

However, an appealing feature is that the photographs do not appear to be there just to break up the text, but consist of almost the complete set of the diseases and machines discussed. Perhaps the least accurate feature of the book is the drawing of the potato on the cover; perhaps a rare example where imagination in the artist should have been discouraged.

The authors are to be congratulated on having tackled a subject that would normally have been dealt with by a number of specialists. They have been able to do this by sticking very rigorously to their objective of regarding the potato as a raw material for particular processing outlets. This has nevertheless entailed tracking down the effects of variety, seed treatments, fertilizers, pesticides, length of growing season, defoliation, time of harvest, storage conditions and how these influence the desired attributes of tuber quality both for processing and consumption. Inevitably there is some repetition, but, probably because only two authors have been involved, this has been kept to a minimum. Perhaps also inevitably, some readers would have welcomed hypotheses which might explain the underlying biological principles involved and which might reconcile contradictory results and which could be tested in perhaps fewer but more comprehensive experiments. However, the authors have served the subject well and the book should find a place on the bookshelf of anyone seriously interested in the topic.

P. M. Harris

Volatile Compounds in Food—Qualitative and Quantitative Data. By H. Maarse and C. A. Visscher. TNO-CIVO Food Analysis Institute, Zeist, The Netherlands, 1989. xliv + 1377 pp. in three volumes. ISBN 90-6743-168-0 Price: Dfl. 1500.00.

This compilation of published data, on volatile compounds which have been isolated from foods and beverages, is the sixth edition of a reference work which has become as essential a part of the flavour chemist's laboratory as his gas chromatograph or mass spectrometer. The first edition of *Volatile Compounds in Foods* was compiled in 1963 by the late Dr C. Weurman at the flavour laboratories of the TNO Division of Nutrition and Food Research in The Netherlands. At that time the laboratory was already established as one of the leading centres for flavour and aroma research in Europe, and it was recognised that an important aspect of any flavour research programme is the regular searching of the scientific literature for details of the volatile aroma compounds isolated from foods. This gave rise to a relatively simple compilation of volatile compounds, listed for each food product in which

each compound had been reported, together with the appropriate literature reference. Since those early days the work of Dr Weurman has continued to be updated with further editions and regular supplements. In 1982 this publication, giving qualitative information on volatiles in food, was complemented by another series of books listing those compounds for which quantitative data had been reported.

In this sixth edition the qualitative and quantitative series have been combined into one publication, the indexing has been extended and the typesetting improved. The compilation provides information on almost 300 food products and the list of volatiles now approaches 6000 chemical compounds. In a publication of this type, involving literature review, regular updating is essential. The compilers of this publication have dealt with this by the preparation of annual supplements in which selected food products are updated; thus, since the fifth edition was published in 1983, most products have been updated. The sixth edition combines the lists from the fifth edition and its supplements with the updates of a further 50 food products. Although a complete update of all products for a new edition would be an ideal, the enormous task involved makes such ideals unrealistic and the policy of regular supplements would seem a very sensible compromise. However, some indication in the product index of the date of the update would have been a useful addition.

Volumes 1 and 2 contain the lists of volatiles which have been reported in the different food products. The presentation of each product comprises a list of references, followed by the list of compounds reported in the literature. These are arranged under classes, e.g. alcohols, esters, bases, sulphur compounds, and the relevant references and any quantitative data which have been reported are given against each compound. The presentation of the information has been improved compared to the earlier editions and it is carefully laid out with two columns per page, one for the compound name and the other giving the references plus quantitative data, making it easy to scan. For such a large undertaking the publication is remarkable in its freedom from any significant errors. It is almost inevitable, however, that some relevant papers for certain food products are missing from the referenced publications, but the number is extremely small compared with the thousands of publications which have been examined in the preparation of this compilation.

The success of a reference work of this nature lies in the presentation of the data and the efficiency of the indexing. *Volatile Compounds in Food* has addressed these points with considerable care and attention, providing a clear and easy-to-use format. Each product has a product number, which may be subdivided into specific types, e.g. wine has sub-divisions for white wine, red wine, port wine, etc., and the first three indexes list these products in

alphabetical order, by product number and in product groups (e.g. fruits, cereals, meat and poultry, vegetables, etc.). The product numbers do not appear to follow any particular system, and probably relate to the order in which they were first abstracted. These indexes appear at the front of each of the three volumes. The last volume contains the indexes of chemical compounds, arranged in alphabetical order, giving the product number(s) from which the compound has been isolated. The inclusion of CAS numbers in the index of chemicals is a particularly welcome addition to this edition. Nomenclature adheres to the IUPAC system, but the index also contains cross referencing of a significant number of trivial names, which makes it easy to use and reduces the risk of missing a particular compound. One minor criticism is that the volumes are only bound in soft covers which does not seem adequate for a reference volume that is likely to be subjected to much use. It is an expensive publication and therefore hard covers could be expected. A database containing all the data from the books is available for use on an IBM compatible PC, but at a cost of Dfl. 7000, including the books, it is only likely to find its way into a limited number of establishments.

This new edition of *Volatile Compounds in Food* will be welcomed in its new format by flavour chemists and will be an essential source of reference in all flavour research laboratories. However, its interest should extend beyond the research laboratory to any areas of the food and beverage industry requiring information about aroma compounds contributing to the flavour characteristics of foods and beverages.

D. S. Mottram

Studies in Natural Products Chemistry. Volume 6: Stereoselective Synthesis, Part D. Edited by Atta-ur-Rahman. Elsevier, Amsterdam, 1990. x + 606 pp. ISBN 0-444-885668. Price: US\$189.75, Dfl. 370.00.

This is the fourth volume in the series to concentrate on synthesis and, as in the previous volumes, much of what appears has either not been reviewed before, or at least not for a considerable time. There are thirteen chapters and some very well known authors. The book commences with a massive review by J. D. Martin on the total synthesis of polycarbocyclic marine terpenoids. The period covered is the last decade, and although the reviewer uses 104 pages of text, many of the figures take up only one third of a page, yet describe syntheses of 20 steps or more. This makes for rather a cramped appearance in what is otherwise a very informative chapter.

The second chapter, by T. Nakano, on partial syntheses of sponge diterpenes and sesterterpenes, is followed by a timely review of allenic and