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## BOOK REVIEWS

*Biosynthetic Products for Cancer Chemotherapy, Volume 1*, GEORGE R. PETTIT, Cancer Research Institute, Arizona State University. *Volume 2*, GEORGE R. PETTIT and GORDON M. CRAGG, University of Capetown, South Africa. Plenum Press, 227 West 17th Street, New York, N.Y. 10011, 1977. Volume 1, xii+215 pp, 15.6 x 23.6 cm, \$19.50. Volume 2, ix+150 pp, 15.6 x 23.5 cm, \$29.50.

The use of plant extracts for the treatment of cancer dates back at least 5000 years, but the systematic investigation of plants and also animal products as cancer chemotherapeutic agents dates only from the 1940's. In the relatively short period since then, almost 100,000 extracts have been tested, and some 400 active constituents have been isolated and identified from those extracts that proved to contain active material. The literature of this vast effort, overlapping as it does the fields of pharmacognosy, organic chemistry, and medicine, has been scattered through many different journals and other publications, and it is thus difficult for any one investigator to keep track of it all. In the first volume under review, Dr. Pettit has drawn together information relating to the biological origin, structure, and anticancer activity of compounds which show *in vivo* activity against cancer. In Volume 2 a tabular summary of all the naturally occurring antineoplastic and cytotoxic substances described in the chemical literature is presented.

The first volume opens with an excellent introductory chapter dealing with the nature and causes of cancer and with current methods for cancer treatment, including chemotherapy using synthetic drugs. The only weakness of this treatment is that some of the problems of cancer chemotherapy, including that of the development of drug resistance, are not mentioned. The second chapter outlines the history of the search for naturally occurring anticancer drugs, with especial reference to the National Cancer Institute's Drug Research and Development program. The bulk of the book is then given over to eight chapters describing anticancer agents isolated from higher plants, from fungi and other lower plants, and from marine and other animal sources. The compounds obtained from higher plants are described by structural type, with separate chapters on terpenoids, steroids, lignans, quinones and other nonnitrogenous products, and alkaloids and miscellaneous nitrogenous products. The presentation makes extensive use of structural formulae (almost a half of the space in the book is devoted to structures) and the tremendous diversity of natural products with anticancer activity comes across very clearly in these chapters.

The second volume contains a listing of some 400 compounds that have been isolated and identified as anticancer and cytotoxic substances in literature available to April 1976. The structure of each compound is given, together with pertinent data such as the molecular composition, melting point, organism of origin and (most welcome) biological activity. The compounds are arranged by chemical class, and the volume concludes with a brief discussion of the evaluation systems employed by the U. S. Natural Cancer Institute and compound and organism indexes.

The book was written, according to the preface, "to provide an overall view of the cancer problem and the development of cancer chemotherapeutic drugs of biosynthetic origin." Within this framework, it succeeds very well. One would not turn to it for a detailed discussion of the isolation or mechanism of action of any anticancer drug, but it would be the first place that this reviewer would turn to for a rapid update on the active compounds in a particular area and for leading references to isolation or mechanism of action studies. An extensive set of over 400 references and a useful index enhance the value of the book.

Dr. Pettit has done the scientific community a service in writing this book, and it is sure to find a ready acceptance among all workers in this important area of natural products.

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*Antibiotics, Isolation, Separation, and Purification.* (*Journal of Chromatography Library. Volume 15*), ed. M. J. WEINSTEIN and G. H. WAGMAN, Schering-Plough Corporation, Bloomfield, N. J. Elsevier Scientific Publishing Company, P. O. Box 211, Amsterdam, The Netherlands; 52 Vanderbilt Avenue, New York, N.Y. 10017. 1978. x+772 pp. 17 x 24.5 cm. \$86.75.

The publication of this book reflects the continued current interest in the field of antibiotics, and adds force to the remarks of Dr. H. G. Floss in his presidential address to the American Society of Pharmacognosy in 1977 when he asked why pharmacognosy has almost completely neglected the whole field of antibiotics.

The book consists of seventeen chapters written by a total of twenty-four scientists, and its scope is best illustrated by the following list of chapters and authors: Actinomycins (A. Mauger and E. Katz, 38 pp), Ansamycins (A. Ganguly, 29 pp), Cephalosporin Antibiotics (R. L. Hamill and L. W. Crandall, 31 pp), Coumarin-Glycoside Antibiotics (J. Berger and A. D. Bateho, 57 pp), 2-Deoxystreptamine-Containing Antibiotics (J. A. Marquez and A. Kershner, 45 pp), Griseofulvins (G. H. Wagman and M. J. Weinstein, 15 pp), Lincomycin Related Antibiotics (T. E. Eble, 41 pp), Macrolide Antibiotics (J. P. Majer, 35 pp), Marine-Derived Antibiotics (L. S. Shield and K. L. Rinehart, 77 pp), Penicillins and Related Antibiotics (B. B. Mukherjee and B. K. Lee, 27 pp), Peptide Antibiotics (E. Gross, 47 pp), Plant-Derived Antibiotics (L. A. Mitscher, 15 pp), Polyether Antibiotics (R. L. Hammill and L. W. Crandall, 41 pp), Siderochromes (H. Maehr, 65 pp), Streptamine-Containing Antibiotics (D. Perlman and Y. Ogawa, 29 pp), Streptothricins and Related Antibiotics (A. S. Khokhlovo, 97 pp), Tetracyclines (S. Neidleman, 45 pp).

The contents of many of the individual chapters are in fact much broader than the title of the book implies; thus several authors discuss the therapeutic use of their antibiotics, while others discuss the chemistry and even partial synthesis of theirs. The bulk of each chapter, however, is given to discussion of the methods of isolation and purification of the antibiotics of interest. This discussion is in general done thoroughly, with full references and, in some cases, with useful summary tables of chromatographic conditions.

Although no date of preparation of the manuscript is given, about half the chapters contained references to the 1976 literature as the latest reference, and the rest to the 1977 literature.

The book does have some defects. It was disconcerting, for example, to find that only one of the several antibiotics used in clinical practice against cancer was discussed. In addition, the technique of high-performance liquid chromatography was omitted from the discussion of some antibiotics (rifamycin, kanamycin, griseofulvin, and the penicillins), in spite of the existence of a review article dating from 1975 that discusses the HPLC of these and other antibiotics. The format of the articles varies rather widely also, in addition to the content variations noted earlier. Thus in some chapters the references occur at the end of each section, while in others they occur at the end of the chapter. Since the pages do not have any chapter headings (the book was printed directly from a typewritten manuscript), this uncertainty about the location of the references makes it rather difficult to use the book.

Finally, since the scope of the book was broadened in most cases to include chemical and biological data on the isolated antibiotics, it is unfortunate in the opinion of the reviewer that brief data on the growth conditions of each group of antibiotics were not also included.

In spite of the drawbacks indicated above, the fact remains that this book does succeed in bringing together a large amount of information on the isolation of antibiotics. Since this information was located in many different journals and in the patent literature, the book will facilitate future work on the antibiotic area by providing convenient access to the literature. It is a book which should be in the library of every institution working in the area of natural products, and it is regrettable that its high price will prevent most individual scientists from purchasing their personal copies.

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*Medical Botany—Plants Affecting Man's Health.* W. H. LEWIS, Washington University, Missouri Botanical Garden, and M. P. F. ELVIN-LEWIS, Department of Dental Microbiology, Washington University. John Wiley and Sons, 605 Third Avenue, New York, New York. 1977. xv+515 pp. 18 x 26 cm. \$27.50.

On reading this book for any length of time, one is struck by the inescapable conclusion that this book attempts to be "all things" to "all people". A virtual plethora of subjects is discussed, including history, physiology, pharmacognosy, pharmacology, chemistry, toxicology, microbiology, pathology, immunology, epidemiology, mycology and more.

The authors state that "plants relating to man's health fall into three categories: those which injure, those which heal and nourish and those which alter the conscious mind". Thus, they have divided the book into three sections covering "injurious" plants, "remedial" plants and "psychoactive" plants. An individual even remotely familiar with the subject of medicinal plants immediately recognizes the obvious overlap that could occur with this type of broad classification.

The "remedial" plants are discussed from both a physiologic approach which includes such subjects as the gastrointestinal tract, respiratory system and skin and a therapeutic approach, including cancer, antibiotics and antiseptics. The authors even discuss pesticides and panaceas in this broad section. There is a large assortment of attractive older botanical drawings, tables and references, and an appendix which contains an outline classification of the plant kingdom, a bibliography of herbal medicine and a glossary of terminology. A massive amount of information is presented in this book, but sometimes without attention to the relationship of one subject to another. There are errors, one for instance being on page 335, where the authors state that "nonspecific urethritis due to *Chlamydia trachomatis* is difficult to control with known antibiotics, such as tetracycline, and only new therapeutic measures will assure complete resolution". It is well known that the tetracyclines are most effective and even the drugs of choice in the treatment of chlamydial NSU with erythromycin being a quite satisfactory alternative.

The book is an outgrowth of a course taught at Washington University by the authors. It should be of interest to individuals wishing a broad but not comprehensive coverage of the subject area and to scientists whose major interest is one or more of the areas discussed and who may find it a useful supplementary textbook. The title of the text may be somewhat misleading, since there is not a great deal of botany within the book. In summary, the authors have assembled a large number of references on widely diverse subjects and presented a great deal of interesting material in an easily readable fashion. The potpourri approach is probably desirable for the non-authority but supplementary for the authority in any of the fields mentioned. I recommend the book for those having a general interest in the subject and those already knowledgeable in one or more of the disciplines involved.

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