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

23-26 de outubro de 2022

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Sociedade Portuguesa de Química

Instituto Politécnico de Castelo Branco

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Livro de Resumos do XVI Encontro de Química dos Alimentos - Bio-Sustentabilidade e Bio-Segurança Alimentar, Inovação e Qualidade Alimentar

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As doutrinas expressas em cada um dos resumos são da inteira responsabilidade dos autores.

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Data

Outubro de 2022

15:15 - 15:22	**FC** Luminescence Sensors based on nano-MOFs to detect biogenic amines *Candela Melendreras García, Pablo Álvarez García, Enrique Álvarez Rubiera, Elena Lastra Bengochea, Francisco Javier García Alonso, Francisco Ferrero, Adrián Vizcaíno, Juan Carlos Campo, Marta Valledor, Ana Soldado, José M. Costa Fernández*
15:22 - 15:29	**FC** Heavy metals and metalloids in shrimps from northwest Portuguese coast *Maria Luz Maia, Agostinho Almeida, Cristina Soares, Luís M. S. Silva, Cristina Delerue-Matos, Conceição Calhau, Valentina Fernandes Domingues*
15:29 - 15:36	**FC** Arsenic in Portuguese rice. Is there any risk? *A. Pereira, A. Silva, L. Silva, S. Duarte, A. Pena*
15:36 - 15:43	**FC** The effect of the drying process on the composition of two varieties of prickly pear (*Opuntia ficus indica*) *Gaudêncio Semedo, Carolina Rodrigues, Victor G.L. Souza, Ana Luísa Fernando*
15:40 - 16:15	**Coffee Break / Poster Session**
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Tuesday – 25th of October 2022

ROOM 3	**Chairperson -** *Carla Tecelão*
09:45 - 10:00	**OC** Nutritional and bioactive traits of Kweli® red raspberry cultivated in Portugal Matilde Rodrigues, Ana Luísa Vara, Jonava Petrovic, Maria Inês Dias, António Nogueira, Marina Sokovic, Isabel C.F.R. Ferreira, José Pinela, Lillian Barros
10:00 - 10:15	**OC** Development of low-fat vegan emulsions with the incorporation of citrus fiber Cláudia Maia, Sara Simões, Diogo Castelo-Branco, Diogo Figueira, Ana Tasso, Anabela Raymundo
10:15 - 10:30	**OC** In vitro and in vivo antioxidant activity of 3D snacks enriched with different microalgae species Sónia Oliveira, Alberto Niccolai, Liliana Rodolfi, Isabel Sousa, Anabela Raymundo
10:30 - 10:45	**OC** Chemical characterization and bioactive potential of coffee pulp, a by-product of coffee industry Marlene Machado, Liliana Espírito Santo, Susana Machado, Anabela Costa, Helena Ferreira, M. Beatriz P. P. Oliveira, Rita C. Alves

Nutritional and bioactive traits of Kweli® red raspberry cultivated in Portugal

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Red raspberry (*Rubus idaeus* L.) is an increasingly popular food in contemporary diets due to its freshness, organoleptic features, nutritional value, and health claims. From the nutritional point of view, red raspberry has been described as containing vitamins, minerals, soluble fiber, reducing sugars, citric acid, and phenolic compounds.[1] Anthocyanins are of particular interest in this fruit, since these pigments provide the characteristic red-purple color, as well as bioactive properties.[1,2] The demand for raspberries has risen sharply in Europe and North America and, among the existing cultivars, Kweli® is one of the most productive and suitable for growing in moderate and Mediterranean climates. High levels of ellagitannins, anthocyanins, and vitamin C have been described in this cultivar and its phytochemical content has been correlated with antioxidant properties.[1,2] Still, little else is known about the nutritional composition of Kweli®. Therefore, this work was performed to characterize the nutritional and chemical composition of this red raspberry cultivar gown in northern Portugal and assess its *in vitro* antioxidant and antimicrobial activities. Fresh fruits at commercial maturity were harvested and immediately lyophilized. Its proximate composition was determined by official method of food analysis and the concentrations of free sugars, organic acids, tocopherols, and fatty acids were evaluated by different chromatographic techniques.[3] Anthocyanins were identified in an hydroethanolic extract prepared by solid-liquid extraction, which was also used to evaluate bioactive properties.[3] The antioxidant activity was evaluated *via* inhibition of β-carotene bleaching, formation of thiobarbituric acid reactive substances (TBARS), and oxidative hemolysis.[3] The antimicrobial activity was tested against foodborne bacterial and fungal strains by microdilution methods.[3] Moisture (approximately 83%) and carbohydrates (16.12%), of which fructose (2.42%) and glucose (2.13%), were major constituents of Kweli® red raspberry, followed by ash (0.66%) and protein (0.18%). The fat content was quite low and consisted mainly by unsaturated fatty acids (58%), with a prevalence of oleic acid. High levels of citric (2.7%) and ascorbic (17 mg/100 g) acids and tocopherols (1.92 mg/100 g) were also detected. The anthocyanins (4.51 mg/g extract) cyanidin-*O*-hexoside and mostly cyanidin-*O*-sophoroside were identified in the hydroethanolic extract, which was able to inhibit in some extent the formation of TBARS, oxidative hemolysis, and β-carotene bleaching. In turn, the extract was more effective than the food additive E224 against *Bacillus cereus*. Overall, these results highlighted the nutritional quality of Kweli® red raspberry and may be useful to complete food composition databases. Therefore, the inclusion of this berry in a daily diet can be helpful to obtain nutrients and antioxidants and bring health benefits.

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3. A.L. Vara, J. Pinela, M.I. Dias, J. Petrović, A. Nogueira, M. Soković, I.C.F.R. Ferreira, L. Barros, *Foods* 9 (**2020**) 1522.