BIO-SUSTENTABILIDADE E BIO-SEGURANÇA ALIMENTAR, INOVAÇÃO E QUALIDADE ALIMENTAR

23-26 de outubro de 2022

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11:06 - 11:13	**FC** Raspberry fruit stabilization for its valuation in the development of muffins *Sílvia Petronilho, Diana Pimenta, Manuel A. Coimbra, Cláudia P. Passos*
11:13 - 11:45	**Coffee Break / Poster Session**
ROOM 1	**Chairperson -** *Christophe Espírito Santo*
11:45 - 12:00	**OC** Design of "Pera Rocha do Oeste" structured fruit with agar and locust bean gum: nutritional, antioxidant, textural and sensorial properties *Ana Luísa Leitão Correia, Elsa F. Vieira, Maria João Ramalhosa, Rui M. Alves, Carla Barbosa, Cristina Delerue-Matos*
12:00 - 12:15	**OC** Non-commonly used Edible Vegetable Substrates for Fermentation: An Alternative and Sustainable Source for Innovative and Healthy Food Products *Sofia Carapinha, Maria Ramos, Daniela Correia, Mayumi Delgado, Diogo Castelo Branco, Diogo Fernandes, Diogo Figueira, Anabela Raymundo, Catarina Prista*
12:15 - 12:30	**OC** Vegetable extracts as alternatives to nitrite in cured meat sausages *Patrícia Bernardo, Maria José Fernandes, Maria Helena Fernandes, Maria Pedro Teixeira, Luís Patarata, Maria João Fraqueza*
12:30 - 12:45	**OC** Evaluation of corncob as carbon source in the production of xanthan gum *Meirielly Jesus, Fernando Mata, Rejane Batista, Denise Santos Ruzene, Ricardo Albuquerque, Manuela Vaz-Velho, Francine Padilha, Daniel Pereira Silva*
12:45 - 13:00	**End Session**
13:00 - 14:15	**Lunch**
	Social Program

Wednesday – 26th of October 2022

ROOM 2	**Chairperson –** *Angelina Pena*
09:30 - 09:45	**OC** The phenolic profile for the discrimination of honeydew honey with origin in *Quercus pyrenaica oak* *Soraia I. Falcão, Rania Slama, Kheira Moufida Mouffok, Olga Escuredo, M. Shantal Rodriguez, M. Carmen Seijo, Miguel Vilas-Boas*
09:45 - 10:00	**OC** Chemical and bioactive characterization of *Euterpe oleracea Mart.* *Izamara de Oliveira, Márcio Carocho, Tiane Finimundy, Tânia Pires, Josiana Vaz, Celestino S. Buelga, Isabel C.F.R. Ferreira, Sandrina Alves Heleno, Lillian Barros*

Chemical and bioactive characterization of *Euterpe oleracea* Mart.

Izamara de Oliveira,[1,2] Márcio Carocho[1], Tiane Finimundy[1], Tânia Pires[1], Josiana Vaz[1], Celestino S. Buelga[2], Isabel C.F.R. Ferreira[1], Sandrina Heleno[1*], Lillian Barros[1]

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Besides the economic factor, açaí has been highlighted for its nutritional value, but also for its richness in α-tocopherol (vitamin E), phenolic compounds and for having interesting bioactive potential[1]. Therefore, the objective of this work was to perform the chemical and bioactive characterization of freeze-dried açaí pulp. Organic acids were determined by HPLC-DAD, tocopherols by HPLC-fluorescence, and phenolic compounds using HPLC-DAD-ESI/MS. The antioxidant potential was assessed through cellular antioxidant activity (CAA), thiobarbituric acid reactive substances (TBARS), and radical scavenging activity (DPPH) assays; the antimicrobial capacity was evaluated using the microdilution method against pathogenic microorganisms, cytotoxicity against tumoral and non-tumoral cell lines by the sulphorhodamine B assay, and the anti-inflammatory potential using RAW cells.

Citric acid (3.36 ± 0.07 g/100 g DW) was the most abundant organic acid, being fumaric acid found in the lowest concentrations (0.0117 ± 0.0001 g/100 g DW). Alpha and beta tocopherols were identified, with contents of 0.046 ± 0.001 mg/100 g DW and 0.17 ± 0.12 mg/100 g DW, respectively. Regarding the phenolic composition, taxifolin-*O*-deoxyhexylhexoside was the main compound (4.34 ± 0.03 mg/g of extract), followed by sinapoyl hexoside (2.27 ± 0.04 mg/g), quercetin-3-*O*-rutinoside (2.21 ± 0.06 mg/g) and finally isorhamnetin-3-*O*-rutinoside (0.54 ± 0.02 mg/g), presenting a total of non-anthocyanin phenolic content of 9.36 ± 0.15 mg/g of extract. Also, five anthocyanin compounds were identified, totaling 11.99 ± 0.22 mg/g of extract, where the compounds cyanidin-3-*O*-glucoside (4.72 ± 0.20 mg/g) and cyanidin-3-*O*-rutinoside (4.54 ± 0.03 mg/g) presented the highest levels, with lower, but significant, contents for pelargonidin-3-*O*-rutinoside (0.60 ± 0.01 mg/g).

For the antioxidant potential, EC_{50} values of 270 ± 5 µg/mL in the DPPH and 61 ± 2 µg/mL in the TBARS assays, and 61% of oxidation inhibition at 2000 µg/mL in the CAA assay were obtained. Concerning the antimicrobial capacity, tested against food borne and clinical pathogens, the açaí extract was more active against Gram positive bacteria, with inhibition concentrations ranging from 1.25 to 10 mg/mL. As for cytotoxicity, the extract revealed activity against breast carcinoma cells (MFC-7) with IC_{50} values of 255 ± 22 µg/mL, while no significant effect was found against lung carcinoma cells (NCI-H460) and the normal cell culture (PLP2), for which values above the maximum concentration tested were found (>400 µg/mL). The extract also revealed anti-inflammatory activity with EC_{50} values of 384 ± 11 µg/mL.

Taking in consideration the results obtained in the range of analyses performed, it can be concluded that the açaí pulp is an interesting source of bioactive molecules, highlighting its the antioxidant activity. Therefore, this fruit could be exploited for the development of functional formulations, besides being a candidate to explore as a natural source of colouring or preservative agents.

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References:

1. Portinho, J.A. (**2012**). Beneficial effects of açaí. International Journal of Nutrology, v.5, n.1, p. 15-20.