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Martina Ben

ABOUT ME

EDUCATION AND TRAINING

[01/11/2024 – Current]

PhD in Food Engineering and Biotechnologies

Free University of Bolzano - Bozen

City: Bolzano | **Country:** Italy |

[10/2022 – 07/2024]

Master Degree in Food Sciences for Innovation and Authenticity

Free University of Bolzano - Bozen

City: Bolzano | **Country:** Italy | | **Final grade:** 110 Cum Laude / 110 | **Thesis:** In vitro study of polyphenols from olive pomace on the human intestinal microbial ecosystem.

- The food–human axis for driving the gut microbiome,
- Fermentations as tools for making traditional and innovative foods and beverages,
- Microbial starters for innovation and authenticity,
- Molecular Techniques in Food Technology.

[08/2023 – 12/2023]

Erasmus+ Exchange Program

Wageningen University and Research

City: Wageningen | **Country:** Netherlands |

- Dairy Chemistry and Physics,
- Introduction to Global Nutrition and Health,
- Food Fermentation,
- Food Allergies and Intolerances.

[10/2019 – 06/2022]

Bachelor Degree in Biotechnologies

University of Parma

City: Parma | **Country:** Italy | | **Final grade:** 110 cum Laude/110 | **Thesis:** In vitro effects of low sugar fermented fruit juices on the gut microbial ecosystem

- Microbiology, Virology and Microbial Physiology,
- Molecular Biology,
- Statistics and Bioinformatics,
- Immunology and Immunopathology,
- Genetic Engineering

[09/2014 – 06/2019]

Linguistic High School Diploma

Marcelline Institute

City: Bolzano | **Country:** Italy | | **Final grade:** 100/100

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

German

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Russian

LISTENING A2 **READING** A2 **WRITING** A2

SPOKEN PRODUCTION A2 **SPOKEN INTERACTION** A2

Spanish

LISTENING B1 **READING** B1 **WRITING** B1

SPOKEN PRODUCTION B1 **SPOKEN INTERACTION** B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

WORK EXPERIENCE

[01/11/2024 – Current]

PhD Researcher

Free University of Bolzano/Bozen - Micro4Food

City: Bolzano | **Country:** Italy

My PhD research focuses on gut microbiology, food digestibility, and functional microbes applied to improve human health. I am currently working on projects investigating the effects of various treatments on the human gut microbiota using the Simulator of the Human Intestinal Microbial Ecosystem (SHIME). This involves conducting metabolomic, metataxonomic, and metagenomic analyses. Additionally, I study the digestibility of different food matrices, exploring how fermentation can enhance nutrient bioavailability.

[02/09/2024 – 31/10/2024]

Post-Graduation Internship

Free University of Bolzano/Bozen - Micro4Food

City: Bolzano | **Country:** Italy

Throughout this post-graduation internship, I was responsible for conducting two SHIME experiments. In this role, I carried out the following activities:

- Performed **in vitro** static digestion of bread samples for use in the SHIME experiment
- Set up, inoculated, operated, and maintained the SHIME system
- Conducted metabolomic analyses on lumen samples collected from the SHIME (e.g., SCFA analysis)
- Extracted DNA and RNA from lumen and mucosal samples collected from the SHIME
- Performed metataxonomic analyses

[04/2024 – 07/2024]

Extracurricular Internship

Free University of Bolzano/Bozen - Micro4Food

City: Bolzano | **Country:** Italy

Thought and assisted a visiting professor to set up and conduct an experiment based on the use of the Simulator of the Human Intestinal Microbial Ecosystem (SHIME).

[01/2024 – 07/2024]

Master's Thesis Internship

Free University of Bolzano/Bozen - Micro4Food

City: Bolzano | **Country:** Italy

I carried out my Master's thesis in gut microbiology, specifically applying the SHIME®, based on two years of prior experience in the field. This background allowed me to independently perform the following tasks:

- Set up, inoculated, and conducted a SHIME experiment.
- Performed Ultra-High-Performance Liquid Chromatography (UHPLC) analyses to quantify short-chain fatty acids (SCFAs) from SHIME lumen samples.
- Performed UHPLC-High Resolution Tandem Mass Spectrometry (HR-MS2) on lumen samples to investigate microbial metabolisation of polyphenols.
- Optimised the DNA extraction protocol from both lumen and faecal samples.
- Performed polymerase chain reaction (PCR) on the extracted DNA to confirm amplifiability.
- Conducted metataxonomic analyses on the extracted DNA.

[06/2023 – 08/2023]

Extracurricular Interniship

Free University of Bolzano/Bozen - Micro4Food

City: Bolzano | **Country:** Italy

From June to August 2023 I carried out an extracurricular internship at Micro4Food (Free University of Bolzano), to deepen and improve my microbiological laboratory work skills. During this period I carried out the following activities:

- Conducted experiments based on the use of the SHIME;
- Performed HPLC analysis for the quantification of SCFAs from SHIME lumen samples;
- Performed *in vitro* digestions of bread samples;

• Performed biochemical and nutritional analysis on bread samples (i.e., predicted glycemic index, total dietary fibres, total titratable acidity);

• Performed basic microbiology practices (i.e., culture standardisations, fermentations);

• Performed DNA and RNA extractions;

• Carried out qPCR experiments.

[04/2022 – 07/2022] **Bachelor's Thesis Internship**

Free University of Bolzano/Bozen - Micro4Food

City: Bolzano | **Country:** Italy

I carried out my bachelor's thesis in the field of gut microbiology. My project involved the following activities:

- Set up the SHIME experiment, performed regular controls of the system and prepared growing media.
- Extracted and prepared lumen samples from the SHIME.
- Performed Gas Chromatography (GC) and HPLC analysis for the quantification of SCFAs.
- Extracted DNA for metataxonomic and metagenomic analysis.

PROJECTS

[09/2017 – 04/2018] **Finalist of the International Research Project "Young Researchers Wanted"**

Designed, conducted, and presented an autonomous and original scientific research.

- Collected, organised, and analysed data.
- Wrote a scientific paper.
- Presented my research in front of an international commission at the *University of Innsbruck*, Austria.

EXTRACURRICULAR EDUCATION

[06/2022 – 06/2022] **Free Online Courses and Seminars**

Free Online Courses from Coursera:

- Whole genome sequencing of bacterial genomes - tools and applications (Technical University of Denmark)
- Algorithms for DNA sequencing (John Hopkins University)

Seminars from EMBL-EBI:

- Bioinformatic approaches to understand the role of the human microbiome in health and disease.
- Exploring metagenomes to assess microbiomes across the globe.

DIGITAL SKILLS

My Digital Skills

Proficient in R | Basic Skills in Python | Proficient in Microsoft Office (Word Excel PowerPoint Outlook)