references. Unfortunately the topics, which were intended to overlap, also overlap volumes, e.g. there are chapters on amino acids and disease and on ruminants in all three volumes. This may have been to ensure that all three volumes would have to be purchased, but the volumes could still have been much better organized for the convenience of the reader. There is also a good case for combining the three volumes which might have reduced the cost which, in the current economic climate, is so high that it is unlikely to appear on shelves of many UK libraries. Since only one chapter has been contributed by UK scientists, perhaps due to the decline in funding for such work, there might not be much demand anyway.

Most chapters were reviews but others were little more than short research papers, e.g. Ch. 2 (Vol. III) on the determination of urinary 3-methylhistidine and its use in measuring muscle protein breakdown in uraemic patients. This is one of the two chapters on the analysis of amino acids, and coverage of this topic is the weakest part of the whole book. Most of the research described in the book involves analysis of amino acids in foods, body fluids or tissues. However the samples (Reseda flowers or seeds) chosen by the authors of Ch. 17 (Vol. III), to illustrate techniques have little relevance to the subject of the book. This chapter also contains many errors some of which, such as the strength of hydrochloric acid and the length of hyrolysis (p. 280), could lead to incorrect values for amino acids in protein hydrolysates.

A. P. Williams

Studies in Natural Products Chemistry, Volume 7: Structure and Chemistry. Edited by Atta-ur-Rahman. Elsevier, Amsterdam, 1990. x + 528 pp. ISBN 0 444 88829 2. Price: US$179·50.

The topics discussed in this series of volumes are nothing if not varied, and this present volume is no exception. It also contains a number of firsts. For example Derek Banthorpe provides a comprehensive account of his group's work with tissue cultures that produce terpenoids. He also includes much information of general utility to those who would like to use tissue cultures but have hitherto viewed the technology as a 'black art'. A second novel chapter (by W. Gaffield) includes discussion of the relevance of chirality to biological activity. There is special mention of the glycosidase inhibitors, like swainsonine and castanospermine, and the teratogenic steroidal alkaloids.

Five chapters cover the constituents of, *inter alia*, mangrove plants, echinoderms (toxins), the *Simaroubaceae* (quassinoids), African plants used in traditional medicine, and the genus *Artemesia*. This last chapter contains extensive tables of compounds with their occurrence and 437 references!

G. Britton has written the definitive review of the stereochemistry of carotenoid biosynthesis, whilst Bock and Sigurskjold have described various carbohydrate derivatives that are experimental enzyme inhibitors. The book concludes with a review of the chemistry and biogenesis of the iridoids (by A. Bianco). The topics include a discussion of acid-catalysed rearrangements of the compounds, a list of partial syntheses that have used iridoids as chiral starting materials, and a useful guide to the literature. As usual the overall quality of the camera-ready text is good, the subject index adequate, and the price beyond the means of individuals.

G. G. Birch

Food Antioxidants. Edited by B. J. F. Hudson. Elsevier Applied Science, London, 1990. xii + 317 pp. ISBN 1 85166 440 8. Price: £52·00.

Although much has been written about antioxidants, there still remains a need for a short monograph aimed specifically at their use in food products. This volume goes a long way in filling such a need and provides an up-dated broad overview of those antioxidants which contribute to the acceptability and keeping qualities of food products. Different authors have contributed the seven chapters, the subject matter of which are: mechanisms of action; analytical techniques and methods for evaluating antioxidants; the chemical fate of phenolic antioxidant molecules; natural antioxidants exploited commercially; natural antioxidants not exploited commercially; biological effects; toxicological aspects. There is very little duplication of subject matter throughout the book with each chapter providing an authoritative and useful review of a specific topic and supported by an extensive list of references. These are up-to-date and, for certain chapters, cover work published as late as 1989.

The book is well produced with good quality text, tables and figures, and clearly presented structural formulae. It is essentially free from typographical errors but in chapter 4 the number of stereoisomers of each tocopherol and tocotrienol is wrongly stated.

This is a useful and versatile book which will serve as a reference text for experts and for those in the food industry concerned with the role of additives.

D. McHale