Natural pigments with high antioxidant capacity, an alternative solution for food industry

Molina, A.K.,[1,2] Leichtweis, M.G.,[1] Pereira, C.,[1*] Dias, M.I.,[1] Ferreira, I.C.F.R.,[1] Barros, L.[1]

[1] Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253
[2]Grupo de Nutrição e Bromatologia, Faculdade de Ciência e Tecnologia de Alimentos, Universidade de Vigo, Ourense, Espanha
Bragança, Portugal. *carlap@ipb.pt

Introduction

Natural matrices that are rich in anthocyanin compounds are increasingly explored by the food industry due to their coloring properties. As examples, *Prunus spinosa* L. and *Lonicera careulea* L. fruits are excellent sources of anthocyanins and are, therefore, increasingly explored for their coloring properties to be applied as food colorants, in addition to providing beneficial properties to the consumer [1-2]. This study aimed to evaluate the anthocyanin profile (HPLC-DAD/ESI-MS) and the antioxidant (TBARS and OxHLIA) and antimicrobial properties of the hydroethanolic extract of *P. spinosa* fruit epicarp and *L. careulea* fruit juice.

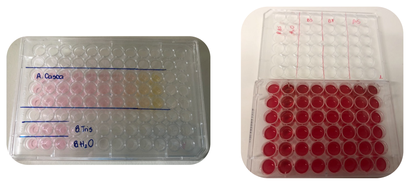
Materials and methods

1. Anthocyanin profile

HPLC-DAD/ESI-MS

2. Antioxidant properties

TBARS assay and OxHLIA assay



3. Antimicrobial properties.

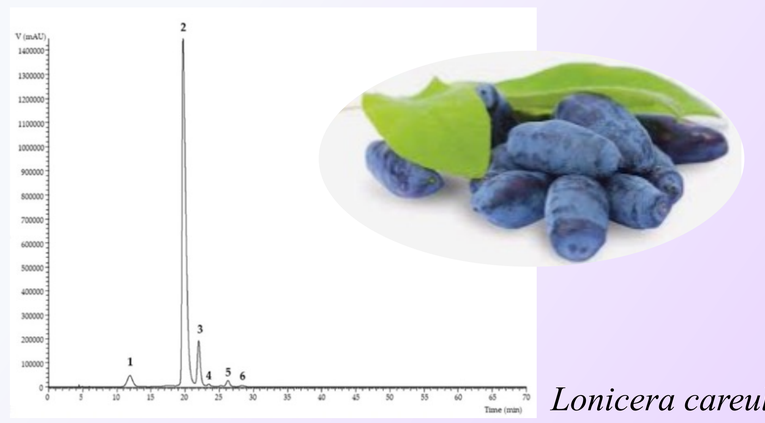
Antifungal

Antibacterial

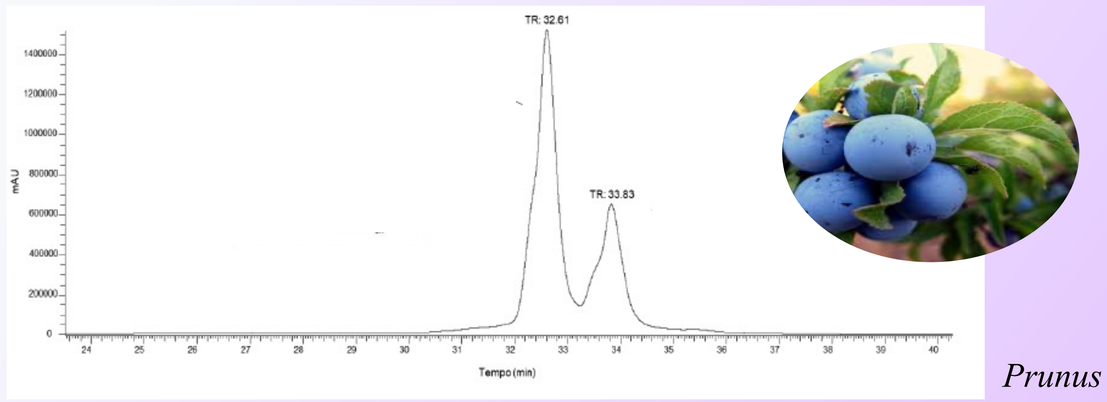
Results

A high content of cyanidin-3-*O*-glucoside and cyanidin-3-*O*-rutinoside was found in the juice of *L. careulea* berries and in the hydroethanolic extract of the epicarp of *P. spinosa*, respectively.

As for the antioxidant activity, in the TBARS assay, The *L. careulea* berries showed a higher capacity (IC_{50} of 29.9±0.3 μg/mL) than the positive control, trolox (IC_{50} of 139±5 μg/mL). Similarly, the epicarp of *P. spinosa* showed the ability to inhibit lipid peroxidation, revealing an EC_{50} value of 204±2 μg/mL. Regarding the ability to retard oxidative haemolysis, both extracts showed activity not only at 60 min, but also at 120 min, allowing EC_{50} values of 145±5 μg/mL and 938±49 μg/mL, respectively, for *L. careulea*, and 296±4 and 509±3 μg/mL, respectively, for *P. spinosa*. On the other hand, both colouring extracts revealed great antimicrobial properties.



Lonicera careulea L.



Prunus spinosa L.

Conclusion

Through this work, it was possible to conclude that *L. careulea* and *P. spinosa* berries have a high coloring capacity and bioactive potential, being suitable for the development of new products for food industry.

References

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Acknowledgements

The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) for financial support through national funds FCT/MCTES to CIMO (UIDB/00690/2020); national funding by FCT, P.I., through the institutional scientific employment program-contract for C. Pereira and L. Barros contracts and A.K. Molina and M.G. Leichtweis PhD grants (2020.06231.BD and 2020.06706.BD, respectively). To FEDER-Interreg España-Portugal programme for financial support through TRANSCoLAB 0612_TRANS_CO_LAB_2_P project; to the European Regional Development Fund (ERDF) through the Regional Operational Program North 2020, within the scope of Project Mobilizador Norte-01-0247-FEDER-024479: ValorNatural®.