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Publisher *Taylor & Francis*

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Journal of Liquid Chromatography & Related Technologies

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713597273>

Introduction

To cite this Article (1991) 'Introduction', Journal of Liquid Chromatography & Related Technologies, 14: 16, xv — xvi

To link to this Article: DOI: 10.1080/01483919108049373

URL: <http://dx.doi.org/10.1080/01483919108049373>

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INTRODUCTION

In recent years optimization of the mobile phase has become one of the most important topics for analytical and preparative column and planar liquid chromatography. In 1988 the Editor of the Journal of Liquid Chromatography decided to produce a special issue [Volume 12, No 1 & 2 (1989)] dealing with "*Optimization of Mobile Phase*". Because of the positive reaction to that first special issue, we have decided to issue a second on the same topic.

This issue begins with a paper on mixed mobile phases in supercritical fluid chromatography by Küppers, Schmitz and Klesper, showing the extreme importance of mobile phase optimization for this separation technique also. In the second paper Wiggins has summarized the system suitability in an optimized HPLC system.

The paper of Petrovic and Spika deals with the effect of the mobile phase on solute retention. The next two studies describe the use of computer aided techniques for the solution of problems which the chromatographer is not yet able to resolve by the practice of his science; the papers describe the use of computers for automatic peak identification and a mixture design simplex method. The two following articles cover systems employing a ternary and iso-selective gradient elution.

In the next two papers Valkó and Sléger, and Vuorela, Lehtonen, and Hiltunen discuss the highly interesting subjects of molecular modelling for mobile phase optimization and the influence of molecular structure on HPLC mobile phase optimization. The last two articles of the issue present aspects of mobile phase optimization in planar chromatography. In the study of Rózylo and Janicka a thermodynamic description of optimization in liquid-solid chromatography is given. The paper of Coenegracht et al. deals with the optimization of quaternary mobile phase for TLC separations by mixture design and response surface modelling.

Although the problem of the mobile phase optimization is not yet solved, this special issue demonstrates that many analysts are working on the topic. Let us hope that computer aided mobile phase optimization has brought us a step nearer. I would like to thank to the authors and the Editor for the opportunity to help achieve this aim.

Szabolcs Nyiredy