

BOOK REVIEWS

Progress in the Chemistry of Organic Natural Products—Volume 35: edited by W. HERZ, H. GRISEBACH and G. W. KIRBY. Springer, Vienna, 1978. 589 pp. DM 258.

Either by accident or design, the editors of this annual series have here produced a volume which will be of especial relevance to research workers in the phenolics field. Thus three of the five chapters are devoted to phenylpropanoids: to neolignans, cinnamic acid derivatives and coumarins. Nevertheless these three specialist reviews are balanced by two more general articles on 4-ylidenebutenolides (a cumbersome name to pronounce!), which have representatives among a variety of natural product classes, and on aroma components, where most of the compounds are terpenoids or simple aliphatic molecules. In general, the emphasis in this volume is strictly on organic chemistry (structure and synthesis), although biosynthetic origins are considered in most chapters and the organoleptic properties of organic molecules are particularly considered in the aroma chapter.

Neolignans are a relatively new class of natural product and are dimers formed from carbon-carbon coupling of propenylbenzene and/or allylbenzene precursors. Nearly all have either potential (methoxy) or actual phenolic hydroxyl substitution and some are valuable pharmacologically as antitumour agents. Already, some 120 structures have been isolated from 13 plant families and it is therefore highly appropriate that O. R. Gottlieb, who has himself described many of these compounds as new natural products, should present here a compre-

hensive review of their chemistry. The second phenylpropanoid chapter by K. Herrmann is also very timely, since so many new bound forms of hydroxycinnamic acids have been described over the last ten years. This review is thorough and complete, and includes data on the melting point and rotations of most compounds described. The main aim of the third phenylpropanoid chapter on natural plant coumarins by R. D. H. Murray is to provide an up-to-date listing of the 502 known structures and this occupies some 11 tables and nearly 200 pages of text. Useful cross references are also available in terms of formulae and trivial name indexes. The need for such listing is only too apparent in the duplication of trivial names for a number of structures, where workers have isolated apparently 'new' compounds without realising that the same new compound has been described earlier. Some of the duplicate names, however, are also due to simultaneous discoveries being made in the same year from different sources by different workers. This excellent and accurate review will provide an essential checklist for anyone reporting a new coumarin from natural sources in the future.

In summary, this volume once again has achieved its avowed purpose of providing timely reviews of new and expanding areas of natural product investigation. It is impeccably produced and exhaustively indexed and should be widely available in libraries.

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Phytochemistry, 1979, Vol. 18, pp. 707–708. Pergamon Press. Printed in England.

Alkaloid Biology and Metabolism in Plants: by G. R. WALLER and E. K. NOWACKI. Plenum Press, New York, 1978. xvii + 294 pp. \$22.50.

Waller and Nowacki have attempted to pull together scattered information about the more botanical aspects of alkaloids. The coverage of the literature is thorough and up-to-date with at least one reference into 1977. Particularly useful are references to a number of Eastern European publications which are difficult to obtain in the U.S.A. Author and subject indexes are exhaustive and accurate. There are quite a few dense tables of data taken directly from original publications; in my view, these would be better left out in a work such as this. The overall style impresses me as bordering on disorganization, with some sections being out of place and others overly repetitive. In most cases this style does not defeat the understanding, but some examples where it does will be cited below. I detected only about ten errors in struc-

tural formulae, and most of these were trivial. The text is virtually free of typographical errors. Several ecological generalisations that appear in various contexts seem to reflect an anthropocentric bias or are not unequivocally supported by the evidence. It is not true, for instance, that animals always avoid high alkaloid plants. Studies have shown that lethal diets may be accepted. Compounds tasteless to people (e.g. canavanine) cannot be assumed to be tasteless to insects (whatever that means). The sensible belief that alkaloidal plants are more prevalent in unfavorable habitats is contradicted by the extensive data assembled by D. A. Levin which show that the most productive habitats have the highest percentage of alkaloidal plants.

Chapter I is a discussion of chemotaxonomy that seems to cover all the pertinent literature in an appropriately critical way. There are a few small errors that interfere with the understanding, e.g. p. 33, 1.4 (–)-sparteine should be (+)-sparteine; p. 44, (+)-reticuline