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Book review

K. G. MUKERJI [ed.]: Concepts in Mycorrhizal Research (Handbook of vegetation science 19/2).

Kluwer Academic Publishers, P.O. Box 17, 3300 AA Dordrecht, The Netherlands, 1996, ISBN 0-7923-3890-1

Many taxa of fungi and plants are involved in mycorrhizal associations and so mycorrhizal symbioses are important ecologically as well as economically. Plants which cover our planet are mostly dependent on mycorrhization ant it is believed that translocation of plants from water to land would not have been possible without mycorrhizae too.

Study of "symbiotical world" will be important part of biological science in coming decades.

Text of this book is divided into 13 autonome sections, presented in form of rewiev articles. The chapters include several aspects of mycorrhizal research (e.g. vesicular arbuscular mycorrhiza, mycorrhizal research and agriculture, cytological and morphological aspects, economy and ecology of mycorrhizes, molecular biology and genetics of mycorrhizal fungi etc.).

This book is valuable source of informations. It will be useful for undergraduate students as well as researchers in botany, mycology and biotechnology. It can be valuable book also for people working in agriculture and forestry.

M. BAČKOR

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Book reviews

D. L. SPECTOR, R. D. GOLDMAN & L. A. LEINWAND [eds.]: Cells: a laboratory manual.
Volume 1: Culture and Biochemical Analysis of Cells
Volume 2: Light Microscopy and Cell Structure
Volume 3: Subcellular Localization of Genes and Their Products

Cold Spring Harbor Laboratory Press, 10 Skyline Drive, Plainview, New York 11803-2500, 1998, ISBN 0-87969-522-6 (ISBN 0-87969-521-8)

Laboratory manual named simply "Cells" ilustrates the story of cytology from time when Hooke published his "Micrographia" and introduced to biology this term, to time of end of millennium. For preparing the all protocols included in three volumes of "Cells" more than 125 expert were engaged.

Manual is organized into three volumes. First theme is the culture and biochemical analyses of cells and includes six sections (cell culture and analysis, metabolic labeling and protein modification, subcellular fractionation, protein identification and analysis, protein expression and interactions, antibodies as tools in cell biology). Second theme is light microscopy and cell structure with four sections (observation of live cells and cellular dynamics, preparation of macromolecules and introduction into cell, light and epifluorescence microscopy and confocal microscopy, multiphoton microscopy and deconvolution. Last theme of manual is focused on subcellular localization of genes and their products and include three sections (visualization of organelles, proteins, and gene expression, in situ hybridization and electron microscopy) as well as very usefull appendices (e.g. stock solutions, buffers, media, lenses and filters for microscopy ....).

Cells: A Laboratory Manual is recent, extensive and well-defined handbook in methods and techniques of the field of classical and modern cell biology. It is valuable publication for cell biologist as well as biomedical researchers. It is monumental work.

M. BAČKOR

M. S. WATERMAN [ed.]: Introduction to computational biology: Maps, sequences and genomes.

Chapman and Hall, 2-6 Boundary Row, London SE1 8HN, UK, ISBN 0 412 993 910

Publication of the first complete DNA sequence of an eukaryote pointed to the success of the Human Genome Projects. Assembling the thousands of partial sequences in such enormous project is a statistical activity, as will be the long-term task of characterizing features of DNA and protein sequences. The accumulation of data necessitates international databases for nucleic acids, for proteins, and for individual organisms and even chromosomes. The size of nucleic acid databases has an exponential growth rate. Consequently a new area of expertise is being created, combing the biological and information sciences. This book is about the mathematical structure of biological data, especially those from sequences and chromosomes. Author devotes predominant part of the book to the study of genomes. Constructing evolutionary trees and protein structure prediction are not covered here.

This book is divided into 15 chapters. The first chapter provides a brief introduction to molecular biology, especially to DNA and protein sequences. Chapters 2 to 4 study restriction maps of DNA, algorithms and measures of their difficulty. Chapters 5 and 6 are a natural extension of earlier studies of restriction enzymes, which are essential tools in cloning. These chapters focus on a different type of genomic map, so called physical maps where overlapping clones are used to span the genome. Chapter 7 gives some problems associated with reading the DNA sequences themselves. Chapters 8 to 11 present aspects of comparing sequences for finding common patterns. Comparing two or more sequences is one of the most important mathematical applications in molecular biology. The probability and statistics for sequence patterns is covered in chapter 12. In the chapter 13 the possible shapes of singlestranded RNA are studied. Construction evolutionary history of a given set of related sequences appears in chapter 14. In the chapter 15 author gives some background references and citations to key original material, he discusses also some of the interesting current work in the area.

It is assumed that the readers know some mathematics. This book is excellent example of application mathematics in biology. I recommend it to all biologists and mathematicians, who are interested in that interdisciplinary work.

P. KUŠNIRIKOVÁ

L. ALPHEY [ed.]: DNA sequencing. From experimental methods to bioinformatics.

BIOS Scientific Publishers Ltd, 9 Newtec Place, Magdalen Road, Oxford OX4 1RE, UK, ISBN 1 85996 061 8

Genome project data are being generated at a rapidly increasing rate as the focus of the project shifts from technology development to data production. Techniques such as PCR have simplified the creation of genome maps, from a task that was nearly impossible to one that can be semi-automatic. The sequence databases have been growing at an exponential rate and even that rate of increase is improving. Whole new areas of research have been opened up by this technology, from molecular genetics to molecular taxonomy.

This book is a useful practical guide to whole process of DNA sequencing, from planning the approach, through data acquisition, to extracting useful biological information for the data. The aim of this book is to show how DNA sequence information is obtained and analyzed, and some of the major reasons for doing so.

In the part 1 we find detailed description of the basic methods, including manual and automated sequencing. There is a lot of figures explaining principles of methods, the protocols with detailed description of method and required material. The author discusses the various pitfalls that may be encountered on the way of sequencing, as well as the equipment required, together with advantages and disadvantages of each option.

Part 2 deals with the major applications of DNA sequencing: confirmatory sequencing, sequencing PCR products and strategies for new sequence determination.

Part 3 of the book is designed to demonstrate the ways in which bioinformatics techniques and resources can help both in managing sequencing projects and providing information on the structure and function of the gene/ gene product being sequenced. This section was contributed by Dr Andy Brass. It covers sequence analysis from checking and compiling the raw data through to homology searches and structural predictions. The author provides also URL addresses to useful bioinformatics tools and the brief guide how access and use these tools via Internet.

In the one of the appendix is a helpful list of the major suppliers of equipment, enzymes, reagents etc., with their postal and Internet addresses.

P. KUŠNIRIKOVÁ

J. E. Robbers & V. E. Tyler [eds.]: Tyler's Herbs of Choice. The Therapeutic use of Phytomedicinals.

The Haworth Herbal Press, an imprint of The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580, 1999, ISBN 0-7890-0159-4

This book is a great addition to the literature in the area of herbal medicines and contains current scientific information about herb use in the U.S. and elsewhere. This present edition discusses the use of phytomedicinals, that are now considered to be the most useful for treating particular diseases or syndromes and includes additional data on clinical studies and advances in determining mechanism of action.

The three preliminary chapters deal with the definition, basic principles and general guidlines in the use of herbal medicine as well as with the problem of implementing safety and efficacy regulations of drugs. Chapter 3 brings an information about the contents and use of subsequent chapters.

In the remaining 9 chapters the application of herbal products for different bodily disorders and problems – the digestive problems; kidney, urinary tract and prostate problems; the respiratory tract problems; cardiovascular system problems; nervous system disorders; endocrine and metabolic problems; arthritic and musculoskeletal disorders; problems of the skin; mucousmembranes and gingiva as well as performance and immune deficiencies – are presented.

The classification of phytomedicines in this volume is based on their principal therapeutic use. Each chapter is appropriately referenced with many research articles. The book is valuable not only for the consumers of herbal products for their self-medication, but also for many interested healthcare professionals and students too.

K. Bruňáková