

processes. An overview of cellulose products is given with respect to the properties and applications areas.

In “Vol. 1: Fundamentals and Analytical Methods, and Vol. 2: Functionalization of Cellulose”, the recent efforts in cellulose research and development are presented and cited. The important developments in the last centuries are also included to give a comprehensive description of cellulose chemistry. In these texts, internationally renowned experts describe the organic chemistry of cellulose. The volumes contain numerous experimental procedures, both for the analysis and functionalization of cellulose, with the aim of familiarising practical laboratory work in cellulose chemistry for graduate students. In both volumes, the results obtained to illustrate the reactions are well presented with regards to figures and tables.

The two volumes are excellent textbooks for graduate students interested in cellulose chemistry, as well as a comprehensive source of information for chemists, physicists, biologists and engineers involved with this polymer.

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Biomass: a Growth Opportunity in Green Energy and Value-Added Products, Vols. I and II

R.P. Overend, E. Chonet (Eds.); Pergamon, Elsevier, Amsterdam, 1999, 1892 pages, ISBN 0-080-43019-8

Conference proceedings are unique barometers that indicate the current issues and progress of a given scientific field. Breakthroughs in technology, as well as the political, economical, business and social context in which they are developed, are captured in them. *Biomass: a Growth Opportunity in Green Energy and Value-Added Products* contains the Proceedings of the Fourth Biomass Conference of the Americas which was held in Oakland, California. The theme of these proceedings is that biomass is a growth opportunity in green energy and value-added products. The book is a state-of-the-art collection of papers, which provide information on 25 technical fields, grouped as: biomass production and integration with conversion technologies; biomass

transformation into value-added chemicals, liquid fuels, heat, and power; and biomass and bioenergy policy-public issues and private initiatives.

The information presented in *Biomass: a Growth Opportunity in Green Energy and Value-Added Products* is new and not available collectively in other publication. Those with an intimate knowledge of the latest, international research on biomass will be able to benefit most. The book will therefore be invaluable to scientists, policy makers, and industry entrepreneurs wishing to seek and understand the opportunities in the global growth business of biomass.

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Plant Biochemistry and Molecular Biology, 2nd ed.

P.J. Lea, R.C. Leegood (Eds.); Wiley, Chichester, 1999, xx + 364 pages, ISBN 0-471-97682-2, £60.00

The use of transgenic plants together with the powerful techniques of molecular biology to study biochemical pathways and the potential of metabolic engineering have made considerable impacts on plant physiology in the last few years. Many new exciting developments have arisen since the first edition of this book. *Plant Biochemistry and Molecular Biology*, in its second edition, provides details of the advances in research and applications using the modern techniques of molecular biology and gene technology. All of the chapters have been updated and revised and a totally new chapter on secondary metabolism, an area that was missing previously, has been included.

Plant Biochemistry and Molecular Biology, 2nd ed. initially deals with the mechanisms by which energy is generated, describing the major processes of photosynthesis and respiration as they occur in plant cells. Photosynthetic carbon metabolism is considered in two chapters, first the process of CO₂ assimilation in the Calvin cycle, then the photosynthetic adaptations which have occurred in C₄ and CAM plants (and in aquatic organisms) in response to particular environmental constraints. The way in which this carbon is utilised in the synthesis of carbohydrates, lipids and pigments is then considered. Because of the agricultural importance of the symbiotic association between nitrogen-fixing bacteria and higher plants, an overview of the process

of nitrogen fixation has been included. Since during the last 5 years there have been major advances in the understanding of the regulation of the genes coding for a number of the enzymes involved in nitrogen metabolism, the nitrogen metabolic process is described in great detail. The structure of the genome in nucleus, chloroplasts and mitochondria, the regulation of gene expression, molecular control of development, and the technology of genetic manipulation of plants are also described.

Plant Biochemistry and Molecular Biology will be invaluable to undergraduate and postgraduate students in the plant sciences and to all those requiring an introduction to the current concepts in molecular plant science.

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Handbook of Derivatization Reactions for HPLC

G. Lunn, L.C. Hellwig (Eds.); Wiley, Chichester, 1998, 1795 pages, hardbound & CD ROM, ISBN 0-471-16458-5, £320.00, hardbound, ISBN 0-471-23888-0, £161.00, CD ROM, ISBN 0-471-23889-9, £210.00

HPLC has become a household term in chromatography, covering a vast array of procedure profiles which yield excellent separations of mixtures of compounds both at the analytical and preparative levels, and it would be difficult to run an analytical facility without the availability of such a technique.

The contents of the *Handbook of Derivatization Reactions for HPLC* and the accompanying CD ROM are a collection of derivatization procedures, the products of

which can then be analysed by high performance liquid chromatography (HPLC) or capillary electrophoresis (CE).

The CD ROM provides the information in a convenient and rapidly accessible form, which is a distinct advantage. The search can be either simple or complex. Simple: where one search parameter is selected. Complex: two search parameters. The parameters available are: derivatization type; reagent; compound; reaction; matrix; procedure and literature reference. A list of hits is generated, which can then be accessed.

The book and CD ROM contains up-to-date material with more than 2100 abstracts from published papers, half of which were published since 1991. The format is of a monograph type: an illustration of the reaction; sample matrix and analyte; sample preparation; instrument variables, i.e. column, mobile phase, injection volume, etc.; detector type and parameters, i.e. retention time, internal standard, limit of detection; other substances, compounds which can be simultaneously analysed; key words and references.

Both the book and CD ROM are up-to-date and clearly written. Either one would be an excellent reference tool, the choice being personal preference. It is highly recommended for scientists providing chromatographic analysis where derivatization procedures, HPLC and CE methods, post column reactions and sample preparation are undertaken. It would also be extremely useful for organic and inorganic researchers using derivatization and analysis as an elucidation and identification tool.

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