PROGRAM

9h00	**Opening session** Isabel C. F. R. Ferreira *Secretária de Estado da Valorização do Interior & Investigadora no Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança* Artur M. S. Silva *Vice-reitor para a Investigação, Inovação e Formação de 3º Ciclo Acreditação na Universidade de Aveiro & Presidente da Sociedade Portuguesa de Química & Coordenador do LAQV/REQUIMTE (Pólo de Aveiro)* Armando J. D. Silvestre *Diretor de Departamento de Química da Universidade de Aveiro*
Session 1: Chair – Marco Gomes da Silva, FCT - Universidade Nova de Lisboa & Manuel A. Coimbra, DQ - Universidade de Aveiro	
9h15	***Plenary session 1*** **Comprehensive two-dimensional gas chromatography a gestalt in separation science** Chiara Cordero *Dipartimento di Scienza e Tecnologia del Farmaco, Università degli Studi di Torino, Italy*
Oral communications	
10h00	**OC1 - Promoting food sustainability and resilience against food chain disruption during pandemic outbreaks** Jorge Pereira, José S. Câmara *CQM, Universidade da Madeira*
10h15	**OC2 - Quince peel as a natural food preservative: a renewable alternative in times of scarcity** Alexis Pereira, Mikel Añibarro-Ortega, Maria Inês Dias, Ana Ćirić, Filipa Mandim, Marina Soković, Isabel Ferreira, José Pinela, Lillian Barros *CIMO, Instituto Politécnico de Bragança*
10h30	**OC3 - GC-based approach for direct acrylamide monitorization in biscuits without the need of derivatization** Sílvia Petronilho, Cláudia P. Passos, António F. Serôdio, Andreia C. M. Neto, Dylan Torres, Alisa Rudnitskaya, Cláudia Nunes, Kristína Kukurová, Zuzana Ciesarová, Sílvia M. Rocha, Manuel A. Coimbra *CQ-VR, Department of Chemistry, University of Trás-os-Montes and Alto Douro & LAQV-REQUIMTE, Department of Chemistry, University of Aveiro*

Quince peel as a natural food preservative: a renewable alternative in times of scarcity

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The resources on our planet are finite and limited. Still, more and more waste is being produced worldwide. In this sense, it is essential to acquire circularity and "zero waste" approaches to move from the current environmentally unsustainable agri-food system to a more sustainable practice. Quince (*Cydonia oblonga* Mill.) is usually peeled and processed into food products, such as jam and marmalade, while the peel is discarded as a by-product[1]. Despite this, quince peel has been reported to be rich in phenolic compounds and organic acids with antioxidant and antimicrobial properties[2,3]. This work was carried out in order to characterize and promote the upcycling of this plant matrix as a functional food ingredient. Dry quince peel powder was subjected to dynamic hydroethanolic maceration (DHM) and hot water extraction (HWE), and both extracts were characterized for their profile of phenolic compounds (HPLC-DAD-ESI/MS^n) and organic acids (UFLC-PDA) and ability to inhibit lipid peroxidation, haemolytic oxidation, and growth of foodborne bacteria and fungi. Flavan-3-ols were the predominant phenolic compounds in the DHM (56.6%) and HWE (47.8%) extracts. Additionally, five caffeoylquinic acids and two flavonol glycosides were also identified. Quinic and malic acids were the main organic acids. The DHM extract was the most antioxidant and presented better antimicrobial effects, which agreed with the flavan-3-ol contents. Furthermore, the solid residue remaining after extraction was valorised as a source of fibre. Overall, both quince peel extracts could be used in the formulation of novel ingredients for further applications in food and pharmaceutical products.

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References

1. Pinela J, Prieto MA, Barreiro MF, et al., *Innov Food Sci Emerg Technol*. 41 (**2017**) 160-171.
2. Fattouch S, Caboni P, Coroneo V, et al., *J Agric Food Chem*. 55(3) (**2007**) 963-969.
3. Silva BM, Andrade PB, Valentão P, Ferreres F, Seabra RM, Ferreira MA, *J Agric Food Chem*. 52(15) (**2004**) 4705-4712.

Justification

In these times of crisis, it is crucial to find alternatives for the upcycling of agri-food by-products in the value chain, contributing to waste reduction and more efficient use of natural resources. To achieve this circularity objective, chromatography is an essential tool, as it allows the chemically characterizing agricultural by-products for their composition in bioactive molecules that can be correlated with biological activities. Therefore, chromatography is a key tool for elucidating new bioactive compounds with potential to combat pandemic agents.