

## Book Reviews

***The Maillard Reaction in Foods and Medicine* O'Brien, J., Nursten, H.E., Crabbe, M.J.C., Ames, J.M. (Eds.). Cambridge: The Royal Society of Chemistry, 1998. (ISBN 0854047336, 464pp, Price £69.50)**

There is probably only one chemical reaction which is of sufficient importance that it can be the basis of an ongoing series of international symposia. That reaction is the Maillard reaction. It was initially thought to be a simple nucleophilic addition between amino groups and carbonyl groups which may be of importance in the browning processes which occur when food is processed. More recently it has been established that it plays a key role in many diseases including diabetes, ageing, and cancer. This area alone has stimulated, in the past few years, a rapid development in research into the complexities of the reaction.

*The Maillard Reaction in Foods and Medicine* is the compilation of the proceedings of the 6th International Symposium on the Maillard reaction. The book contains the manuscripts of the oral presentations (including the plenary lectures) and abstracts of the poster presentations. The manuscripts of the oral presentations are grouped into sections reflecting the diverse interest in the Maillard reaction from basic chemistry through food and proteins to medical problems. The first section, Reaction Mechanisms, contains 13 chapters, several of which report radical new insights into the complexity of the formation and rearrangement of Amadori products. Sections on Kinetics and Analytical Aspects, Food Technology, and Flavour Chemistry follow. The final two sections, Toxicology and Antioxidants, and Health and Disease in which there are 27 chapters, reflect the growing recognition of the importance of this reaction and the effect of its products in numerous medical conditions. Although only very short abstracts of the poster presentations are included in the proceedings, the importance of this communication to the success of the symposium by presenting state-of-the-art research is immediately obvious. Full correspondence addresses are included for all authors so enabling further information to be obtained.

This single volume has brought together current research across the many disciplines where the Maillard reaction is recognised as being of importance. By not restricting topics to those which would be of interest only to chemists, or food scientists, or clinical investigators it has succeeded in merging different research strategies and approaches which should stimulate further studies. It is highly recommended.

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***GC/MS A Practical User's Guide*, Edited by McMaster, M., & McMaster, C., New York: Wiley-VCH, 1998 (xii + 167pp. Price £38.95. ISBN 0-471-24826-6)**

Gas chromatography (GC) is a powerful technique for detection and analysis of organic compounds. A disadvantage of GC is a spectroscopy requirement, usually mass spectrometry (MS), for confirmation of peak identity since different chemical substances sometimes come in the same retention time. Mass spectrometry is based on the ionisation of compounds when they are bombarded with a beam of electrons to form positive molecular ions which subsequently break down to smaller fragments. The combination of GC and MS systems forms an instrument capable of separating mixtures into their individual components and identifying and providing quantitative and qualitative information on the amounts and chemical structure of each compound. Nevertheless, GC/MS still possesses a weakness: its volatile component requirement. Owing to this requirement, it has some molecular weight limits. Recently, liquid chromatograph (LC) connected to a mass spectrometer has been developed to offer the best potential for the laboratory. With LC/MS systems almost anything that can be dissolved can be separated without much sample preparation or derivatisation.

This book *GC/MS: a practical user's guide* gives a general introduction of GC/MS and LC/MS, such as systems and costs in the opening chapter. Details of sample preparation, GC/MS instruments and the procedure of setting up and running a GC/MS system are presented in the following chapter. The second part of this book deals with GC/MS optimisation such as setting up and operation systems, data processing, and system maintenance. Specific applications of GC/MS such as in environmental testing and in structural interpretation are discussed. Modern GC/MS systems such as ion trap GC/MS, triple-quadrupole GC/MS, laser time-of-flight GC/MS (GC/TOF-MS), and Fourier transform GC/MS (GC/FT-MS) are also presented. Finally, many techniques of

LC/MS, such as thermospray, electrospray, and ion spray, are introduced. A particularly useful section in this book is the appendix dealing with GC/MS troubleshooting, sources of GC/MS background and contamination, a glossary of GC/MS terms, and further reading.

This book is easy to read and suitable for training, continuing education and updating of all technical staff concerned with analytical chemistry.

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**DNA: the double helix perspective and prospective at forty years by D.A. Chambers (Ed.). New York: The New York Academy of Sciences, 1995, xiv + 472 pp., £81.00. ISBN 0-89766-905-3**

The correct DNA structure, a complementary double helix, was found in 1953 by Francis Crick and James D. Watson, then working in England in the laboratory of Perutz and Kendrew. The establishment of the double helix immediately initiated a profound revolution in the way in which many geneticists analysed their data. The gene was no longer a mysterious entity whose behaviour could be investigated only by breeding experiments. Instead it quickly became a real molecular object.

“DNA: The Double Helix-Perspective and Prospective at Forty Years” represents the proceedings of a conference, with the same title, which was held in Chicago, Illinois. It comprises nine parts which are related to: the double helix perspective; the pathway to the double helix; the structure and synthesis of DNA; molecular, cellular and integrative biology; DNA and molecular medicine; DNA, oncogenes and cancer; recombinant DNA and biotechnology; and the double helix prospective. It also includes sections on historical articles, the banquet programme, in honour of James D. Watson, Francis Crick and Maurice Wilkins and interesting photographs from the past.

This book provides the history of an important section of science. It is of general interest to all those who work with biology and chemistry including workers in natural polymers such as polysaccharides. It gives the reader a clear understanding of the contribution made by several scientists to the development of molecular biology in an area which is historically famous and relevant to all natural-polymer scientists. A book to be read with an approach different from one coming to read a textbook.

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**Biotechnology international yearbook by L. Annetts (Ed.). London: Cartermill International Ltd., 1998, pp. xxiii and 286, £185.00. ISBN 1-86067-198-5**

The biotechnology industry is a fast moving environment that has enjoyed dramatic growth over the last decade, with a significant proportion of innovation coming from the hundreds of independent companies in the biotechnology sector. The term ‘biotechnology company’ has broadened to encompass all innovative, venture-funded, technology-based companies operating in the commercial sphere of life sciences. As a result of the constantly changing/expanding nature of the industry, it is often difficult to source accurate information on the key players within the industry. This volume is, thus, intended to provide individuals with unique access to information relating to established and emerging biotechnology companies throughout the world.

This is facilitated by providing comprehensive corporate and financial data for individual companies, which includes contact details, company partnerships and alliances, ownership, separate research and development pipelines and where available, financial results tables. Records are indexed by company name (including all parent, subsidiary and associated companies mentioned), and by geographical area. The majority of biotechnology companies are in countries where venture capital is most easily available, namely the USA, the UK and Scandinavia, however, growth in other countries such as France, Germany and Italy is increasing.

This volume is an extremely useful source of information for individuals working in all areas of biotechnology, pharmaceutical science, regulatory bodies and academia, especially those seeking collaboration in specific areas of the life sciences. Standard entries are free of charge and any companies wishing to be included in future issues should contact the publisher (cited before).

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