

Chromatography helps in times of crisis

Webinar, December 17th, 2021





Homepage

The Covid-19 pandemic was a very difficult and challenging phase for all society, including the academic community. Many challenges were overcome, and this crisis also created countless opportunities. Chromatography, in its different configurations, is a tool that proved to be very useful in several fields. The webinar ***Chromatography helps in times of crisis*** is planned to bring together the academic community, companies, and various entities that throughout this pandemic managed to take advantage of their skills and the huge potential of chromatography to solve several problems and/or to unveil novel knowledge.

All of you are welcome to attend this webinar, to establish or re-establish bridges and, if appropriate, to share new achievements that show the usefulness of chromatography in times of crisis.

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President of the Chromatography Group of the Portuguese Society of Chemistry

Key dates

- Abstract Submission: December 2nd
- Registration with discount: December 4th
- Abstract acceptance notification: until December 6th

Food industry by-products applied as pumpkin-based foodstuff preservatives

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Pumpkin is traditionally cultivated and consumed worldwide, being the fruit and its by-products recognized by their nutritional and health benefits. In the current pandemic scenario and towards a circular economy, the development of a healthy and green technological food product was proposed using pumpkin pulp enriched with bioactive compounds obtained from pumpkin by-products. The seeds, rinds, and fibrous placenta of seventeen different pumpkin genotypes from Greece were assessed for their antioxidant properties (TBARS), while the pulp was evaluated in terms of ash, protein, fat, and carbohydrate contents by AOAC methods¹. The free sugars profiles were obtained by HPLC-RI.

All pumpkin by-products revealed great antioxidant properties, demonstrating their ability to inhibit lipid peroxidation and suggesting their potential application as sources of preservative compounds. All pulp samples recorded carbohydrates as the major compounds, with contents of about 67-86%, followed by protein (about 8-21%) and fat (about 0,4-1,1%). The ash content ranged from about 3,5 to 11%. Regarding free sugars, two predominant profiles were traced: one rich in fructose and glucose and low in sucrose, and another one with opposite prevalence (Figure 1). These results corroborate the great nutritional value of pumpkin genotypes from Greece and reveal the potential use of pumpkin by-products in the development of preservative solutions to maintain the pulp quality and safety over storage time, through the development of pumpkin-based food products.

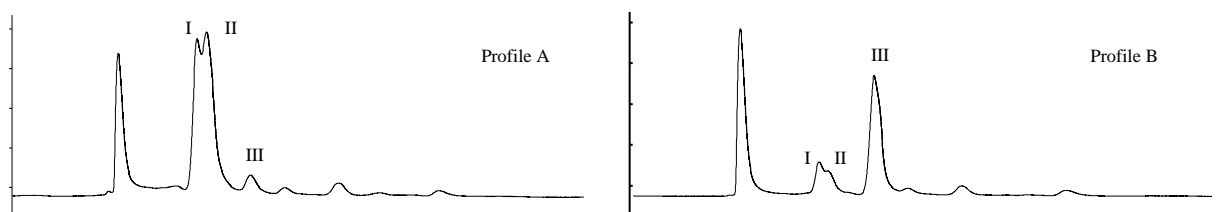


Figure 1: Profile A, rich in fructose (I) and glucose (II); Profile B, rich in sucrose (III).

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). The project is funded by the General Secretariat for Research and Technology of the Ministry of Development and Investments and FCT, P.I. under the PRIMA Programme. PRIMA is an Art.185 initiative supported and co-funded under Horizon 2020, the European Union's Programme for Research and Innovation (PRIMA Section 2 - Multi-topic 2019: Pulping (PRIMA/0007/2019 and Prima2019-08).

References

1. AOAC Official Methods of Analysis of AOAC INTERNATIONAL; 20th ed.; 2016.

Justification

The pandemic crisis brought the alert that more attention is needed to maintain human and planet health. Although pumpkin is known for its nutraceutical properties, its by-products are still little explored industrially and are rich sources of bioactive compounds that could be introduced in the formulation of pumpkin-based products.



This research brings new insights in how to boost a circular economy and valorize food industry wastes in order to avoid losses in a crisis time, when hanger and health are topical subjects worldwide.