

of food and nutritional status, and dietary allowances and goals. The final part of the handbook discusses the nutritional management of various human disorders and diseases, including heart and circulation disorders, cancer, diabetes, and diseases of the bones, teeth, skin, hair, kidneys and liver. The relationship of diet to nervous system disorders and mental health is covered, in addition to the nutritional management of underweight babies and treatment of alcoholism, the management of inherited metabolic disorders and gastro-intestinal diseases, as well as minor disorders such as sepsis, hemopoiesis, anaemias, asthma, and food allergy. The final chapter in this section presents an integrated approach to human dietetics and health.

This authoritative volume is a valuable reference source for food scientists, nutritionists, dieticians, and individuals involved in the food industry, agricultural industry, and medicine.

John F. Kennedy*

Charles J. Knill

Chembiotech Laboratories,

University of Birmingham Research Park,

Vincent Drive,

Birmingham B15 2SQ, UK

E-mail address: jfkennedy@chemistry.bham.ac.uk

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

0144-8617/01/\$ - see front matter © 2001 Elsevier Science Ltd. All rights reserved.

PII: S0144-8617(01)00252-1

Cell and Developmental Biology of Arabinogalactan-Proteins

Eugene A. Nothnagel, Antony Bacic, Adrienne E. Clarke (Eds.); Kluwer Academic/Plenum Publishers, New York, 2000, xix + 301 pages, ISBN 0-306-46469-1 (£96.00)

Arabinogalactan-proteins have a large impact in plant physiology. They are ubiquitous, and are involved in diverse physiological effects including apoptosis, cell division, arrest of growth (reversible), oxidative bursts/wounding, somatic embryogenesis, pollen tube growth, chilling protections, microsporogenesis, growth suppression and xylem formation. Different arabinogalactan-proteins may have different tissue and cellular locations, and some appear and disappear during development. They also have a range of functions, however, to date, no one function of a single arabinogalactan-protein is understood.

The field of arabinogalactan-proteins is heading towards a greater understanding of both the form and function of arabinogalactan-proteins and their reciprocal relationships. *Cell and Developmental Biology of Arabinogalactan-*

Proteins is based on the 20th Symposium in Plant Physiology at the University of California, Riverside. The volume aims to increase the understanding of how the design of these proteoglycans is adapted for their seemingly myriad functions.

This book is divided into seven sections, each of which contains a selection of papers, complete with detailed referencing. Initially, the structure and biosynthesis of arabinogalactan-proteins is covered, followed by the localization and action of these proteoglycans at the subcellular and cellular levels. In subsequent sections, the roles of these proteoglycans in somatic embryogenesis, reproductive development and vegetative development are examined. Finally, information on medically and industrially important arabinogalactan-proteins and related macromolecules is given. The last section contains a selection of relevant short papers and abstracts.

The potential commercial uses of arabinogalactan-proteins, such as their possible use to induce immunostimulation in animals, are discussed in this text, as are the industrial uses (in the food and cosmetic industries) of these proteoglycans, which rely on their functionality as emulsifiers. This up-to-date and well-structured book has enormous value as an essential reference tool, and is highly recommended for scientists and researchers interested in the biology of arabinogalactan-proteins.

Nahid Turan

John F. Kennedy*

Chembiotech Laboratories,

University of Birmingham Research Park,

Vincent Drive,

Birmingham B15 2SQ, UK

E-mail address: jfkennedy@chemistry.bham.ac.uk

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

0144-8617/01/\$ - see front matter © 2001 Elsevier Science Ltd. All rights reserved.

PII: S0144-8617(01)00248-X

Cereal Biotechnology

Peter C. Moris, James H. Bryce (Eds.); Woodhead Publishing Ltd, Cambridge, 2000, 264 pages, ISBN 1-85573-498-2 (£95.00)

Cereals provide the foundation of the world's diet, with more than half our food being derived from wheat, maize and rice. Genetic modification is one of the most important and controversial issues facing the food industry, especially in cereal production and processing, where its potential benefits and drawbacks are being seriously debated. *Cereal*

Biotechnology is the ultimate guide to the purpose, practice and implications of this complex technology. The book gives a comprehensive account of the theory and practice of cereal biotechnology, and a detailed explanation of product developments, specific applications and current regulations. An analysis of the potential benefits for the producers and the consumers is also presented, as is an examination of the potential risks raised by this new technology. Finally, an insight into the question of consumer acceptability is given.

The book contains eleven chapters, and starts with an introduction into cereals and biotechnology, and then individual chapters go on to discuss the genetic transformation of wheat, barley, rice and maize, where the strengths and weaknesses of conventional processes are illustrated. The book carries on to describe product development in cereal biotechnology, the use of biotechnology to add value to cereals (from weed control and disease resistance to improved nutritional properties), and molecular biological tools in cereal breeding. Several chapters then follow on current practices in milling, baking, malting, brewing and distilling. Finally, current practice in cereal production is covered, and the book closes with a summarising and concluding chapter. Perhaps the most important chapter in the book is on risk assessment and legislative issues, where the potential risks raised by this new technology are considered, and frameworks for assessing and dealing with areas of concern are suggested.

Cereal Biotechnology is an authoritative reference for food processors on a key new technology, and is also an essential guide for biotechnologists on the range of commercial applications within cereals processing. This book examines both the academic and industrial sides of cereal biotechnology, and also provides an important contribution to the debate for everyone concerned with genetic modification in food processing. This well structured readable text is an essential resource for the cereal processing industry, plant breeding companies, practising plant molecular biologists, environmental and government organisations and libraries and information centres.

Nahid Turan
John F. Kennedy*
Chembiotech Laboratories,
University of Birmingham Research Park,
Vincent Drive,
Birmingham B15 2TT, UK
E-mail address: jfkennedy@chemistry.bham.ac.uk

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

Developing New Food Products for a Changing Marketplace

Aaron L. Brody, John B. Lord (Eds.); Technomic Publishing Company, Inc., Lancaster, 2000, xxviii + 496 pages, ISBN 1-56676-778-4 (£79.95)

Changes in the food industry have been massive during the last few years, greatly affecting the role of new products and altered standard products. *Developing New Food Products for a Changing Marketplace* is a truly cross-functional book, which describes the complex process of developing new food products. This comprehensive book deals with all aspects of new product development, bringing together science and business in a unique way. It links food and packaging techniques with marketing strategies and demonstrates the importance of a broad-based approach to education and to business strategy. This book is a complete theoretical and practical manual for food product development, and the theory in the book is supported with plenty of real life examples.

The recent emphasis for new products is on speed and shorter life cycles. The text contains prominent chapters on product policy and goals, and the role of business strategy, product portfolios, and product selection. *Developing New Food Products for a Changing Marketplace* begins with chapters on the United States' food industry and its imperative for new products, the marketing drive for new food products, product policy and goals, and new product failure and success. Ensuing chapters cover the food product development process, product concepts and concept testing, and food science, technology and engineering overviews for product development.

The development of packaging for food products, new product organisation, the technical development of innovative new food products, and the research and development driven product evaluation in early stage development are also discussed in the text. Subsequent chapters cover the shelf life of packaged foods (its measurement and prediction) and give an introduction on the development of an integrated packaging design methodology. Innovative food packaging graphics and testing, mandatory food package labelling in the United States, and launching a new product are also dealt with in the text. Finally, public policy issues are tackled.

The text is a collaborative effort between leading experts from academia, the food industry and consultants. It prepares students, food scientists and others pursuing a role in the food sector for the requirements of business and assists them in developing products that can be effectively marketed and processed. The book may also be of value to new brand and product development executives and practitioners. It is also an ideal reference for food industry marketing, and can be used