

EDUCATION AND TRAINING

May 2024 - present


Research Fellow - Università di CAMERINO

Project: ALGAEBREW - UNLOCKING THE POTENTIAL OF MICROALGAE FOR THE VALORISATION OF BREWERY WASTE PRODUCTS INTO OMEGA-3 RICH ANIMAL FEED AND FERTILISERS - 2021 Joint Call SUSFOOD2-FOSC

Feb. 2021 - present


PhD Student in Life and Health Sciences (XXXVI cycle) - curriculum: Cellular Biology and Molecular Biotechnology - School of Biosciences and Veterinary Medicine - Università di CAMERINO

Title: Soil and legumes of the Sibillini for high quality pasta

Supervisors: Prof. Antonietta La Terza and Elena Vittadini (UNICAM), Dott. Matteo Fabbri (Azienda Agricola Monte Monaco)

The aim of the PhD project is to investigate the Soil-Food relationship considering the health of the agricultural soil and the quality of its locally produced legumes and derived food products. The project has been developed with the involvement of Azienda Agricola Monte Monaco S.r.l., a local company specialized in the production of organic legume pasta.



Eight agricultural fields, involved in organic legume production and under supply chain contracts with Az. Agr. Monte Monaco, have been monitored for two years in two seasons (spring and fall). **Field activities** have been carried out to collect **soil samples** for **soil physicochemical and biological analysis** and plant samples for morphological traits measurements. Agricultural management data have been collected (through detailed interviews with farmers) as well as climatic and landscape data. **Laboratory activities** have been conducted to define the **Soil Biological Quality Index based on arthropods (QBS-ar)** and to analyse **soil mesofauna community, rhizospheric microbiome** associated with legume plants, and **plant morphological traits**. Further, **food samples** (seeds, legume flour and pasta) from each field have been analysed separately to define specific **nutritional, technological, and sensory characteristics**. Soil, plant, and food data will be correlated to identify reliable indicators of healthy soil, crop, and derived food products and to explore the soil-food link.

Broad experience in **QBS-ar** application. Experience in **phytotoxicity** (germination test) and **zootoxicity test** assessment, **rearing of soil organisms** (earthworms, enchytraeids, collembola), **Soil Biological Quality Index based on earthworms (QBS-e)**, **plants morphological traits measurements** and **fertilizers** from coffee and other waste products **development**. Good skills in the **bioinformatic analysis of community (16S) sequence data** obtained by next generation sequencing using Qiime2 pipeline and other bioinformatic tools (i.e., PICRUST). Experience in **food analysis** (seeds, flour, pasta), physical properties evaluation, nutritional composition, technological functionality, and sensory characteristics.

Oct. 2023 – Dec. 2023


Visiting Scientist - University of Göttingen - Georg-August-Universität Göttingen

J.F. Blumenbach Institute of Zoology and Anthropology, Animal Ecology (Prof. Dr. Stefan Scheu)

Supervisor: Dott. Ting-Wen Chen

Experience in collembola functional traits measurements and taxonomic identification

Visiting Scientist - Eurac Research,

November 2022

Supervisor: Prof. Julia Seeber
Experience in earthworms taxonomic identification

March 2020 - July 2020

**Internship for experimental thesis – Department of Comparative Biomedicine and Food Science
Università di Padova**, Supervisor: Prof. Alessandra Piccirillo

The aim of the study was to investigate the presence of colistine resistance genes (mcr) in animal manure (poultry, cattle, and pigs) used as fertilizer and in agricultural soil before and after fertilization, through the application of qPCR. I performed data analysis, descriptive statistics, and results interpretation.

Dec. 2017 – Mar. 2018

Internship for experimental thesis – School of Biosciences and Veterinary Medicine - Università di CAMERINO, Supervisor: Prof. Irene Ricci

The thesis project was part of a monitoring with the aim of understanding the role of ticks, collected from farm animals, in the transmission of the zoonotic bacterium *Streptococcus equi*. I performed: stereoscopic analysis of ticks collected from ponies native to Lazio to define taxonomy and sex, RFLP analysis for species identification, RFLP bands sequencing analysis and identification via BLAST, multiplex-assay PCR for the detection and identification of *S. equi*, and its subspecies.

July 2017 – Aug. 2017

Internship/formative activities – School of Biosciences and Veterinary Medicine – Università di CAMERINO, Coordinator: Prof. Stefano Rea

The internship was carried out at a meat production plant and slaughterhouse for domestic ungulates and at a heat-treated milk and dairy products plant:

- Salumificio del Conero di Manzotti Corrado & C. Snc. - Via Recanatense 25, 60022 Castelfidardo (AN)
- Azienda agricola Magnaterra di Roberto e Massimo - Via D. Bramante 68, 60022 Castelfidardo (AN)

A HACCP plan was developed considering a specific food from among those produced in the various plants. A thorough knowledge of the production and processing technology of various foods of animal origin has been acquired.

Apr. 2015 – Dec. 2021

Waitress

May 2013 – June 2013

**Internship/formative activities, Progetto "Alternanza scuola-lavoro" – Liceo G. Leopardi
Veterinary clinic** - Clinica veterinaria S. Biagio del Dott. Giuliodori, Carletti, Blasetti e Pignotti
Via Mons. O.A. Romero 31, 60027 Osimo (AN), Italy - Supervisor: Dott. Alberto Giuliodori.

EDUCATION AND TRAINING

Date of award: June 7, 2023

Culture della materia in BIO/05 for the master's degree course "Soil Microbiology and Biodiversity", and for the Bachelor's degree course "Ecotossicologia e valutazione di impatto ambientale - module "Ecotossicologia" "Ecologia generale".

Date of award: Nov. 16, 2020

Esame di Stato - Authorization to practice the profession of Biologist
SENIOR BIOLOGIST- Università di CAMERINO

Oct. 2018 – July 2020

Date of award: July 24, 2020

Master's degree in Biotechnology applied to Food security and Nutrition

Department of Comparative Biomedicine and Food Science - Università degli Studi di PADOVA (PHARMACEUTICAL, VETERINARY AND MEDICAL BIOTECHNOLOGY - LM-9)

Thesis title: **Application of qPCR for the detection of colistine resistance genes in manure and agricultural soil** - Supervisor: Prof. Alessandra Piccirillo

Grade: **110L**

October 2014 – March 2018
Date of award: March 14, 2018

Bachelor's degree in Sciences and Technologies of Animal Production

School of Biosciences and Veterinary Medicine - Università di CAMERINO
(ANIMAL SCIENCE AND TECHNOLOGY OF ANIMAL PRODUCTION – L-38)

Thesis title: **First identification of *Streptococcus Equi* in ticks** - Supervisor: Prof. Irene Ricci
Grade: **110L**

School-leaving examination:
July 9 2014

Italian Secondary School Diploma
Liceo classico Giacomo Leopardi, indirizzo linguistico
Viale Aldo Moro, 62019 Recanati (MC), Italy.
Grade: **100/100**

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

English - First Certificate in English (FCE) (level B2) - Cambridge
Spanish - Diplomas de Español como Lengua Extranjera (DELE) (level B1) – Instituto Cervantes
French – (level A1, school level knowledge)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	C1
Spanish	B2	B1	B1	B1	B1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user. Common European Framework of Reference for Languages

Communication skills

I can use an appropriate language for communicate clearly and effectively to different types of audiences. Good predisposition to teamwork developed in sport, school, university, and work.

Organisational / managerial skills

I can independently organize and plan my work respecting deadlines and objectives. I have a strong attitude to problem solving, excellent relational skills, spirit of adaptation, and proactivity. Studies and sport have developed in me a relentless focus on result, a strong desire for personal growth and a great motivation for learning. I can manage stress and complex situations, preserving a serene and productive working environment.

Digital skills

SELF-ASSESSMENT				
INFORMATION PROCESSES	COMMUNICATION	CONTENT CREATION	SAFETY	PROBLEM SOLVING
Independent user	Independent user	Independent user	Basic user	Basic user

[Digital competences - Self-assessment grid](#)

Manuscript in preparation

- **Coletta M.**, La Terza A., Scheu S., Chen T.W. *Mini-review of microarthropod bioindicators for measuring soil health using the Soil Biological Quality Indices: QBS-ar and QBS-c*. Manuscript in preparation. To be submitted to Soil Organisms.
- D'Alessandro A., **Coletta M.**, Sagratini G., Ricci M., La Terza A., *Effects of compost made from compostable bioplastic packaging added to organic waste on wheat health and rhizosphere microbiome: A field experiment*. Manuscript in preparation. To be submitted to Journal of Hazardous Materials.
- Waris, N., **Coletta, M.**, Acquaticci, L., Caprioli, G., Cespi, M., Vittadini, E., Silkina, A., Halim, R., La Terza, A. *Formulating, characterizing, and assessing the phytotoxic effects of two microalgae-based fertilizers using Nannochloropsis sp. and two organic wastes: Brewer's spent grain and Spent coffee grounds*. Manuscript in preparation. To be submitted to: Applied Phycology.
- Ma, Q., Brooke, F.J., Briantais, D., Serlini, N., Shivakumar, S., Costantin, C.G., Rahimi, M., Emran, M., Curran, W., Waris, N., **Coletta, M.**, La Terza, A., Silkina, A., Halim, R. *The enhancement of Nannochloropsis cultivation by strategizing the microalgal nutritional supply with brewery wastewater: from bench to pilot scale*. Manuscript in preparation. To be submitted to: Bioresource Technology.

Projects on which I have collaborated during my PhD under the supervision of Prof. La Terza A

- **Soil and legumes of the Sibillini for high quality pasta** | Borsa di Dottorato Piano Stralcio "Ricerca e innovazione 2015-2017" - Dottorati a tema vincolato "Aree interne/Aree marginalizzate" XXXVI Ciclo - ID Aree Interne DOT1306935
- **AlgaeBrew** | SUSFOOD2 ERA-NET - Early Career Researcher under the supervision of Prof. La Terza A. in WP4. <https://www.ucd.ie/algaebrew/>
- Applicazione dell'Indice "Qualità Biologica Suolo - artropodi" (QBS-ar) in Aziende Agricole del **Parco del Conero** (Sirolo, AN) | RDP for Marche 2014-2020, Accordi Agroambientali d'Area
- **SISTEMA** - La cura ambientale come leva di sviluppo sostenibile, Parco del Conero (Sirolo, AN), Fondazione Cariverona
- **BioAcornScape** | Submeasure 16.1 Action 2" Year 2021 - RDP for Marche 2014/2020, ID 59711, <https://www.impresaverdemarche.it/progetto-59711-psr-marche-2014-20-sottomisura-16-1/>
- **OrtoBioStrip** | Submeasure 16.1 Action 2" Year 2021 - RDP for Marche 2014/2020, ID 59666, <https://www.arca.bio/en/funded-projects/ortobiostrip/>
- **ABRIOPACK** | Submeasure 16.1 Action 2" Year 2017 - RDP for Marche 2014/2020, ID 29057, <https://www.arca.bio/en/abriopack/>
- Applicazione dell'Indice "Qualità Biologica Suolo - artropodi" (QBS-ar) in Aziende Agricole della **Riserva Naturale Sentina** (San Benedetto del Tronto; AP) - Comune di San Benedetto del Tronto (AP)
- **B.I.O.C.E.R.T.O.** | Submeasure 16.1 Action 2" Year 2017 - RDP for Marche 2014/2020, ID 41377, <https://www.biocerto.it/>
- **S.F.I.D.A.** | Submeasure 16.1 Action 2" Year 2017 - RDP for Marche 2014/2020, ID 29073

Poster presented at National and International Conferences

- Waris N., **Coletta M.**, Monticelli M., Caprioli G., Cespi M., Vittadini E., La Terza A. Development of fertiliser from brewery waste: Hints from the AlgaeBrew Project. Centennial Celebration and Congress of the International Union of Soil Sciences Florence - Italy. May 19 - 21, 2024
- Monticelli M., **Coletta M.**, Torresi A., Salvatori L., Marconi M., La Terza A. Soil Biological Quality Index based on earthworms (QBS-e) in strip cropping versus pure stands: preliminary results of the OrtoBioStrip Project. Centennial Celebration and Congress of the International Union of Soil Sciences Florence - Italy. May 19 - 21, 2024
- Waris N., **Coletta M.**, Monticelli M., Caprioli G., Cespi M., Vittadini E., La Terza A. Enhancing Soil health and Nutrient Circularity: Hints from the AlgaeBrew Project. Ecomondo, Rimini, 7-10 November 2023
- **Coletta M.**, D'Alessandro A., Vittadini E., La Terza A. Influence of Organic and Conventional Management Systems on Soil Microarthropods in Protected and Non-Protected Areas. The 3rd Global Soil Biodiversity Conference, Dublin. 13- 15 March 2023.DOI: 10.13140/RG.2.2.17805.10725
- **Coletta M.**, D'Alessandro A., Sagratini G., La Terza A. Effect of Compost Added with Compostable Plastic Packaging on Wheat Health, and its Rhizosphere Microbiome. The 3rd

Global Soil Biodiversity Conference, Dublin. 13- 15 March 2023. DOI: 10.13140/RG.2.2.27871.43680

- o D'Alessandro A., **Coletta M.**, Cespi M. Mozzicafreddo M., Caprioli G., La Terza A. Novel Spent Coffee Ground-Based Biofertilizer: Effects on Crops and Rhizosphere Microbiome, The 3rd Global Soil Biodiversity Conference, Dublin. 13- 15 March 2023
- o La Terza A., Bharti D., Basuri C.K., D'Alessandro A., **Coletta M.**, Kumar S. Soil Ciliated Protist Communities from Natural Sites and Agroecosystems in Italy. The 3rd Global Soil Biodiversity Conference, Dublin. 13-15 March 2023
- o Grossi M., Scagnetti F., La Terza A., Vittadini E., Monticelli M., **Coletta M.**, Suo X.Y., Yang Q.H., Fiorini D., Caprioli G., Fioretti A., Lattanzi P., Mazzanti E. Catani E.M., Bellesi L., Frau A., Torri F., Ghiande: una risorsa del paesaggio e della tradizione alimentare marchigiana da riscoprire e valorizzare. Innovazioni e sostenibilità ambientale: obiettivi e strumenti della PAC 2023-27, Roma. 1-2 March 2023
- o Rosatelli N., Rosatelli R., Malavolta E., Campanelli G., La Terza A., Monticelli M., **Coletta M.**, Colombo L., Pirani M., Tobia L., Piselli V., Tiberi S., Carbonari F., Canali S., Locola I. OrtoBioStrip. Innovazioni e sostenibilità ambientale: obiettivi e strumenti della PAC 2023-27, Roma. 1-2 March 2023
- o D'Alessandro A., **Coletta M.**, Cespi M. Mozzicafreddo M., Caprioli G., La Terza A. Novel Spent Coffee Ground-Based Biofertilizer: Effects on Crops and Rhizosphere Microbiome, PhD Workshop Life and Health Sciences, University of Camerino. 25 November 2022
- o **Coletta M.**, D'Alessandro A., Fabbri M., Vittadini E., La Terza A. Soil and legumes of the Sibillini for high quality pasta. Symposium Toward the International Society for Gastronomic Sciences and Studies, University of Gastronomic Sciences. Pollenzo-Torino, 22-25 September 2022
- o **Coletta M.**, D'Alessandro A., Fabbri M., Vittadini E., La Terza A. Soil and legumes of the Sibillini for high quality pasta. 26th Workshop on the developments in the Italian PhD research on food science technology and biotechnology, University of Turin. Asti, 19-21 September 2022
- o **Coletta M.**, D'Alessandro A., La Terza A. Sustainable soil management and biodiversity friendly practices in protected areas: The Sentina Natural Regional Reserve case study. FAO Global Symposium on Soils for Nutrition, Rome, 26 -29 July 2022
- o **Coletta M.**, D'Alessandro A., Sagratini G., La Terza A. ABRIOPACK Project: Preliminary Data on the Effect of the Use of Compost Added with Compostable Plastics on Crop Health and Possible Interactions with the Rhizosphere Communities. FAO Global Symposium on Soils for Nutrition, Rome, 26 -29 July 2022

Oral presentations

- o **Coletta M.**, La Terza A., Soil and legumes of the Sibillini for a high quality pasta. KreativeEU, Blended intensive programme. The role of stakeholders in the construction of the gastronomic science curriculum: a case study. University of Camerino, 1 - 5 July 2024
- o Waris N., **Coletta M.**, Monticelli M., Caprioli G., Cespi M., Vittadini E., La Terza A. Valorization of *Nannochloropsis spp.* biomass residues grown on brewery wastewater as a fertilizer and its phytotoxicity assessment on plants. 11th International Conference on Sustainable Solid Waste Management – Greece, Rhodes Island. 19 – 20 June 2024
- o La Terza A., **Coletta M.**, D'Alessandro A., Sagratini G., Impact on wheat health and rhizosphere microbiome of compost produced by adding compostable bioplastic packaging to organic waste: A field experiment. 11th International Conference on Sustainable Solid Waste Management – Greece, Rhodes Island. 19 – 20 June 2024
- o **Coletta M.**, Monticelli M., D'Alessandro A., Gentili C., Waris N., La Terza A. Application of the arthropod-based Soil Biological Quality Index (QBS-ar) in the Conero Regional Park: A comparison between three organic farming systems. Centennial Celebration and Congress of the International Union of Soil Sciences Florence – Italy. May 19 - 21, 2024
- o Fioretti A., Passacantando A., La Terza A., **Coletta M.**, Bonacucina G., Gulletta R., Sabbatini B., Fabiani F., Testa U. B.I.O.C.E.R.T.O. – BlockchainIsotopicOrigin: CER.tificazione e Tracciabilità sull'Origine biologica dei prodotti. I risultati finali. Biodiversità del suolo e Blockchain: sinergie per la produzione di vini di qualità. Applicazioni nel progetto B.I.O.C.E.R.T.O. Tipicità (Fermo) 9 March 2024.
- o Grossi M., Scagnetti F., La Terza A., Vittadini E., Monticelli M., **Coletta M.**, Suo X.Y., Yang Q.H., Fiorini D., Caprioli G., Fioretti A., Lattanzi P., Mazzanti E. Catani E.M., Bellesi L., Frau A., Torri F., Ghiande: una risorsa del paesaggio e della tradizione alimentare marchigiana da riscoprire e valorizzare (BioAcornScape) – Stand Coldiretti – Tipicità (Fermo) 11 March 2024.
- o **Coletta M.**, D'Alessandro A., Sagratini G., La Terza A. The ABRIOPACK Project: Effect of Compost Obtained by Adding Compostable Plastic Packaging to Organic Waste on Wheat Health and Rhizosphere Microbiome. Poster accepted for oral presentation at Ecomondo,

Rimini. 7-10 November 2023

- o **Coletta M.**, Waris N., D'Alessandro A., Cespi M., Caprioli G., La Terza A., Spent coffee grounds and algae biomass residue as fertilizer: sustainable solutions for crop and soil health. Algaebrew Mid-term Consortium meeting, Camerino. 26-27 September 2023.
- o **Coletta M.**, Gentili C., Monticelli M., D'Alessandro A. La Terza A., Seminario qualità delle acque, dei suoli e biodiversità. La biodiversità delle nostre aziende agricole e lo stato di salute dei nostri suoli. Attività di monitoraggio della biologia dei suoli in Aziende Agricole del Parco del Conero mediante l'applicazione dell'indice "Qualità Biologica Suoli - artropodi (QBS-ar)" Fondazione Ferretti, Castelfidardo (AN). 1 Settembre 2023
- o **Coletta M.**, D'Alessandro A., Vittadini E., La Terza A. Influence of Organic and Conventional Management Systems on Soil Microarthropods in Protected and Non-Protected Areas, PhD Workshop Life and Health Sciences, University of Camerino. 25 November 2022.

Technical reports

- o La Terza A., Torresi, A., **Coletta M.**, Monticelli M. Applicazione dell'Indice "Qualità Biologica Suolo - artropodi" (QBS-ar) in Aziende Agricole della Riserva Naturale Sentina - Risultati campagna 2023, May 2024 <https://www.riservasentina.it/>
- o La Terza A., **Coletta M.**, Gentili C., Monticelli M., Progetto B.I.O.C.E.R.T.O., report campagna 2023. Novembre 2023.
- o La Terza A., **Coletta M.**, D'Alessandro A., Gentili C., Monticelli M., Applicazione dell'Indice "Qualità Biologica Suolo - artropodi" (QBS-ar) in Aziende Agricole del Parco del Conero (Sirolo, AN). Risultati campagna 2023. October 2023
- o La Terza A., **Coletta M.**, D'Alessandro A. Applicazione dell'Indice "Qualità Biologica Suolo - artropodi" (QBS-ar) in Aziende Agricole della Riserva Naturale Sentina. Campagna 2022. May 2023 <https://www.riservasentina.it/>
- o La Terza A., D'Alessandro A., **Coletta M.**, Gentili C., Monticelli M. Attività di monitoraggio della biologia dei suoli in Aziende Agricole del Parco Regionale del Conero mediante l'applicazione dell'indice di "Qualità Biologica Suoli - artropodi (QBS-ar)": Risultati Campagna 2022. May 2023.
- o ABRIOPACK: Bioeconomia circolare nella filiera avicola industriale. March 2023 ISBN 978-88-676-8062-7
- o La Terza, **Coletta M.**, D'Alessandro A. Relazione 2021 - Applicazione dell'Indice "Qualità Biologica Suolo - artropodi" (QBS-ar) in Aziende Agricole della Riserva Naturale Regionale Sentina (San Benedetto del Tronto, AP). May 2022 <https://www.riservasentina.it/>

Book of abstracts

- o Abstract Book - Centennial Celebration and Congress of the International Union of Soil Sciences Florence - Italy, May 19 - 21, 2024.
- o ECOMONDO. Economia verde, circolare e rigenerativa: ricerca e innovazione e nuove policies. Atti del Convegno. 7-10 novembre 2023. Rimini. ISBN: 978.88.916.6767.0
- o 3rd Global Soil Biodiversity Conference 2023. Book of Abstracts of the Conference held in Dublin, Ireland, 13-15 March 2023.
- o 3rd Global Soil Biodiversity Conference 2023. Late Breaking Poster Abstracts of the Conference held in Dublin, Ireland, 13-15 March 2023.
- o Gastronomy at the crossroad of ecological transition and social justice. Toward the International Society for Gastronomic Sciences and Studies. Book of Abstracts of the Symposium held in Turin, Italy, 23-25 September 2022. ISBN: 979-12-80673-04-6
- o Proceedings of the 26th Workshop on the Developments in the Italian PhD Research on Food Science, Technology and Biotechnology, Università degli Studi di Torino - Asti (Italy), September 19 -21 2022. ISBN: 978-88-75902-27-8

Teaching activity and other activities

I was co-supervisors of 2 students of the master's degree in Biodiversity and Ecosystem Management (Supervisor Prof. Antonietta La Terza)

- o Gentili C. Application of Soil Biological Quality Arthropods Index (QBS-ar) in organic farms of the Conero Regional Park: A comparison between three different management systems (arable lands, vineyards, and olive groves). Graduated July 6, 2023
- o Torresi A. Soil Biological Quality Arthropod Index (QBS-ar) in the agroecosystems of the Sentina Natural Regional Reserve: three years of application according to seasonality. Graduated April 4, 2024

Communication and
dissemination activities

I was co-supervisor of 1 undergraduate student of the bachelor's degree in biology and Biosciences and Biotechnology (Supervisor Prof. Elena Vittadini)

- Bhuiyan J.A. Physico-chemical characterization of chickpeas from different locations in Sibillini mountains and derived food products (Flour and pasta). Expected graduation in May 2025
- AlgaeBrew Newsletter 3 on LinkedIn: *Algae Brew Fertilizer development: From microalgae biomass to fertilizer production for agricultural sector* (La Terza A., Waris N., Coletta M.).
- "Scienza in Festa! Il Festival della Scienza dell'Università di Camerino". Abbadia di Fiastra (Italy), June 15- 16, 2024.
- "Alla scoperta degli organismi del suolo". Sharper night 2023. Camerino. 29 September 2023.

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12 April 2025