



## BOOK REVIEWS

**Carotenoids, Volume 1A, Isolation and Analysis; Volume 1B, Spectroscopy**, edited by G. BRITTON, S. LIAAEN-JENSEN and H. PFANDER, Birkhauser-Verlag, Basel, 1995. 1st Vol, 328 pp. 2nd Vol, 360 pp., £74.00 ISBN 3-7643-2908-4 & 3-7643-2909-2.

The carotenoids are a special group of natural pigments, because they provide the colours of so many living organisms, from bacteria and algae through higher plants to fish, crustacea and birds. Furthermore, one of the most widespread pigments,  $\beta$ -carotene is uniquely important to Man as a dietary source of vitamin A. Many excellent books have appeared chronicling their chemistry and biochemistry, notably by P. Karrer and E. Jucker (1948), T. W. Goodwin (1952, 1980, 1984) and O. Isler (1976). These two volumes continue the tradition of excellence and represent the first of a new generation describing the chemistry, biochemistry and natural occurrence of these key pigments of life.

The first volume contains 12 chapters and opens with a history of 175 years of carotenoid chemistry (by C. H. Eugster) and a general review of the field by the editors. The third chapter by B. C. L. Weedon and G. P. Moss deals with matters of structure and nomenclature. The following three chapters cover iso-

lation and analysis, with much useful information on the column chromatography, TLC and HPLC of these colouring matters. Later chapters provide worked examples of how to isolate carotenoids from a range of sources: from higher plants (G. Britton) and bacteria (G. Britton and R. Riesen) to lobsters (P. F. Zagalsky). There is also an appendix listing those new carotenoids discovered since 1986, eight of these having been reported in this journal for the first time.

The second volume contains eight chapters devoted to spectroscopy and they cover circular dichroism, UV-visible, Raman, IR, NMR, mass spectrometry and X-ray crystallography. The final chapter by S. Liaaen-Jensen discusses the combined approach for identification and structural elucidation and additionally provides five examples of pigment characterisation. These two volumes, written by leading experts provide the most up-to-date information available on the isolation and identification of carotenoid pigments. They are generously illustrated with many structures, spectral curves, isolation schemes and NMR data. Hence these books are essential purchases for all scientists working with this important class of plant and animal pigment.

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**Identification of Lichen Substances**, by S. HUNECK and I. YOSHIMURA, Springer, Berlin, 1996, 493 pp. DM 390. ISBN 3-540-60811-7,

Here is an indispensable handbook for all those phytochemists working with lichens. It has a brief introductory section on the history and uses of lichen chemicals. This is followed by a 100-page section on methodology with, in particular, responses of lichen substances to colour reactions, a sequential list of molecular weights and formulae and a series of plates illustrating the different microcrystalline forms. The rest of the handbook is devoted to a collection of data for about 700 lichen substances, these being listed

alphabetically within each class and subclass. These data are not completely comprehensive, but for most substances, there is more than enough information to enable an identification to be achieved. An average entry contains name, formula, structure, colour, mp, colour reactions, followed by UV, IR, MS and NMR values, TLC and a source, with a literature reference. The whole work appears to be both authoritative and accurate, and will undoubtedly prove to be a boon in any laboratory handling these interesting and colourful natural products.

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**African Ethnobotany—Poisons and Drugs**, by H. D. NEUWINGER (translated from the German by AILEEN PORTER), Chapman and Hall, Weinheim, 1996. 941 pp., DM 248. ISBN 3-8261-0077-8.

This book is a comprehensive review of the chemical

composition, pharmacology and toxicology of more than 240 higher plants that are used as arrow poisons in the African continent. Many of these plants are noted for their medicinal properties and such details are also included. Plants are arranged alphabetically by family and alphabetically within a family. Litera-

ture references are provided on a generic basis. Illustrations include both black and white drawings of all plants and colour photographs of a representative sample. In addition, there are morphological descriptions, distribution maps, lists of vernacular names and several indexes.

The link between chemistry and mammalian toxicity is not always clear, since the active principles of the arrow poisons have not been ascertained in every case. Several *Aloe* species for example were used as arrow poisons and also were known to cause human deaths following self medication; all this was before the recent discovery by Nash *et al.* at Kew of the presence of the hemlock alkaloid  $\gamma$ -coniceine in these plants. In retrospect, the toxicity of these *Aloes* would seem to be explained in part at least by the presence of this deadly alkaloid. Not surprisingly, plants of the Apocynaceae and Asclepiadaceae with their car-

denolides feature regularly. Much interesting material is included on the preparation of the plant matter for use in arrow poisons, and on other incidental uses of these toxic extracts, e.g. for trial by ordeal. There is indeed a wealth of ethnobotanical information in these pages and its highly readable style will ensure that it is consulted on a regular basis by botanists, pharmacists and phytochemists.

Some errors have crept in, e.g. in the naming of plant products (e.g. saponine for saponin). Probably this happened during translation, but generally speaking these errors are trivial. Such errors do not detract from what is clearly a major work of reference which will surely remain the standard manual in African ethnobotany for some time to come.

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