbiome" 10th ISS Congress & 3rd International Conference on Holobionts, 2022
- [P]      Lobato C., Cernava T., Berg G., "Exploring the *Cannabis* seed microbiome" miCROPe International Symposium 2022
- [P]      Lobato C., Cuadros-Patino K., Cernava T., Berg G., "Characterization of the *Cannabis* seed microbiome for the development of improved cultivation strategies" 8th Theodor Escherich Symposium on Medical Microbiome Research (TES) & 4th AMICI Symposium, 2021
- [J]      Inácio V., Lobato C., Graça J., Morais-Cecílio L., "Cork cells in cork oak periderms undergo programmed cell death and proanthocyanidin deposition" Tree Physiology, 2021
- [T]      Lobato C., "A study of alternative initiation codons in *Candida cylindracea*" RIA, 2016
- [P]      Gamboa S., Lobato C., Oliveira H., Oom M.M., Bahcevandziev K., "Flow cytometry for the assessment of equine sperm chromatin" GTIE, 2015

## SKILLS

- **Programming Languages:** R programming, Python (Beginner)
- **Bioinformatic Tools:** QIIME 2, Galaxy, Cytoscape
- **Molecular Techniques:** PCR, RT-PCR, FISH, western-blotting, SDS-PAGE, RFLP, cloning
- **Analytical Techniques:** GC-MS, CLSM, flow cytometry, IR spectroscopy
- **Software:** Office, SPSS, MEGA, iTOL
- **Other Tools:** Linux, Git, Bash,  $\LaTeX$

## VOLUNTEER EXPERIENCE

- **Peer review of manuscript** Sep - Dec 2024  
*Environmental Microbiome (Journal)*
- **Lange Nacht der Forschung 2024** May 2024  
*TU Graz*
  - Organization and support of the institute's own stand at the Long Night of Research 2024
- **Science Day 2023: New Worlds in Production** Sep 2023  
*TU Graz*
  - Public engagement seminar: Healthy seed microbiome - healthy *Cannabis* plants

## CERTIFICATIONS

- **Teaching Academy:** University Didactics 1 & 2 (Basic Module) Jul - Sep 2022
- **Bacterial Metagenomics: from experimental design to data analysis** May 2021
- **Code Academy:** Learn the Command Line Course Feb 2021
- **Metagenomics applied to surveillance of pathogens and antimicrobial resistance** Feb 2020
- **Theoretical-practical course in Cytogenetics and Genomics in Diagnosis and Research** Sep 2018

## ADDITIONAL INFORMATION

**Languages:** Portuguese (Native), English (Proficient), Spanish (Intermediate), German (A2) **Driver's license:** B1  
**Hobbies:** Scientific illustration, Basketball