**PhD:** Food Science

**Title:** Quality and safety of agri-food products in urban agriculture systems

**Proposing supervisor:** Dr. Antonio Giandonato Caporale (RTDB, AGR/13)

**Objectives of the research project and interdisciplinary collaborations** (max 1000 characters):

The project aims to study the quality and safety of agri-food products grown in urban agricultural areas and develop as well innovative techniques for the sustainable and resilient management of urban agricultural systems, selected in the metropolitan area of ​​Naples. Soil fertility, biodiversity, possible contamination by potentially toxic elements, persistent organic compounds and microorganisms (and related risks for human health and the environment), the morphological, chemical and microbiological quality of agri-food products will be assessed, in order to implement sustainable management techniques of urban agricultural areas. This will lead to produce healthy and quality food in urban areas rich in biodiversity, resilient to climate change, capable of providing ecosystem services and socio-economic benefits. Food quality and safety will be studied in collaboration with Prof. Paola Vitaglione (BIO/09) and Dr. Francesca De Filippis (AGR/16).

**Innovation and originality of the project in relation to the state of the art** (max 1000 characters):

From the original purpose of ensuring the provision of food (food security), agriculture in urban areas today aims to produce healthy food (food safety) in environments affected by possible degradation and chemical and biological contamination of soil, water and air.

The study of the quality and wholesomeness of agri-food production in environments with strong anthropogenic pressure can allow monitoring food safety over time and establishing relationships between the quality of the soil and food. The definition of quality indicators will guide and assist producers, associations and local authorities in the virtuous and sustainable management of urban agricultural areas and will allow to mitigate the risks of transferring chemical and microbiological contaminants in the food chain. Only a healthy and sustainable urban agricultural system can be able to produce healthy and quality food and provide socio-economic benefits for the community.

**Grant availability** (funds to support the research activities):

* Project FRA UrbanSoilGreening (Finanziamento della Ricerca di Ateneo UniNA, call 2020, line A): *Studio multidisciplinare per promuovere la sostenibilità del suolo urbano, per proteggere le sue funzioni e servizi ecosistemici, e per migliorare la sicurezza e la qualità dei prodotti da agricoltura urbana* (*Codice identificativo 000001--ALTRI\_\_CdA\_54\_2020\_FRA\_AG\_CAPORALE).* Responsible (*Corresponding Proponent*): Dr. Antonio G. Caporale, available budget: 20.000 €.
* Proposal for PRIN projects, call 2022 (PI under 40), *Innovative approach enabling soil and food quality in vegetable gardens of the metropolitan area of Naples (HealthySoil4QualityFood),* *code: 2022XFXRBR*. Responsible (*Principal Investigator*): Dr. Antonio G. Caporale, requested fund: 239.372 €, status: under evaluation.

**Collaborations with foreign institutions** (max 500 characters):

* Dr. María José Sáiz, *Responsible Nuevas Aplicaciones Analíticas at Centro Nacional de Tecnología y Seguridad Alimentaria (CNTA), San Adrián (Navarra), Spain.*
* Prof. Maria Manuela Abreu, *full professor at* *Universidade de Lisboa, Instituto Superior de Agronomia, Centro de Investigação em Agronomia, Alimentos, Ambiente e Paisagem, Lisboa, Portugal.*
* Prof. Marija Romić, *full professor at* *University of Zagreb, Faculty of Science, Zagreb, Croatia*.