

Mike Clifford
Emeritus Professor of Food Safety,
University of Surrey,
Guildford,

Surrey GU2 7XH, UK
E-mail address: m.clifford@surrey.ac.uk

Available online 26 November 2007

doi:10.1016/j.phytochem.2007.10.022

Plant Secondary Metabolites Occurrence, Structure and Role in the Human Diet, A. Crozier, M.N. Clifford, H. Ashihara. (Eds). Blackwell Publishing Ltd. pp. 384. GBP 99.50, ISBN 13: 978-1-4051-2509-3.

This text is edited by three highly respected experts in the areas of plant biochemistry, human nutrition and food safety. As such, this book surveys the chemistry and biochemistry of a comprehensive group of secondary metabolites with nutritional and pharmacological activities. The first five chapters describing the plant metabolites of interest, detail the distribution and biosynthesis of the major examples of interest, and highlights the dangers associated with particular metabolites such as the glucosinolates, acetylenes and the psoralens. The following three chapters describe the human intestinal flora and the effects of dietary composition, including the effects of consumption of pro- and pre-biotics, the wide range of secondary metabolites found in dietary constituents of plant origin, and the absorption and metabolism of a large number of these entities.

An additional area of economic and nutritional interest is the coverage of genetic manipulation of constituents of flavonoid biosynthesis, with a view to improving levels of beneficial constituents.

The major problem in writing a text of this breadth of data are to be able to satisfy two often disparate groups of readers, those who look for phytochemical knowledge, and those who require relevant data on biological activity. Such a book stands or falls on the appropriate balance between these fields. There are numerous books on either side of this divide, but this satisfactorily strikes the right balance, almost seamlessly integrating the two fields within individual chapters.

The problems inherent with an edited text include incomplete coverage of the total knowledge base encompassed within the title of the book and the constituent chapters, plus different styles of writing and different depths of coverage of data within the specialist areas. Again, the text copes well with this problem and provides comprehensive coverage of the major classes of secondary metabolites. Of particular interest is the chapter on acetylenes and psoralens, which are often overlooked in similar texts on phytochemicals.

The style of this book is not only informative, but also a joy to read, particularly due to the introduction of

numerous unexpected facts which occur regularly throughout the text; typical examples include – the possible demise of red squirrels is due to their intolerance to tannins, and coffee diterpenes are responsible for elevated cholesterol levels.

Detailed biosynthetic pathways including enzymatic data give a fuller picture of the knowledge base than many similar texts. There are detailed sections on therapeutic activity and mode of action of selected phytochemicals. Inclusion of a wide range of food plants broadens the horizons of those used to reading about a restricted group of phytochemicals as often found in Pharmacognosy texts.

The discussion concerning the growth of interest in herbal remedies, their regulation and risk assessment, in Chapter 3 (Terpenes) sits oddly with biosynthetic data. This could have been included in a general chapter on activities. There is some duplication of information presented in Chapter 7 and other chapters in the book. Unfortunately, the Introduction to the book appears to have been subsumed into Chapter 1 (p. 1).

The quality of presentation is very high; the use of red for highlighting compounds in the biosynthetic pathways allows the reader to quickly find a particular structure and follow pathways. Throughout, there are very few typographical errors, and the Index is comprehensive and mainly accurate.

Overall, this is an excellent book, providing up-to-date material derived from a mixture of primary sources, plus high quality reviews. Few internet databases have been referenced, but where this is the case, their URLs are current, and easily found if changes occur in future.

The book should be of interest to all phytochemists, pharmacognocists and food chemists, and provides excellent background information for those involved in researching the beneficial effects of dietary phytochemicals.

Brian Lockwood
School of Pharmacy and Pharmaceutical Sciences,
Stopford Building,
Room 2.27, Oxford Road,
Manchester M13 9PT, UK
E-mail address: brian.lockwood@manchester.ac.uk

Available online 28 January 2008

doi:10.1016/j.phytochem.2007.12.011