1st Research Meeting on Biochemistry

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

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Introduction

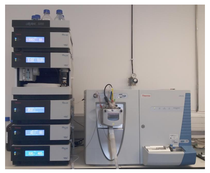
Natural matrices that are rich in anthocyanin compounds are increasingly explored by the food industry due to their coloring properties. As examples, *Prunus spinosa* L. and *Lonicera careulea* L. fruits are excellent sources of anthocyanins and are, therefore, increasingly explored for their coloring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

Lonicera careulea L. Haskap

Prunus spinosa L.

Materials and methods

1. Anthocyanin profile → HPLC-DAD/ESI-MS

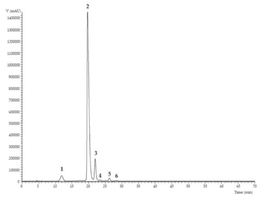


2. Antioxidant properties → TBARS assay and OxHLIA assay

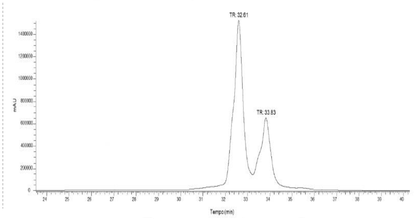
3. Antimicrobial properties.

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.



Lonicera careulea L.



Prunus spinosa L.

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.

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.

Recommendations

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[2] R. Khattab, A. Ghanem, M.S.-L. Brooks, Journal of Food Research, 5 (2016) 67.

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