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BOOK REVIEWS

The Alkaloids, Volume 32: edited by A. BROSSI, Academic Press, San Diego, California, 1988, 454, pp., $99.

With the improved techniques for separating and identifying plant products available today, the rate of discovery of new structures has accelerated to the point that it is quite difficult to ascertain whether a new product is indeed new or even to determine how many structures within a particular class are known. For alkaloids, the number of structures is close to 10 000, as is clear from the new comprehensive dictionary to be published by Chapman & Hall later this year. The main way of keeping up with the plethora of new information on these plant bases is the review series originally edited by Manske but now by Brossi, of which Volume 32 has just appeared.

Three of the five chapters in this volume provide updated reviews on the chemistry and pharmacology of particular alkaloid classes. The most substantial of these, by Atta-ur-Rahman and A. Muzaffar, is an account of steroidal alkaloids of Apocynaceae and Buxaceae and covers the literature since about 1970. Equally valuable is an extensive review by M. F. Grundon on quinoline alkaloids related to anthranilic acid. This chapter contains extensive listings of the distribution of these alkaloids in rutaceous plants and reports on the literature between 1976 and 1986. The third of these chapters is specifically devoted to Chinese medicinal plants. Dr Han of Beijing Medical University and two colleagues report work on diterpene, tropane and Stephania alkaloids from the plants of traditional Chinese medicine, carried out since 1980.

Of the remaining two chapters, one by H. Hiemstra and W. N. Speckamp is entirely concerned with laboratory synthesis and the role of *N*-acyliminium ions as intermediates, with particular reference to carbon–carbon bond formation. The other by Y. Hashimoto and two colleagues from Kobe University is the most immediately appealing to a wide audience since it deals with the forensic chemistry of alkaloids. 'Methods' chapters are always of interest; even if you are not working on the same compounds, you can often pick up useful tips that you can apply to your own separation problems. This one is a wide-ranging chapter covering all the major drugs of addiction and contains much useful information on the TLC and HPLC of these alkaloids and on methods of detection and quantification.

This volume, like its predecessors, fulfils an important function in science in reviewing the ever burgeoning alkaloid literature in an attractive and authoritative way and it should be available in all phytochemical libraries.

School of Plant Sciences, University of Reading

JEFFREY B. HARBORNE

Biological Control of Pests, Pathogens and Weeds: edited by R. K. S. WOOD and M. J. WAY, The Royal Society, London, 1988, 266 pp., £47.50.

Natural Pesticides from the Neem Tree and other Tropical Plants: edited by H. SCHMUTTERER and K. R. S. ASCHER, Deutsche Gesellschaft für Technische Zusammenarbeit, Eschborn, Germany, 1988. 703 pp. no price given.

Although synthetic pesticides are likely to remain the major means of crop protection for the foreseeable future, increased use of natural methods of pest control will be necessary to overcome problems of pesticide resistance and to reduce possible hazards of synthetic materials remaining undegraded in the environment. These two books provide a useful overview of these natural methods of control and they also indicate how far such procedures are likely to be adopted in the future. They both stem from Symposia held respectively in London in February 1987 and in Kenya in July 1986. They are entirely complimentary since the first deals with biological control and the second with natural pesticides. It is encouraging to see that such methods do work in practice, but equally it is apparent that many vested interests are present in the world which seem to hinder the development of these natural methods.

In the book on biological control, the most gripping chapter to me was that of John Lawton describing the constraints and opportunities for introducing two moth species from South Africa to England to control the spread of bracken in this country. Even when the scientific problems have been solved, there are many other factors that have to be considered. It has not yet been possible to get permission to carry out a trial experiment on an offshore island with these two insects so we do not know how successful this control would on the bracken weed. The other chapters in the book are more concerned with biological control of the pests of crop plants. H. F. van Emden discusses the potential for managing natural enemies of aphids on field crops, indicating for example the importance that plant odours have in attracting aphid parasitoids to home in on their hosts. He also points out the value of growing crop varieties which show some resistance to aphids since this improves the natural enemy: aphid ratio and hence the impact of biological control. John Pickett, in another chapter of phytochemical interest, reviews the integrated use of beneficial organisms with chemical crop protection, indicating for example the possibilities of keeping bees away from crop plants during insecticide spraying by releasing pheromonal repellents at the same time. In the final chapter the view of the pest industry is expressed by A. R. Jutsum of ICI, who points out that in spite of the fact that biological control has been used on and off for nearly a hundred years, it still only contributes 1% of the crop protection market. He concludes that the role of biological control is

still a complimentary one to chemical control, mainly as part of an integrated control system.

The second volume under review deals with the potential of natural pesticides as control agents but concentrates almost entirely on those from the seeds of one plant, the Neem tree. The book consists of 50 short papers and lacks any overall synthesis. The papers are roughly grouped under sectional headings such as phytochemistry, mode of action, effects on feeding behaviour and metamorphosis of insects, and use in the control of particular pests. The main application of Neem extracts would seem to be at present in Third World countries and there is evidence of useful control in the field of a variety of pests. For example in Mauritius, Neem seed extract was as effective as Deltamethrin in controlling insect pests on vegetable crops; however the best protection was obtained by alternating treatments of synthetic and natural insecticide. This would be advantageous also in counteracting the problems of insect resistance in the field. From reading these papers it is possible to conclude that Neem control has a promising future but more encouragement is urgently needed, e.g. from aid organisations, before it is likely to replace synthetic pesticides on any scale.

School of Plant Sciences, University of Reading

JEFFREY B. HARBORNE