

Medicinal Natural Products. A Biosynthetic Approach

P.M. Dewick; Wiley, Chichester, UK, 2002, 2nd ed., 507 pp., £34.95, ISBN 0-471-49641-3

It is a very challenging task to write a comprehensive textbook on such a diverse topic as secondary metabolites or natural products. Depending on the background and interest of an author the emphasis can be more on natural product chemistry, plant metabolism, chemical ecology or on pharmacology. Only few authors have managed to deal adequately with all these divergent fields of scientific endeavour in a single book.

Paul M. Dewick has focussed on the biosynthetic pathways leading to secondary metabolites and his book aims to establish a groundwork in natural product chemistry and phytochemistry covering natural products from plants and microorganisms (i.e., antibiotics). Chapter 2 provides a good and helpful overview of the building blocks and chemical construction mechanisms leading to the different classes of secondary metabolites. The following six chapters start with the acetate pathway (leading to fatty acids and polyketides), followed by the shikimate pathway (with aromatic amino acids and phenylpropanoids), the mevalonate and deoxyxylulose pathways (to terpenoids and steroids), pathways to alkaloid and other amino acid derivatives and finally carbohydrate pathways.

The biosynthetic pathways leading to all major groups of natural products with relevance to medicine have been covered and are up to date. Main emphasis is laid on reaction mechanisms. Usually, neither the enzymes involved nor corresponding genes (if known) have been mentioned. This is surprising as one of the major advances in the field of natural product biochemistry in recent years has been the discovery of relevant enzymes and the corresponding genes. A biologist and physiologist would also miss information on the intracellular compartmentation of synthesis and storage,

transport as well as ecological functions. Even if this information is not available for all types of secondary metabolites covered in the text, it would be useful for a student to obtain the essential information for the main compounds for which this knowledge has been elucidated.

For major medicinal natural products short text boxes provide useful information on the corresponding drugs, their active ingredients, modes of actions and therapeutic use. Each chapter finishes with a short list of review articles useful for further reading. The articles mentioned are usually up to date but somewhat biased towards natural product chemistry.

P. Dewick mentions in Chapter 1 that this textbook has been written primarily for pharmacy undergraduates in pharmacognosy. The pharmaceutical/pharmacological information provided in the boxes is indeed relevant for pharmacy students. But does a pharmacy student need to learn all the pathways and reaction mechanisms? Considering what a pharmacist must know when finally working in a hospital or pharmacy, the emphasis of a basic textbook in pharmacognosy should be more on pharmacology and therapy. Unfortunately, this part comes much too short in the present book.

However, I would recommend this textbook for students and researchers in natural products chemistry and phytochemistry as a competent comprehensive and didactic introduction.

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