INTRODUCTION

Myrtle is the fruit of the Myrtle shrub (Myrtus communis L.).¹
- It belongs to the genus Myrtus and the family Myrtaceae.
- It grows spontaneously in the Mediterranean area and the Middle East.²
- This species is a very aromatic plant because of the high essential oil content in its leaf, flower and fruit glands.³
- It contains a huge concentration of antioxidant substances (anthocyanins and phenolic compounds), much higher than other fruits.⁴
- It is used to produce the characteristic myrtle liquid typical of Sardinia.⁵
- Anthocyanins and phenolics have potential health-promoting effects (i.e., antioxidant, anti-inflammatory, and anticancer activities).⁶

MATERIALS AND METHODS

- 0.5 grams
- Extraction time: 5 min
- 7500 rpm; 5 min
- Microwave MARS 6 240/30 (one touch technology, CEM Corporation Matthews, North Carolina, United States).
- Power: 800 W.
- Keep at -20°C until analysis

RESULTS AND DISCUSSION

EXPERIMENTAL DESIGN (BOX BEHNKEN)
27 duplicate extractions (1 block)
4 Factors (3 Levels):
- %MeOH
- Temperature (°C)
- Ratio (mL)
- pH

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<th>%MeOH</th>
<th>Temperature (°C)</th>
<th>Ratio (mL)</th>
<th>pH</th>
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2 Responses: Total anthocyanins and total phenolics

TOTAL PHENOLICS

EXTRACTION

SEPARATION, QUANTIFICATION AND IDENTIFICATION OF ANTHOCYANINS

ANTHOCYANINS

CONCLUSIONS

Two methods for the extraction of total anthocyanins and total phenolic compounds in myrtle by Microwave Assisted Extraction have been developed.
- A Box-Behnken experimental design with 4 factors and 2 responses (one for anthocyanins and one for phenolic compounds) has been carried out.
- HPLC has been used for the identification and analysis of the anthocyanins, and Folin Ciocalteau method was used for the analysis of total phenolic compounds.
- According to the experimental design, the percentage of methanol in the extraction solvent, the interaction percentage of methanol in the extraction solvent, the interaction solvent-solid percentage of methanol in the extraction solvent, and the pH are the determining factors for the extraction of total phenolic compounds.
- According to the experimental design, the interaction percentage of methanol in the extraction solvent-solid percentage of methanol in the extraction solvent, temperature, and the interaction pH-temperature are the determining factors for the extraction of anthocyanins.
- Different extraction times were tested using the optimal conditions of extraction. A extraction time of 2 minutes was enough for quantitative extraction of total phenolic compounds and a extraction time of 2 minutes was enough for anthocyanins.
- The developed methods presented a high repeatability and reproducibility (R&R ≤ 5%).