

2nd Meeting of the Group of Portuguese Chemists Abroad of the SPQ



Programme and Book of Abstracts



SOCIEDADE PORTUGUESA DE QUÍMICA



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10
June

2nd Meeting of the Group of Portuguese Chemists Abroad of the SPQ
2.^º Encontro do Grupo de Químicos no Estrangeiro da SPQ

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Chemistry
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Chairperson: Muna Sidarus

15:30 PL2 – Translational Chemical Biology

Gonçalo Bernardes, Cambridge University, UK

16:00 FC8 – A Unified Approach to the Chemoselective α -Functionalization of Amides

Carlos R. Gonçalves, Institute of Organic Chemistry, University of Vienna, Austria

FC9 – Chemically comprehensive predictive multivariate models for bioorthogonal iEDDA

João M. J. M. Ravasco, Research Institute for Medicines, Faculty of Pharmacy, University of Lisbon, Portugal

FC10 – Mechanistic Insight on the Selenium-Catalysed Isomerisation of Hydroxamic Acids into *para*-Aminophenols

Ricardo Meyrelles, Institute of Organic Chemistry and Institute of Theoretical Chemistry, University of Vienna, Austria

FC11 – Continuous flow hydrogenation of 4,5-*trans*-diamino cyclopentenones towards α -Enaminones

Lídia A. S. Cavaca, Research Institute for Medicines, Faculty of Pharmacy, University of Lisbon, Portugal

FC12 – Peptide catalyzed prebiotic triose glycolysis

Álvaro F. Magalhães, Department of Chemistry, University College London, United Kingdom

16.40 Break

Chairperson: Jaime Coelho

16.45 OC2 – Molecular Engineering for Separations

Leila Moura, Queen's University Belfast Ionic Liquid Laboratories, UK

17.00 FC13 – Bioactive properties of bio-residues from food industry: pumpkin seeds, peels, and fibrous strands

Maria G. Leichtweis, Centro de Investigação de Montanha, Instituto Politécnico de Bragança, Portugal

FC14 – Abietane diterpenoids from *Plectranthus mutabilis* Codd. as potential chemotherapeutic agents

Epole Ntungwe, Research Center for Biosciences & Health Technologies, Lisbon, Portugal; Department of Biomedical Sciences, Faculty of Pharmacy, University of Alcalá, Spain

FC15 – Extraction of aloeresin B from *Aloe vera* using alcohol-water mixtures: Process modelling and optimization

Mikel Añibarro-Ortega, Centro de Investigação de Montanha, Instituto Politécnico de Bragança, Portugal.

FC16 – Blueberry bagasse recovery for the development of enriched juices

Adriana K. Molina, Centro de Investigação de Montanha, Instituto Politécnico de Bragança, Portugal; Grupo de Nutrição e Bromatologia, Faculdade de Ciência e Tecnologia de Alimentos, Universidade de Vigo, Spain

FC17 – Tomato Plant Biomass: From Agricultural By-Products to Bioactive Extracts with Industrial Application

José Pinela, Centro de Investigação de Montanha, Instituto Politécnico de Bragança, Portugal

17.40 Award and closing ceremony**18.00 Meeting of the Group**

Blueberry bagasse recovery for the development of enriched juices

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The blueberry, *Vaccinium corymbosum* L., is considered one of the most antioxidant fruits and it is consumed worldwide for its properties [1]. The development of different industrialized products, as juices and derivatives, generates a considerable quantity of residues, such as bagasse, which are rarely used by the industry for other applications [2]. However, these residues contain valuable chemical compounds that can provide beneficial properties to human health [3]. The main interest of this study was, therefore, to recover the bagasse produced in blueberry juice production to prepare a rich extract to be incorporated in the juice. Thus, juices with and without bagasse extract were developed, analyzed, and compared in order to validate the applicability of the extract in this matrix, to enhance the bioactive properties (antioxidant and antimicrobial), the nutritional value (AOAC methods), and the composition in free sugars (HPLC-RI) and phenolic compounds (HPLC-DAD/ESI-MS). The two juices presented a balanced nutritional value, with carbohydrates as the main macronutrients. The free sugars found in higher concentrations were fructose and glucose. In terms of phenolic composition, in the juice and extract-enriched juice, the same non-anthocyanin compound was detected (3-O-caffeoylquinic acid). Regarding anthocyanins, both samples revealed cyanidin derivatives as main compounds. Regarding bioactive properties, the juice enriched with the bagasse extract showed higher antioxidant capacity than the blueberry juice. None of the two juices showed cytotoxicity, being considered safe for consumption. Thus, this study corroborated the importance of the recovery of food industry waste for the development of novel foodstuff.

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[1] Mi, J. C. et al., *Journal of the Science of Food and Agriculture*, **2004**, 84, 1771.

[2] Paes, J. et al., *Journal of Supercritical Fluids*. Elsevier B.V., **2014**, 95, 8.

[3] Wang, S. Y. et al., *Journal of Agricultural and Food Chemistry*, **2008**, 56, 5788.