

# Book of Abstracts

---

## Innovation in Mediterranean Traditional Foods: Novel Products and Processes

13th-14th October 2022



montanhas  
de investigação



ipb INSTITUTO POLITÉCNICO  
DE BRAGANÇA



Centro de  
Investigação  
de Montanha



**Title:**

Innovation in Mediterranean Traditional Foods: novel products and processes

**Editors:**

Luana Fernandes, Alexandre Gonçalves and Lillian Barros

**Design:**

Sofia Nunes

**ISBNs:**

978-972-745-311-5

**Edition:**

Instituto Politécnico de Bragança (IPB)

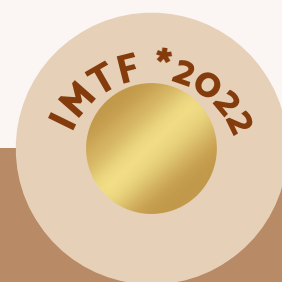
5300-253 Bragança, Portugal

Tel. (+351) 273 303 382

<http://www.ipb.pt>

**URL**

<https://imtf.morecolab.pt>





## The identification of preservative compounds from pumpkin fruit peel for the development of a fruit pulp product

Maria G. Leichtweis<sup>1,2</sup>, Adriana K. Molina<sup>1,2</sup>, Carla Pereira<sup>1,2\*</sup>, Maria Inês Dias<sup>1,2\*</sup>,  
Charikleia Vassilou<sup>3</sup>, Spyridon A. Petropoulos<sup>3</sup>, M. Beatriz P.P. Oliveira<sup>4</sup>,  
Lillian Barros<sup>1,2</sup>

<sup>1</sup> Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Portugal

<sup>2</sup> Laboratório Associado para a Sustentabilidade e Tecnologia em Regiões de Montanha (SusTEC), Instituto Politécnico de Bragança, Portugal

<sup>3</sup> Department of Agriculture Crop Production and Rural Environment, University of Thessaly, Volos, Greece

<sup>4</sup> REQUIMTE - Science Chemical Department, Faculty of Pharmacy, University of Porto – Portugal,

\*[carlap@ipb.pt](mailto:carlap@ipb.pt)

The food industry is facing a growing demand for ready-to-use or ready-to-cook products with a long shelf life and increased nutritional value to meet consumers' needs. However, there is also a growing concern about the widespread use of synthetic additives, which have been alarmingly correlated with adverse health effects. In this context, the opportunity to use the by-products generated during the industrial processing of pumpkin fruit to obtain a natural extract with preservative properties and to incorporate it in a fruit pulp product is being explored. In a preliminary study where pumpkin peels, seeds, and fibers were assessed, the peels showed the strongest bioactive properties, being thus selected to obtain the preservative extract in this work. To identify the bioactive molecules of the pumpkin peels, HPLC-DAD-ESI/MS was applied to the extracts of four genotypes. One to five different phenolic compounds were found in the tested samples, with (-)-epicatechin ([M-H]<sup>-</sup> at m/z 289) as the major compound detected in all of the extracts. These results suggest the possibility of using a natural preservative obtained from this fruit by-product in a new pumpkin pulp formulation.

**Keywords:** By-products; Phenolic compounds; Pumpkin; Sustainability.

**Acknowledgments:** The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) for financial support through national funds FCT/MCTES (PIDDAC) to CIMO (UIDB/00690/2020 and UIDP/00690/2020) and SusTEC (LA/P/0007/2020); national funding by FCT, P.I., through the institutional scientific employment program-contract with C. Pereira, M.I. Dias, and L. Barros and A.K. Molina and M.G. Leichtweis PhD grants (2020.06231.BD and 2020.06706.BD, respectively). To FCT, P.I., within the scope of the Project PRIMA Section 2 - Multi-topic 2019: PulpIng (PRIMA/0007/2019). This work was also funded by the General Secretariat for Research and Technology of Greece and PRIMA foundation under the project Valuefarm (Prima 2019-11).

