

Book Reviews

Handbook of Reagents for Organic Synthesis; Oxidizing and Reducing Agents. Edited by Steven D. Burke (The University of Wisconsin at Madison) and Rick L. Danheiser (Massachusetts Institute of Technology). John Wiley and Sons, New York, NY. 1999. xii + 550 pp. 21 × 37.5 cm. \$115.00. ISBN 0-471-97926-0.

Oxidizing and Reducing Reagents is part of the four-volume set *The Handbook of Reagents for Organic Synthesis*, which is a condensation of the *Encyclopedia of Reagents for Organic Synthesis*. The 145 reagents selected for inclusion represent “the most important and frequently employed”. The reviews of each reagent are identical with those that appear in the *Encyclopedia*. The goal is to provide an affordable alternative to the *Encyclopedia*.

This volume begins with classifications: oxidizing agents (24 classes) and reducing agents (35 classes). All the reagents covered in the *Encyclopedia* are listed; those covered in this volume are listed in boldface type. This volume contains some updates in the form of recent reviews (1993–1997) and selected relevant new procedures from *Organic Syntheses* (Vols. 69–75). Each entry begins with some physical data on the reagent and other relevant information such as purification methods, handling/storing information, analysis of purity, and precautions. Some entries also begin with a useful general discussion. The editors have added a “Related Reagents” section at the end of each entry; this useful addition facilitates locating alternative procedures. The volume contains both a reagent formula and subject indices.

The authors have created a useful, affordable monograph. My review copy sits in our laboratory, where students consult it regularly. I fully endorse the comments of Horacio F. Olivo (*J. Med. Chem.* 2000, 43, 1898–1899), who “found the organization of the Handbook very useful, especially the graphical indexing of reactions in *Organic Syntheses*. All practicing chemists will definitely benefit by using any or all of the Handbooks”.

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Studies in Natural Products Chemistry, Vol. 21: Bioactive Natural Products (Part B). Edited by Atta-ur-Rahman, Elsevier Science, Amsterdam, The Netherlands. 2000. xiii + 812 pp. 16.5 × 24 cm. \$432.00. ISBN 0-444-50469-9.

This is the 21st in a series of volumes edited by Professor Atta-ur-Rahman of the H.E.J. Research Institute of Chemistry, University of Karachi. There are actually four sub-series of volumes underway (Stereoselective Synthesis, Structure Elucidation, Structure and Chemistry, and Bioactive Natural Products) under the general series title. This is Volume B in the Bioactive Natural Product Series, Volume A having been published in 1993.

This particular volume is comprised of 14 comprehensive chapters written by the leading researchers in their respective fields of expertise. It is an extraordinary tour-de-force in organization to bring together such a volume. The topics and the key authors include discussions of how alkaloids interfere with neuroreceptors and ion channels (Wink); the chromone alkaloids (Houghton); prodrugs of natural anthocyanins (Tillequin); natural fungicides and biocontrol agents derived from soilborne fungi (Ghisalberti); the SAR of some bioactive metabolites from selected invertebrates from the Indian and Pacific Oceans (Proksch); the biosynthesis of bioactive marine natural products (Kerr); marine natural products with cyanide and thiocyanate functional groups (Garson); polyene amide natural products (Yus); phytochemicals with hypoglycemic activity (Lamba); analytical techniques for procyanidins (Sticher); bioactive constituents of essential oils (Nakatsu); bioactive steroidal and triterpene saponins (Wagner); bioactive diterpenoids from *Scoparia dulcis* (Hayashi); and a summary of some recent studies on bioactive principles from Chinese medicinal plants (Xu).

As has characterized this series from the outset, the production values for the volume are very high. The paper is of good quality, and the diagrams and figures are clear and well-presented. This volume should be on the shelves of every chemical library because it reflects both the diversity and the significance of bioactive natural products in this era and possibly those to come. For the individual scientist, purchase is out of the question, which is a great pity because it is the kind of volume, for either graduate level teaching or casual reading, one would want to periodically dip into. Clearly, if the lava flow of information on natural products is to continue to help teachers and research scientists keep up in their field, a paradigm shift has to occur or inaccessibility will render such a treatise as having no intellectual value.

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Sixty Medicinal Plants from the Peruvian Amazon: Ecology, Ethnomedicine and Bioactivity. Cristian Desmarchelier (University of Buenos Aires) and Fernando Witting Schaus (Peruvian NGO PROTERRA). Published privately, Peru. 2000. 270 pp. 16.5 × 21.5 cm. \$19.90. ISBN 9972-9186-0-2.

This book aims to describe ethnomedicinal, pharmacological, and phytochemical information available for 60 medicinal plants of the Peruvian Amazon basin. Each is provided with scientific and common names, family, brief description, ecology, ethnomedicine, bioreactivity, and references, usually with a color photograph or drawing. There is a glossary and index to plant names and their families. The book is divided into sixty parts, one for each

species or genus, conveniently organized into two adjacent columns providing texts in both Spanish and English.

In their Introduction (p 26) the authors state that "at present there are no large scale projects in Peru focusing on searching for new natural products with pharmaceutical potential". On the next page they describe the International Cooperative Biodiversity Group (ICBG) programs that function to conduct research in medicinal plants. Peru is included among the countries involved. The meaning of "large scale projects" is not defined, but perhaps our ICBG-Peru program qualifies, since it has been conducting research for new pharmaceuticals in collaboration with two major Peruvian universities and a large indigenous group, the Aguaruna. It has spent about \$1 million in this endeavor in Peru alone over the past six years, and readers can be assured that such research has been very active since 1994 and it continues so today, notwithstanding what the authors fail to know.

How does one choose 60 out of hundreds if not thousands of plant species used in traditional and domestic medicine in Amazonian Peru? This is never easy, although obviously one begins by selecting the most prized examples, those used widely because of known or perceived efficacy. Additionally, one groups active species under appropriate genera, thereby allowing discussions of several species, as done, for example, for *Erythrina* sp. and *Persea* sp. (unfortunately using the singular abbreviation for species when the plural 'spp.' was meant). These procedures were followed by the authors, at least in part. However, I question why such widely used genera as *Cassia*, *Dioscorea*, *Euterpe*, *Guarea*, *Lantana*, *Peperomia*, *Philodendron*, *Psychotria*, *Siparuna*, *Solanum*, *Tabernaemontana*, and *Vismia* were ignored, while for instance *Amburana*, *Clarisia*, *Comelina*, *Gallesia*, and *Minthostachys*, each certainly of minor prominence, were included. It is a judgement call, of course, but this reviewer believes that if greater consideration had been given to the selection of plant species, then the outcome would have been a more meaningful and representative volume.

Once selected, the names of the 60 medicinal plants should reflect current taxonomy and their illustrations

should be provided with correct names. Unfortunately, this is not always the case. The reader should be aware that *Chlorophora tinctoria* (L.) Gaud. ex B.D.Jackson = *Maclura tinctoria* (L.) Steudel; *Cinchona* spp. are to my knowledge not known in the Amazon basin; the illustration (p 133) labeled the sedge *Cyperus articulatus* L. is in fact the iris *Eleutherine bulbosa* (Miller) Urban; *Maytenus laevis* (Russek) Martius is not known in Peru, possibly they refer to the widespread *M. macrocarpa* (R. & P.) Briq. (an illustration would have been helpful); *Piper angustifolium* R. & P. = *Piper aduncum* L.; and *Pseudocalymma alliaceum* (Lam.) Sandw. = *Mansoa alliacea* (Lam.) A.Gentry, a Bignoniaceae, but its illustrations (pp 219–220) are actually of *Dieffenbachia costata* Klotzsch (Araceae), representing a very different subdivision of flowering plants. This would be like identifying an alkaloid as a flavonoid, or worse! Moreover, too many photographs are identified only to genus, yet most could have been determined to species, if only the authors had contacted one of several taxonomists specializing in Peruvian plants at the Museum of Natural History in Lima or the Missouri Botanical Garden in St. Louis for determinations. Highly qualified botanists from these institutions have been actively researching the Flora of Peru since 1975, and with their input the scientific worth of the publication would have been significantly increased.

Even though there is much about this volume to criticize, a literature synthesis involving morphology, ecology, ethnomedicine, and bioactivity in order to understand better the properties and activities of medicinal plant taxa is a superb approach. It is a model worth following, and I commend the authors for including so broad a coverage.

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