

Book reviews

Biomass Thermal Processing. E. Hogan, J. Robert, G. Grassi and A. Bridgwater, CPL Press, Newbury, 1992. iv + 253 pp. Price £45.00. ISBN 1-872691-50-1.

The thermochemical conversion of biomass feedstocks are designed to produce either liquids or chars for use as either fuels or as chemical feedstocks; the eventual aim being to displace our current overdependence on fossil fuels. Environmental focussing means that opportunities exist for thermochemical methods to be used in the processing of waste feedstocks that pose disposal problems.

Biomass Thermal Processing is based on the proceedings of the first joint Canada/European Community Research & Development Contractors Meeting. It brings together a variety of papers which have been broadly subdivided into four sections, namely Process Updates, Analytical, Isolation and Separation Processes and Products, and Economic Market Prospects. Additional to this are the minutes of a workshop which aimed to decide the direction of future work and collaboration.

In common with many symposium books, *Biomass Thermal Processing* has no index. This is infuriating for the reader because his/her access to the books information is immediately restricted. This is unfortunate because all of the data and discussions are well presented and clearly stated. There are several papers which will be of interest to readers of this journal and we can therefore recommend the book as a library loan. The lack of index will, possibly, restrict the purchasing of this volume to those people directly related to the field. These people should find *Biomass Thermal Processing* an interesting read despite its obvious limitations.

David W. Taylor
John F. Kennedy

Credible Communication: Low Calorie Sweeteners After 1992. S.G. Lisansky and L. Yeomans, CPL Press, Newbury, 1992. 133 pp. Price £30.00. ISBN 1-872691-75-7.

Europe has recently experienced a major legislative upheaval in terms of food regulation procedures. The implications of such changes are only now being realised. This book covers the proceedings of the 1992 International Sweeteners Association (ISA) annual conference, and endeavours to explain the effects of the EC 'single market' and recent changes in legislation, on

the low calorie sweetener industry. If and when the 'Maastricht Treaty' comes into force, the new procedure for adoption of directives by industry will be more complicated.

A wide ranging scope of topics are covered. The first few sections discuss the current status of European regulations on sweeteners, labelling and claims, dealing with the impact that such regulations will have on industry. The legislative procedure of the EC is outlined and the principal issues about how food additives should be regulated and the criteria to which they should adhere are addressed. The sweeteners directive is discussed, and includes the approval of six polyols and six intense sweeteners, the use of which instead of sugar offers nutritional advantages, as they are suitable for energy-reduced products.

Other sections discuss consumer information, and the use of consumption studies in risk assessment and management. The consumer is bombarded with many different messages about what should and should not be eaten. The EC seeks to ensure that consumers can choose a healthy and enjoyable diet from a safe and varied food supply. Topics also discussed are the purpose and potential of industry information centres, and the communication of science to the public.

Overall this is a well presented, informative tome providing useful information for individuals concerned with foodstuff legislation. It is presented in a very informal (perhaps somewhat childish) manner but is nonetheless clear and direct in its approach.

John F. Kennedy
Charles J. Knill

The Future for Low-calorie Sweeteners in the European Community and Eastern Europe. S.G. Lisansky and L. Yeomans, CPL Press, Newbury, 1991. 112 pp. Price £25.00. ISBN 1-872691-35-8.

Sugars are widely used in foods especially for their sweetening ability, although in recent years a number of bodily disorders, e.g. obesity, tooth decay and heart disease, have been associated with these versatile food components. Sucrose has largely received the blame for these disorders. Nowadays more and more people are leading 'low-calorie' lifestyles and controlling calories as part of the adoption of an overall healthy lifestyle.

There are three categories of sweeteners: natural substances, accidental discoveries, and analogs of known sweeteners. Carbohydrates are the most famous

of naturally occurring sweeteners. A number of terpenoids, flavonoids and proteins have also been discovered as highly sweet plant constituents. Other sweeteners have been accidentally discovered, such as, saccharin, cyclamate, aspartame and acesulfame-K. Structural modification of known sweeteners has also been used, e.g. sucralose and alitame. 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.

The Future for Low-calorie Sweeteners in the European Community and Eastern Europe is based on a collection of ten papers presented at the International Sweeteners Association Annual Conference, Vienna. The speakers were from scientific circles, the European Commission, industry and national governments. The opening chapter, by Prof. Dr A. Somogyi provides a brief discussion on caloric restriction and health. The other chapters include a wide range of topics, such as, future developments in European Legislation relevant to sweeteners; perception, synergy, psychophysics and quality of sweetness; perception of low-calorie products in the USA; the changing image of sweeteners in advertising; sweetener regulation in the new democracies; consumer trends, research and use of sweeteners in Eastern Europe; and doing business in Eastern Europe.

This book covers a variety of issues in the field of sweeteners and is a useful reference for industrial product managers and those involved in the research and development of the subject.

Marion Paterson
John F. Kennedy

Crown Compounds: Toward Future Applications. S.R. Cooper, VCH Publishers, Inc., New York, 1992. x + 325 pp. Price £89.00. ISBN 1-56081-024-6.

The crown-ether field has gone through an evolutionary process in the past two decades. It has evolved into the more general host-guest field, for which the name 'supramolecular chemistry' has been given. Recently, the efforts in this area of chemistry have been placed under the broad rubric of molecular recognition. Examples of molecular recognition include antibody-antigen interactions, biochemical catalysis reactions, the DNA double helix, and incorporation of single enantiomeric forms of amino acids and sugars in metabolic pathways. Recent successes in imitating biochemical phenomena using small synthetic compounds has shown that biological behaviour can be engineered into simple molecules. Crown-ethers, for example, exhibit excellent ability to selectively bind cationic guests and have gained much popularity as enzyme models.

Crown Compounds: Toward Future Applications discusses various areas of research in crown compounds

and speculates on where likely future applications might arise. It contains sixteen chapters which include investigations on several distinct areas, such as, redox-active polyether ligands; macrocycles for medical applications; computer modelling of metal-containing macrocyclic ligand systems; design of macrocyclic polyamine ligands; and developments in the field of functionalized tetraazamacrocycles. It also discusses selective complexation of organic and inorganic guests, enantiomeric recognition, thiocrown ethers and torands, a new class of cation receptors.

Each chapter provides a very interesting reference work of direct relevance for researchers in this field.

John F. Kennedy
Marion Paterson

Cellulose Hydrolysis and Fermentation. J. Coombs and G. Grassi, CPL Press, Newbury, 1993. 238 pp. Price £45.00. ISBN 1-872691-60-9.

Over the last decade considerable progress has been made towards understanding, manipulating and commercializing processes for enzymatically hydrolyzing cellulose to fermentable sugars. Much of this effort was spurred by concern over the escalating cost and reduced availability of fossil fuels. More recently, concern over the environmental impact of fossil fuels has stimulated again wide interest in the sector of renewable resources. This effort is critical for increasing the economic and technical viability of processes using enzymatic hydrolysis to convert cellulose to food, energy and chemicals.

Cellulose Hydrolysis and Fermentation is the proceedings of a workshop held in Brussels, Belgium, which was attended by the participants of the Concerted Action on Enzymatic Hydrolysis and supported by the Commission of the European Communities. It contains twenty two chapters which include investigations on several distinct areas, ranging from genetic engineering to pilot fermentation; from bacteria, through actinomycetes to fungi and from artichokes to straw. The common theme being the search for improved methods of using lignocellulosic materials for the production of fuels, chemicals, fertilizers and paper/pulp by biological means. One of the highlights is the work on *Clostridium thermocellum*, which includes both the nature and function of non-catalytic structural proteins in the cellulosome and the detailed three dimensional structure of endoglucanase CelD.

This book provides an interesting and up to date coverage of the subject and is a useful reference for researchers working in this field.

Marion Paterson
John F. Kennedy