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Book reviews

Nutrition in the 90s: Current Controversies and Analysis, Vol. 2. Edited by F.N. Kotsonic & M.A. Mackey. Marcel Dekker, New York, USA, 1994. xiv + 170 pp. Price $35. ISBN 0-8247-9212-2.

Nutritional research has begun to move in new directions, through the exploration of essentially untraditional relationships between diet and health, by utilising biotechnological advances to elucidate the metabolic mechanisms of various diseases. Consequently, new evidence about lifestyle and dietary factors that influence health have added new dimensions to relationships that were emphasised in dietary guidelines in the 1980s. Likewise, since the publication of the first volume in this series, in 1991, a number of issues in nutritional science have progressed to the forefront of the field.

The first four chapters of the book help to expand our understanding about the role of diet in chronic diseases, such as the question of whether dietary fat plays a significant role in the development of breast cancer. Such a topic has remained open to discussion as a number of studies have produced somewhat conflicting results. Whilst there is little dispute that foods rich in dietary fibre have positive health effects, there are a number of slowly digested complex carbohydrates that can have beneficial effects on blood glucose and cholesterol concentrations.

The next three chapters address the benefits of regular exercise on health. Recent research has demonstrated the specific benefits of exercise, such as reduction in mortality, healthy maintenance of bone and muscle, and the avoidance of chronic diseases. The last three chapters are concerned with emerging research and regulatory issues in the field of nutrition. New legislation and regulations have established the means whereby almost all foods bear some form of nutrition labeling, which may include information about the relationship between a food ingredient and a specific disease.

As new evidence is accumulated regarding the relationships between specific dietary factors and health, the broad, general dietary recommendations made in the 1980s will require refinement. This volume provides a useful insight into some of the key issues and areas in nutritional science and is recommended to individuals with interests in such fields.

Charles J. Knill
John F. Kennedy

Food Enzymes: Structure and Mechanism. By D.W.S. Wong. Chapman & Hall, London, UK, 1995. xvi + 390 pp. Price £69. ISBN 0-412-05691-7.

Enzyme technology is an integral part of food processing, whether it be for the production of foods, or for the improvement of food quality. The precise control of enzyme reactions in food systems, the industrial utilisation of enzymes, and the development of new and improved enzyme applications are dependent on our understanding of the fundamental principles involved in enzyme structure and mechanisms of action.

This is the first volume to bring together current information on the structures and mechanisms of important food enzymes. It provides an enlightening in-depth discussion of the dynamic aspects of enzyme structures and their relationship to the chemistry of biocatalysis, which is seldom covered in food science literature. There is not a food system that does not involve enzyme reactions. In many processes, a cascade of complex, enzyme-mediated reactions is in operation. However, there are relatively few enzymes utilised in the food industry.

Chapters cover all the major classes of food enzymes, including: cellulolytic enzymes; proteolytic enzymes such as subtilisin, papain and chmyosin; lipolytic enzymes (lipases and phospholipases); pectic enzymes; glucose oxidase; horseradish peroxidase; catalase and xylose isomerase, to name but a few. There is also an extremely informative chapter on amylolytic enzymes, discussing the characteristics, structure, mechanisms and kinetics of the major starch degrading enzymes.

Enzymes used in the food industry are traditionally obtained from micro-organisms that have been screened and selected for improved properties. However, enzymes can also be tailored by *in vitro* methods — chemically, enzymatically and genetically. The tailoring of enzymes for specific functions has become a reality with the advent of protein engineering techniques.

The volume is well indexed, and the comprehensive references reflect the current state of knowledge on enzyme actions. This volume is undoubtedly an invaluable reference manual for food scientists and technologists, and is thoroughly recommended.

John F. Kennedy
Charles J. Knill