



XXIV Encontro Luso Galego de

QUÍMICA

21-23 novembro de 2018
Porto - Portugal



LIVRO DE RESUMOS



SOCIEDADE PORTUGUESA DE QUÍMICA



Colegio Oficial de
Químicos de Galicia



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**Colegio Oficial de
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XXIV ENCONTRO LUSO-GALEGO DE QUÍMICA

Mantendo vivo o evento iniciado em 1985, decorrente da estreita relação existente entre a Delegação do Porto da Sociedade Portuguesa de Química (SPQ) e o Colegio Oficial de Químicos de Galicia (COLQUIGA), O Departamento de Química da Faculdade de Ciências tem o prazer de organizar e receber o XXIV Encontro Luso-Galego de Química, que irá decorrer entre os dias 21 e 23 de novembro de 2018.

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COMUNICAÇÕES ORAIS

23 NOVEMBRO 2018 - Sexta-feira

14:00-15:30

SALA 1 Auditório Ferreira da Silva

QAMA 32	Its tea time! Mycotoxins in teas and herbs destined to prepare infusions, Sofia Duarte
QAMA 33	Identification of biogenic amines in wines using a dispersive solid phase extraction clean-up/concentration method, Juliana Milheiro
QAMA 34	Pirano-Estiril-Flavílios – novos pigmentos ‘bio-inspirados’ e a modelação da sua cor através de sistemas micelares, Vânia Gomes
QAMA 35	Phlorotannins from Fucus vesiculosus: potential for prevention of diabetes and obesity, Marcelo Catarino
QI 1	Rectifying heat flows with polyoxometalate anisotropic structures, Filipa Sousa
QI 2	Optimization of the synthesis of imprinted hollow TiO₂ microspheres, Vanessa Ferreira

SALA 2 Auditório FC6 (0.29)

BB 5	Disclosing the occurrence of (β1\rightarrow3) and (β1\rightarrow4) mixed-linkage β-glucan in yeast cell wall, Ana Rita de Bastos
BB 6	Simultaneous dehydration and extraction of broccoli by-products by microwave hydrodiffusion and gravity, Sónia Ferreira
BB 7	Purification platform for monoclonal antibodies based on aqueous biphasic systems formed by glycine-betaine ionic liquids, Ana Filipa Rufino
BB 8	Nutritional and chemical characterization of fruits and stems of Lycium barbarum L., Tânia Pires
QAMA 36	Evaluation of solid-state fermentation with white-rot fungi on the nutritive value of grape stalks as herbivore feed, Valéria Costa-Silva
QAMA 37	Microencapsulação como estratégia para a compatibilização da microalga Spirulina platensis em matrizes hidrofílicas (iogurtes), Isabel Fernandes

SALA 6 FC4 (0.11)

NN 1	Temperature-switch nanomagnetic logic gates for cellular hyperthermia, Rute Pereira
NN 2	Targeting and killing the ever-challenging ulcer bug, Daniela Lopes-de-Campos
NN 3	Carbon nanodots from olive mill wastewater as sensors for nitroanilines and nitrophenols, José Prata
NN 4	Fighting bacterial resistance: a novel nanosystem for N-acetyl-cysteine (NAC) delivery, Ana Rita Pinto
NN 5	Hybrid Supercapacitors: Textiles with Energy, Joana Teixeira
NN 6	Nanoagents with CO-releasing molecules to treat rheumatoid arthritis, Andreia Marinho

SALA 7 FC4 (0.22)

QSUS 1	Metal-organic framework based materials towards sustainable processes, Luís Cunha-Silva
QSUS 2	Utilização de uma Metodologia Superfície-Resposta para Maximizar a Extração de Ácido Rosmarínico, Amílcar António
QSUS 3	Novel choline amino acids ionic liquids based aqueous two-phase systems for the purification of DNP-amino acids, Elena Gomez
QSUS 4	Valorization of wood wastes from the agro-food industry – a sustainable approach to obtain cosmeceutical products, Manuela Moreira
BB 9	Influência de ambientes lipídicos na interação de polifenóis em modelos de membranas: impacto na adstrigência oral, Ana Reis
QSUS 5	High throughput NMR methodology for ionic liquids screening: extracting polyphenols, Raquel Barrulas

Nutritional and chemical characterization of fruits and stems of *Lycium barbarum* L.

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The consumption of red berries has increased considerably in recent years. The fruits of *Lycium barbarum* L., traditionally known as goji are associated with health benefits in the liver, kidney, vision, and immune functions, but also in the circulatory system and longevity [1].

In the present study, the fruits and stems of *L. barbarum* were characterized for their nutritional profile (AOAC procedures), free sugars (HPLC-RI), fatty acids (GC-FID), organic acids (UFLC-PDA), tocopherols (HPLC-FP) and phenolic compounds (LC-DAD-ESI/MS).

Carbohydrates were the most abundant macronutrient found in fruits and stems (87 and 78.1 g/100 g dw, respectively). The stems also presented the highest levels of ash, protein and fat (9.9, 7.4 and 4.6 g/100 g dw, respectively), while the fruits had protein as the second main macronutrient (5.3 g/100 g dw), followed by fat and ash (4.1 and 3.21 g/100 g dry weight, respectively).

Glucose was the most abundant sugar found in both samples, followed by fructose and sucrose. As expected, the fruits had higher content in sugars (27.9 g/100 g dw) than the stems (1.08 g/100 g dw).

Regarding organic acids, the samples showed different profiles, while fruits revealed citric, succinic and oxalic acids (1.29, 0.77 and 0.010 g/100 g dw, respectively) as the main compounds, malic, oxalic and quinic acids (0.899, 0.65 and 0.53 g/100 g dw, respectively) were the major ones found in stems. Oxalic acid was the only common organic acid found in both samples.

Polyunsaturated fatty acids (PUFA) predominated in the fruit samples due to the presence of high levels of linoleic acid (53.4%), while in the stems saturated fatty acids (SFA) predominated with very similar percentages of palmitic (15.94%) and lignoceric (15.3%) acids.

The highest tocopherols content was determined in the stems (3.59 mg/100 g dw), mainly due to the presence of α -tocopherol (3.37 mg/100g dw).

Sixteen phenolic compounds were identified in goji fruits, while eleven compounds were detected in the stems. Quercetin-3-O-rutinoside was the major phenolic compound in stems (48 mg/g dw) and fruits (16.6 mg/g dw), followed in these latter case by *p*-coumaric acid (12.3 mg/g extract).

This study demonstrates the high potential of goji stems and fruits as sources of bioactive compounds, which could be used in nutritional formulations, or incorporated into foods with functional properties.



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[1] Pires, T.C.S.P.; Dias, M.I.; Barros L.; Calhelha, R.C.; Alves, M.J.; Santos-Buelga, C.; Ferreira, I.C.F.R. *Industrial Crops & Products*, 122 (2018) 574–581