ELSEVIER

Journal of Chromatography A, 777 (1997) 385–386

JOURNAL OF CHROMATOGRAPHY A

Book review

Steroid Analysis, edited by H.L.J Makin, D.B. Gower and D.N. Kirk; Blackie Academic & Professional (Chapman and Hall), London, Glasgow, Weinheim, 1995, XVIII+718 pp., price £145.00.

To my knowledge the most recent comprehensive book published on steroid analysis was edited by Heinz Breuer, Daisy Hamel and Hans Ludwig Krüskemper (Georg Thieme and John Wiley 1976). The book *Methods of Hormone Analysis* described every detail of modern methods in steroid analysis. The series of the books edited by Sandor Görög *Advances in Steroid Analyses* published from the Hungarian conferences with the same name in 1981, 1984, 1987, 1990 and 1993 (Akadémiai Kiadó, Budapest) have filled the gap, but unfortunately these very valuable books, presenting numerous details and original work on steroid analyses, have, partly for known reasons, not obtained the attention they, in fact, should have deserved.

This new comprehensive book *Steroid Analysis* edited by H.L.J. Makin, D.B. Gower and D.N. Kirk comprising 718 pages, with a high number of instructive figures and many valuable tables, is particularly welcome because it covers the whole field and is written by some of the most highly valued scientists in steroid analysis.

Reading this book from the first to the last page has been a great pleasure for me who has been involved in steroid analyses since 1956. This is not only because it describes problems very well known to those daily engaged in steroid analysis but also those ones usually seldom described or difficult to find in the literature, and anyone – even the expert – in this area can learn something from the text. There is no doubt that a lot of time is saved if anyone who wants to establish a steroid method in his/her laboratory first consults this book. It does not contain all the details of the methods (except for the bile acid analyses) but sufficient information for the reader because the book has numerous references, mainly from relatively recent literature, forming a very good source of information. One wonders, however, why the complete names of the journals are included in the reference list, but not all the authors' names. Many times it is of interest to know who is the last one, usually a senior author. The intention to cover mainly modern literature has left out some original novel contributions to the field. But this is certainly not a book about the history of steroid analysis. The book contains surprisingly few real errors; it has been produced with great care.

It is inevitable that the review of the individual chapters in detail in such a large volume will be influenced by the fields particularly interesting to the reviewer. My criticism of some parts should be seen from that viewpoint.

The first chapters on structure, nomenclature and spectroscopic methods are ideal for teaching and postgraduate training giving the most essential information in a clear and instructive way. The impact of the late David Kirk is well recognizable. A little bit more about fluorescence methodology (enzymatic cycling, fluoroenzymeimmunoassay, NADH and NADPH fluorescence methodology) could perhaps have been added here or elsewhere in the book. The most important fragments of trimethylsilyl ether derivatives of most steroids in mass spectrometry are given but not for estrogens.

After this there are two chapters on general methods of steroid analysis and on immunoassays. The first one is particularly interesting for those more deeply involved in steroid analysis who want to establish their own methods. The immunoassay

0021-9673/97/$17.00
PII S0021-9673(97)00320-8

chapter is good reading for students and for those to be trained in clinical chemistry.

Then we have chapters for each group of steroids: corticosteroids, androgens, progestogens, estrogens, anabolic steroids, bile acids, vitamin D and phytosteroids. They are all very informative chapters. Particularly I enjoyed the reading of the chapters on analysis of corticosteroids, anabolic steroids and vitamin D because they keep the high level of important information throughout.

In the chapter on androgens the authors have had the problem of the extremely abundant literature in the field. This has been elegantly solved by including two very informative tables (Tables 5.1 and 5.3); this has probably been an exhaustive exercise for the benefit of the readers.

In the chapter on progestogens I like particularly the inclusion of the table on typical concentrations of progestins. Such tables could have been included also in some of the other chapters. The section on medroxyprogesterone acetate tries to cope with the analytical problems but has left out some published results necessary for the discussion on metabolism, specificity of immunoassays, and early GC–MS methods. Furthermore, methods for megestrol acetate are not mentioned. The best part in the chapter on estrogens is that one dealing with immunoassays. Otherwise the chapter does not quite reach the level of the other chapters. There is a lack of important methodological information with references on extraction, hydrolysis, separation and purification of estrogens. Many solutions to specific estrogen analytical problems are neither present. Table 7.5 has no value because the nature of the estrogens studied is not disclosed. Pregnancy and non-pregnancy samples are not clearly separated despite of the enormous differences in analytical methodology. Metabolites of great scientific importance, like 16a-hydroxyestrone, are not even mentioned and the section on 15a-hydroxyestriol does not cover urine analyses. Mainly routine methodology is considered and estrogen and phytoestrogen profiling is just mentioned without specifying what has been measured.

The chapter on anabolic steroids is to my knowledge the most comprehensive one ever written and is really enjoyable. Every doping laboratory should have this available. It includes a good metabolic review and table 8.6 gives good information about the retention times and the fragments for all anabolic steroids and their most important metabolites of interest for screening.

The chapter on bile acids is relatively short and is different from the other ones because it contains details of the methods. However, it does not include assay of the saponifiable (esterified) fraction which in our opinion from clinical point of view is the most important as it is considerably influenced by diet with values ranging from 8 to 80% of total bile acid excretion in feces. Mass spectrometry of bile acids is covered rather superficially. The chapter on vitamin D contains all important information and is very clearly written, a very modern and enjoyable chapter. This is followed by a short chapter on phytosteroids. I think it was good to keep it this size as it is a very specialized area of steroid analysis.

Finally there is an important chapter on quality control, a very nice and lucid contribution which should be read by everyone working with steroid analysis.

In conclusion, this is truly an important contribution to the literature, the main impression of its content being very positive. It is really enjoyable reading and should be available for pre- and post-graduate students, for those specialising in clinical chemistry, for doping laboratories and for scientists in the steroid field who want to go in depth into the analysis of these compounds. Unfortunately there will be in the future very few real specialists in the steroid analytical field because everyone is now working in molecular biology. This book is, therefore, particularly valuable because it transfers the knowledge and experience of the experts to the new generation.

Helsinki, Finland H. Adlercreutz