

## Foreword

This year, the chromatographic community celebrates the 30th anniversary of the legendary Pretorius' paper "Electroosmosis—A new concept for high-speed liquid chromatography" published in this journal in 1974 [1]. Obviously, this anniversary was a good reason for the preparation of a thematic issue entirely dedicated to this separation method, which is now adding an extra dimension to the current separation science.

The major innovation in electrochromatography is the complete or at least a partial replacement of the pressurized flow of the mobile phase typical of HPLC with a flow driven by electroosmosis. This increases the column efficiency that may then significantly exceed that of the same column run in the purely HPLC mode. The repertoire of separation mechanisms in capillary electrochromatography (CEC), which begun with the "classical" reversed phase, has recently been extended to normal phase, ion exchange, and even size exclusion. CEC is also opening new horizons in the separation of proteins and peptides and may become a desired tool in the currently burgeoning proteomic research.

The start of the boom in electrochromatography in general, and in its capillary version in particular dates back to mid 1990s. This new technique attracted worldwide a significant number of groups that carried out research in this field. The "gold rush" peaked in the year 2000 with 337 entries concerning capillary electrochromatography found in *Chemical Abstracts*. This decade is characterized with a slight decrease in the overall number of published papers approaching a steady state at about 250 annual entries. This number is still significant and represents another reason that justifies the preparation of a thematic issue of *Journal of Chromatography A*.

The only special issue of this journal fully dedicated to CEC so far was Volume 887 edited by late Csaba Horváth and published in the year 2000. However, a large extent of knowledge has been acquired since publication of this volume and a number of nuances and "spin offs" developed that certainly deserve the update. Pesek claimed recently "... the key to the future of CEC lies in column technology" [2]. I agree with this statement completely. Therefore, the development in the column technologies such as the open-tubular approaches, organic polymer monoliths, sol-gels, molecularly imprinted, and polymeric pseudostationary phases are the major themes of review articles written by leading scientists in the respective areas and this topic is also highlighted in many other contributions. The other reviews presented here cover recent advances in planar electrochromatography, electrochromatography in microfluidic chips, separations of compounds with a major importance such as proteins and peptides, size exclusion CEC, hyphenation with MS, as well as mechanisms underlying the enormous plate numbers observed in some studies. In addition to these articles reviewing specific areas, scientists active in the field of electrodriven separations contributed to this issue with 17 excellent papers demonstrating their recent work. I hope that the readers will find this issue interesting.

### References

- [1] V. Pretorius, B.J. Hopkins, J.D. Schieke, *J. Chromatogr.* 99 (1974) 23.
- [2] J.J. Pesek, *J. Sep. Sci.* 27 (2004) 261.

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