BOOK OF ABSTRACTS

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XX EUROFOODCHEM CONGRESS

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Congress organized under the auspices of the Food Chemistry Division of the European Chemical Society (FCD-EuChemS) and the Portuguese Chemical Society (SPQ).

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15:30-15:45	Iris Tauber - Flavour analysis of an old Austrian apple variety at different ripening stages
15:45-16:00	Fernando Tateo - IRMS characterization of the saffron water-soluble fraction for the discrimination of the origin.
16:00-16:15	Carmen Gonzalez Sotelo - SEA-TRACES – Sustainable Seafood Production using Authenticity and Traceability tools
16:15-16:30	Christoph Walkner - Food authentication by rare earth element labelling and detection using solution based and laser ablation ICP-MS
Room 3 – Food Sustainability – Chairperson: Daniel Alberto Wunderlin	
15:15–15:30	Ana Rita Silva - Agrocybe cylindracea bio-residues: a sustainable source of ergosterol-rich bioactive extracts
15:30-15:45	Vera Barbosa - Tailored farmed fish iodine and selenium fortification with naturally enriched diets: gilthead seabream (*Sparus aurata*) and common carp (*Cyprinus carpio*) as case studies
15:45-16:00	Steve Huysman - At-line boar taint classification by means of Rapid Evaporative Ionisation Mass Spectrometry (REIMS)
16:00-16:15	Ana Luísa Fernandes - Anthocyanins Thermostability Modulation Through the Fortification with Pectic Polysaccharides Extracts
16:15-16:30	Filipa Pimentel - Simulated gastrointestinal digestion increases the antioxidant activity of *Porphyra dioica*
16:30-16:45	***Coffee break and poster session***
Room 1 – Functional Foods – Chairperson: Nicolas Sommerer	
17:15-17:30	Małgorzata Starowicz - Influence of heat treatment on biological compounds profile and antioxidant activity of herbs and spices and cookies with their contribution
17:30-17:45	Ecem Evrim Çelik - Determination of the Interactions between Bound and Free Antioxidants Naturally Occurring in Foods
17:45-18:00	Bianca Albuquerque - Composition in anthocyanins and bioactive properties of jabuticaba bioresidues
18:00:18:15	Vaida Kitryte - Multistep fractionation of blackberry (*Rubus fruticosus* L.) pomace into high value functional ingredients
18:15-18:30	Carlos Gomes - Valorisation of a Portuguese endemic species as a potential functional food: *Thymus carnosus* Boiss.
Room 2 – Food Composition and Authenticity – Chairperson: Sauro Vittori	
17:15-17:30	Helmut Mayer - Genetic variants of bovine milk proteins – “A2 milk” authentication using isoelectric focusing and PCR
17:30-17:45	Jing Zhang - Comparison of fatty acids and triglycerides profiles among big eye tuna (*Thunnusobesus*), Atlantic salmon (*Salmo salar*) and bighead carp (*Aristichthysnobilis*) heads

ORAL COMMUNICATIONS

Functional Foods

Composition in anthocyanins and bioactive properties of jabuticaba bioresidues

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Myrciaria cauliflora (Mart.) O. Berg, known as jabuticaba, is a native species to Brazil, more specifically to Atlantic Rainforest biome. Its fruits are small berries with a diameter of 2.0 – 3.5 cm that contain between one and four seeds, with a sweet gelatinous pulp and thick dark purple epicarp when mature, which is not commonly consumed. Due to the properties of its pulp, the consumption and production of jellies and liqueurs from jabuticaba has increased. However, the epicarp that corresponds to about 50% of the fruit is not used, being converted into a bioresidue [1]. The intense colour of this part of the fruit is due to the pigments, namely anthocyanins, present in its composition. In addition to attractive staining, these molecules have been associated with bioactive properties, such as antioxidant activity, which makes their recovery interesting for application in various industrial segments, for instance, food and pharmaceutical [2,3]. With the objective of valorising this bioresidue, the present work aimed the determination of the main anthocyanins present in jabuticaba epicarp (by HPLC-DAD-ESI/MS) and the evaluation of the bioactivity of its ethanolic extract (through *in vitro* assessment of cytotoxic, antimicrobial, and antioxidant activities). Thus, cytotoxicity was evaluated in four tumour cell lines (NCI-H460 - lung carcinoma, MCF-7 - breast carcinoma, HepG2 - hepatocellular carcinoma, and HeLa - cervical carcinoma) and in a primary culture of non-tumour liver cells (PLP2), by the Sulforodamine B (SRB) assay. The antimicrobial activity was evaluated on five Gram-negative bacteria (*Escherichia coli*, *Klebsiella pneumoniae*, *Morganella morgani, Proteus mirabilis*, and *Pseudomonas aeruginosa*) and three Gram-positive bacteria (*Staphylococcus aureus*, *Listeria monocytogenes*, and *Enterococcus faecalis*). Lastly, the antioxidant activity was tested through the oxidative haemolysis inhibition assay (OxHLIA).

The bioresidue of jabuticaba fruits presented two anthocyanins, identified as cyanidin 3-*O*-glucoside and delphinidin 3-*O*-glucoside, being the first one the most abundant. Regarding bioactivity, the ethanolic extract revealed antiproliferative activity in all tumour cell lines evaluated (GI_{50} < 300 µg/mL), except for NCI-H460, and did not show toxicity for PLP2 at the maximal tested concentration (400 µg/mL). It also exhibited bacteriostatic properties in all the analysed bacterial strains (ranging from 20 to 10 mg/mL). Regarding haemolysis inhibition, the extract was able to protect 50% of the erythrocyte population for 120 minutes in a lower concentration than the positive control (Trolox).

The results obtained in this study allow to conclude that jabuticaba epicarp is a rich source of anthocyanins and also exhibits strong bioactivity, which makes it suitable for use as colorant.

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References:

[1] S. K. T. Seraglio, et al., Food Chemistry, 239 (2018) 649.
[2] N. Garcia, C. Fernandes, E. Conceição, Food Chemistry, 276 (2019) 475.
[3] A. R. C. Braga, et al., Journal of Food Composition and Analysis, 68 (2018) 31.