

The addition of antioxidants to the diet are examined specifically: animal nutrition and muscle biochemistry; the beneficial impact of vitamin E supplementation; economic and safety implications of nutritionally modified meat; oxidative processes in muscle food; dietary strategies for improving the oxidative stability of muscle food; food industry applications involving meat, poultry and seafood and new trends in nutritional strategies with respect to dietary additions.

Aspects of nutrition in more general terms are discussed throughout the book, with many useful reference tables and figures. For example, Table 7-1 — fatty acid composition of selected seeds, forages, protein sources, lipid sources and food products — lists many common cereal crops and oil seeds of interest to the carbohydrate chemist and gives their fatty acids in terms of percentage weight in weight.

The book is clearly written and well illustrated with tables and figures, it would be a useful acquisition to professionals working within the food industry, carbohydrate chemists and allied professions working in the fields of food analysis and nutrition.

J.F. Kennedy\*

L.A. Quinton

*Birmingham Carbohydrate & Protein Technology Group,  
Chembiotech Laboratories, The University of Birmingham  
Research Park,  
Birmingham B15 2SQ, UK  
E-mail address: jfkennedy@chemistry.bham.ac.uk*

\* Corresponding reviewer. Tel.: +44-121-414-4385; fax: +44-121-414-4384.

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### Biosensors for Food Analysis

A.O. Scott (Ed.); The Royal Society of Chemistry, London 1998, x + 200 pages, ISBN 0-85404-750-6, £49.50

Food analysis is used to satisfy a broad range of requirements in industry and government. The rationale for this is to assess the quality and safety of food and also to ensure compliance with legislation. Researchers are constantly searching for indices of food, which can be tested to assess food quality and safety. This is achieved by coupling a biological component with a transducer (which transforms the specific recognition to an electronic/optical or similar signal which can be readily quantified) to get an immediate result, and through the reaction of an analyte with particular biological components like enzymes, antibodies, lectins and DNA.

Biosensors are capable of on-the-spot measurements of a wide range of analytes and are able to monitor

complex biochemical parameters during the production or processing of food. The use of biosensors for food analysis allows for rapid and specific quantification without the need for extensive sample preparation. Biosensors reduce the analysis time whilst maintaining accuracy and precision of results.

*Biosensors for Food Analysis* discusses opportunities for biosensor applications within the food industry supply chain, such as indicators of quality and seasonal variations of natural resources and also as spoilage indicators. This book takes into account the diversity of the food industry and specifications that must be met in real applications. The book consists of 19 chapters, which are divided into three parts: biosensors, the application of biosensors to food industry requirements and sensors being developed. An introductory chapter provides an illustration of the problems and requirements encountered in food analysis. The book also identifies issues, which allow this technology to be used more widely.

The biosensor field is multidisciplinary, encompassing such diverse areas as electrochemistry, optics, biochemistry, electron engineering and a host of other science and engineering disciplines. This book brings food researchers up to date on currently available technology and identifies ‘state-of-the-art’ biosensor applications, and may be of significant interest to analysts, researchers and food technologists.

J.F. Kennedy\*

N. Turan

*Birmingham Carbohydrate & Protein Technology Group,  
Chembiotech Laboratories, The University of Birmingham  
Research Park,  
Birmingham B15 2SQ, UK  
E-mail address: jfkennedy@chemistry.bham.ac.uk*

\* Corresponding reviewer. Tel.: +44-121-414-7029; fax: +44-121-414-7030.

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### Handbook of Reagents for Organic Synthesis

Oxidising and Reducing Agents, S.D. Burke, R.L. Danheiser (Eds.); Wiley, Chichester, 1999, xi + 550 pages, ISBN 0-471-97926-0, £55.00

Activating Agents and Protecting Groups, A.J. Pearson, W.J. Roush (Eds.); Wiley, Chichester, 1999, xii + 513 pages, ISBN 0-471-97927-9, £55.00

The ‘*Handbook of Reagents for Organic Synthesis (HROS)*’ is composed of four volumes. This includes the two detailed in this review, plus ‘*Reagents, Auxiliaries and Catalysts for C–C Bond Formation*’ and ‘*Acidic and Basic Reagents*’. These four volumes were condensed out

of the much larger eight volume series, the '*Encyclopedia of Reagents for Organic Synthesis (EROS)*', with each of the four volumes containing a complete compilation of those entries from the '*EROS*' that relate to the specific topic in question. The object of the '*HROS*' was to produce an affordable, enlightening set of books out of the '*EROS*' that could find themselves into the laboratories of practising synthetic chemists, therefore every attempt has been made to make the volumes of the broadest synthetic relevance.

Modification of the oxidation state of organic compounds constitutes one of the most common transformations encountered in synthetic protocols, and hundreds of reagents are available for this purpose. The aim of the volume on '*Oxidising and Reducing Agents*' is to provide the practising synthetic chemist with a convenient compendium of information concerning the most important and frequently employed reagents for the oxidation and reduction of organic compounds. This volume includes the 145 most important oxidising and reducing agents that were previously included in the '*EROS*'. The article for each reagent also includes discussion of the synthetic transformations effected by that reagent that do not involve oxidation or reduction. The usefulness of each article has been enhanced by incorporation of a new '*Related Reagents*' section, which focuses upon alternative reagents that have been employed and found to be effective for similar oxidative and reductive transformations. In this section reference is made not to individual reagents, but to defined classes of reagents. Each of these classes represents a general type of oxidation or reduction of importance in organic synthesis.

There are many instances in the synthesis of natural and unnatural products, pharmaceuticals, oligosaccharides, etc., where necessary tactics must be employed in order to prevent undesired activation/reaction of functionality with

commonly utilised reagents in organic synthesis when more than one functional group is present. Accordingly, the most important reagents used to protect amines, alcohols, carboxyl, carbonyl and other reactive functional groups are included in the volume on '*Activating Agents and Protecting Groups*'. The selection of activating reagents includes both well-known and less traditional ones, however, to avoid a volume of unmanageable size, the choice of reagents has been limited to those that are used stoichiometrically, and that are relatively familiar to the organic chemistry community.

Many of the transformations detailed in these volumes can be applied to the modification of carbohydrates, especially for activation/protection in the synthesis of specific oligosaccharides and many carbohydrate derivatives, as well as the production of a variety of oxidised carbohydrates. Both volumes also include relevant references from volumes 69–75 of the journal '*Organic Syntheses*'. In summary, these volumes from the '*HROS*' series contain a wealth of information that is of great value to synthetic chemists who regularly perform functional group transformations on a wide variety of organic substrates. They are therefore highly recommended as additions to any chemical library, and for use in all synthetic organic chemistry laboratories, as they were intended.

C.J. Knill

J.F. Kennedy\*

Birmingham Carbohydrate and Protein Technology Group,  
ChembioTech Laboratories,  
The University of Birmingham Research Park,  
Birmingham B15 2SQ, UK

\* Corresponding reviewer.

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