

BOOK REVIEWS

well articulated in the last few years and the reversal of interest in natural products-driven drug discovery (medicinal plants, microbial and marine biodiversity) is in the offing. However, this successful rekindling of research activity will require quality books, monographs and critical reviews. The book under review (a second edition) is one such addition in this direction, providing easy-to-read material on natural products chemistry of plant, microbial and marine organisms. The previous volume of the book was published in 1999. The book is divided into eight chapters: Introduction, Structure, Stereochemistry, Reactions and rearrangements, Synthesis, Biosynthetic pathway, Biological significance of secondary metabolites and Problems. Each subhead of a particular chapter is accompanied by a suggested list of original publications or reviews. The last chapter of the book provides problem-solving exercises for new students and researchers.

Following the Introduction emphasizing the chemistry of natural products, the second chapter on 'Structure' provides an overview of the structural diversity of natural products. The selection of these representative natural products (strychnine, nepitrin, pedalin, colchicine, longifoline, b-amyryn, wedelolactone, protoaphin, tylophorine, heliangine, delphisine, tubocurarine, sclerophytins, mangferin and conessine) is quite appropriate in terms of the historical perspective of this field, the diversity of structural scaffolds and just how many pharmacophores are hidden in the structure of natural products. The way their structural elucidations have been described is interesting and will be revealing to even 'expert' practitioners of this science. Subsections 2.2–2.12 are informative, with a few molecules discussed in great detail. The author has shown how different approaches, from so-called classical to modern, sometime failed to arrive at the correct structure and, as demonstrated in this chapter, judicious mix of two different techniques was at times critical. This chapter should be a reminder to those who think that the structural elucidation of natural products has become trivial!

The chapter on 'Stereochemistry' is well presented with careful selection of examples of determination of the absolute stereochemistry (e.g. morphine, quinine, emetine, germacrolides, rotenoids, abietic acid, sphingosine, menthol and indole alkaloids). The next chapter, 'Reactions

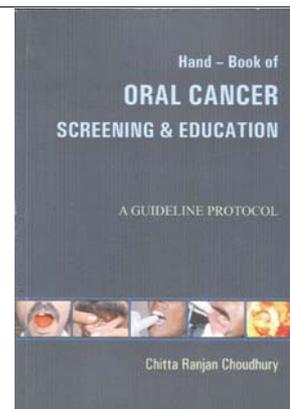
and rearrangements' is dedicated to some unusual and remarkable reactions discovered during the chemistry of a few privileged natural products; the examples of transannular reactions and carbon-carbon rearrangements are nicely described. The next chapter on 'Synthesis' includes some landmark total syntheses in reasonable detail. The chapter on 'Biosynthesis' describes how a common metabolic pathway with simple starting materials produces a diverse set of structurally complex compounds in the same plant. This knowledge and understanding of biosynthetic pathways in the living cells is extremely useful (although surprisingly missing from the chemistry teaching courses in most Indian universities) for understanding the relationship between the form and function of compounds of natural products origin. Some key biosynthetic pathways for the polyketides, terpenoids and benzyloisoquinoline class of compounds are discussed in this chapter.

The last scientific chapter is the most important and refreshing, where several case-studies of the chemical ecology in action are described. The examples of the remarkable roles of 'small but smart' natural products in species-species interactions (plant-plant, plant-insect, plant-vertebrate, plant-microbe, insect-animal, insect-insect, etc.) are interesting and revealing. In my view, the true secrets of the structure and function of the small-molecule natural products will be unravelled through the chemical ecology studies, which will also bring rationale in bioprospecting and new drug discovery. In the last chapter on 'Problems', the author has assembled some interesting questions related to the structure, chemistry and synthesis of natural products, which will undoubtedly be useful.

In summary, the author has done a remarkable job in updating and formulating this book, which will be an addition to the new generation of reading material on natural products chemistry. Of course, there has been a significant amount of new research on natural products published in the last 10 years, which is missing in this book. Hopefully, it will be included in the next edition.

RAM VISHWAKARMA

*Indian Institute of Integrative Medicine
(CSIR),
Jammu 180 001, India
e-mail: director@iiim.ac.in*



Hand-Book of Oral Cancer Screening and Education: A Guideline Protocol. Chitta Ranjan Choudhury. Nitte University, Mangalore, in association with Bournemouth University, England and Royal Society for Promotion of Health, UK. 2010. xxxv + 116 pp. Price not mentioned.

This book by C. R. Choudhury, an accomplished doctor, teacher, scientist and a public health enthusiast, is a true reflection of his abilities. Tobacco chewing is a problem unique to South East Asia and has been well-covered in the book. Tobacco and areca nut chewing leads to certain oral lesions such as verrucous lesions, submucous fibrosis, leukoplakia, etc. that are highly prevalent in this part of the world. The book is an exquisite collection of high-quality pictures and lucid illustrations.



Beedi smoking associated Median Rhomboid Glossitis (MRG).

The author has explained a complex problem in simple language. An entire section on educating the readers to come to consult cessation specialist is a great effort. Wide coverage of microscopic features and basic research will be of use to the oral pathologist. In summary, this book is highly educative and worth reading.

PANKAJ CHATURVEDI

*Head and Neck Department,
Tata Memorial Hospital, Parel,
Mumbai 400 012, India*