**INTRODUCTION**

Raspberry fruits are among the most frequently consumed berries in the world as fresh and processed into various products like preserves, jam, jelly, puree, bakery products, frozen products, dried products, juices, extracts, ice cream and yogurt [1]. In addition, raspberries are an excellent source of anthocyanins, a class of phenolic compounds, which are responsible for the red to purple color of the raspberry fruit. The use of anthocyanin extracted from natural sources as food additives is a challenging process due to their low stability [2]. Drying is the most common food preservation process who help to provide products of higher shelf life [3]. Hot-air drying is the conventional drying method, which provides drastically reduction of quality of dried products [4]. By contrast, freeze drying is one of the best methods to preserve flavor, color and nutritional compounds due the absence of water, low pressure and temperature [3].

**Aim:** to compare the effects of two drying processes, hot-air drying and freeze drying, on total anthocyanin content of organic raspberry (cv. *Heritage*) fruits as measured by spectrophotometric method and UPLC technique.

**METHODOLOGY**

**Organic raspberry fruits (cv. Heritage)**

- **Drying treatments**
  - Hot-air dehydration (HAD)
    - at 70 °C
  - Freeze drying (FD)
    - at −55 °C for 45 h

**Determination of anthocyanins content**

- **Total anthocyanin content (TAC) by pH differential method**
  - acidified methanolic (1% HCl, v/v) extracts
  - vis. spectroscopy at 530 and 700 nm for extracts diluted in pH 1.0 and pH 4.5 buffers
  - Specord 210 Plus UV/VIS spectrophotometer

- **Anthocyanins content (AC) by UPLC-PDA analysis**
  - purification of anthocyanins by solid-phase adsorption
  - separation performed at 520 nm
  - Waters ACQUITY UPLC chromatograph (Waters, Milford, MA)
  - equipped with an UV-PDA detector

**RESULTS AND DISCUSSIONS**

**Chromatographic profile of anthocyanins of raspberries at 520 nm**

- **Effects of drying on raspberry anthocyanins content**
  - In both fresh and milled raspberries, FD provided high amounts of anthocyanins in all samples than HAD, whatever was the method of quantification.
  - There was no difference in TAC and AC for both fresh and milled FD raspberries.
  - The raspberries milled before drying had higher TAC and AC fresh samples.
  - Cyanidin-3-O-sophoroside was the predominant anthocyanin in all raspberry samples representing 67-71% of the AC and had found in hight concentration in FD raspberries compared to HAD samples.

**CONCLUSIONS**

- Freeze drying was more effective in extraction of anthocyanins that hot-air drying. Processing such as milling before drying resulted in higher anthocyanin contents.
- Given these results, organic raspberries are valuable raw material for the development of innovative natural pigments such as anthocyanins.
- However, new data are necessary on others quality parameters of organic raspberry to understand the effects of different drying treatments.

**References:**