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Book Reviews

Plant Fibres — Modern Methods of Plant Analysis. Edited by H. F. Linskens and J. F. Jackson, Springer-Verlag, Berlin, Heidelberg, New York, 1989. xxiii + 377 pp. ISBN 3 540 18822 3. Price: DM328.00.

There is increasing recognition that science and technology have been applied to improving techniques which can profitably be employed for extraction, separation, and degradation of organic compounds from plant material. For instance, cellulose, which has great crystallinity and tensile strength, together with lignin, plays a major role as the structural component of living plant cells. Cellulose and lignin and their derivatives are valuable industrial materials which can be used in a wide variety of products.

The volume under review is the tenth volume of the series *Modern Methods of Plant Analysis* and provides recent methods for analysis of plant materials. It commences with the first six chapters analysing the cell wall. However, different aspects of cell wall are analysed in each chapter such as enzymatic aspect of biosynthesis, hydrogen fluoride analysis, immunogold localization of specific components, oxygen and hydrogen isotope measurement of components and analysis of lignin–carbohydrate complexes. The other 13 chapters deal with methods for degradation of plant cell components and determination of their hydrolysis products, for analysis of dietary fibres, for measuring lint production in cotton, and for analysis of carbohydrate conferring hardness on seeds.

The presentation of the book is very good. The typescript is clear and figures and tables well illustrate the text. The reference lists are com-

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prehensive and updated. This book is greatly recommended to anyone who, in any way, is involved in biotechnology, mainly in the carbohydrate field. It should also be recommended to industrialists, financiers and politicians for overview reading.

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Methods in Enzymology Vol. 161: Lignin, Pectin and Chitin (Part B). Edited by Willis A. Wood and Scott T. Kellogg, Academic Press, Inc., San Diego, 1988. xxxi + 574 pp. ISBN 0 12 182062 9. Price: £46.50.

Enzymatic treatment of plant and crustacean biomass involves special methods due to the insolubility of the lignocellulose complex and of the chitin associations with inorganics and protein. Those methods include substrate preparation and culturing of organisms. Enzymes to be used for such purposes will be chosen for their superior catalytic capability, compatibility with the conditions of industrial processes and ample availability. There is immediate interest in the conversion of biomass polysaccharides, for instance, into fuel ethanol and products for cosmetic and medical uses.

This book is part B of a set of two volumes devoted to cellulose and hemicellulose (Vol. 160) and to lignin, pectin and chitin (Vol. 161), or, more precisely, to the enzymes that degrade these polysaccharides.

The content of each section ranges from chemical characterization of substrates to purification of relevant enzymes. Most of the book is constituted by Section 1 (Lignin) and Section 3 (Chitin) and a short section on pectin is sandwiched in between. Presentation follows the 'Methods in Enzymology' style and collates 69 short and exhaustive contributions. This review is mostly devoted to the 'Chitin' section, the closest to the reviewer's heart, but similar considerations can be made for the rest of the book.

A chapter on chitin solutions and purification opens the 'Chitin' section: surprisingly, this is confined to organic solvent systems which do not seem particularly suited for further enzymatic degradation of the dissolved chitin. In fact, modified chitins such as chitosan and glycol chitin, lend themselves to enzymatic hydrolysis better than chitin itself and have been accepted as substrates for a long time. These, together with colloidal chitin are discussed in subsequent chapters.