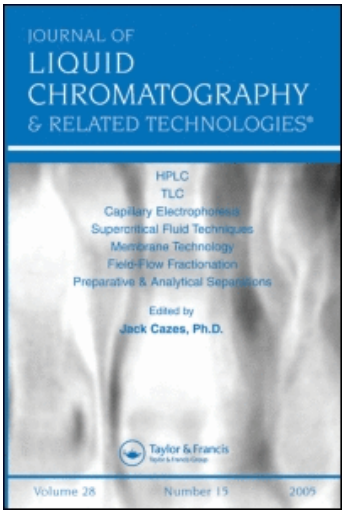

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Introduction

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INTRODUCTION

It has been almost two years since the first Special Issue on countercurrent chromatography (CCC), containing 13 research papers, appeared in this journal (Volume 7, Number 2, 1984). The readers' response, as measured by numerous inquiries and several hundred requests for reprints of papers, was overwhelming. As a result of increased recognition of and greater support for CCC applications, the Journal has decided to publish another Special Issue, which is now in your hands. Since its inception, the Journal has been periodically publishing such issues on subjects of special interest. In our opinion, these special issues serve two purposes: (1) To bring the reader up-to-date on the state of the art in the scientific and technological advances, and (2) To review progress in the newly and rapidly developing fields of liquid chromatography.

Special issues, especially those dealing with progress in newly emerging fields like CCC, provide in one place relevant information which would otherwise be scattered in different journals, so that the reader may more conveniently evaluate the impact of new technology and utilize its applications to his area of specialization.

A number of scientific events have taken place since 1984 in the field of countercurrent chromatography:

1. Several papers emphasizing advances in instrumentation and applications were presented at the 1985 Pittsburgh Conference;

2. A symposium was presented in May 1985 at the ACS National meeting in Miami Beach;

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3. Reviews appeared in Analytical Chemistry and LC Magazine;

4. Several CCC instruments, including the Ito Multi-Layer Coil Planet Centrifuge (by P.C., Inc.), the Centrifugal Countercurrent Chromatograph (by Sanki Engineering Co.), the Droplet Countercurrent Chromatograph (by Buchi), and the Droplet and Rotation Locular Countercurrent Chromatographs (by Tokyo Rikikai Ltd.), are now commercially available.

Since commercial instruments became available, many laboratories are using CCC for the separation of both micro- and macromolecules, and for the analysis of complex mixtures. As noted elsewhere in this issue, the advantages of CCC are:

1. No limitation on molecular size. CCC is applicable both to micro- and to macro-molecules. It is especially useful for the separation of natural products, biopolymers, blood particles, and cells.

2. Elimination of solid support. Because the technique avoids solid supports in the column, it is especially useful for sensitive compounds and those strongly adsorbed on solid supports.

3. No limitation on sample size. CCC is applicable both to analytical and to preparative work.

4. Easy operation and practically no maintenance. A profound knowledge of CCC theory is not required, and new expenses are not generated by routine operation of the CCC instrument.

When the first special issue on CCC appeared, the emphasis was on its separative capabilities. This issue records advances in the separation of isomeric compounds and closely related analogues. A new major thrust, speed of separation, appears in several papers.

One deals with the interfacing of CCC to FT-IR, paving the way for more advances in tandem (hyphenated) methods. Another treats the theoretical aspects of CCC. Clearly, the rate of development is accelerating.

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