Characterization of the phenolic profile of edible flowers as a source of natural antioxidants

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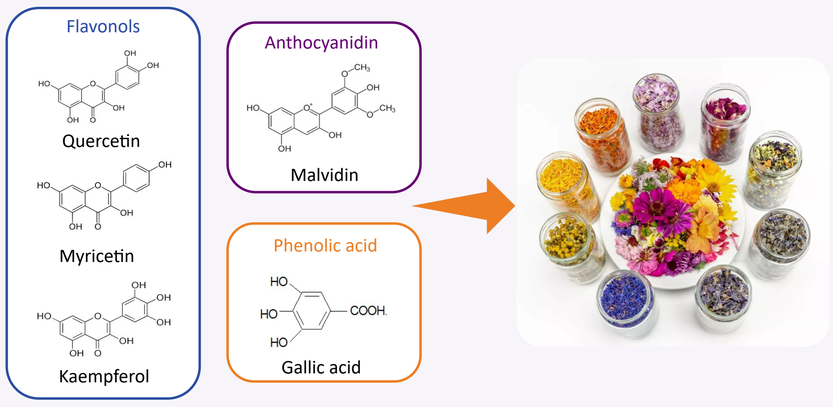
INTRODUCTION

The edible flowers have been used since ancient times at traditional cuisine or alternative medicine, for their nutritional and health benefits. These benefits are attributed to their phenolic acids, organic acids and flavonoids (anthocyanins). Edible flower has great importance due to the presence of bioactive compounds with antioxidant capacity. [1,2]



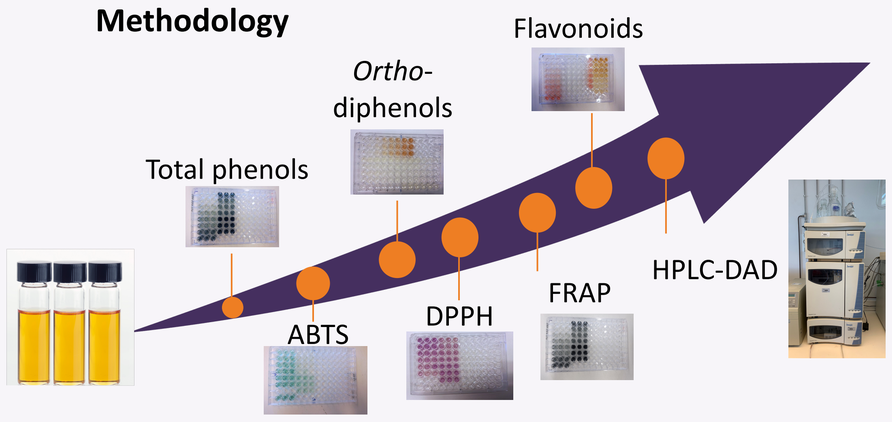
The aim of this study was to evaluate the phenolic composition and antioxidant capacity of five different edible flowers. To achieve this goal, the determination of the total polyphenolic, *ortho*-diphenols and flavonoids contents were performed, as well as an accurate quantitative and qualitative determination of phenolic compounds by HPLC-DAD.

MATERIAL AND METHODS

Samples

For the accomplishment of this work the sampling was constituted by five different edible flowers, namely *Viola tricolor, Rose, Pelargonium graveolens* and two different species of *Calendula officinalis* L.

Methodology



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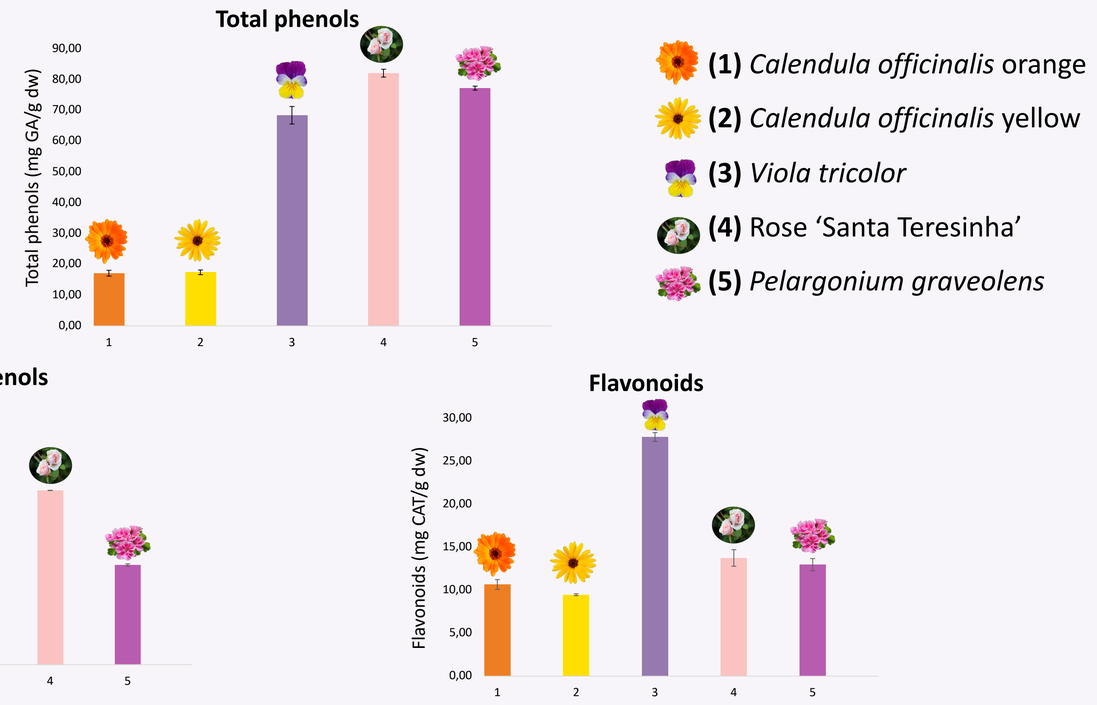
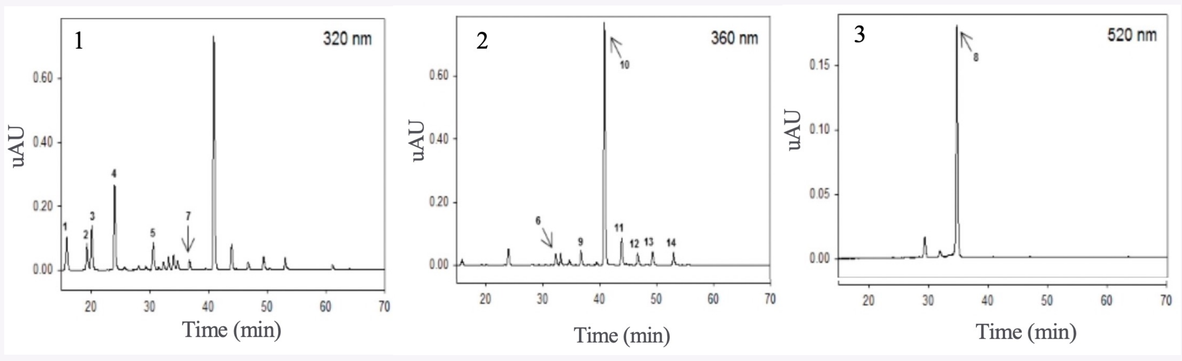
RESULTS AND DISCUSSION

❖ **Phenolic composition of edible flowers and their antioxidant capacity.**



❖ **Phenolic compounds of Rose 'Santa Teresinha' identified by HPLC.**



(1) 3-*O*-caffeoylquinic acid
(2) cis-3-*O*-*p*-coumaroylquinic acid
(3) trans-3-*O*-*p*-coumaroylquinic acid
(4) 5-*O*-caffeoylquinic acid
(5) trans-5-*O*-*p*-coumaroylquinic acid
(6) Myricetin-3-*O*-sophoroside
(7) cis-5-*O*-*p*-coumaroylquinic acid
(8) Pelargonidin-3-*O*-sophoroside
(9) Quercetin-3-*O*-sophoroside
(10) Kaempferol-3-*O*-sophoroside
(11) Kaempferol-3-*O*-acetyl-sophoroside
(12) Quercetin-*O*-acetylhexoxide
(13) Kaempferol-3-*O*-hexoside
(14) Kaempferol-*O*-acetylhexoxide

CONCLUSIONS

Edible flower can be used in gastronomy and represent an important segment to expand food market, namely in the substitution of synthetic antioxidants in foods.[3,4] The results obtained indicate that edible flowers are a rich source of phytochemicals, with high levels of phenolic compounds and antioxidant activities. Thus, this study revealed the possibility to use edible flowers with objective to replace synthetic antioxidants.

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