

Book reviews

Saunders, Venetia A.; Saunders, John R.: Microbial Genetics Applied to Biotechnology. Principles and Techniques of Gene Transfer and Manipulation. London Sydney: Croom Helm 1987. 422 pp., 145 figs., 22 tabs. Soft bound £ 14.95.

This book is not – as the title perhaps may suggest – a step by step description of techniques. It is instead an elaborate review of the literature from the past ten years (up to 1986) and therefore assumes that the reader has a basic knowledge of both microbial genetics and biotechnology. The first 3 chapters are devoted to techniques for *in vivo* and *in vitro* genetic manipulation and mutagenesis; the following chapters discuss optimisation of expression of cloned genes, microbial strain improvement and novel products, medical and veterinary applications, plant technology, and environmental biology. Examples for applications (amongst others) are: control of oil pollution and degradation of xenobiotics by genetically engineered microorganisms, production of single cell protein from wastes, and manipulation of genes for nitrogen fixation.

The book can be recommended to all scientists who are planning experiments in the rapidly expanding field of biotechnology.

C. K. Stumm, Nijmegen

Baltscheffsky, H.; Jörnvall, H.; Rigler, R. (eds.): Molecular Evolution of Life. Cambridge: Cambridge University Press 1986. 375 pp. Hard bound £ 40.00.

This publication represents the proceedings of a conference held near Stockholm, Sweden, in September 1985. These days, grandiose themes for symposia are nothing new. In this light, "Molecular Evolution of Life" does not especially astonish. Quite another matter, however, is the generation of a publication containing 47 papers, representing "nearly all" of the papers presented at the conference. Unavoidably, one supposes, the total range of topics is almost absurdly large, ranging from "Current Status of the Prebiotic Synthesis of Small Molecules" (S.L. Miller) to, for example, "The Structure of a Human Common Cold Virus and its Evolutionary Relations to Other Viruses" (Rossmann et al.). In the face of such subject matter, the decision of the organizers not to attempt any sort of summary or general introduction to the collection or to the subsections is probably a wise one. There are four main headings: "Prebiotic Systems and Evolutionary Pathways" (7 papers), "Nucleic Acids and Informational Systems" (12 papers), "Proteins and Enzymatic Functions" (17 papers), and "Complex Systems and Organization" (11 papers). In spite of the enormous breadth of the coverage, there is a large amount of high quality material.

A. W. Schwartz, Nijmegen

Linskens, H.F.; Jackson, J.F. (eds.): Modern Methods of Plant Analysis, New Series, Vol. 3. Gas Chromatography/Mass Spectrometry. Berlin, Heidelberg, New York, Tokyo: Springer 1986. XVI + 304 pp., 98 figs.

This book is a welcome addition to the new series "Modern Methods of Plant Analysis", the publication of which was resumed in 1985. It aims at bringing sophisticated powerful analytical techniques from biophysics and biochemistry, which have been mainly developed in medical establishments, non-

university research institutes, space science laboratories and industry, to the attention of experimental biologists working with plant materials.

This volume consists of 12 chapters dealing at varying lengths with a wide spectrum of plant compounds. The first chapter describes the extreme sensitivity and selectivity of combined Gas Chromatography/Mass Spectrometry (GC-MS) and its advantages, which are employed to analyze plant growth substances. The following nine chapters deal with the application of GC-MS for qualitative and quantitative examination of polysaccharides, cyclic nucleotides, high-unsaturated fatty acids, glycolipid fatty acids, phospholipid molecular species, sterols, terpenoids, auxins, esters of indole-3-acetic acid and myo-inositol, cytokinins and profiling metabolites of plants. The last two chapters treat GC-MS methods for analysis of volatile flavor components of foods and for determination of tobacco constituents.

Throughout this work wide coverage is maintained on sample preparation, such as extraction, isolation, prefractionation, partial hydrolysis and sample derivatization; on injection techniques; on GC-columns, including modern wall-coated open tubular capillary columns; and on various aspects of qualitative and quantitative mass spectrometry, such as ionization techniques, the degree of useful fragmentation, the employ of dedicated computers and data systems in matching sample and reference spectra. Various applications of powerful isotope dilution methods with heavy-isotope labelled internal standards are also presented.

The contributions of the seventeen authors are generally well edited, adequately illustrated with spectra, figures or tables, and supported by upwards of 800 references, including a number from 1985. In some chapters certain aspects on instrumentation are duplicated as authors often describe whole procedures. The last chapter on tobacco constituents has more the approach of industrial tobacco chemistry and little effort is made to deal with problems in the plant sciences. This contribution is supported by relatively few references. As an overall conclusion, this work makes an excellent reference book for research workers in biotechnology, agriculture, and botany.

A. F. Groneman, Wageningen

Becker, W.A.: Manual de Genetica Cuantitativa. Academic Enterprises 1986.

The book is a Spanish translation of a text which was originally published as a laboratory manual in English and was later updated. It features a series of examples of the application of selected statistical models. An explanation is provided for the application of each model.

It is undoubtedly a very useful text, mainly on account of the various models it compiles. Although it is currently beyond undergraduate level in Argentina, the book should prove useful to teachers, researchers and scholars in the subjects of breeding and genetics. Hopefully, the distribution of the text among faculty members will produce a positive change in the contents of the curricula which would enable undergraduates to benefit from this work in the future.

I. Noher de Halac, Córdoba