**PhD: Food science**

**Title**: Development of a “foodomics” platform for monitoring the transformation process of herboristic plants for the food industry

**Proposing supervisor**: Giuseppe Andolfo (AGR/07)

**Co-supervisor**: Chiara Nitride (AGR/15)

**Objectives of the research project and interdisciplinary collaborations:**

The evolution of the analytical platforms available in food science and technologies is making possible novel and advanced approaches for the assessment of food product quality and safety.

The project aims to develop a model-based on multi-omics data gathered from herboristic plant ingredients at different stages of transformation from the raw to the semi-processed to the ready to commercialise products.

The model will be based on genomics, transcriptomics, proteomics and metabolomics, to identify “foodomics” markers to support the food business operators in choosing the best processing conditions. The multi-method will have the dual purpose of generating the fingerprint of the ingredient for its authentication and monitoring the evolution of molecular components during the transformation processes. The developed model will then be validated on a larger number of plant-based ingredients. Everything will be carried out within a multidisciplinary and integrated exchange between the scientific disciplinary sectors.

**Innovation and originality of the project in relation to the state-of-the art:**

The experimental phase of the project will be carried out with modern analytical technologies ranging from next generation sequencing technologies to high resolution mass spectrometry. The research activity will make use of the active collaboration of the “Azienda Agricola Caselle s.r.l. – Elodì”, Pontecagnano Faiano (SA), producer of aromatic/officinal species typical of the Campania region biodiversity destined for the production of high value new foods and spices through new process technologies.

**Grant availability:**

Funds for research projects whose scientific coordinators are the proponent are being acquired.

**Collaborations with foreign institutions:**

The realization of the multi-omics analyses will be able to make use of the collaboration with the “Computational Biology Institute” of the BOKU University of Vienna, and with the "Food, Health and Consumer Research" group of the University of Wageningen, where it will be possible to carry out research periods abroad.