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Phytochemistry 66 (2005) 1746
PHYTOCHEMISTRY
www.elsevier.com/locate/phytochem

Book review

James R. Hason, Natural Products – the Secondary Metabolites, Royal Society of Chemistry, 17th September 2003, pp. vi + 148, ISBN 0-85404-490-6, £14.95

This book is part of the Tutorial Chemistry Texts series published by the Royal Society of Chemistry. It consists of five chapters. The first deals with the various classes of natural products and includes a brief introduction to natural products involved in chemical ecology. General methods of isolation are also mentioned. Chapter 2 is concerned with the characterization and determination of the carbon skeleton of a natural product. The various spectroscopic techniques, UV, IR and NMR spectroscopy and mass spectrometry, are illustrated and then a range of classical chemical degradations (oxidations, dehydrogenations, Hofmann eliminations etc.) is discussed using appropriate examples. Finally the possible advantages of 2D NMR experiments in determination of a carbon framework are addressed. The same theme is continued in Chapter 3 with emphasis on the use of chemical shifts and coupling constants to determine the relative positions of functional groups and the relative stereochemistry in a molecule. Some chemical approaches are also described, e.g., oxidation (CrO_3, O_3, $NaIO_4$, peracid), deuterium exchange, cyclisations, acid-catalysed rearrangements etc. This chapter concludes with a discussion of methods for the determination of the absolute configuration of a molecule. Chapter 4 discusses an interesting selection of some of the landmarks in classical structural elucidation. These include santonin, griseofulvin, penicillin and clavulanic acid, the prostaglandins and vitamin C. Chapter 5 gives a brief account of the biosynthesis of polyketides, terpenoids, phenylpropanoids and alkaloids. Each chapter has several problems associated with it and the answers are provided at the end of the book. There is also a useful list of further reading and reference sources.

The author opts for a different approach to natural products and relegates biosynthesis, the normally accepted unifying theme, to the final chapter. I think that this will make life more difficult for the beginner, especially second year students at whom the book is aimed. However a reasonable selection of natural products is discussed, in conjunction with their chemistry and spectroscopy, and there is much in the book to excite the interest of undergraduates. The book is inexpensive and easily read. The problems are varied and not too demanding. It is a pity that the *meta* couplings are omitted in problems 3.8, 4.2 and 4.5. These couplings are normally visible and useful.

I enjoyed reading this book, not only for the nostalgia evoked by santonin, griseofulvin etc., and I am happy to have it on my bookshelf.

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Available online 22 June 2005

doi:10.1016/j.phytochem.2005.05.017