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Book reviews

C.M. Weaver, J.R. Daniel, The Food Chemistry Laboratory: A Manual for Experimental Foods, Dietetics, and Food Scientists, 2nd edition, CRC Press, Boca Raton, USA, 2003 (137 pp., £49.95, ISBN 0-8493-1293-0).

Laboratory exercises are designed to illustrate the chemical and physical principles discussed in lectures. For students of food chemistry and related fields, it is important that laboratory experience provides detailed knowledge of the experimental methodologies and associated scientific equipment used in food research, and that students become familiar with the fundamentals of designing, executing, and reporting the results of a research project.

This informative manual provides up-to-date, well-tested food chemistry laboratory experiments, along with uses and procedures for major equipment used in such research. Information is also provided on the proper way to maintain a laboratory notebook, how to record original data, and how to analyse such data. The opening seven short sections provide concise information on accessing all forms of food chemistry literature (hard copy and electronic formats), evaluation of foods (in terms of colour, texture and flavour), objective and sensory methods, laboratory notebooks, writing research papers, preparing research proposals and oral and written presentations. The next 12 sections detail well-tested food chemistry laboratory sessions on sensory and objective evaluation, physical properties, matter dispersion, lipids, amino acids, proteins and browning, gelatin, carbohydrates, flour mixtures, pigments, pectin and food gums.

Each of these sections is composed of a selection of experiments. For example, the carbohydrates section includes experiments on reducing sugars (using Fehling's solution), starch microscopy, starch gels, and starch paste viscosity curves. Other experiments with particular reference to carbohydrates include pectin gels (in the pectin section), and the dispersibility and thermogelation of cellulose gums, and alginate gums (both in the food gums section). The approximate time needed for completion of such experiments, and discussion of possible complications and pitfalls is also provided.

The final chapter presents an equipment guide, which describes the principles, applications and procedures relating to more than 20 different pieces of scientific equipment routinely utilised in food research (e.g. viscometer, colorimeter, hydrometer, texture analyser, etc). This informative manual is a clear, concise and up-to-date account of experimental techniques and equipment for food research, and is a useful compendium for food science students, teachers and researchers.

Meng M. He, John F. Kennedy*
Chembiotech Laboratories,
Institute of Research and Development,
University of Birmingham Research Park,
Vincent Drive, Birmingham B15 21, UK

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*Corresponding author.

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I. Russel (Ed.), Whisky: Technology, Production and Marketing, Academic Press, Amsterdam, The Netherlands, 2003 (xvi + 366 pp., £79.85, ISBN 0-12-669202-5).

Whisky is the most consumed alcohol among the beverages in world—and of course it is derived from a carbohydrate polymer source. Scottish whiskies are the most reputed whiskies in Europe, since their fabrication is a very old tradition in Scotland. The first record of commercial transaction of Scottish whisky dates from 1494 between a Benedictine monastery in Fife and the court of King James IV in Edinburgh. As in the case of other beverage products, the evolution of whisky processing has changed in accordance with historical events and economic considerations. This has resulted in the use of several production processes in Scotland today. Literature discussing whisky processing with respect to the 'art of beverage' production is numerous, however few reference textbooks consider the science and technology behind whisky manufacturing. *Whisky: Technology, Production and Marketing* therefore presents detailed information on both the 'art of beverage' and the scientific aspects behind Scottish whisky production.

This volume is divided into 10 chapters ordered in stages, which first cover the history of whisky distillation, malt whiskies and grain whiskies. Malt whiskies are produced from malted barley so the total amount of enzyme used for the degradation of starch is given by the malt, whereas grain whiskies are produced from mixing non-malted cereals such as wheat or rice with some malted barley thus providing enzymes for cereal starch degradation. The distillation process can be single, double or even triple batched according to the whisky type (Malt or Grain) and is traditionally carried out in cylindro-conical copper pots. The type of distillation as well as the equipment used are important factors affecting the quality of whisky produced. The following chapters cover topics including yeast and fermentation, batch and grain whisky distillation, maturation and blending, distillation co-products, whisky analysis and finally the marketing of Scotch whisky. The production of whiskies continued to grow, reaching its peak during the Victorian era that lead to the production/blending of all types of whiskies to meet the demand. Nowadays, pure malt Scottish whiskies are considered as the most valuable products, although the market is still dominated by cheaper blended scotch whiskies.

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This volume could be further enhanced by the inclusion of some illustrative diagrams to assist in visualisation of processes and vessels used during whisky production. However, this volume is an excellent source of detailed information on the scientific aspects of whisky production, and is part of the *Handbook of Alcoholic Beverages Series*. It should be therefore appeal to all researchers with interests in distilled spirits, and the casual reader with interest in drinking such high quality products.

John F. Kennedy*, Francois Meullenet
Chembiotech Laboratories, Institute of Research and Development, University of Birmingham Research Park, Birmingham B15 22, UK

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*Corresponding author.

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E. Dickinson, T. van Vliet (Eds.), Food Colloids: Biopolymers and Materials, The Royal Society of Chemistry, Cambridge, UK, 2003 (x+416 pp., £119.50 ISBN 0-85404-871-5).

Many food products are in the form of gels, foams and emulsions. Structurally, these are phase-dispersed systems containing proteins, lipids, and polysaccharides dispersed in water and air. Food scientists are therefore interested in food colloid science as they aim to generate better and new food products by affecting the structure and taste of food. The use of innovative techniques and constantly improves the development of food colloid science. Therefore, it is important for food scientists to keep abreast of new innovations and studies happening in the field of food colloids.

Food Colloids, Biopolymers and Materials is the collection of the lectures presented at a European conference of the same name held in Wageningen (the Netherlands), and is divided into three main sections. It begins with an introductory chapter on new horizons for food structure research. The first section is composed of 12 chapters, which introduce the theory, techniques and selected case studies on gelation and aggregation. Topics covered in this section include the use of diffusing wave spectroscopy for measuring gel formation kinetics, pH-induced aggregation of whey proteins, and milk gelation. The second section contains 10 chapters that focus on emulsions, foams and interfaces. Topics in this section include sunflower/oil systems, static and dynamic properties of proteins at liquid interfaces, and the effect of ionic calcium on the flocculation and gelation of sodium caseinate. The final section contains 15 chapters covering biopolymer interactions, such as the effect of carbohydrate additives on spray-dried protein-stabilised emulsions, and the structural properties of aqueous starch dispersions. The concluding chapter summarises the past, present and future of study of food colloids.

This volume is part of the RSC Food Colloids series, and will be of interest to all researchers involved in the physicochemical characteristics of food colloid systems and their application.

John F. Kennedy*, Francois Meullenet
Chembiotech Laboratories, Institute of Research and Development, University of Birmingham Research Park, Vincent Drive, Birmingham B15 23, UK

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*Corresponding author.

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S.A. New, J.-P. Bonjour (Eds.), Nutritional Aspects of Bone Health, The Royal Society of Chemistry, Cambridge, UK, 2003 (xii+755 pp., £49.95, ISBN 0-85404-585-6).

The skeleton is a remarkable organ that persists long after life is over. However, the skeleton undergoes remarkable changes in shape and structure during growth, and continual processes of removal and renewal throughout life. Nutrition