

Book Review

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Nachweis von DNA-Addukten in Oligonukleotiden mittels Kapillarzonenlektrophorese und Massenspektrometrie

DUV Deutscher Universitätsverlag, Wiesbaden, 1996. Paperback, 121 pp. Price: DM 48. ISBN 3 8244 2073 2.

When I first saw the title of this small book, I was enthusiastic: I expected a competent survey of one of the most exciting fields in modern mass spectrometry, viz. the exact proof of alterations in DNA by (suspected) carcinogenic or mutagenic compounds. However, while reading on my enthusiasm quickly waned. The title promises far more than the text offers. What one gets is the printed version of a PhD thesis (this was confirmed by the advisor whom I happened to know): following the style of a German thesis, a short introductory chapter (8 pages) gives a survey of the methods used for the analysis of DNA adducts (immunoassay

and ^{32}P labelling) and of the various mass spectrometric techniques (EI, CI, FD, plasma and laser desorption, GC/MS and LC/MS coupling) with literature references for their applications to the analysis of DNA and its constituents. Then the goal of the thesis is stated: construction of a capillary zone electrophoresis (CZE) apparatus which could be used for MS coupling, selection and optimization of suitable separation methods, and preliminary investigations of DNA reactions with styrene oxide as a model substance.

Chapter 2 (4 pages) describes briefly the instruments available to the author. Chapter 3 (18 pages) gives an introduction to CZE and reports the construction of a home-made instrument. Chapters 4 (10 pages) and 5 (21 pages) deal with FAB and ESI mass spectrometry and the attempts of the author to combine them with his CZE apparatus. Finally, Chapter 6 (38 pages) surveys the toxicology and metabolism of styrene and its interactions with DNA. This is

followed by some results obtained with enzymatically degraded calf thymus DNA and *in vitro* interactions with styrene oxide. Adduct formation could be demonstrated.

In summary, the construction of a CZE/MS combination is described and its potential for the investigation of mono- and oligonucleotides with respect to the analysis of styrene adducts is demonstrated. The publication may be of interest to persons who intend to build their own CZE/MS systems; they will find some useful experimental details. Those interested in the title topic in a more general way should resort to one of the recent review articles on CZE/MS and on the MS of altered DNA.

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