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## Foreword

Chromatography and CE are important tools in forensic and clinical toxicology. This Special Volume covers the recent advantages in new analytical techniques and in analysis of toxicologically relevant compounds in conventional as well as in alternative matrices.

Since numerous papers on the application of LC-MS and CE in forensic and clinical toxicology have been published in the last few years, they are critically reviewed here. Solid-phase extraction procedures as well as derivatization procedures are very important prerequisites for (GC-MS) determination of xenobiotics in biosamples. When reading new papers on analytical toxicology, I often have the impression that the only novelty therein is the use of another SPE column or another derivatization reagent. However, the real advance is often not discussed. Therefore, two reviews critically discuss the pros and cons.

Drugs of abuse testing is one of the most important tasks in forensic and clinical toxicology. Depending on the toxicological problem to be solved and/or the availability of the biosample different samples must be analyzed. However, advances in analytical methods are prerequisites to develop procedures for drug testing in blood or alternative matrices like hair, sweat, saliva or meconium. Corresponding reviews discuss not only the analytical aspects but also the possibilities and limits of the pharmacokinetic and/or toxicological interpretation of the analytical result. Nevertheless, papers on toxicological analysis in the "classical" matrix urine are dealt with in most of the other reviews.

In addition to the reviews on drug testing in different matrices, reviews on amphetamine-derivatives, LSD, and benzodiazepines are included. A

review on amphetamine-derived designer drugs or medicaments in blood and urine is necessary, because most of the papers on drugs of abuse testing (at the workplace) cover only amphetamine and methamphetamine as target analytes. The determination of LSD in biosamples, it being a special analytical challenge in clinical and forensic toxicology, is reviewed in a separate article. Papers on the determination of the often misused benzodiazepines are also reviewed here. Toxicological analysis may lead to severe clinical and/or forensic consequences, so that the quality must strictly be controlled as discussed in the corresponding review.

Alcohol is the most frequently abused "drug" with severe consequences to society. The determination of ethanol itself is only possible for a relatively short time after ingestion. So-called alcoholism markers can be determined for the evidence of alcohol abuse.

The reviews are preceded by a short overview of the corresponding toxicological problems for readers who are not familiar with the particular field of toxicology. Whenever possible, the procedures are summarized in Tables that contain all the data relevant to the analysis. Typical analytical examples are explained using Figures taken from the corresponding papers. Since analytical toxicology is a "living science", a section on Perspectives for future developments closes the reviews.

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