Virtual Activity, Real Pharmacology—Different Approaches to the Search for Bioactive Natural Compounds, edited by LUISELLA VEROTTE. Research Signpost Publications, Trivandrum, India, 1997 (ISBN 81-86481-17-6), 237 pp.

Never in the history of science has the search for new bioactive natural compounds in the plant kingdom, or elsewhere, been so intensive. Several research papers are published every day recording some success or other, while popular journals like the 'New Scientist' frequently describe new useful plant drugs. The pressures are on for exploiting the hidden treasures of the natural world, because of the many threats of species extinctions. And yet, where does one start in the hunt for pharmacologically interesting new plant metabolites?

The answer to that question given here is hidden in this quotation from Francis Bacon: 'If we begin with certainties, we shall end in doubts; if we begin with doubts, and are patient in them, we shall end in certainties'. In other words, begin with a plant or a group of plants where some activity—even toxicity—is present and explore further. This is nicely illustrated in the opening chapter by G. Appendino, who has studied the haemorrhagic poisoning effects of a well known Mediterranean plant *Ferula communis*. The search for the active principles in this plant were at first hampered by the existence of chemical races within the species. A range of novel structures were eventually uncovered, including several isoprenylated coumarins. The lethal cocktail, to cattle, in the toxic chemotype, turned out to be two coumarins, coupled with falcarindiol and some acetophenones. Fortunately, some of the prenylated coumarins were non-toxic and showed useful anticoagulant activity.

Another similar investigation, reported in this book, is of a *Combretum* species, where eating the winged nut causes hiccups. Hence, it is known as the 'hiccup' nut. L. Verotta and C.B. Rogers report their discovery of a number of pharmacologically active components, chiefly of the dihydrostilbene type, in the leaves and wood of this plant. Other chapters in this book describe similar reinvestigations of plants such as *Aconitum*, *Taxus* and *Thapsia*. A number of more general articles consider the possibilities of finding active substances in plant cell cultures, in the marine environment and among the lichen flora of the Canary Islands. Finally, O.R. Gottlieb in one of his inimitable contributions, points out the importance of following up chemosystematic leads rather than relying on the more 'hit and miss' approach of ethnobotany.

This collection of essays in dedicated to the memory of Professor P.V. Gariboldi, who contributed so much to the structural elucidation of novel plant products. This book makes excellent reading and is a worthy tribute to a distinguished organic chemist.

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Phytochemical Methods: A Guide to Modern Techniques of Plant Analysis, by J. B. Harborne, third edition, Chapman and Hall, London, 1998, xiii + 302 pp., £24.99 pbk, ISBN 0-412-57270-2.

There can be little doubt that great progress has been made in our ability to analyse and identify chemicals in plants since the publication of the first edition of this volume some twenty-five years ago. In the intervening years, a resurgence of interest in phytochemistry has led to a proliferation of specialised texts dealing with almost every aspect of this multi-disciplinary subject area, not to mention dictionaries and databases now available in CD-ROM format which allow extensive data searches to be carried out. At the other end of the information scale, a single volume which provides a comprehensive description of methods for analysis and indentification of most types of plant substance is most definitely an attractive option, and a new edition of J. B. Harborne's classic text is to be welcomed.

The layout and style are similar to previous editions. An introductory chapter outlining methods of plant analysis is followed by a further six arranged according to broad classes of plant compound, namely phenolics, terpenoids, organic acids, lipids and related compounds, nitrogen compounds, sugars and their derivatives, and macromolecules. A useful data source included as an appendix is a summary of TLC systems for detecting all major classes of plant chemical. Suggestions for practical experiments that could be readily introduced into undergraduate or Master's level degree courses are also included. The main body of the text has been updated with many new references and a number of additional sections which reflect some of the more recent developments in phytochemical knowledge. Among these are entries describing malonylated anthocyanins and lipophilic flavonoids in the chapter on phenolic compounds, while alkaloid N-oxides and polyhydroxyalkaloids make their debut in the chapter on nitrogen compounds. It is a pity however that the sections on methods of identification in the first chapter remain essentially unchanged, despite substantial progress made in spectroscopic techniques since the publication of the second edition in 1984. It would have been useful to include some recent exam-

ples of the use of NMR spectroscopy, as well as mention of combined techniques such as liquid chromatography-mass spectroscopy (LC-MS) and LC-NMR. Nevertheless this is a minor observation and should not be allowed to detract from what is overall a very valuable book. The style remains clear and consistent, and an attractive additional feature of interest is the commentary provided by the author on the distribution and uses of many of the plant compounds introduced in the text.

The paperback version of this new edition is reasonably priced, and a hardback version is also available, albeit at a considerable premium. We have seriously considered chaining one copy of the new edition to a bench in our laboratory, thus ensuring that it will always be available for reference! Although the book is most relevant to practical research and teaching in phytochemistry, it can also be recommended to research workers in related disciplines who require access to methods for analysis of the seemingly endless variety of interesting molecules found in plants.

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Induced responses to herbivory by R. Karban and I.T. Baldwin, University of Chicago Press, 5801 South Ellis Avenue, Chicago, Ill. 60637. 1997. 319 pp. ISBN 0-226-42496-0

Although the fact that plants can respond to herbivory by changes in their biochemistry has been recognised for some time, extensive studies of this phenomenon in plants only became a dominant theme in ecological biochemistry in the last decade. A seminal paper by one of the authors of this book, Ian Baldwin, on alkaloid responses in wild tobacco, could be said to have launched an avalanche of papers on similar topics. Some of the pioneering workers in the field summarised the results of their experiments in a book "Phytochemical induction by herbivores", edited by D.W. Tallamy and M.J. Raupp and published in 1991. What we have in this book is a more up-to-date, coherent and critical overview of this exciting new area of chemical ecology.

The book is divided into six chapters, which consider in turn: the phenomenology of induction; how plants perceive damage; mechanisms of induced responses; induced resistance against herbivores; evolution of induced resistance; and using induced resistance in agriculture. Each chapter contains a variety of tabular material listing the results of many recent experiments and there is a 50 page bibliography at the end. I found this book to be a most attractive and thought-provoking account of this burgeoning field. It provides, in effect, key reviews of many other aspects of ecological biochemistry besides induced defence and with its focus on the plant rather than the herbivore will be of much interest to a wide range of plant scientists.

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