

Book Reviews

American Association of Cereal Chemists Approved Methods, 10th ed., CD-ROM

American Association of Cereal Chemists, 2000, ISBN: 1-891127-13-6, US\$579.

This compendium of methods is an industry standard in the field of cereal science and technology. The 10th edition contains 322 methods, which have been substantially revised to make them more current and functional. New methods and some proposed new methods have been included and methods not in current use removed. Deletions since 1983 are listed with their current replacement and the volume, where they last appeared in print. Each method has been reviewed by at least two experts to ensure the methods accuracy and consistency.

There are extensive chapters on the analysis of cereal constituents which include amino acids, fats, fibres, starch, sugars, gluten, vitamins, enzymes and inorganic constituents. Chapters on cereal contaminants include microorganisms, mycotoxins and extraneous contaminants, such as insects and rodents. Processing and production chapters include yeasts, moisture, baking quality, experimental milling, acidity, sensory analysis and oxidizing, bleaching and maturing agents.

The methods contained within the chapters are well formulated and easy to follow. The test objective is stated, apparatus, reagents, procedure, calculations, additional notes and possible sources of error are all included with references.

The CD-ROM has a distinct advantage because of the search capabilities, which allow fast and easy access to data. The search can be by title, field (subject) search or a full text (keyword) search. The search function is also linked to the supplier index and cross-referenced to other methods within the text.

The CD-ROM reduces two weighty volumes into an easily used extensive reference source. Professional scientists and technologists working within the food industry, allied industries and academia will find this text and format as an invaluable one.

Lorraine A. Quinton

John F. Kennedy

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

Rye: production, chemistry and technology (2nd edition)

W. Bushuk (Ed.); American Association of Cereal Chemists (AACC), Inc., St. Paul, USA, 2001, vi + 239 pp, ISBN 1-891127-14-4 (\$159.00)

Cereals are a huge source of starches worldwide. Rye is second only to wheat in terms of bread production, and is an important cereal grain for the production of mixed animal feeds. It can be cultivated in areas that are generally not suitable for other cereal crops, since it is extremely winter hardy and can grow in sandy soil with low fertility. Despite the decline in world rye production, technological interest in rye has grown since publication of the first edition of this book, resulting in a new edition almost double the size of its predecessor, covering the production, breeding, properties and processing of rye.

The volume is composed of eight chapters and begins with an introductory chapter, which provides information on the history, world distribution, production and marketing of rye. Genetics and breeding are covered in the second chapter. There have been extensive developments in the area of genetic engineering and biotechnology, many involving rye directly. Rye continues to be a good source of genes for resistance to a variety of plant diseases and is used extensively in wheat improvement. This leads into the third chapter, which discusses diseases and pests of rye, covering fungal, bacterial and viral diseases, nematodes, insects and mites.

The fourth and fifth chapters detail the physiology of rye, and the morphology and chemistry of the rye grain, respectively. In rye, as in other cereal plants, the changing phenological phases include germination, shoot emergence, tillering, shooting and stem elongation, heading, anthesis, milk development, dough development, and full maturity. Environmental factors affecting the growth and development of rye, such as water, temperature, light, and mineral nutrition are presented. The grain of rye, like that of other cereals, is botanically a single-seeded fruit, called a caryopsis. Detailed information on the composition of the mature rye kernel, the characterisation of rye proteins, and carbohydrates in the mature grain, is presented.

The sixth chapter is devoted to rye milling, and provides a detailed discussion of all aspects of milling processes in Europe and in North America. The final two chapters focus on the utilisation of rye and cover bread baking and other food uses around the world, and animal food and industrial uses, respectively. The history of rye bread production is as old as rye growing itself. Specific topics

covered include baking strength, milling and baking quality, rye and mixed rye-wheat bread, and animal feeds.

This is an essential reference volume for food professionals who want to gain an understanding of this versatile grain as a basis for improving rye production and the quality and development of finished products made from rye. It should also be very useful to scientists and students interested in aspects of rye chemistry and technology.

Charles J. Knill
John F. Kennedy
*Chembiotech Laboratories,
Institute of Research and Development,
University of Birmingham Research Park,
Birmingham B15 2SQ, UK*

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Handbook of hydrocolloids

G.O. Phillips, P.A. Williams (Eds.); Woodhead Publishing Limited, Cambridge, UK, 2000, xxii + 450 pp, ISBN 1-85573-501-6 (£150.00)

Hydrocolloids are important tools in the design of novel nutritionally valuable foods, since they can modify texture, improve mouthfeel, act as fat replacers, encapsulate flavours, emulsify beverages, enhance viscosity and elasticity, modify pouring properties, improve product stability and extend shelf life. A concise, yet comprehensive, source of information on their properties and applications is therefore very useful for food manufacturers. Hydrocolloids behave differently as a function of pH, electrolyte concentration, thermal treatment, etc. Hydrocolloid selection is therefore of paramount importance, and this handbook aims to be an invaluable tool with respect to selection of the correct hydrocolloid for a particular product requirement, and covers all of the major hydrocolloids utilised in the food industry.

The handbook is comprised of twenty-six chapters, and begins with an introductory chapter written by the editors. This chapter introduces information on regulatory aspects, thickening characteristics, viscoelasticity and gelation, synergistic combinations, hydrocolloid fibres, and future prospects, and sets the scene for the specific chapters that follow. Subsequent chapters present detailed specific information on agar, starch, gelatin, carrageenan, xanthan, gellan, galactomannans, gum arabic, pectins, milk proteins, cellulose, tragacanth, karaya, xyloglucan, curdlan, cereal β -glucans, soluble soybean polysaccharide, bacterial cellulose, microcrystalline cellulose, chitosan, alginates, inulin, and konjac mannan. Other topics covered include gums

used as coatings and adhesives, CRC emulsifying biopolymer, and Philippine Natural Grade (PNG) and semi-refined carrageenan.

Each chapter has been written by specialists from around the world, in order to provide the most authoritative and current information available, and examines all aspects of the individual hydrocolloid including definitions, chemical structure and derivatives, manufacturing/processing procedures, commercial applications, functions, technical data, regulatory status, sample recipes and formulations, and numerous references.

The 'Handbook of hydrocolloids' is a valuable reference source for manufacturers and users of hydrocolloids, and is highly recommended for researchers and students with interests in all areas of food science and technology.

John F. Kennedy
Charles J. Knill
*Chembiotech Laboratories,
Institute of Research and Development,
University of Birmingham Research Park,
Birmingham B15 2SQ, UK*

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Herbs, botanicals and teas

G. Mazza, B.D. Oomah (Eds.); Technomic Publishing Co., Lancaster, PA, 2000, xvii + 416 pp, ISBN 1-56676-851-9 (£77.00)

The terms herbs, botanicals, and teas can be defined in several ways depending upon the context in which they are used. Where they come from inevitably involves carbohydrate in some macromolecular form. The term herb generally refers to plants with leaves or stems that are used for medicine, seasoning, food or perfume. A botanical is traditionally a drug made from roots, leaves, flowers or other parts of plants. It can also imply herbal preparation, herbal tea, herbal mixture or medicinal herb. The term tea refers to black and green teas made from the leaves of *Theae nigrae folium*. Disillusionment with modern medicine, pharmaceuticals, and the healthcare system as a whole, has increased over recent years, resulting in a higher demand for functional foods and nutraceuticals. 'Herbs, Botanicals & Teas' is part of the 'Functional Foods & Nutraceuticals Series', which offers comprehensive treatment of the emerging science and technology in this expanding field, focusing upon food and food components shown to play a role in preventing or delaying the onset of diseases.

The latest scientific and technical information on the chemical, pharmacological, epidemiological and clinical aspects of major herbal and tea products are presented.