

Book reviews

Natural and Synthetic Sweet Substances. A. Krutosikova and M. Uher, Ellis Horwood Limited, Chichester, 1992. x + 223 pp. Price £45.00. ISBN 0 13 612805 X.

Sucrose is the sole most important, popular and used sweet substance in the human diet. However, the need for an alternative sweetener, especially for diabetics, stimulated the search for other sweet compounds which could substitute for sucrose in low-calorie and diabetic products.

Numerous natural and synthetic sweet substances have been found, some of which are already commercially available. The first group comprises mono- and oligosaccharides, starch hydrolysates, sugar alcohols, proteins, terpenoids, steroidal sapogenins, dihydroisocoumarins and flavonoids. The family of commercial synthetic sweeteners are saccharin, cyclamates, oxathiazinone dioxides and the group of aspartame and its analogues. The world market for synthetic sweeteners is on the way up. However, novel sweeteners intended for use in food supply must undergo rigorous review by government health agencies as a prerequisite to market approval.

'Natural and Synthetic Sweet Substances' is organised in four sections. The first section deals with the physiology of taste perception and the relationship between chemical structure and sweetness. The second and third sections cover naturally occurring sweet substances and synthetic sweeteners. The mixtures of natural sweet substances and synthetic multiple sweeteners are discussed in the fourth section.

This book provides useful background for the study of sweeteners and is recommended for specialists in food technology, dieticians, researchers working in this field as well as teachers.

John F. Kennedy
Marion Paterson

PHYTOMASS a Raw Material for Chemistry and Biotechnology. Anton Blažej and Martin Košík, Ellis Horwood Limited, 1993. 463 pp. Price £59.50/\$101.50. ISBN 0-13-666801-1.

Although the concepts of wood, cellulose and lignin chemistry have received enormous impetus and development over the past 60 years, the whole concept of the

chemical aspect of wood utilisation was brought into focus late in 1973, when the Western world and Japan were faced with the issue of oil and material shortages, which resulted in immense increases in oil prices and, on occasions, actual shortfalls in oil supplies.

Because of wood's renewability, wood chemistry research since then has received increased emphasis in industry, government and the academic community. Several different directions have been postulated for wood biomass utilisation, including cellulose, hemicellulose and lignin chemicals, fuel ethanol, pyrolysis and combustion, etc.

'PHYTOMASS a Raw Material for Chemistry and Biotechnology' details the basis, structure and chemistry of phytomass formation, offers updated account of chemical modifications of polysaccharides and lignin, discusses various aspects of wood chemistry in relation to applications and also includes prospects for future chemical and biochemical research on phytomass.

The authors present an overall picture of the subject. The coverage is comprehensive and references are cited to permit further in-depth investigation. This book is intended for a wide range of polymer scientists and technologists in many diverse fields of research and applications. Overall, it is timely and will be of great value to specialist and newcomers in both the academic world and industry.

Zilda M. B. Figueiredo
John F. Kennedy

Enzyme Nomenclature — Recommendations of the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology. Academic Press Ltd, London, UK, 1992. xiii + 862 pp. Price £40.00. ISBN 0-12-227165-3.

This edition is a full revision of the Recommendations (1984) of the Nomenclature Committee of IUB, and is the sixth complete edition published under the auspices of the International Union of Biochemistry and Molecular Biology. It includes all current amendments from the supplements published in the *European Journal of Biochemistry*, volumes **157** (1986) 1–26, **179** (1989) 489–533, and **187** (1990) 263–281. There are 3196 actual enzymes listed; an increase of 29% on the 1984 edition.

As in previous editions, the enzymes are grouped on the basis of the type of reaction they catalyse with recommended (trivial), other, and systematic names included. All entries are in numerical order. Comments are included with each entry and although they do not give a complete account of the enzyme, any unusual features are noted. Each entry is accompanied by one or more references. Although it is not a complete bibliography and does not necessarily contain the first published reference to an enzyme, the references do contain sufficient information to establish the existence of the enzyme that catalyses the reaction described.

This is a book which is essential for any library in an establishment where enzymolysis is carried out. The information contained within it will be of use not only to those working on the isolation and characterisation of enzymes but also to those who utilise enzymes in the course of their work.

J. F. Kennedy
L. L. Lloyd

ChemWindow Version 2.1. SoftShell International, USA/Cherwell Scientific Ltd, Oxford, UK. Price £399.00 (educational discount available).

Today's scientist is faced not only with the problem of obtaining high quality data but also of presenting research results in a professional manner to fellow scientists. Although with the multitude of word processing and desk top publishing packages this task has become easier, publication-quality chemical structures are not easily produced with general packages.

ChemWindow is a programme which runs on an IBM or compatible PC equipped with at least a 286 CPU, 2 MB RAM, hard disc drive, and Microsoft Windows 3.0 or above for drawing publication-quality black and white structures. Installation is quickly accomplished and, being menu-driven, the programme is quick and easy to learn. The manual is well produced, as are the

tutorials, and enable even the novice to quickly produce chemical structures. On-line help and multi-step undo commands and eraser are also useful.

With the increased understanding of carbohydrate structures, two-dimensional representations together with indication of molecular shape have become even more important as a means of communication. ChemWindow is applicable to carbohydrates as much as other chemical structures. There are a number of features which make this package particularly attractive. A disc containing over 300 predrawn structures is supplied free of charge to all registered users and includes hexoses, pentoses and several disaccharides. Even if the actual structure required is not included in the templates, an analogous structure can often be quickly modified using the graphics handling tools. Even if no such template is available, the chemical building blocks; rings, bonds, arrows, acyclic chains, arcs, curves, and labels can be quickly assembled. The template so produced can then be easily manipulated using flip, rotate, join, group, align, and duplicate commands to obtain the required structure. The scrap-book facility enables the complete drawing or part thereof to be saved and accessed for future use. A structure should only ever need to be drawn once. In addition to individual structures, reaction schemes and annotated chemical structures can also be obtained with multiple fonts, styles and sizes for labels and captions. The completed diagram can be saved in WMF, EPS, or WPG file formats for incorporation in other Windows based packages. A molecular mass calculator is also included in the package.

With the scaling feature included in this package, it is possible to produce not only structures suitable for research papers and reports but also, by enlargement, artwork from which slides or overheads can be produced. This versatility combined with the ease of use makes the package extremely useful. It is highly recommended for those who publish/present/teach.

Linda L. Lloyd
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