

## Introduction

This study is performed in order to look for specific markers related to the storage of oregano samples. Two producers supplied three oregano samples each month during one year. These samples were produced in open fields. The cultivation was organic and the samples were harvested during the summer when the plants are in flowers. Each sample is dried in open air for 48 hours. Before conditioning for analyses, samples have been stored, and the storage period being different for each producer.

## Material and Method

### At the producer location



- 2 Italian producers
- 3 oregano samples per month during 1 year

- Produced in open field
- Harvested in summer
- Drying in open air for 48 hours

- Storage is a variable period

### In laboratory



- 100 mg



- 20 minutes at 30°C
- Filtration with syringe



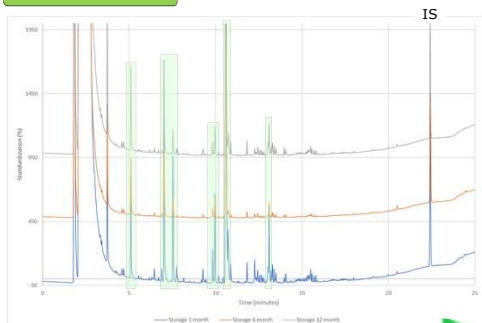
- Hexane or methanol
- 4 ml + squalane (35mg/100ml)

- Chromatographic program :**
- Mode : Split / ratio : 1 :10
  - 60°C to 290°C // 20°C/minutes
  - Column : ZB-5ms or DB-17
  - P : 366,3 kPa



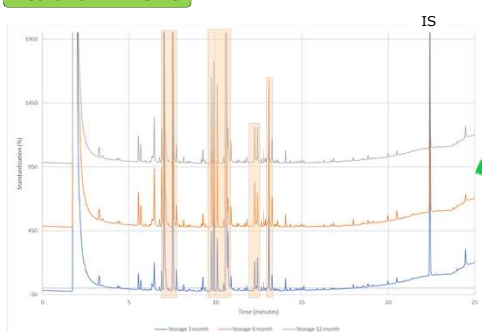
## Results

### Hexane - ZB-5ms



- The majority of the peaks are the same for the different time of storage
- The intensity of some peaks decreases between 1 and 6 month of storage and increases from 6 to 12 month of storage
- For some peaks, the intensity is identic

### Methanol - ZB-5ms



**Treatment of data**

1. Determination of  $IS_{max}$  :  
Maximal response of signal's internal standard peak
2. Standardization  

$$\forall T_r ; y_{St} = \frac{y}{IS_{max}} * 100$$
3. Averaging  

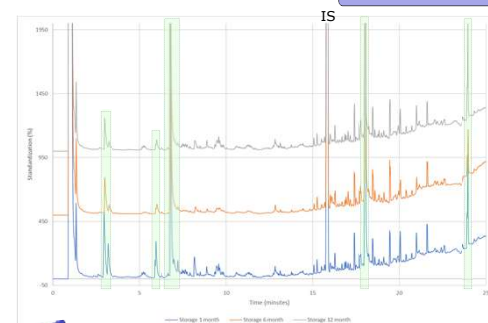
$$\forall T_r ; y_{moy} = \frac{1}{3} \sum_{i=1}^3 y_{St} i$$

With  $i$  oregano extract

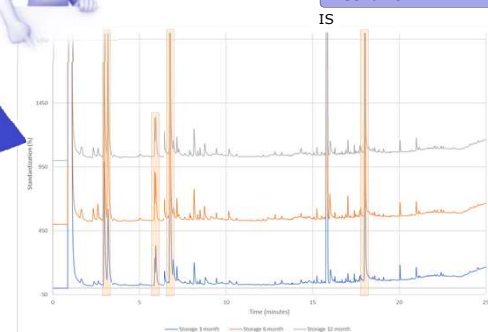
**Results**

- Compounds are the same for each sample but the intensities of peaks are different
- Temperature affects the composition when it is too high

### Hexane- DB-17



### Methanol - DB-17



## Conclusions

The chromatograms show that the compounds are the same but the intensity for some of the peaks is different. Indeed, the intensity decreases during the first 6 months of storage and increases between 6 and 12 months. So, the time or the condition of storage could have an influence in the composition of oregano. For an identical time of storage, a difference in the intensity of peaks is visible, meaning that the period of harvest may have an impact in the presence of compounds in the sample.