

chemical index. It will appeal to all synthetic organic chemists, whether academics or students. This book stands as a indispensable guide, excellent synthetic reference manual and an extensive source of ideas for further research.

John F. Kennedy
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Biotechnology in the Feed Industry—1994 & 1995.

Edited by T.P. Lyons and K.A. Jacques, Nottingham University Press, Nottingham, 1994 & 1995 (2 Vols). viii + 344 & xi + 496 pp. Price £50.00 each. ISBN 1-897676-514 & 1-897676-565.

From its humble beginnings back in the late 1970s, the biotechnology industry has thrived over the last decade and has become an extremely important branch of scientific research and development. Whilst the biotechnology industry has been dominated by the design, development and production of therapeutics, the large scale application of biotechnological methodologies to the agricultural sector has resulted in a number of significant, if not glamorous, advancements.

These volumes present the proceedings from Alltech's tenth and eleventh annual symposiums, respectively, on the application of biotechnology in the feed industry, held in Kentucky, USA. The main emphasis of the tenth symposium was the interaction of nutrition, immunity and gastrointestinal function, focusing on proteinated trace minerals, oligosaccharides and yeast cultures, in this context. Topics involving carbohydrates include the physicochemical properties and nutritional roles of plant polysaccharides in monogastric animals, manipulation of fibre degradation, and the impact of mannan-oligosaccharides on the gastrointestinal microflora and the immune system. The practical application of enzymes in animal nutrition is also discussed in some detail.

The eleventh volume has a slightly more biochemical feel to it with emphasis on mycotoxins, immune modulators and mineral metabolism. However, one chapter is devoted to a showcase on agriculture around the world, with contributions from experts from Europe, Asia, North and South America, and the final section of the book, which comprises just under half of its contents, presents a round-table discussion of an extremely broad range of topics, including additional investigations into a number of the themes developed in the earlier volume, such as the use of mannanoligosaccharides in turkey farming, various biotechnological enzyme applications, and the numerous and varied applications of the yucca plant in agro-biotechnology.

As the global population increases, and consequently agricultural land decreases, the agricultural industry will require an even greater contribution from the biotech-

nology industry to help solve arising problems through the development and application of natural solutions that are environmentally acceptable to an increasingly aware consumer population.

These volumes thus represent a detailed and extremely important contribution to the development and successful application of biotechnological processes in the feed industry, and will be of value to researchers in industry and academia with interests in the biotechnology of minerals, carbohydrates, proteins and enzymes.

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Edible Coatings and Films to Improve Food Quality.

Edited by J.M. Krochta, E.A. Baldwin and M.O. Nisperos-Carriedo, Technomic, Lancaster, USA, 1994. x + 379 pp. Price \$125.00. ISBN 1-56676-113-1.

The continued increase in the awareness and interest of consumers in areas such as health, food quality, convenience, and safety have presented food manufacturers and processors with numerous challenges, some of which have potential solutions in edible coating and film concepts. By acting as barriers to moisture and oxygen, such edible coatings can feasibly reduce the complexity and thus improve the recyclability of packaging materials, compared with more traditional non-environmentally friendly packaging, and may be able to replace such synthetic films.

New materials are continuing to be isolated and characterised by food scientists and engineers, many from abundant natural sources that have traditionally been regarded as waste materials. In some cases such materials are being combined/modified in creative ways resulting in the development of novel materials with unusual previously unavailable coating and film properties.

This volume aims to provide a detailed, yet comprehensible introduction for newcomers to the field of edible coatings and films by providing descriptions of suitable materials, summarising their properties, reviewing methods for their application, and discussing their present and potential uses. The volume begins with a general introductory chapter which outlines the characteristics, formation, definitions, and testing methods associated with edible films and coatings. This is followed by three linked chapters which focus on edible coatings for vegetables, minimally processed fruit and vegetables, and processed foods, respectively.

A number of chapters deal with the important area of encapsulation, focusing on flavour encapsulation and the carrying/delivery of food additives, fungicides and natural antagonists. The latter half of the book is essentially devoted to specific classes of edible coatings and films. A general chapter on applications is followed

by chapters discussing coatings and films based on proteins, lipids and resins, and polysaccharides, respectively. The latter chapter on water-soluble polysaccharide-based edible coatings and films is of particular interest since these materials have brought about a surge in new types of their selective permeability to oxygen and carbon dioxide.

Overall, this is an extremely informative and detailed volume that is well referenced and has a good index. It will prove to be a welcome addition to the library of any individuals with interests in areas of food science and technology, and is highly recommended.

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Food: The Definitive Guide. By T. Coulate and J. Davies, The Royal Society of Chemistry, Cambridge. v + 167 pp. Price £12.50. ISBN 0 85186 4317.

Almost everyone has an opinion on the food they eat or don't eat. We have our likes and our dislikes, fads and fancies, compounded by views on what is "good for you", or what is "full of chemicals", and so on. *Food: The Definitive Guide* concentrates on food from a scientific angle, enabling the non-specialist to make more informed choices about the food that they eat.

Food: The Definitive Guide consists of 11 chapters that can be divided into 6 sections. After a brief overview of the methods that have been developed to assess food intake, section one, 'What people are eating', moves on to assess trends in food consumption. Perhaps the largest trend over the last 20 years has been an increase in convenience foods, and a move away from eating meals in the home.

Newspapers, radio and television have recently led to a glut of information, often conflicting, about the amounts we should be eating of the various components of food. Section two, 'The quality diet', deals with each of the basic components of food (e.g. fat, fiber etc.) and details the average requirements of each as related to age and sex.

Several factors have a bearing on what people eat, for example people's attitude to food can vary considerably. In certain countries horse and dog meat are popular whilst most people in Britain would frown upon it. Religion also has a bearing on what people eat. Orthodox Hindus believe that it is wrong to kill and are, for this reason, vegetarians. Philosophy can also influence what people eat. During the 60s and 70s, South African foods were boycotted by anti-apartheid supporters. All such considerations are discussed in section three, 'Choosing food'.

Section four, 'Food components', is by far the largest section of the book, and describes in detail the basic components of food, devoting a chapter to each. Nutritional facts alone are, however, useless unless they can be translated into acceptable meals. Section five, 'Not just nutrients', enables people without the experience of the home economist or food technologist to do just that.

Food: The Definitive Guide concludes with a section on the 'Evaluation of food intake', by a method proposed by the authors, which, although more complex than those previously detailed, results in much more detailed evaluation of food intake.

Overall this is an extremely detailed and informative book that is extremely accessible. It will appeal to any non-specialist with a keen interest in the food that they eat.

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