



# 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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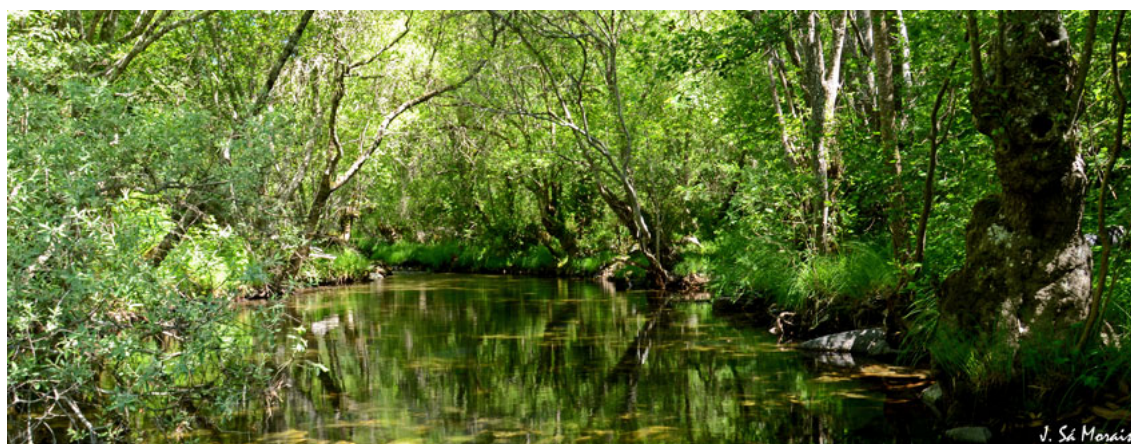
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Time		December 5	
<b>Moderator / Moderador - Auditorium Dionísio Gonçalves</b>			
<b>Marcela Segundo</b> (Universidade do Porto)			
9:00-10:00	PL-02	<b>Green Foodomics: new strategies towards the discovery of functional food ingredients with biological activity</b> <b>Elena Ibanez</b> Institute of Food Science Research – CIAL, Espanha	
10:00-10:30	IC-03	<b>Multicolumn Continuous Countercurrent Chromatography for Downstream Processing of Biopharmaceuticals</b> <b>Paulo Mota</b> University Nova de Lisboa, Portugal	
10:30-11:00		<ul style="list-style-type: none"> <li>Coffee Break + Poster session</li> </ul>	
<b>Moderator / Moderador - Auditorium Dionísio Gonçalves</b>			
<b>M. Beatriz Oliveira</b> (Universidade do Porto)			
<b>11:00-12:30</b>	<b>Oral session IIIA / Sessão Oral IIIA</b>		
OC-15		<b>Selective capillary coatings for in-tube SPME off-line or on-line with LC-MS/MS for bioanalysis</b> <b>Israel Souza</b>	
OC-16		<b>Preparative separation of nadolol racemates by fixed-bed liquid chromatography using C18 columns</b> <b>Rami Arafah</b>	
OC-17		<b>Hollow fiber microextraction (HF<math>\mu</math>E) - A new hybrid microextraction technique for trace analysis</b> <b>Alessandra Ide</b>	
OC-18		<b>Tape Adsorptive Microextraction - A new analytical approach for sample enrichment</b> <b>Nuno Neng</b>	
OC-19		<b>Multidimensional chromatographic techniques applied to chemical ecology</b> <b>Eduardo Mateus</b>	
OC-20		<b>Síntese de fase estacionária monolítica e posterior imobilização térmica de polidimetilsiloxano (PDMS) sobre a superfície porosa para aplicação em cromatografia líquida capilar</b> <b>Carla Bottoli</b>	
<b>Moderator / Moderador - Auditorium B</b>			
<b>Helena Soares Costa</b> (Instituto Nacional de Saúde Dr. Ricardo Jorge)			
<b>11:00-12:30</b>	<b>Oral session IIIB / Sessão Oral IIIB</b>		
OC-21		<b>Permeation of caffeine, CQA and HMF from Coffee silverskin extracts on EpiSkin™ 3D model</b> <b>Diana Pinto</b>	
OC-22		<b>NTME/GC-qMS: a powerful strategy for selection sets of cancer-specific VOMs with potential for cancer differentiation</b> <b>Priscilla Figueira</b>	
OC-23		<b>Validation of a dSPE-HPLC methodology for the determination of biogenic amines in wines</b> <b>Juliana Ferreira</b>	
OC-24		<b>Looking for new contributions in asthma biomarkers - a chromatographic-based approach</b> <b>José Câmara</b>	

OC-07		
	<a href="#">Avaliação da qualidade do ar em espaços de um edifício de ciências</a>	24
	<i>Sara Santos, J.M.F.Nogueira, Cristina Oliveira</i>	
OC-08		
	<a href="#">Engineered polymer particles for the valorization of phenolic compounds present in mixtures obtained through supercritical extraction</a>	25
	<i>Catarina P. Gomes, Gayane Sadoyan, Rolando C.S. Dias, Mário Rui P.F.N. Costa</i>	
OC-09		
	<a href="#">Thermostability studies of oil-soluble cyanidin-3-glucoside dyes</a>	26
	<i>Marta Guimarães, Nuno Mateus, Victor Freitas, Luís Cruz</i>	
OC-10		
	<a href="#">Adsorption equilibrium and kinetics of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub> on zeolite BETA with different cations and SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> ratio</a>	27
	<i>Adriano Henrique, José A.C. Silva, Alírio E. Rodrigues</i>	
OC-11		
	<a href="#">Seawater degradation studies of gallic acid persulfate, a promising synthetic antifouling agent</a>	28
	<i>Cátia Vilas-Boas, Sara Cravo, Emília Sousa, Madalena Pinto, Marta Correia-da-Silva</i>	
OC-12		
	<a href="#">BeerOmics: how can advanced gas chromatography help to understand beer aroma properties?</a>	29
	<i>Cátia Martins, Tiago Brandão, Adelaide Almeida, Sílvia M. Rocha</i>	
OC-13		
	<a href="#">Phenolic composition, antioxidant and biological activities of Portuguese vine shoot from <i>Touriga Nacional</i> and <i>Tinta Roriz</i> varieties</a>	30
	<i>Manuela M. Moreira, M. Fátima Barroso, João Vasconcellos Porto, M.J. Ramalhosa, Jaroslava Švarc-Gajić, Leticia Estevinho, Simone Morais, Cristina Delerue-Matos</i>	
OC-14		
	<a href="#">Caracterização química e bioatividades de <i>Hibiscus sabdariffa</i> L.</a>	31
	<i>Inês Jabeur, Eliana Pereira, Lillian Barros, Ricardo C. Calhelha, Marina Soković, Isabel C.F.R. Ferreira</i>	
OC-15		
	<a href="#">Selective capillary coatings for in-tube SPME off-line or on-line with LC-MS/MS for bioanalysis</a>	32
	<i>Israel Donizeti de Souza, Maria Eugênia Costa Queiroz</i>	
OC-16		
	<a href="#">Preparative separation of nadolol racemates by fixed-bed liquid chromatography using C18 columns</a>	33
	<i>Rami S. Arafah, António E. Ribeiro, Alírio E. Rodrigues, Luís S. Pais</i>	
OC-17		
	<a href="#">Hollow fiber microextraction (HF<math>\mu</math>E) - A new hybrid microextraction technique for trace analysis</a>	34
	<i>Alessandra H. Ide, J.M.F. Nogueira</i>	
OC-18		
	<a href="#">Tape Adsorptive Microextraction - A new analytical approach for sample enrichment</a>	35
	<i>Nuno R. Neng, Samir M. Ahmad, José M.F. Nogueira</i>	
OC-19		
	<a href="#">Multidimensional chromatographic techniques applied to chemical ecology</a>	36
	<i>Eduardo Mateus, Sofia Branco, Davide Mendes, Marco Gomes da Silva, Maria Rosa Paiva</i>	
OC-20		
	<a href="#">Síntese de fase estacionária monolítica e posterior imobilização térmica de polidimetilsiloxano (PDMS) sobre a superfície porosa para aplicação em cromatografia líquida capilar</a>	37
	<i>Fabiane Pires, Carla Beatriz Grespan Bottoli</i>	
OC-21		
	<a href="#">Permeation of caffeine, CQA and HMF from Coffee silverskin extracts on EpiSkin™ 3D model</a>	38
	<i>Francisca Rodrigues, Diana Pinto, Filipa B. Pimentel, Rita C. Alves, M. Beatriz P.P. Oliveira</i>	
OC-22		
	<a href="#">NTME/GC-qMS: a powerful strategy for selection sets of cancer-specific VOMs with potential for cancer differentiation</a>	39
	<i>Priscilla Porto-Figueira, Jorge Pereira, José S. Câmara</i>	

## OC-16

# Preparative separation of nadolol racemates by fixed-bed liquid chromatography using C18 columns

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Nadolol is a non-selective beta-adrenergic antagonist pharmaceutical drug. This class of pharmaceutical drugs is prescribed mainly, to treat arrhythmias, angina pectoris, hypertension, migraine disorders and for tremor. Nadolol drug is still marketed as a mixture of equal amounts of four stereoisomers. Some authors refer that this fact could be related to some severe risks, such as depression, insomnia, cardiovascular failure among others [1].

An extensive set of experimental results for the separation of nadolol racemates using different achiral C18 columns, such as, XBridge, XBridge Shield RP18, XSelect CSH will be presented: Screening of mobile phase composition, solubility of nadolol racemates using different pure solvents and solvent mixtures, pulses under analytical and preparative conditions, equilibrium adsorption isotherms and breakthrough measurements. Additionally, experimental results will include the preparative separation by fixed-bed chromatography using an Azura Prep LC unit equipped with two 250 mL/min pump heads and a XBridge Prep OBD C18 10 µm (250x30 mm) column with a 10 µm particle size diameter [2].

Experimental results presented in this work will stress the advantage of using an intermediate step based on achiral reversed-phase liquid chromatography to perform the separation of the two racemates of nadolol. After this preparative pseudo-binary separation, two binary separations of the two racemates must be performed using a chiral stationary phase, such as Chiralpak IA to achieve the complete separation of all the four stereoisomers of nadolol. These two final preparative separations can be carried out using both fixed-bed or simulated moving bed technologies.

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[1] J. McCarthy, *J. Chromatogr. A* 685 (1994) 349.

[2] R.S. Arafah, A.E. Ribeiro, A.E. Rodrigues, L.S. Pais, *XXII Encontro Luso-Galego de Química, Bragança, Portugal, 2016, QIE9.*