



10º Encontro Nacional de Cromatografia

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COM O ALTO PATROCÍNIO DE SUA EXCELÊNCIA



O Presidente da República

Title

10th Chromatography Meeting

Título

10º Encontro de Cromatografia

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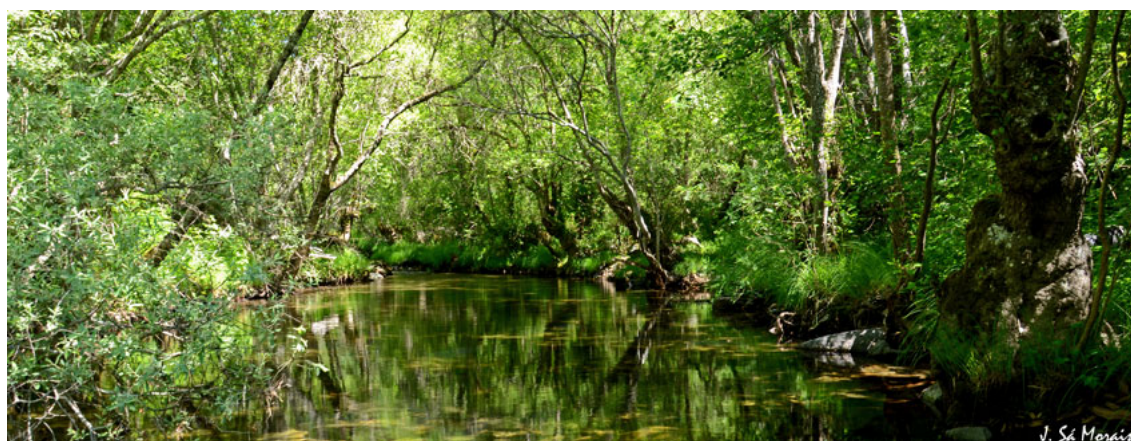
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Time		December 6	
Moderator / Moderador - Auditorium Dionísio Gonçalves			
Manuel António Coimbra (Universidade de Aveiro)			
9:00-10:00	PL-03	Comprehensive two-dimensional liquid chromatography in food and natural products analysis Paola Dugo Università di Messina, Itália	
10:00-10:30	IC-05	Separation and concentration of nutraceuticals, active compounds and essential oils from Agro-Food sources using supercritical carbon dioxide Juan Francisco Rodríguez TQUIMA, Espanha	
10:30-11:00		• Coffee Break + Poster session	
Moderator / Moderador - Auditorium Dionísio Gonçalves			
Alírio Rodrigues (LSRE/LCM, Faculdade de Engenharia, Universidade do Porto)			
11:00-12:00		Oral session VIA / Sessão Oral VIA	
OC-41		Efeito da radiação gama e feixe de eletrões na concentração de ergosterol em <i>Agaricus bisporus</i> (J.E. Lange) Imbach Ângela Fernandes	
OC-42		Optimization of the extraction of triterpenes from <i>Ganoderma lucidum</i> Miguel Angel Prieto	
OC-43		Unveiling the chemical composition of willow added-value lipophilic extractives by gas chromatography-mass spectrometry Patrícia Ramos	
OC-44		Application of anti-hail net in apple orchards: effects on fruits chemical characteristics Carlos Gomes	
Moderator / Moderador - Auditorium B			
José Câmara (Universidade da Madeira)			
11:00-12:00		Oral session VIB / Sessão Oral VIB	
OC-45		Characterization of the volatile composition of encapsuled coffee Daive Mendes	
OC-46		Increased productivity in impurity profile characterization of innovative pharmaceuticals João Pereira	
OC-47		Characterization of phospholipids, including plasmalogens, in bivalves of the Portuguese coast using solid-phase extraction followed by gas-liquid chromatography Rui Bessa	
OC-48		Characterization and Identification of Four Essential Oils by GC-MS Ana Marques	
Moderator / Moderador - Auditorium Dionísio Gonçalves			
Luís Pais (Instituto Politécnico de Bragança)			
12:00-12:30	EC-05	Successful generic approaches for heartcutting 2DLC with focus on user friendliness Isabelle François Waters	
12:30-13:00		Closing Session / Sessão de Encerramento	

OC-44

Application of anti-hail net in apple orchards: effects on fruits chemical characteristics

Carlos Martins-Gomes^a, Luís Pinto^b, Ermelinda Silva^b, Sandra Martins^b, Alexandre Gonçalves^b, Cátia Brito^b, José Moutinho-Pereira^b, M. A. Rodrigues^c, Carlos M. Correia^b, Fernando Nunes^a

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Apple production in Portugal, over the last 15 years, has been subjected to increasing crop damage due to hailstorms and related meteorological extreme conditions. This problem has led farmers and researchers to find practical solutions to protect the orchards, such is the case of netting devices. The application of anti-hail nets in apple tree orchards looks to provide protection against the roughest meteorological events (such as hail, strong winds, and sunburn), while avoiding to upset the development of the plant and or, if possible, helping to improve the plant's productivity.

During 2016, this work was carried out in Carrazeda de Ansiães, a northeast Portuguese plateau zone that is a primary location for apple production, and the application of a grey anti-hail net, which reduces photosynthetically active radiation by 12 %, was tested in an orchard with the cultivars Golden delicious and Fuji of apple tree (*Malus domestica* Borkh). Control without screen net applied was also used. In order to understand the effects of the net, apples were collected and analysed for their chemical characteristics (total phenols, *ortho*-diphenols and flavonoids content, ABTS and polyphenolic profile).

The obtained results in apple peel revealed, in both cultivars, a decrease in total phenols, *ortho*-diphenols and flavonoids concentration, whereas in the Fuji cultivar the antioxidant activity, determined by the ABTS assay, was maintained. Pulp results showed little difference with lower ($P < 0.001$) *ortho*-diphenols content in Fuji cultivar and slightly lower ($P < 0.05$) ABTS activity in Golden delicious cultivar. Peel and pulp methanolic extracts were analysed by HPLC-DAD. The phenolic profile was similar for both cultivars, with the exception of anthocyanins, being identified chlorogenic acid and derivatives of quercetin. The anti-hail net did not affect the phenolic profile, only decreased the polyphenols concentration.

The use of a grey anti-hail net on apple orchards is a suitable alternative for the protection of apple trees against hail ensuring the production of the crop without compromising fruit quality.

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