

## Review of Modern Alkaloids. Structure, Isolation, Synthesis and Biology

**Modern Alkaloids. Structure, Isolation, Synthesis and Biology.** Edited by E. Fattorusso and O. Tagliatela-Scafati (Univ. Federico II). Wiley-VCH Verlag GmbH & Co.: Weinheim. 2008. xxiv + 665 pp. 17 × 25 cm. \$305.00. ISBN 978-3-527-31521-5.

The 18 chapters of this book are divided thematically into three sections: Bioactive Alkaloids: Structure and Biology (Chapters 1–11), New Trends in Alkaloid Isolation and Structure Elucidation (Chapters 12–14), and New Trends in Alkaloids Synthesis and Biosynthesis (Chapters 15–20). Given the breadth of the topics covered, the book is not intended as a comprehensive treatment of each subject, but rather an update on recent discoveries at the time of publication (2008).

At the outset, the editors admit the book adopts a liberal definition of the term alkaloid, which allows the inclusion of compounds such as nonribosomal peptides. Chapter 4, which focuses on the chemistry and biology of borderline compounds such as capsaicin and capsaicinoids, begins with an interesting perspective on the evolving definition of the term alkaloid, which is well worth the read, as is the rest of the chapter.

The first section of the book, concerning the structure and biology of bioactive alkaloids, has a heavy focus on marine alkaloids (Chapters 6–11), a fact that the editors note. This section includes outstanding reviews of antiangiogenic alkaloids from marine organisms (Chapter 9) and marine bromopyrroles (Chapter 10). The section also contains solid reviews of neurotoxic alkaloids from cyanobacteria (Chapter 6), the lamellarins (Chapter 7), the manzamines (Chapter 8), and guanidine alkaloids from marine invertebrates (Chapter 11). For those more interested in terrestrial alkaloids, there are chapters on ecological roles (Chapter 1), antitumor alkaloids in the clinic (Chapter 2), taste (Chapter 3), capsaicin (Chapter 4), and glycosidase-inhibiting alkaloids (Chapter 5).

The second section contains three chapters on the analysis of tropane alkaloids (Chapter 12), LC-MS analysis of alkaloids (Chapter 13), and applications of <sup>15</sup>N NMR spectroscopy (Chapter 14). In this section, the first half of the NMR chapter is the standout, with an excellent discussion of the experimental issues associated with nitrogen NMR and its value in structure elucidation. The final portion of the book contains two excellent chapters on using alkaloid-like compounds as chemical probes and engineering biosynthetic pathways to generate indolocarbazoles in microorganisms.

As for weaknesses, there are several errors in the structures, compound names, and stereochemical representations strewn throughout the book. The chapter concerning transition-metal-mediated oxidative cyclizations is too narrowly focused on the authors' own work. Finally, given the broad definition of alkaloids adopted by the book, a chapter on the biosynthesis of nonribosomal peptides would have been a welcome addition.

Overall, the various sections of the book form a compilation that will be particularly useful to graduate students and others looking to broaden their existing knowledge. Given a price tag

of \$305 though, the book is perhaps a little expensive for many personal collections, but would be a good addition to any institutional library.

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#### Notes

The authors declare no competing financial interest.

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