Food flavour is the main determinant that attracts consumers to particular products. Inappropriate flavour of food results in food product rejection. Though in term flavour both odour (aroma) and taste are included aroma is the first sensation which reaches our olfactory system. Flavor (aroma) compounds are volatile to reach our olfactory receptors, however not all volatile compounds are flavour compounds. It is estimated that approximately only 3% of 12 000 food volatiles play role in aroma of particular foods.

Flavor compounds are formed in food from relatively simple precursors: aminoacids, fatty acids, simple sugars in a result of biochemical (enzymatic) reactions, microbial changes in foods (fermentation processes), but also chemical reactions. These are usually related with oxidative changes, hydrolysis and over all thermal reactions. Heating, baking or roasting induces changes in flavour in which from simple aminoacids and sugars hundreds of volatile and flavour compounds can be formed.

This project is aimed at analysis of flavour and volatile compounds in food, but not only these compounds. The novelty is to analyse for the same product potential non-volatile precursors of these flavour and volatile compounds.

As a model two types of products will be investigated: 1. cold pressed oil obtained from roasted rapeseed and camelina seeds, 2. Blue vein cheese produced with P. roqueforti. The choice of model foods will enable exploration of various types of pathways of formation of flavour compounds.
All the experiments will be performed using comprehensive two dimensional gas chromatography – time of flight mass spectrometry – a technique that allows separation and identification of hundreds or more compounds in a single run. Gathered information will help us to better understand the nature of food and formation of its unique flavour.