Phytochemistry, 1973, Vol. 12, p. 479. Pergamon Press. Printed in England.

BOOK REVIEW

Biochemical Applications of Mass Spectrometry: edited by GEORGE R. WALLER (Oklahoma State University), Wiley–Interscience, New York, 1972. xiv + 872 pp. $49.95.

AMONG the current spate of books dealing with various aspects of mass spectrometry, the present tome is undoubtedly the heaviest and the most expensive. It attempts to provide in a single volume 'a comprehensive, up-to-date treatment of the areas of biochemical knowledge elucidated by mass spectrometry' and consists of 31 chapters contributed by 36 authors.

A historical introduction of little value to the reader searching for information is followed by a rather condensed chapter on instrumentation, which emphasizes recent developments in GC–MS apparatus (supplemented by a listing of commercially available instruments and their characteristics in the Appendix), and a long, rather interesting chapter describing data acquisition and processing systems in use in 17 different laboratories. A subsequent section deals in very general terms with interpretation of mass spectra and includes chapters on the origin of mass spectra, metastable ions, compound identification by computer matching of mass spectra and identification of compounds from their mass spectra by a computer.

By far the largest section of the volume is devoted to chapters dealing with mass spectrometric analysis of various classes of naturally occurring compounds of biological significance, grouped together either on the basis of structure or on the basis of biological activity. These chapters provide a useful collection of references, although the arrangement makes inevitable a considerable amount of overlap. On the other hand, there are no references, perhaps understandably so, to work on certain compound types of special interest to the phytochemist, such as polyacetylenes, aromatic polyketides other than vitamins and antibiotics, phenylpropanoids and flavonoids. This section also includes chapters on the use of mass spectrometry in the study of drug metabolism and in the search for organic components (if any) in outer space, on clinical uses of mass spectrometry and the use of stable isotopes (a good part of which is mysteriously devoted to a discussion of the preparation of labeled compounds). Chapters on the newer techniques of negative ion, field ionization and chemical ionization mass spectrometry are valuable, but might have been separated more clearly from the Applications section.

The reviewer feels that the objectives of the title have been met reasonably well, but wonders to what public other than libraries this highly-priced mixture of sometimes very elementary and sometimes quite specialized material is to be marketed.

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