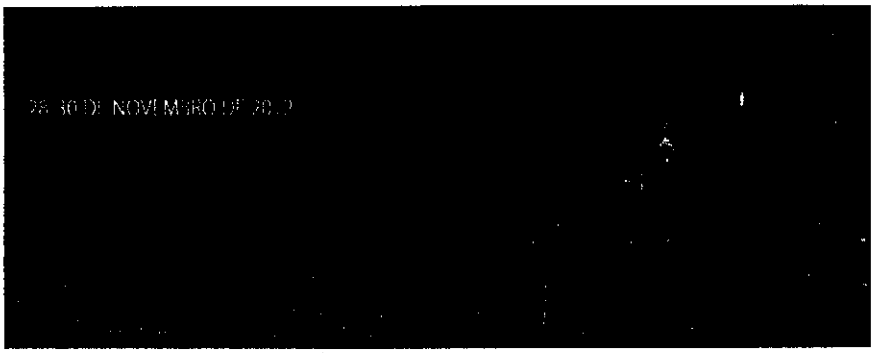
XVIII ENCONTRO LUSO-GALEGO DE QUÍMICA

Universidade de Trás-os-Montes e Alto Douro
Vila Real, 28-30 de novembro de 2012
Portugal



SOCIEDADE PORTUGUESA DE QUÍMICA

Químicos de Galicia

ASOCIACIÓN DE QUÍMICOS DE GALICIA

XVIII ENCONTRO LUSO GALEGO DE QUÍMICA

Editores: José Alcides Peres (coordenador), Marco Sousa Lucas, Pedro Bandeira Tavares

Sociedade Portuguesa de Química
Av. da República, 45 - 3ºEsq
1050-187 Lisboa
Portugal
http://www.spq.pt/
Tel.: 21 793 4637

Impressão: Minfo Gráfica, Vila Real
Foto de capa: João Carrola

Depósito legal:351984/12

Catalogação recomendada: Livro de resumos do XVIII Encontro Luso Galego de Química

Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal, 2012, 255 páginas

ISBN: 978-989-97667-5-4

Tiragem: 250 exemplares

Programa Científico

28 de novembro - Quarta-feira				
9:00 - 11:30	Entrega de documentação e afixação de painéis			
Sala	**Aula Magna**			
11:30 - 12:10	Sessão de abertura e boas-vindas			
Chairperson **Sala**	**José Luis Figueiredo** **Aula Magna**			
12:10 - 13:00	**PL 1 – Gianluca Li Puma**, Departamento de Engenharia Química, Universidade de Loughborough, Inglaterra *Semiconductor photocatalysis and photoreaction engineering for environmental and renewable energy applications*			
13:00 - 15:00	**Almoço**			
Chairperson **Sala**	**Baltasar Romão de Castro** **Aula Magna**			
15:00 - 15:50	**PL 2 – Juan Mogín del Pozo,** Colégio Oficial de Químicos de Galícia *Presente y futuro del papel de la química en el tratamiento de los residuos*			
Chairperson **Salas**	**Comunicações Orais**	**Auditório 1**	**Auditório 2**	**Auditório Geociências**
15:50 - 16:40		Química e Energia	Química Alimentar	Química Ambiental
	15:50 - 16:05	ENER-1	AMA-1	AMB-1
	16:05 - 16:20	ENER-2	AMA-2	AMB-2
	16:20 - 16:35	ENER-3	AMA-3	AMB-3
	16:35 - 16:40	*Discussão*	*Discussão*	*Discussão*
16:40 - 17:00	**Café, discussão de painéis e *wine party***			
17:00 - 18:40		Química Fundamental	Química e Saúde	Química Industrial
	17:00 - 17:15	F-1	SAU-1	IND-1
	17:15 - 17:30	F-2	SAU-2	IND-2
	17:30 - 17:45	F-3	SAU-3	IND-3
	17:45 - 17:50	*Discussão*	*Discussão*	*Discussão*
	17:50 - 18:05	F-4	SAU-4	IND-4
	18:05 - 18:20	F-5	SAU-5	IND-5
	18:20 - 18:35	F-6	SAU-6	IND-6
	18:35 - 18:40	*Discussão*	*Discussão*	*Discussão*
18:40 – 19:30	**Discussão de painéis e *wine party***			
29 de novembro - Quinta-feira				
Chairperson **Sala**	**Antonio Macho** **Aula Magna**			

IND-03

Methodologies for the separation of chiral drugs by liquid chromatography: *from analytical to preparative scale*

A.E. Ribeiro[a,*], A.E. Rodrigues[b] and L.S. Pais[a]

[a,*]*Laboratory of Separation and Reaction Engineering, School of Technology and Management, Polytechnic Institute of Bragança, Campus de Santa Apolónia, Apartado 1134, 5301-857 Bragança, Portugal*

[b]*Laboratory of Separation and Reaction Engineering, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias s/n, 4200-465 Porto, Portugal*

In the last decades, direct resolution of enantiomers by liquid chromatography using chiral stationary phases (CSPs) has been a very popular technique. Due to the development of new and more stable CSPs and also by exploring and developing new and more efficient modes of operation, the use of chiral liquid chromatography, from the analytical scale through high-performance liquid chromatography (HPLC) to the preparative and industrial scales through simulated moving bed (SMB) technology, has gained a renewed interest.

The chiral separation process is a complex task, governed by several interactions between the chiral solutes, the solvent and the chiral stationary phase. Optimization of these interactions involves the selection of the proper combination that allows the better separation performance. However, a "better" separation has a very different mean if we have an analytical or a preparative point of view. While at an analytical scale, the main goal is to achieve high resolutions, at a preparative and industrial scale, the goal is normally to perform economic attractive separations. In other words, and among others, is to have high productivities, high purities, low solvent consumption and, if possible, solvent recovery and recycling. Considering these differences, it is not surprising that, for the same separation, a given solvent composition will be a good choice at the analytical scale but will not be the better solution for the preparative and industrial process.

This work will present the methodologies for the separation of chiral drugs by liquid chromatography at both analytical and preparative scales, developed in the last years by the LSRE group. This includes the screening of mobile phase composition, the measurement of solubilities and equilibrium adsorption data, fixed bed (breakthroughs) experiments and the design strategies and experimental operation of preparative and SMB separation processes. Simulation and experimental results will be presented for different case studies, namely the separation of non-steroidal anti-inflammatory drugs (the separation of ketoprofen and flurbiprofen enantiomers) and an antihypertensive drug (the separation of nadolol stereoisomers).[1-5]

Acknowledgements

Financial support by the Portuguese R&D foundation FCT (Fundação para a Ciência e a Tecnologia) and European Community through FEDER (project PTDC/EQU-EQU/119025/2010), is gratefully acknowledged.

References

[1] Ribeiro, A.; Graça, N.; Pais, L.; Rodrigues, A.; *Sep Pur Technol* 2008, 61, 375-383.
[2] Ribeiro, A.; Graça, N.; Pais, L.; Rodrigues, A.; *Sep Pur Technol* 2009, 68, 9-23.
[3] Ribeiro, A.; Sá Gomes, P.; Pais, L.; Rodrigues, A.; *Sep Sci Technol* 2011, 46, 1726-1739.
[4] Ribeiro, A.; Sá Gomes, P.; Pais, L.; Rodrigues, A.; *Chirality* 2011, 23, 602-611.
[5] Ribeiro, A.; Rodrigues, A.; Pais, L.; *Chirality* 2012 (accepted).