

BOOK REVIEWS

Preparative Chromatographic Techniques—Applications in Natural Product Isolation: by K. Hostettmann, M. Hostettmann and A. Marston. Springer, Berlin, 1986. 139 pp. DM 98.

With the rapid progress that has been made in recent years in developing yet more sophisticated spectroscopic procedures and with the routine availability of X-ray crystallography, structural elucidation has now become the easiest part of a natural product investigation. The really difficult bit is the isolation and purification and there is as yet no general formula available for the automatic separation of natural plant substances. Each plant and its constituents provide a new challenge to the experimentalist who has to choose carefully among a battery of chromatographic techniques in order to achieve success.

While much has been written about the techniques of analytical chromatography, the subject of preparative chromatography has rarely been tackled on a com-

prehensive basis and we therefore owe a debt to these authors in providing us with such a guide. The authors write with considerable authority since they have themselves developed many new procedures for separating natural plant products. Within these pages are valuable hints about the uses of planar, column, liquid and counter current chromatography. A final chapter deals with the question of which combination of preparative techniques are most likely to succeed in any given situation.

Although a slim volume, it is packed with information about solvent systems and column dimensions and is extensively illustrated with formulae, diagrams of apparatus and chromatographic profiles. This book fills an important gap in the available literature and is therefore a must for the phytochemical laboratory. It deserves every success.

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Alkaloids: Chemical and Biological Perspectives, Volume 4: edited by S. W. Pelletier. John Wiley, New York, 1986. 443 pp. £95.50.

This issue is dominated by a monumental review by J. W. Daley and T. F. Spande on amphibian alkaloids. Over 200 unique alkaloids have been characterized from poisonous frogs and salamanders and this chapter provides a masterly account of their isolation, properties, syntheses and pharmacological activities. Conservationists might blanch at the fact that 2400 frogs of the genus *Phylllobates* were extracted in order to yield milligram quantities of the various batrachotoxins. These alkaloids happen to be among the most poisonous substances known to man; the lethal dose in humans is estimated to be less than 200 µg.

The second chapter by W. Fenical is the first comprehensive review of marine alkaloids to have been written. He describes the alkaloids reported from marine micro-organisms, seaweeds and sea creatures that range from sponges and tunicates to molluscs and puffer fish. It is a fascinating account of a plethora of structures, which are all nitrogenous and which clearly have a variety of ecological roles. It is interesting, for example, that heteroaromatic amines of the coelenterate genus

Parazoanthus are bright yellow in colour and appear to provide warning colouration to predators as well as being toxic. The most amazing alkaloid structure of all is probably that of palytoxin, which also occurs in a coelenterate, *Palythoa toxicus*. Its formula takes up a full half page and it took 15 years of active research to determine its structural assignment.

The remaining two chapters do not have quite the same panache and interest, but they are nevertheless worthwhile contributions. The first by P. G. Waterman covers the dimeric alkaloids of the Rutaceae derived by Diels–Alder addition, a relatively new group of some 30 substances found in *Flindersia*, *Xanthoxylum*, *Euxylophora* and related genera. The second by R. F. Keeler discusses the teratology of steroidal alkaloids with particular reference to the teratogens of *Veratrum californicum* and of blighted potatoes. Once again, therefore, the editor has gathered together a series of authoritative articles, which will command the interest not only of alkaloid chemists but also many other natural product workers.

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