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O Presidente da República

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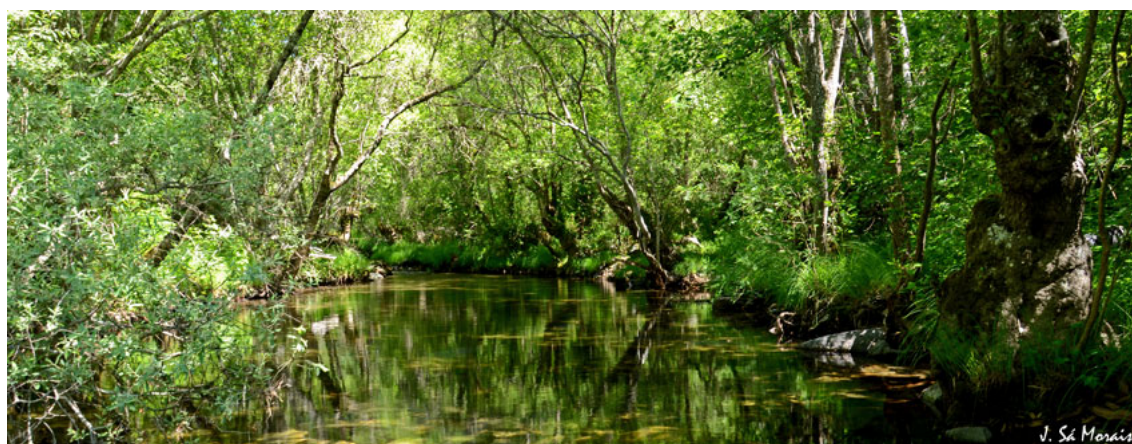
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OC-23		
Validation of a dSPE-HPLC methodology for the determination of biogenic amines in wines	40	
<i>Juliana Milheiro, Leonor C. Ferreira, Luís Filipe-Ribeiro, Fernanda Cosme, Fernando M. Nunes</i>		
OC-24		
Looking for new contributions in asthma biomarkers - a chromatographic-based approach	41	
<i>Pedro H. Berenguer, Catarina L. Silva, Irene C. Camacho, José S. Câmara</i>		
OC-25		
Gas-chromatography mass spectrometry analysis of ¹³ C-labeled fatty acids revealed new information about the ruminal biohydrogenation of linolenic acid	42	
<i>Susana P. Alves, Rui J.B. Bessa</i>		
OC-26		
Multidetecção de antibióticos em tecidos comestíveis: evolução de estratégias analíticas	43	
<i>Andreia Freitas, Ana Sofia Vila Pouca, Sílvia Barros, Jorge Barbosa</i>		
OC-27		
Chromatographic analysis of nutritional and bioactive compounds in vegetative parts of <i>Fragaria vesca</i> L. obtained by in vitro culture	44	
<i>Maria Inês Dias, Lillian Barros, Maria João Sousa, Celestino Santos-Buelga, Isabel C.F.R. Ferreira</i>		
OC-28		
Liquid by-products from canned fish industry as sources of omega-3 polyunsaturated fatty acids	45	
<i>Ana P. Carvalho, Ana Monteiro, Diogo Paquincha, Florinda Martins, Rui P. Queirós, Jorge A. Saraiva, Aleksandra Cvetanovic, Jaroslava Svarc-Gajic, Cristina Delerue-Matos</i>		
OC-29		
Fingerprinting of volatome profile of lemon (<i>Citrus limonum</i>) based on a new analytical approach - NTME/GC-MS analysis	46	
<i>José A. Figueira, Priscilla Porto-Figueira, Jorge Pereira, José S. Câmara</i>		
OC-30		
Perfil fenólico e bioatividades de maçã portuguesa da variedade "Bravo de Esmolfe"	47	
<i>Tânia C.S.P. Pires, Maria Inês Dias, Lillian Barros, Maria José Alve, Celestino Santos-Buelga, Isabel C.F.R. Ferreira</i>		
OC-31		
The volatile profile for discrimination of lavender and heather honey, using solid phase microextraction and gas chromatography-mass spectrometry	48	
<i>Soraia I. Falcão, Elsa Caveiro, Paulo Russo-Almeida, M. Carmen Seijo, Vitor Martins, Miguel Vilas-Boas</i>		
OC-32		
<i>Geranium robertianum</i> L. phenolic compounds: individual characterization of stems and leaves profile	49	
<i>Marcelo D. Catarino, Artur M.S. Silva, Susana M. Cardoso</i>		
OC-33		
Ácido 4-hidrazinobenzoico como agente derivatizante para a determinação de aldeídos por HPLC-UV e LC-MS	50	
<i>Pedro F. Brandão, Rui M. Ramos, Luís M. Gonçalves, Arnaldo A. Cardoso, Elisabete A. Pereira, José A. Rodrigues</i>		
OC-34		
Effects of natural colourants on the fatty acids profile of different ice cream formulations	51	
<i>Custódio Lobo Roriz, João C.M. Barreira, Patrícia Morales, Lillian Barros, Isabel C.F.R. Ferreira</i>		
OC-35		
High Throughput Bar Adsorptive Microextraction (HT-BA μ E): A novel cost-effective tool for monitoring psychotropic drugs in biological matrices	52	
<i>Samir M. Ahmad, J.M.F. Nogueira</i>		
OC-36		
Caracterização do perfil fenólico de agrião por HPLC-DAD-ESI/MS e otimização da extração por alta pressão hidrostática utilizando a metodologia de superfície de resposta	53	
<i>José Pinela, M.A. Prieto, Lillian Barros, Ana Maria Carvalho, M. Beatriz P.P. Oliveira, Jorge A. Saraiva, Isabel C.F.R. Ferreira</i>		
OC-37		
Polyols based solvents for the extraction of phenolic compounds from <i>Juglans regia</i> L. leaves	54	
<i>Vanessa Vieira, Miguel A. Prieto, Lillian Barros, João A.P. Coutinho, Isabel C.F.R. Ferreira, Olga Ferreira</i>		

OC-38		
Oncolytic virus purification using multi-column chromatography		55
<i>João Mendes, Ricardo J.S. Silva, Cristina Peixoto, Paula M. Alves, Manuel J.T. Carrondo</i>		
OC-39		
Effects of e-beam irradiation on bioactive content of cherry tomatoes		56
<i>Joana Madureira, Maria Cojocar, Silvia Garofalide, Pedro M.P. Santos, Fernanda M.A. Margaça, Sandra Cabo Verde</i>		
OC-40		
Otimização da extração de antocianinas de cereja madura através da metodologia de superfície de resposta		57
<i>Carla Pereira, Lillian Barros, Miguel A. Prieto, Isabel C.F.R. Ferreira</i>		
OC-41		
Efeito da radiação gama e feixe de eletrões na concentração de ergosterol em <i>Agaricus bisporus</i> (J.E. Lange) Imbach		58
<i>Ângela Fernandes, Rossana V.C. Cardoso, Amílcar L. Antonio, Sandra Cabo Verde, Lillian Barrosa, Isabel C.F.R. Ferreira</i>		
OC-42		
Optimization of the extraction of triterpenes from <i>Ganoderma lucidum</i>		59
<i>Oludemi Taofiq, Lillian Barros, Miguel A. Prieto, Maria Filomena Barreiro, Isabel C.F.R. Ferreira</i>		
OC-43		
Unveiling the chemical composition of willow added-value lipophilic extractives by gas chromatography-mass spectrometry		60
<i>Patrícia A.B. Ramos, Sónia A.O. Santos, Carmen S.R. Freire, Artur M.S. Silva, Armando J.D. Silvestre</i>		
OC-44		
Application of anti-hail net in apple orchards: effects on fruits chemical characteristics		61
<i>Carlos Martins-Gomes, Luís Pinto, Ermelinda Silva, Sandra Martins, Alexandre Gonçalves, Cátia Brito, José Moutinho-Pereira, M.A. Rodrigues, Carlos M. Correia, Fernando Nunes</i>		
OC-45		
Characterization of the volatile composition of encapsuled coffee		62
<i>Davide Mendes, Pedro Lisboa, Pedro Simões, Eduardo Mateus, Marco Gomes da Silva</i>		
OC-46		
Increased productivity in impurity profile characterization of innovative pharmaceuticals		63
<i>João Pereira, Antonio Serodio, Cátia Sousa</i>		
OC-47		
Characterization of phospholipids, including plasmalogens, in bivalves of the Portuguese coast using solid-phase extraction followed by gas-liquid chromatography		64
<i>Vera Faneca, Susana P. Alves, Rui J.B. Bessa</i>		
OC-48		
Characterization and Identification of Four Essential Oils by GC-MS		65
<i>Mariana Oliveira, Carlos Borges, Ana Patrícia Marques</i>		

PC - Panel communications / Comunicações em painel

PC1		
Optimization of an HPLC analysis to study the interactions between a <i>Saccharomyces cerevisiae</i> protein-rich extract and wine procyanidins		68
<i>Abigail F. Ferreira, Telmo Francisco, Rosa Pérez-Gregorio, Susana Soares, Nuno Mateus, Victor de Freitas</i>		
PC2		
Phenolic compounds from <i>Annona muricata</i> L.: HPLC-DAD analysis of the aqueous extract and nanoformulations		69
<i>Clara Grosso, Simona Mancini, Luca Nardo, Maria Gregori, João Bernardo, Inês Ribeiro, Francesco Mantegazza, Massimo Masserini, Cristina Delerue-Matos</i>		

OC-27

Chromatographic analysis of nutritional and bioactive compounds in vegetative parts of *Fragaria vesca* L. obtained by *in vitro* culture

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Fragaria vesca L. is mainly consumed and appreciated by its sweet small fruits. However, the vegetative parts have been described as important sources of macro and micronutrients as also phenolic compounds (procyanidins and hydroxycinnamoyl and ellagic acid derivatives) [1,2]. The growing demand for natural products with nutritional value and, simultaneously, bioactive properties requires innovation in how to obtain these products, namely protecting the wild populations from where they are collected avoiding direct competition with human food stuff cultures [3]. Cell and tissue culture emerges as viable technique to produce secondary metabolites, being a sustainable and ecological alternative to obtain bioactive compounds that can be applied in pharmaceutical/medical and/or food industry (endorsed by FAO) [5]. Herein, the vegetative parts of *F. vesca* were obtained by *in vitro* culture and characterized in terms of macronutrients (AOAC methods), fatty acids (GC-FID), sugars (HPLC-RI), organic acids (HPLC-DAD), tocopherols (HPLC-Fluorescence), and phenolic compounds (HPLC-DAD-ESI/MS). The antioxidant activity was also evaluated. The studies were carried out with lyophilized material and hydromethanolic and aqueous (infusions and decoctions) extracts. In order to establish the *in vitro* culture, a four week interval was followed for micropropagation. In each one, the vegetative parts were collected and characterized, presenting higher contents of proteins, fatty acids, sugars, organic acids (including ascorbic acid) and tocopherols (mainly α -tocopherol) than the samples obtained from wild vegetative parts collected in field and previously studied by our research group [2]. Furthermore, the hydromethanolic extracts of the obtained *in vitro* samples also revealed higher antioxidant activity than the *F. vesca* samples collected in field [4]. On the contrary and despite the similarity between the phenolic profile of both samples, lower concentrations were detected in the *in vitro* cultured *F. vesca*. Further studies are required to understand how to increase the concentration of phenolic compounds by elicitation of the *in vitro* culture. Within this work, it was intended to explore the *in vitro* culture as a biotechnological tool for the obtention of high value phytochemicals with application in different industrial sectors.

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