

Book Reviews

J. Nat. Prod., **1992**, 55 (7), 1020-1021 • DOI:
10.1021/np50085a034 • 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/np50085a034> 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

The Phytochemistry of the Horticultural Plants of Qatar. A.M. RIZK and A.S. AL-NOWAIHI. Scientific and Applied Research Center, University of Qatar, P.O. Box 2713, Doha, Qatar. 1989. xv + 286 pp. 17 × 24 cm. Price not available. ISBN 0-900040-30-0.

Since Qatar is a sparsely populated Persian Gulf state a little smaller in area than Connecticut, one might expect lean phytochemical pickings indeed from a volume with the above title. However, 120 cultivated species are described, with extensive details on the phytochemistry of such well-known garden plants as gladiolus, hollyhock, jasmine, oleander, and the rose being included. The book has been clearly typeset, and nearly 700 standardized structural formulas are presented, with most having full details of stereochemistry. The plants covered are grouped alphabetically according to their family, and the book also contains a short Glossary of Medical Terms and separate Botanical and Subject Indexes. About 2300 references are cited, which are current until the end of 1986. There are also 188 horticultural plant color slides, which this reviewer found to be very instructive.

In a typical entry for a horticultural species, the Latin binomial, common name, and Arabic name (English transliteration) are provided. Phytochemical information is then detailed in rather matter-of-fact, non-critical manner for the various parts of the plant concerned. Also provided are relevant points on ethnomedical and economic aspects. Although the book appears to have been conscientiously written, a sizable number of errors of fact were noted. For example, the captions for the pyrrolizidine alkaloid structures retrosinc and otosenine have been interchanged on p. 63, a substituent group is missing from the structure of the diterpene 6 β -hydroxycarnosol on p. 88, and rubusoside is an *ent*-kaurene glycoside rather than an *ent*-labdane glycoside as stated on p. 189. Unfortunately, the book also contains a rather large number of typographical errors, which detract somewhat from its overall high quality.

Although the publication of *The Phytochemistry of the Horticultural Plants of Qatar* is to be warmly welcomed, this book is too narrow in scope and too outdated to be able to recommend for general individual or institutional purchase. Nonetheless, phytochemists and other natural product scientists who also happen to be diehard gardeners might very well enjoy perusing its contents.

A. DOUGLAS KINGHORN, *University of Illinois at Chicago*

Recent Advances in Phytochemistry. Volume 25. Modern Phytochemical Methods. Edited by NIKOLAUS H. FISCHER, MURRAY B. ISMAN, and HELEN A. STAFFORD. Plenum Press, 223 Spring Street, New York, NY 10013. 1991. x + 407 pp. 15 × 22.5 cm. \$85. ISBN 0-306-43925-5.

This volume in the continuing series published by Plenum Press, of the symposia presented at the annual meetings of the Phytochemical Society of North America, represents another fine contribution in an area that is rather neglected, namely the state-of-the-art procedures for the isolation and characterization of natural products in general, and phytochemicals in particular. Separate books are available on the various nmr and mass spectral techniques and the newer chromatographic methods, but books that bring these together and combine them with other related plant analytical techniques are rare. In this respect therefore this book fills a valuable niche.

The eleven chapters constitute the presentations made at the 30th Annual Meeting of the PSNA held at the University of Quebec in 1990, and it is therefore refreshing to see this volume published so expeditiously in order to maintain currency. The selection of topics is somewhat eclectic, since it reflects the personal choices of the Symposium organizers; thus some chapters are perhaps more relevant to the traditional natural product chemist and the phytochemist than others, but overall there is quite good balance between spectroscopy and chromatography, along with the introduction of techniques such as supercritical fluid chromatography and trichome microsampling.

Hostettmann and co-workers review "New Developments in the Separation of Natural Products" and focus particularly on droplet countercurrent chromatography and centrifugal partition chromatography. Some examples of the effective combination of newer chromatographic techniques are then presented. Barron and Pabst describe some of the "Recent Advances in High-Performance Liquid Chromatography of Volatile Natural Products." These include advances in the prefractionation of aroma extracts by filtration on silica Sep Pak cartridges and their chromatography by hplc on LiChrosorb Si-60 and procedures for the semi-preparative isolation of volatile components. "Enantioselective Separations in Phytochemistry" are

addressed by Lewis and co-workers, who describe the developments that have occurred in chiral separation techniques by hplc and gc and then offer a range of examples representing the major classes of natural products. Unfortunately, the biological importance of such chiral separations is not addressed. The rapidly emerging area of "Supercritical Fluid Chromatography for the Analysis of Natural Products" is discussed by Foley and Crow. The methodologic nuances are well described, followed by a series of examples. In the final chapter on chromatography Pidgeon and his colleagues present the quite new technique of "Immobilized Artificial Membrane Chromatography," which can be used to separate membrane proteins.

St. Pyrek illustrates with a number of key examples the use of "Mass Spectrometry in the Chemistry of Natural Products." This is a broad overview of the major mass spectral techniques and includes a number of pertinent examples. This is followed by a chapter contributed by Smith and co-workers on the "Structure Elucidation of Natural Products by Mass Spectroscopy," which focuses on the biologically significant acetogenins being isolated from the Annonaceae.

The many diverse 2D nmr techniques that are available are discussed in the chapter "Modern NMR Methods in Phytochemical Studies" by Fischer and colleagues and illustrated by a broad range of applications to the structures of some known sesquiterpene lactones and biosynthetic work on some polyketide-derived thiophenes.

Spring indicates the "Trichome Microsampling of Sesquiterpene Lactones for the Use of Systematic Studies." Following a description of the technique, an illustrative series of applications involving sesquiterpene lactones is offered. Croteau and co-workers present "Biosynthetic Methods for Plant Natural Products: New Procedures for the Study of Glandular Trichome Constituents." Current methods are described for the isolation of cell clusters and for the use of gland cell preparations in the mechanistic aspects of an enzymatic step in monoterpene biosynthesis and its localization.

In the final chapter, Marles and his colleagues discuss "Quantitative Structure-Activity Relationship Analysis of Natural Products: Phototoxic Thiophenes." This is relatively unstudied area, as far as natural products are concerned, and this group brings the field to relevance describing some interesting studies on a series of biologically significant thiophenes.

Overall, this is a well-produced book. The diagrams are typically clear, the spectra and chromatograms are a good size and thus easily legible, and the written material is very free of errors. The editors are to be congratulated on assembling a worthwhile volume, and the publishers are also to be congratulated on providing a book that is typeset, rather than being camera-ready, and publishing it in a timely manner. It is recommended for both personal and public science libraries.

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

Reagents for Organic Synthesis. Volume 16. MARY FIESER. John Wiley and Sons, 605 Third Avenue, New York, NY 10158. 1992. 435 pp. 15 × 22.5 cm. \$54.95. ISBN 0-471-52721-1.

This sixteenth volume in the well-established *Reagents for Organic Synthesis* series continues the format and coverage of the earlier volumes. It was prepared by Mary Fieser with assistance from a team of nineteen "advisors," and covers the literature of 1989 and 1990. As with previous volumes, purchase is highly recommended to all researchers who use organic synthesis in their work.

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