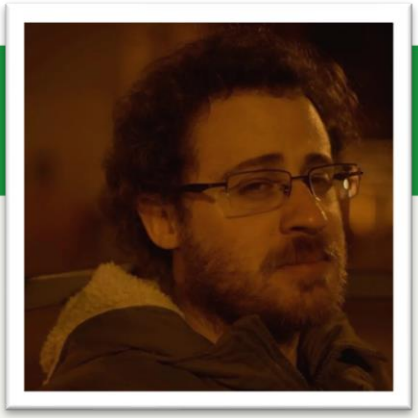
Bartolo Forestieri



KEY - WORDS: · COLLEMBOLA · HONEY BEES ·ECOTOXICOLOGY ·SOIL ECOSYSTEM · HISTOLOGY ·ECOSYSTEM SERVICES · MICRO-NANO-PLASTICS · HEAVY METALS · ORGANIC POLLUTANTS

PROFILE

I am a second-year Ph.D. student in Entomology specialized in Ecotoxicology.

AFFILIATION

Department of Sustainable Crop Production (DI.PRO.VE.S.), section Sustainable Crop and Food Protection (Entomology), Università Cattolica del Sacro Cuore.

LANGUAGES

Mother language

Level B2

HOW TO REACH ME

Email Address:
bartolo.forestieri@unicatt.it

ORCID ID: https://orcid.org/0000-0002-6604-9670

Reference Contact

Tutor: Ph.D. Ilaria Negri
Ilaria.negri@unicatt.it

Telephone: 0523-599374

PROJECT TITLE

Evaluate the impact of microplastics, nano-plastics, and other stressors in agroecosystems on the honey bee (*Apis mellifera*, Linnaeus, 1758) and the springtails *Folsomia candida* (Willem, 1902), *O. folsomi* (Schäffer, 1900), and *Sinella caeca* (Schött, 1896).

Steps of the Research

- Ecotoxicological tests.
- SEM-EDX Analyses.
- Statistical Analysis.
- Histopathological Analysis.
- Application of Soil Biological Quality index based on microarthropods (QBS-ar).

Research Projects

- In the frame of MINAGRIS Project:

a) Biological Soil quality of case study sites (CSS; plastic-contaminated soils) in the MINAGRIS Project: Extraction of soil fauna in three CSS and application of QBS-ar.

b) Albendazole experiment (+MNPs) on *F. candida*.

- Preferential food choice/avoidance behaviour experiment on *F. candida*, *S. caeca*, and *O. folsomi* with plastic-contaminated compost.
- Brake pads wear debris experiment on *S. caeca* and *O. folsomi*.

Main Results

The brake pads wear debris treatment on *O. folsomi* showed significant sub-lethal effects: a decrease in alive springtails and no reproduction, at low concentration. Histopathological analysis revealed alterations of abdominal organs, namely midgut, ovaries, and abdominal fat body of *O. folsomi* at high concentrations.

Research Contribution

Agroecosystems are one of the most contaminated terrestrial system, and therefore they are excellent to study the implications of exposure to MPs and NPs and other stressors, and their effects on ecosystem services provided by collembola.

Collaborations

Università degli Studi di Napoli Federico II (Italy): Ph.D. Karen Power.
Università degli Studi di Milano – Bicocca (Italy): Prof. Giancarlo Capitani.
Aristotle University of Thessaloniki (Greece): Prof. Dimitrios Karpouzas (MINAGRIS Partner).
Wageningen University & Research (Netherlands): Ph.D. Esperanza Huerta Lwanga (MINAGRIS Partner).

Why should you care?

Collembola are soil-dwelling animals regulating soil fertility, flow of energy, and they contribute to soil microbial community dispersion and biodiversity maintenance.