



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 4925

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at Dipartimento di SCIENZE AGRARIE E AMBIENTALI

Scientist- in - charge: PROF. SSA ANNAMARIA GIORGI

**Simone Cavazzoli**

## CURRICULUM VITAE

### PERSONAL INFORMATION

Surname	Cavazzoli
Name	Simone
Date of birth	16/07/1991

### EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Bachelor Degree	Environmental Science and Technology	University of Padua	2016
Master's Degree	Environmental Science and Technology	University of Padua	2019

### FOREIGN LANGUAGES

Languages	level of knowledge
English	Fluent

### AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	Erasmus+ Thesis Work in Finland (Helsinki University)





## TRAINING OR RESEARCH ACTIVITY

description of activity:

### Education and training

- 1) 01/10/2017 – 10/12/2019, University of Padua, Department of Agronomy Animals Food Natural Resources and the Environment, **Master's Degree Program in Sciences and Technologies for the Environment and the Territory** • Main subjects and professional skills: Chemical methods for Environmental Sciences, Analytical Methods and Environmental Restoration, Environmental Chemistry, Ecological Methods for the Study of the Environment and Phytodepuration, other. The course of studies has provided solid foundations, both theoretical and technical-practical, necessary for the study of Environmental Sciences, enriching in an integral way the knowledge acquired during the three-year studies.

**The master's thesis**, carried out in Finland (Erasmus + Project, February-July 2019) at the University of Helsinki, focuses on the issues of soil contamination. The title of the thesis: "Hydrocarbon contaminated soil bioremediation: use of Meat and Bone Meal as biostimulating agent and the effect of cyclodextrin in the system. Study of metals mobility in the soil. " I set up the experimental part for the study of the biodegradation processes of hydrocarbon contaminants in the soil. In parallel, the dynamics of some metals in the soil were followed and DNA extracts were sampled and analyzed for the study of the microbial community present. I applied the techniques and protocols necessary for the extraction and subsequent analysis of contaminants present in the soil, as well as for metals. The results obtained were elaborated and collected in the master's thesis document. I acquired the laboratory work skills required to carry out the experimental tasks: extraction of the organic phase from the soil, purification, GC-FID analysis and quantification; soil sample acid digestion processes and quantification of metals by ICP-MS; DNA extraction from the soil, agarose gel electrophoresis, quantification of total DNA and amplification of PCR products for the study of the microbial community (bacterial, r-RNA 16S); statistical analysis of UNIANOVA results through SPSS software package (IBM); graphs and tables elaboration. I learned to work and collaborate with other researchers and laboratory technicians, exchange ideas and knowledge also to solve the problems that an experimental practice can entail. Over time I have improved my work management and organization skills, increasing the efficiency of the lab procedures;

- 2) 01/10/2012 – 12/04/2016, University of Padua, Department of Chemical Sciences, **Bachelor's Degree in Environmental Sciences and Technologies** • Main subjects and professional skills: The course include the study of fundamental scientific subjects (mathematics and statistics, physics, chemistry, biology and earth sciences). Subsequently, more focus on chemistry (environmental chemistry, geochemistry, analytical chemistry, dynamics of pollutants in the environment, pesticides and the environment, pedology), biology (environmental microbiology, plant physiology, entomology), environmental ecology, hydrogeology and environmental economy. At the end of the three-year degree, I gained the awareness of how fascinating the study of Environmental Sciences is and I have cultivated an increasing interest in the problems of environmental pollution, the processes involved and the technologies to monitor, control and possibly restore a contaminated environment.

The title of the **Bachelor thesis** (November 2015-April 2016): "Degradation of organic pollutants in water induced by non-thermal plasma and titania". I followed my co-rapporteur in planning and optimizing the procedures to use nonthermal plasma techniques for the oxidation of persistent pollutants (Irgarol) in water solution. It was also assessed which effect could be induced by the addition of titania (TiO<sub>2</sub>) in solution (further degradation of the contaminant by photocatalysis, adsorption). I have acquired the necessary skills to be able to carry out most of the experimental processes: preparation and management of the experimental setup, HPLC analysis of the samples and quantification of analytes, TOC and TGA analysis. I learned to respect the rigorousness of laboratory procedures and techniques in order to achieve the best results.





## Working experience

- 3) 01/03/2020 – 31/12/2020, Department of Agronomy, Food, Natural Resources, Animals and Environment of the University of Padua, Agripolis, Viale dell'Università 16 - 35020 Legnaro (Pd), **Research scholarship** • Main duties and responsibilities: The project focused on the study of the quality and fertility of agricultural soils. In particular, the aim of the project was to apply the method developed by the Biaccessibility Reseach Group of Europe (BS ISO 17924:2018), for the estimation of the bioaccessible fraction of metals and metalloids in soil samples. The Regional Agency for Environmental Protection, Veneto (ARPAV) participates in the project, providing us with different and well-characterized soil samples, ideal for the development of the aforementioned protocol. The Method consists of a series of chemical extractions in which metabolic fluids similar to human physiological ones (saliva, gastric fluid, duodenal fluid and bile) are synthesized and used in order to extract the fraction potentially assimilable by the organism through the oral pathway. Parameters such as pH, temperature and time contact were carefully monitored during the extraction procedures to mimic the physiological conditions of the human gastrointestinal system. This procedure has been validated through in vivo studies to confirm correlation with in vitro tests, and by interlaboratory studies in order to verify quality and correct reproducibility. The quantitative analysis of metal(loid)s in the final extracts was carried out by ICP-OES. In addition to learning new and refined methodologies in the field of environmental chemistry, this work has been particularly informative and interesting, as it brings environmental sciences closer to those related to human health, thus reconciling processes that are usually considered separately. During this year of research activity (2020) I had the opportunity to work in other ongoing projects. I took part in experiments on the measurement and comparison of soil respiration (CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>O and methane) in different samples, some of which contain biochar. Analysis was carried out by gas chromatography. I also collaborated with the research group in "horticulture and floriculture" (DAFNAE Department of the University of Padua) in the preparation of experimental tests that involve the use of compost from urban organic waste, carefully selected according to the grain size and concentration, to evaluate the influence of this soil improver on agricultural productivity (red lettuce), product quality and soil characteristics. Using an innovative system designed by the research group of soil chemistry and microbiology of the DAFNAE Department, the microbial activity in the different treatments was also estimated.
- 4) 02/04/2017 – 31/05/2017, Everest English Center, Tổ 4 Đường Quang Minh, Quang Minh, Mê Linh, Hà Nội 100000, **Vietnam, Volunteer activity** in an **English** teaching center • Main duties and responsibilities: I supported local (Vietnamese) English teachers during their classes in primary and middle schools, as well as private lessons for students and workers. I gave a few simple lessons in English based on the advice of teachers. I helped manage and organize the frontal lessons for the pupils. The volunteering experience gave me an idea of how teaching English works in a small reality just outside the capital of Vietnam, Hanoi. I immersed myself in the habits of the place and tried to do my best to respect local customs and share my knowledge where possible. At the same time, I met special people, including volunteers from European countries and local people, with whom I worked and spent unforgettable moments.
- 5) 2014 – 2017 summer seasonal employment, Biolago, Monclassico (TN) Via Paolo Ravelli, 1-9, 38020, Bathers assistant and **maintenance of the ecological pond** • Main duties and responsibilities: The main activity is that of assisting bathers at the small bio lake in the town of Monclassico, therefore supervising customer safety. Since the body of water is an artificial bio lake, actions to maintain the ecological system are necessary, such as remove unnecessary plants and algae, activate water circulation pumps and manage the gravel filters. The lake does not provide for the possibility of adding any chemical compound to purify the water, therefore once a month the analysis (conducted by external companies) of the quality of the water are carried out for the protection of bathers. It was fascinating to be able to attend the water purification process, which involved specific phyto-





purifying plants, algae and bacterial colonies. The water of the lake, not being chemically treated, also hosts numerous insects, amphibians and molluscs, which are confined to areas where bathing is prohibited. Working in this bio lake has given me the opportunity to partially follow the biochemical and physical processes that take place in an ecosystem of this type (wetland-like).

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: DIMARO FOLGARIDA, 03/03/2021

SIGNATURE

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