

## CO27. Choosing the right solvent for preparative liquid chromatography

*António E. Ribeiro<sup>a,\*</sup>, Nuno S. Graça<sup>b</sup>, P. Sá Gomes<sup>b</sup>, Luís S. Pais<sup>a</sup> and Alírio E. Rodrigues<sup>b</sup>*

<sup>a</sup>Laboratório de Separação e Reacção, Laboratório Associado LSRE/LCM, Escola Superior de Tecnologia e Gestão, Instituto Politécnico de Bragança, Portugal, <sup>b</sup>Laboratório de Separação e Reacção, Laboratório Associado LSRE/LCM, Faculdade de Engenharia da Universidade do Porto, Portugal

\*aribeiro@ipb.pt

A chromatographic system is based on mutual interactions between the different molecules of solute, stationary phase and solvent. Optimization of these interactions involves the selection of the proper combination that allows the better separation of all analytes. 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, lower solvent consumption and if possible recover and recycle the solvent. Considering these differences, it is not surprising that for the same separation, a given solvent will be a good choice at the analytical scale but will not be appropriate for the preparative separation.

In this work we pretend to clear demonstrate that the choice of the proper solvent is crucial for both analytical and preparative separations. The work developed in the last years by the LSRE group will be described with three real optimization case-studies: two non-steroidal anti-inflammatory drugs (the separation of ketoprofen and flurbiprofen enantiomers) and one antihypertensive drug (the separation of nadolol stereoisomers).

- [1] A. Ribeiro, N. Graça, L. Pais and A. Rodrigues, *Sep Pur Technol*, 2008, 61, 375-383
- [2] A. Ribeiro, N. Graça, L. Pais and A. Rodrigues, *Sep. Pur. Technol*, 2009, 68, 9-23
- [3] A. Ribeiro, P. Sá Gomes, L. Pais and A. Rodrigues, *Sep. Sci. Technol*, 2011, 46:11, 1726-1739
- [4] A. Ribeiro, P. Sá Gomes, L. Pais and A. Rodrigues, *Chirality*, 2011, 23: 602-611
- [5] A. Ribeiro, P. Sá Gomes, L. Pais and A. Rodrigues, *Chempor* 2011, Lisboa, 5-7 Setembro, 2011