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Book Reviews

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Antinutrients and Phytochemicals in Food; edited by F. Shahidi. ACS Symposium Series 662. American Chemical Soc., Washington DC. 1997. 334 pp. $109.95. ISBN 0-8412-3493-1.

This review volume is based on a symposium held in Chicago, Illinois in August, 1995. The contributors, who are from the States, Canada and Japan, write with knowledge and authority. The main problem with this offering is that it largely overlaps with other recent symposium proceedings or edited books, which cover the same ground. We have been alerted so regularly in recent years to the possible benefits or hazards of phytochemicals in our food, that there is little new in these chapters.

If, however, you are approaching this subject for the first time, you could do worse than dip into these pages. One advantage in this symposium volume, is that there are usually at least two complementary chapters on the phytochemicals reviewed here. There is first a general chapter by the editor on the beneficial health effects and drawbacks of the secondary and other metabolites present in a range of food plants. The constituents discussed then range from glycoproteins, polyphenols, glycoalkaloids, glucosinolates, oligosaccharides and cyanogenic glycosides to tannins, saponins, lignans and phytosterols. Few chapters reach a positive or negative recommendation regarding the potential toxins present in a particular food. But this simply reflects our present limited knowledge of the detoxification efficiency and further metabolic pathway of these compounds in the human body. Even the metabolism of such well known toxins as the glycoalkaloids of the potato is still not entirely clear. More work is certainly needed in almost every case described in these pages.

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Preparative Chromatography Techniques, Applications in Natural Product Isolation; edited by K. Hostettmann, A. Marston and M. Hostettmann. Springer, Berlin, 1998. 2nd edn., 244 pp. price, £76. ISBN 3-540-62459-7

With the battery of chromatographic and spectral methods now available, it is relatively easy to set up a procedure for detecting a known or novel plant product in a crude extract. However, it is quite another matter to devise a system to isolate significant milligram quantities of that same substance. And yet, if it is a novel bioactive constituent, it is imperative to obtain sufficient material not only for structural elucidation but also for biological testing.

This well known textbook, written by the Hostettmanns and Andrew Marston, was first published in 1986 and was immediately accepted as an essential textbook for the isolation of milligram to grain quantities, to be kept readily at hand in the phytochemistry laboratory. This enlarged and revised second edition is a worthy successor to that first edition. Much new information is included on technical advances of the last decade and there are many new references. A valuable feature of the first edition was the provision of numerous examples of each chromatographic procedure, as they were being described, giving amounts of phytochemicals isolated. I am pleased to say that this important feature is retained here. Overall, then, this is a second edition that will be heavily used by phytochemists and it is certainly warmly recommended.

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Practical Polyphenolics: from Structure to Molecular Recognition and Physiological Action; edited by Edwin Haslam. Cambridge University Press, 1998. 422 pp. price £60.00. ISBN 0-521-46513-3

Professor Eddie Haslam of Sheffield University will be known to many *Phytochemistry* readers for the excellent books and review articles he has written on plant polyphenols, and especially on plant tannins. In 1989, for example, he published a volume entitled *Plant Polyphenols—Vegetable Tannins Revisited*, which was widely acclaimed at the time. This volume, which brings the story of plant tannins up-to-date, follows on from that earlier work but contains much new material and many new thoughts about the molecular properties and biological functions of these widely distributed plant substances.

The book opens appropriately with a personal tribute to Dr. E.C. Bate-Smith, whose studies of plant phenolics have been acknowledged worldwide. Bate-Smith could be described as one of the father figures of modern tannin research, who continued to contribute usefully to the practical analysis of plant tannins in his retirement, working at the Institute of Animal Physiology at Babraham.

The chapters that follow consider in turn the structure and biosynthesis, the molecular shapes, the tastes and properties of these polyphenols. Food science is discussed in two chapters on 'Taste, bitterness and astringency' and on 'Maturation—changes in astringency'. There is then an interlude on anthocyanin copigmentation but we return to the plant tannins with an account of polyphenols and herbal medicines. The book concludes with two chapters on practical aspects: quinone tanning and oxidative polymerisation; and polyphenols, collagen and leather.

With its many beautifully drawn structural illustrations, its occasional quotations from English literature and its fluent writing, this book is a joy to read. For anyone wishing to refresh their ideas about the role of tannins in nature, this is the book to have. It also provides an important overview for scientists needing to know about these fascinating plant molecules, in the fields of food science and agriculture.

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