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

23-26 de outubro de 2022

Castelo Branco

Sociedade Portuguesa de Química

Instituto Politécnico de Castelo Branco

Instituto Politécnico de Castelo Branco
Escola Superior Agrária

Câmara Municipal
CASTELO BRANCO

EuChemS
European Chemical Society
Division of Food Chemistry

Livro de Resumos

XVI Encontro de Química dos Alimentos

Ficha Técnica

Título

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

Autores

Ofélia Anjos, Soraia I. Pedro, Carlos Antunes

Edição

Ofélia Anjos, Soraia I. Pedro, Natália Martins Roque, Carlos Antunes

Outros colaboradores:

Fátima Peres

Cecília Gouveia

Cláudia Adriana Fernandes Vitória

Ilustrações

Luísa Ferreira Nunes

Editor

Sociedade Portuguesa de Química

Esta publicação reúne os trabalhos apresentados no XVI Encontro de Química dos Alimentos: Bio-sustentabilidade e Bio-segurança alimentar, Inovação e qualidade alimentar, Castelo Branco 2022, e inclui ainda o programa científico do encontro.

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

ISBN

978-989-8124-36-4

Data

Outubro de 2022

PC16 **Water quality on small ruminants' dairy farms in Castelo Branco region**
Maria Conceição Mesquita, Maria Helena Martins, Maria Manuela Goulão, Renata Pedro, Ana Rita Martins, Inês João, Francisco Rodrigues, Cristina Santos Pintado

PC17 **Pilot survey of Nitrates, Nitrites, and histamine in raw Tuna in Sashimi**
Maria Monte, José Fraga, Sofia Duarte, Liliana Silva, André Pereira, Angelina Pena

PC18 **Determination of Aflatoxin M1 in milk and cheese from the Azores**
Nuno Rego, Sofia Duarte, Eduarda Silveira, Anabela Almeida, Liliana Silva, André Pereira, Angelina Pena

PC19 **Influence of wood type on polycyclic aromatic hydrocarbons profile in a Portuguese traditional fermented sausage**
Cristina Roseiro, Helena Gonçalves, Carlos Santos

PC20 **Production of egg white protein films for food packaging applications**
Ângelo Luís, Ana Ramos, Fernanda Domingues

PC21 **State of the art of non-conventional treatments for insect control in rice storage**
Inês Sousa, Jorge Oliveira, António Mexia, Graça Barros, Carla Brites

PC22 **Red-legged partridge (*Alectoris rufa*) hunting with lead projectiles results in lead contamination of meat portions, even after the removal of all visible lead projectiles**
Miguel Mourato, Luisa Louro, João Pinto, Mário Quaresma

PC23 **Evaluation of the impact of innovative and sustainable crystal glass bottles during accelerated storage of Port wine**
Cátia Martins, Silvia M. Rocha

PC24 **An Innovate and Rapid Separation Methodology Based on µSPEed/UHPLC-PDA for the Determination of Eight Pesticides in Water Samples**
Laura García-Cansino, María Ángeles García, María Luisa Marina, José S. Câmara, Jorge A. M. Pereira

T6 Tema 6 -Alimentos Funcionais

PC01 **Freeze-dried aqueous extract from sea buckthorn *(Hippophae rhamnoides)* leaves: phenolic composition and application in functional ice creams**
Daniel Granato

PC02 **Functionality assessment of *Scolymus hispanicus* (golden thistle) for its daily-basis incorporation in the Mediterranean diet**
Beatriz H. Paschoalinotto, M.A. Prieto, Compocholi M, Nikolaos Polyzos, S.A. Petropoulos, Isabel C.F.R. Ferreira, Maria Inês Dias, Lillian Barros

PC03 **Characterization of different fractions of fruit products obtained from the SUMOL+COMPAL pilot line to obtain Clean label fruit derivatives**
Madalena Leitão, Joel Santos, Maria João Alegria, Anabela Raymundo, Isabel Sousa

PC04 **Nutraceutical value of *Camellia sinensis* blend with aromatic medicinal plants: Comparison of antioxidant properties, phenolic and flavonoids contents**
Lisete Paiva, Madalena Motta, José Baptista

PC05 **Strategies for reducing the allergenicity of hen egg by treatment with phenolic compounds**
Alcides Vapor, Cândida T. Tomaz, António G. Mendonça

PC06 **Can avocado oil enriched fresh cheese modulate the obesity-related metabolism?**
Manuela Machado, Luís Alcalá, Ana Maria Gomes, Manuela Pintado

PC07 **Extrusion cooking effect on antioxidant activity and total phenolic content in novel gluten-free flours enriched with Fibersol and Passion fruit**

Functionality assessment of *Scolymus hispanicus* (golden thistle) for its daily-basis incorporation in the Mediterranean diet

Paschoalinotto B,[1, 2] Prieto M,[2] Compocholi M,[3] Polyzos N,[3] Petropoulos S[3], Ferreira I,[1] Dias MI,[1, *] Barros L.[1]

[1] *Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal;*
[2] *Grupo de Nutrición y Bromatología, Departamento de Química Analítica e dos Alimentos, Facultade de Ciencia e Tecnoloxía dos Alimentos, Universidade de Vigo, Campus de Ourense, 32004 Ourense, España*.
[3] *University of Thessaly, Department of Agriculture, Crop Production and Rural Environment, 38446 N. Ionia, Magnissia, Greece.*
*maria.ines@ipb.pt

Golden thistle (*Scolymus hispanicus* L.) is naturally distributed in the Mediterranean region. Its roots and fresh rosettes are traditionally consumed in soups and special meals, and have been reintroduced in some European countries since the consumption of native species is an integral and crucial part of the so-called Mediterranean diet; long associated with several beneficial health effects against diseases spread worldwide[1]. Although most of these native species are traditionally collected in the wild by the local communities, the increasing demand for such edible plants has created a market niche for the commercial exploitation of Wild Edible Plants (WEPs). This practice may fulfill consumer demands for product availability throughout the year, as well it prevents the risk for genetic erosion due to irrational gathering. There are reports, available in the literature, for cultivation practices of native species and how these practices may affect its nutritional profile, chemical composition, and bioactive compounds content[2]. The aim of the present study was to evaluate the effect of fertilization with nutrient solutions that contained different ratios of nitrogen (N), phosphorus (P), and potassium (K) on the nutritional profile (AOAC methods) of *S. hispanicus* edible plant parts. The mineral content was determined by atomic absorption spectrophotometry. Energy was calculated according to the equation: energy (kcal per 100 g) = 4 x (g protein + g carbohydrate) + 2 x (g total dietary fiber) + 9 x (g fat). The sample fertilized with 200:200:200 ppm of N:P:K (S222) stood out for its fiber content (40.7±0.2 g/100 g dry weight), followed by the sample S211 (fertilized with 200:100:100 ppm of N:P:K) that also showed promising crude protein values (10.8±0.3 g/100 g of dw); however, the crude protein content showed no significant differences between this sample (S211) and samples fertilized with 100:100:100 N:P:K (S111) and S222, respectively. The total dietary fiber content was different among the seven experimental treatments, which suggests the influence of the nutrient solution on this parameter. Sample S111 showed similar fat content to the control sample. The control sample (without fertilization) showed the highest levels in the majority of the studied parameters, except for fiber content, carbohydrates, and energy. The sample fertilized with 300 ppm of nitrogen had the lowest values in relation to fat, crude protein, and fiber contents. The energy calculation ranged from 301 to 285 kcal/100g of dry weight, while the sample with the highest energy value had the highest carbohydrate content. Mineral composition was affected by fertilization treatments for most of the minerals evaluated in the present study. Sample S311 (fertilized with 300:100:100 ppm of N:P:K) showed the highest amount of sodium, calcium, and magnesium and the lowest content of potassium and zinc. On the other hand, the control sample had the lowest amounts of sodium, magnesium, manganese and copper and the highest levels of potassium, iron, and zinc. Iron and other micro minerals are an essential part of many compounds in the oxygen transport and storage system and function as cofactors for enzymes[3]. It was possible to verify that the concentration of nitrogen, phosphorus and potassium in nutrient solution may directly affect the nutritional value and mineral content of the plant under study, with high concentrations of nitrogen presenting a negative impact on the protein content, indicating the low response of the species to increasing nitrogen fertilization rates. With the results obtained, it is possible to select the appropriate nutrient solution to obtain golden thistle with a promising nutritional profile and high mineral contents, as well as to promote its incorporation into commercial farming systems and the exploitation in a more sustainable manner through tailor-made fertilization regimes.

Acknowledgements: Authors thanks to Fundação para a Ciência e Tecnologia (FCT, Portugal) for financial support through national funds FCT/MCTES to CIMO (UIDB/00690/2020) and to Project PRIMA Section 2 - Multi-topic 2019: VALUEFARM (PRIMA/0009/2019).; to the National funds of FCT, P.I. for the institutional scientific employment program-contract of L. Barros and M.I. Dias. To MICINN for the Ramón y Cajal Scholarship by M.A. Prieto (RYC-2017-22891); To the General Secretariat for Research and Technology of Greece and PRIMA Foundation for the Valuefarm project (Prima 2019-11) and the contract of N. Polyzos.

References:

1. Karik U. Turkish J F Crop. 24 (**2019**), 2, 230–6.
2. Petropoulos S, Fernandes Â, Barros L, Ferreira ICFR. Food Chem 1 (**2018**), 242, 466–74.
3. Staszowska-Karkut M, Materska M. Nutr 12 (**2020**), 463.