

Book Reviews

J. Nat. Prod., **1994**, 57 (8), 1185-1187 • DOI:
10.1021/np50110a011 • Publication Date (Web): 01 July 2004

Downloaded from <http://pubs.acs.org> on April 4, 2009

More About This Article

The permalink <http://dx.doi.org/10.1021/np50110a011> provides access to:

- Links to articles and content related to this article
- Copyright permission to reproduce figures and/or text from this article



ACS Publications
High quality. High impact.

Journal of Natural Products is published by the American
Chemical Society, 1155 Sixteenth Street N.W., Washington,
DC 20036

BOOK REVIEWS

Dictionary of Natural Products. Edited by J. BUCKINGHAM (Executive Editor), D.C. AYRES, B.W. BYCROFT, P.M. COLLINS, F.D. GUNSTONE, J.B. HARBORNE, E. HASLAM, R.A. HILL, D.R. KELLY, F.J. LEEPER, R.D.H. MURRAY, and I.W. SOUTHON (Subject Editors). Chapman and Hall, Inc., One Penn Plaza, New York, NY 10119. 1994. Vols. 1-5, 6164 pp; Vol. 6, 1341 pp; Vol. 7, 874 pp. 20.5×28 cm. \$3250 (set). ISBN: 0-412-46620-1.

There has long been a need for a comprehensive listing of all known natural products, so that researchers with various interests in these compounds can have ready access to structural and bibliographic information. A number of limited surveys have been published, including the very useful *Handbook of Naturally Occurring Compounds, Volumes I and II* by T.K. Devon and A.I. Scott (regrettably, Volume III of this series never saw the light of day), and the *Dictionaries of Alkaloids, of Terpenoids, of Antibiotics and Related Substances*, and of *Steroids*, all published by Chapman and Hall. Until now, however, the only comprehensive listing of natural products has been that of *Beilstein*, but this series of course includes all fully characterized organic compounds and is thus not an easy reference source to use. The *Dictionary of Organic Compounds* also published by Chapman and Hall, has long been a useful reference work, but it does not claim to be comprehensive in its coverage of natural products, and it suffers from the same sort of problems as *Beilstein* in that it is not designed for easy retrieval of natural product information.

This long-felt need has now been met by the new *Dictionary of Natural Products* from Chapman and Hall. The *Dictionary* was edited by the team of well-known subject editors listed above, and the process was guided by the outstanding International Advisory Board of C. Djerassi, J.D. Connolly, D.J. Faulkner, K. Mori, K. Nakanishi, G. Ourisson, R.A. Raphael, M. Shamma, and Ch. Tamm. The expertise of the Subject Editors and the Advisory Board, coupled with the publisher's long experience in the production of chemical dictionaries, suggests that the product should be of high quality, and these expectations are largely fulfilled.

Physically, the *Dictionary* is a large work, consisting of five main volumes and two index volumes, each volume except volume 7 running more than 1000 pages. It is well produced, with clear readable type and good structural diagrams on acid-free paper; the only major error noted was that the review copy was missing pages 820-823 and 836-839 of volume 1.

The basic format of the dictionary is essentially the same as in other chemical dictionaries produced by this publisher. Compounds are listed alphabetically, with a structure shown for each main entry, followed by composition, molecular mass, occurrence, melting point (if known), and optical rotation (if known). This main entry is then followed, in many cases, by a listing of naturally occurring derivatives or close analogues of the main structure, each with the same basic physical data as for the main entry. The entry concludes with a select bibliography, which varies from a single entry for simple compounds to over 30 entries for important substances such as podophyllotoxin. Most bibliographic entries are characterized as to their content by notations such as *isol*, *cmr*, *ms*, *struct*, or *synth*, and key review articles are noted in many cases. The *Dictionary* thus provides adequate data to enable the reader to get into the primary literature.

Central to the usefulness of a compilation such as this however, are three key questions: 1) is it comprehensive?, 2) is it easy to use?, and 3) is it up to date? The first question is the most difficult to answer, but a careful comparison of one important class of natural products suggests that the answer is no. The class selected for comparison was the taxane diterpenoids, since a comprehensive review of these compounds has recently been published [D.G.I. Kingston, A.A. Molinero, and J.M. Rimoldi, *Prog. Chem. Org. Nat. Prod.*, **61**, 1 (1993)], the main part of which covered the literature through March 1992. Of the 101 taxoids listed in Tables 1-10 of this review, a total of 72 were listed in the *Dictionary of Natural Products*. Of the 29 taxoids omitted from the *Dictionary*, 19 were reported in just four papers, one of which appeared in the *Journal of Natural Products*, and the remaining 10 compounds were scattered through another eight papers. These findings, if representative of the *Dictionary* as a whole, suggest that it is a good but by no means comprehensive listing of natural products.

On the second question, the answer is much more positive. The five main volumes are supplemented by two index volumes which provide several ways to locate compounds of interest. In addition to the expected and very necessary Name Index (necessary because of the many non-alphabetical sub-entries under each main entry), the first index volume contains a Molecular Formula Index and a CAS Registry Number Index. The second index volume contains two additional very useful indexes: a Type of Compound Index and a Species Index. The first index lists natural products by compound type, and this is very helpful in finding all compounds of a given class. Thus the taxane diterpenoids are listed separately, as are classes such as the coumestan flavonoids, the *Gelsemium* alkaloids, and the bufanolide steroids. This index is almost but not quite complete, at least as judged by the taxane diterpenoid entry, where 68 of the 72 compounds in the *Dictionary* are listed in the index. The final index is a Species Index, listing all the compounds isolated

from a given species. This index will also be very useful, particularly for researchers beginning work on a particular organism.

The third question is that of how up-to-date the *Dictionary* is. Again, a complete evaluation is not possible without an exhaustive (and exhausting!) survey, but several references to 1992 papers and some to 1993 papers were noted, suggesting that the *Dictionary* is about as current as a work of this magnitude can be.

The question of nomenclature has been given careful attention by the editors, and a valuable discussion of this subject is provided as an introduction the Type of Compound Index in Volume 7. In general, familiar names rather than completely systematic names are used, but IUPAC practice is followed as far as possible. Literature names which are in gross violation of good IUPAC practice are corrected. Even so, there are some surprising anomalies, such as the use of the older term ostreogrycin A for the antibiotic virginiamycin M, while retaining Virginiamycin S, for its congener. These nomenclature issues are not a problem, however, because of the excellent Name Index.

A final point worth noting is that the *Dictionary of Natural Products* will be updated with annual supplements, and the first supplement has already been announced. The publishers have particularly requested notification of errors and omissions, and it is thus very likely that the omissions noted in the main work will be corrected over the next few supplements. An additional very attractive feature of the *Dictionary* is its availability in a CD-ROM version (not reviewed) which will permit substructure searching as well as text searching, and which thus promises to be a powerful tool for information retrieval.

In conclusion, the *Dictionary of Natural Products* represents a landmark in the publication of data on natural products. Although not yet fully comprehensive, it is nevertheless an excellent tool for any scientist with an interest in natural products. Its price is regrettably prohibitive for individual researchers, but purchase by libraries serving the natural products community is strongly recommended.

DAVID G.I. KINGSTON, *Virginia Polytechnic Institute and State University*

Anticancer Drugs from Animals, Plants and Microorganisms. GEORGE R. PETTIT, FIONA HOGAN PIERSON, and CHERRY L. HERALD. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158. 1994. xii+670 pp. 17.5×25 cm. \$89.95. ISBN 0-471-03657-9.

Although the title has been changed to reflect the wider coverage, this is in actuality Volume 7 in the series *Biosynthetic Products for Cancer Chemotherapy*, with the same leading authors/editors/compiler, a similar format and style, the addition of some new sections, and a new publisher.

The book is divided into twenty chapters. Chapter 1 provides an introduction to cancer-causing and related lethal viral diseases, and updates the information on HIV and a number of other deadly viruses. Chapter 2 discusses tumor promoters and carcinogens, and in tabular form reviews the synthetic carcinogens, the carcinogenic activity of the current antitumor drugs, a list of the environmental and other naturally occurring carcinogens, a summary of carcinogenic irradiations, synthetic tumor promoters (only two?!), and natural tumor promoters.

The remaining chapters are divided by source into three sections: "New Biosynthetic Antineoplastic and/or Cell growth Inhibitory Agents," which is the core of the original book series, and "Marine Animal Biosynthetic products" and "Marine Plant Biosynthetic Products," two sections added in Volume 6, each of which is divided primarily by compound type. There are two indexes, a subject index of both compounds and source organisms, and a molecular weight index. The book concludes with the bibliography of 1228 cited references. The literature is covered for the period January, 1986 through January, 1989.

Once again, within the three main sections, compounds cited are organized by biogenesis and increasing molecular weight, assuring, to a large extent, that compounds of similar structure are summarized proximately. For each of the described compounds, the following data are included: name, molecular formula, molecular weight, bioactivity, melting point, optical rotation, spectral data, the source organism and its location, and the pertinent reference(s). It was pleasing to see the addition of tables which reflect summaries of the synthesis of active compounds and synthetic derivatives of compounds which have been biologically evaluated.

The second and third sections are similarly organized, and their inclusion is based on source, *not* on any antineoplastic activity. Since these compound listings comprise 282 pages, whereas the antineoplastic compounds comprise only 168 pages, I still think that the title of the book is quite misleading, as noted in my review of Volume 6 [*J. Nat. Prod.*, **53**, 763-764 (1990)].

The authors are to be roundly congratulated for their persistent efforts in continuing to summarize the diverse literature on antineoplastic and carcinogenic agents. It is indeed very useful to open a text and

uncover the biological test data for certain compounds. In addition, the summary of secondary metabolites from marine animals and marine plants, now even longer than the previous compilation, provides a richness of interesting structures and a diversity of biological activities.

The principal drawback to the volume is the same as that mentioned in the previous review, namely that coverage of the compound literature is already five years old. While it is recognized that compilations such as this are a very substantial undertaking, with current information systems, timeliness is even more critical. Perhaps in the next volume this time delay can be shortened. Overall, this is a very valuable accumulation of antineoplastic and marine natural products which should be on the shelves of every chemical reference library, and close at hand for many laboratory workers in the field, for it will certainly assist in developing dereplication strategies.

GEOFFREY A. CORDELL, *University of Illinois at Chicago*