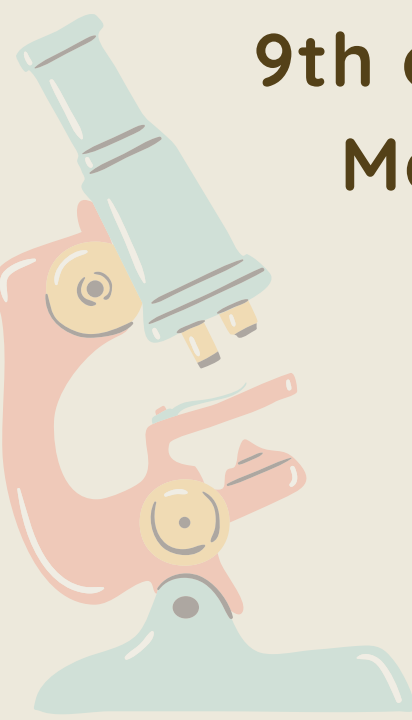


1st Research Meeting on Biochemistry

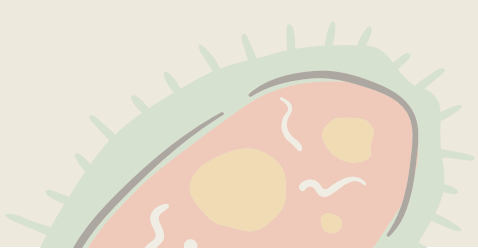
9th and 10th December 2021
Maringá, Paraná, Brazil



Post-Graduation Program
in Biochemistry



State University of Maringá





1st Research Meeting on Biochemistry



Organizing Committee

Dr. Jurandir Fernando Comar

Dr. Lívia Bracht

Scientific Committee

Any Carolina Chagas Almeida

Bruna Francini Lupepsa

Evelyn Silva Moreira

Gustavo Henrique de Souza

Karina Borba Paulino dos Santos

Lucas Costa Cabral

Maria Rosa Zorzenon

Nairana Mithieli de Queiroz Eskuarek Melo

Vinicius Mateus Salvatori Cheute



STUDY OF *PRUNUS SPINOSA* L. FRUIT EPICARP AND *LONICERA CAREULEA* L. FRUIT: ALTERNATIVE NATURAL COLORANTS WITH BIOACTIVE PROPERTIES

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

¹Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal.*carlap@ipb.pt

Natural matrices that are rich in anthocyanin compounds are increasingly explored by the food industry due to their colouring properties. As examples, *Prunus spinosa* L. and *Lonicera careulea* L. fruits are excellent sources of anthocyanins and are, therefore, increasingly explored for their colouring properties to be applied as food colorants, in addition to providing beneficial properties to the consumer [1,2]. Therefore, the aim of this study was 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.

A high content of cyanidin-3-*O*-glucoside and cyanidin-3-*O*-rutinoside was found in the juice of *L. caerulea* berries and in the hydroethanolic extract of the epicarp of *P. spinosa*, respectively. As for the antioxidant activity, in the TBARS assay, the *L. caerulea* berries showed a higher capacity (IC₅₀ of 29.9±0.3 µg/mL) than the positive control, trolox (IC₅₀ of 139±5 µg/mL). Similarly, the epicarp of *P. spinosa* showed the ability to inhibit lipid peroxidation, revealing an EC₅₀ 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 EC₅₀ values of 145±5 µg/mL and 938±49 µg/mL, respectively, for *L. caerulea*, and 296±4 and 509±3 µg/mL, respectively, for *P. spinosa*. On the other hand, both colouring extracts revealed great antimicrobial properties. Through this work, it was possible to conclude that *L. caerulea* and *P. spinosa* berries have a high colouring capacity and bioactive potential, being suitable for the development of new products for food industry.

References

- R. Guimarães, L. Barros, M. Dueñas, A.M. Carvalho, M.J.R.P. Queiroz, C. Santos-Buelga, I.C.F.R. Ferreira, Food Chemistry, 141 (2013) 3721.
R. Khattab, A. Ghanem, M.S.-L. Brooks, Journal of Food Research, 5 (2016) 67.

Acknowledgments

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®.