**Internship offer at Master 2 or engineer level (duration 6 months)**

**Composition and bioaccessibility of four classes of phytomicronutrients present in tomato powder**

**Context**

This internship is part of the TomHealth project funded by the National Research Agency (2020-2024) which aims to offer a tomato powder with a health benefit for cardio-metabolic health thanks to an innovative combination of genotypic choices, cultural practices and food technology.

Indeed, the consumption of tomato, and more particularly of phytomicronutrients, has been associated with a reduction in cardiovascular risks. The choice of the variety of tomato but also the growing conditions and the processing methods will condition the phytomicronutrient content of the finished product and therefore its nutritional quality. The health benefits of tomato consumption are also dependent on the ability of phytomicronutrients to be released from the plant matrix during gastrointestinal digestion (bioaccessibility) as well as their absorption by humans (bioavailability).

**Goals**

The main objective of this internship, which takes place during the second year of the project, will be to determine the composition and bioaccessibility of phytomicronutrients of interest from the various tomato powders produced by a project partner. The phytomicronutrients of interest in tomatoes, targeted during the TomHealth project, belong to 4 major families of compounds: carotenoids, triterpenes, phenolic compounds and glycoalkaloids.

In this context, the student is expected to complete:

- Bibliographic analysis

- Monitoring of the phytomicronutrients of interest during the manufacturing process of tomato powders by HPLC / MS / MS and GC / MS

- Evaluation of the bioaccessibility of the phytomicronutrients of interest in tomato powders in an vitro model of digestion in comparison with the raw material used in the process (tomato juice or concentrate).

According to the project evolution, the trainee may participate into the investigation aiming at determining the influence of the water stress onto the composition in phytomicronutrients.

**Required skills**

The candidate will be in bac + 5 training in chemistry / biochemistry / biology / food science with skills in analytical chemistry and / or physico-chemistry and an interest in the field of nutrition.

**Application (cover letter / CV / names of 2 referees) to be sent to:**

Dr Béatrice Gleize (beatrice.gleize@inrae.fr)

Dr Claire Dufour (claire.dufour@inrae.fr)

**Location of the internship**: SQPOV Unit, INRAE ​​PACA Center, Avignon

Start of the internship: ideally in February 2022

UMR Sécurité et Qualité des Produits d’Origine Végétale

Centre INRAE PACA Avignon Université, UFR-ip STS

228 route de l'Aérodrome - CS 40509 Campus Jean-Henri Fabre, 301 rue Baruch de Spinoza

84914 Avignon Cedex 9, France 84911 Avignon Cedex9, France