

## Book reviews

**A. Arnoldi, editor. Functional Foods, Cardiovascular Disease and Diabetes, Woodhead Publishing Ltd, Cambridge, UK, 2004 (xvi + 488 pp., £145.00, ISBN 1-85573-735-3)**

Functional foods have clearly emerged as a major food industry buzzword. A significant driving force in the functional foods marketplace is consumer demand, as the consumers want to optimize their health through food. A food can be regarded as ‘functional’ if it is satisfactorily demonstrated to affect beneficially one or more target functions in the body, beyond adequate nutritional effects, in a way that is relevant to either an improved state of health and well being and/or reduction of risk of disease. More concisely, functional foods can be defined as foods that provide a health benefit beyond basic nutrition. Functional foods that are marketed with claims to reduce heart disease focus primarily on the risk factors of blood cholesterol, homocysteine and hypertension. This can be done by a reduced content of food components that are known to increase risk, such as saturated fat or sodium. More recently products have been designed that are enriched in components that are thought to reduce risk. The most common protective ingredients include fibres, soya, omega-3 fatty acids, phytosterols and phytosterols and antioxidants. A critical issue in the regulation of functional foods is the identification of the active components responsible for proposed health benefits.

Chronic diseases such as cardiovascular disease and diabetes are an increasing problem for majority of world population. Cardiovascular disease is still a major cause of death in western population and is becoming an important cause of morbidity and mortality worldwide. Diabetes mellitus is a heterogeneous metabolic syndrome with several different causes characterized by chronic hyperglycaemia with partial or total lack of insulin secretion and a reduced sensitivity to the hormone in peripheral tissues. If monitored inadequately and associated with other lipid or protein disorders, long-term complications may develop in several organs and systems. The risk of these diseases can be reduced by life style changes, one of which is by managing a dietary prevention programme. Food industries are aware of this and market some of their foods with health claims. It has been shown that health claims on foods have positive influence on consumer’s perception of the healthiness of foods. Thus, functional foods in the form of palatable and ready to use foods that have beneficial effects have huge market and health potential. Increasing

awareness among the people about the benefits, a uniform definition of ‘functional foods’ and clear legislation on health claims would enhance the acceptance and success of this new generation of foods. The publication of this book is an important contribution towards popularising and educating peoples about the beneficial effects of these foods.

This books provides a thorough overview of functional foods and their role in control and prevention of cardiovascular disease and diabetes. The book opens with the two introductory chapters on the potential of functional foods and the key issues concerning health claims. Part I deals with importance of diet in the prevention of cardiovascular and diabetes, which include the topics, like fat-soluble nutrients, vitamins and other antioxidants, iron intake and cardiovascular disease. Dietary strategies for preventing the onset of diabetes and its control along with nutritional risk factors and their role have been described. In the next part of the book, role of phytochemicals like flavonoids, isoflavones and plant sterols in cardiovascular disease has been explained. Subsequently, strategies on control of dietary fat such as development of polyunsaturated fatty acids, new sources and fat replacers has been described in the individual chapters. The links between oxidative stress with special reference to lipid oxidation and cardiovascular functions and disease have been discussed. The positive effects of *n*–3 long-chain polyunsaturated fatty acids on the prevention of cardiovascular diseases and the proposed mechanisms behind their protective effects have been summarized.

There is a general consensus that a high-fat diet is linked with the development of obesity, high serum cholesterol and cardiovascular disease. In addition, there is an evidence that high-fat intake may increase the incidence of breast, colon and prostate cancers. The relationship between dietary fat and cardiovascular disease has been well documented. Therefore, restriction of fatty foods in diet is an effective way of reducing the risk of chronic diseases such as cardiovascular and coronary heart disease. Reducing fat and calories in everyday diet have become a major concern for most health-conscious individuals. A large number of fat replacers have been developed and are being used in partial or complete replacements for fats in foods. The role of fat replacers in reducing cardiovascular disease, their types, safety and regulatory issues has been explained.

The final part of the book reviews the use of starch and other functional ingredients in controlling cardiovascular

disease. The chapter on use of beta-glucan to control diabetes and cardiovascular disease focuses on the current limitations, available beta glucan concentrates and the effects on the lipid and glucose metabolism. The next chapter deals with the nutritional value of major pulses, problems related to the presence of anti-nutritional factors and the beneficial role of soybean and other legumes in prevention of cardiovascular.

This book concludes with another important aspect of food processing, i.e. food fermentation and its role in prevention of cardiovascular disease. Fermentation is one of the oldest methods of food processing and can be considered as a desirable microbial activity in foods. This process can also contribute to the nutritional value of the fermented food by increasing the bioavailability of nutrients or by the production of vitamins and other nutritional components by fermenting microorganisms. The chapter has been focussed on the fermenting capabilities of lactic acid bacteria, production of B vitamins, production of low-calorie sugars and some probiotic effects related to cardiovascular disease.

This book is expected to be beneficial to food scientists and technologists, biochemists, nutritionists, public health professionals, physicians, pharmaceuticals as well as entrepreneurs who are designing, processing and marketing new functional foods. It will not only support research and development but will also be suitable for academia.

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**D.C. Lee and M. Webb, editors. Pharmaceutical Analysis, Blackwell Publishing Ltd, Oxford, UK, 2003 (xv + 364 pp., £99.50, ISBN 1-84127-335-X)**

Pharmaceutical industry is one of the most active areas for the application and development of new methods in analytical sciences. The analytical technology covers an immense range of techniques and disciplines, which play a very important role in the analysis of active ingredients of the starting materials and the quality control of the finished products. Pharmaceutical industry has direct impact on the human life, therefore, understanding and application of

the analytical techniques in pharmaceuticals is really a topic of current interest.

This book focuses on the analytical techniques in drug manufacture and provides information on the analysis of active ingredients. The first chapter gives an overview of quality systems and regulations in the pharmaceutical industry. The latest approaches used in the development of achiral separation methods for analysis of impurities and degradant molecules relating to active pharmaceutical ingredients are described in the subsequent chapter.

The importance of chirality in many fields of natural and applied science is well established. In pharmaceutical analysis, this topic commands its own nomenclature and determination of chiral purity is one of the most important and challenging areas in the analysis of pharmaceuticals. The importance of chiral analysis together with the development of techniques across the separation sciences is described in a separate chapter. Polysaccharides have been employed in the development of chiral stationary phase (CSP) and polysaccharide-based CSP have been amongst the most successful and useful ever since the early 1990s. The development and widespread use of coupled techniques forms a major part of the chapters covering nuclear magnetic resonance and mass spectrometry.

The vibration of molecules can be studied by both infrared (IR) and Raman spectroscopies. Chapter 6 on vibrational spectroscopy gives a brief overview of IR and Raman spectroscopy with examples from a number of application areas demonstrating the usefulness of both the techniques in the pharmaceutical laboratory.

Microscopy has numerous applications in solid-state analysis of pharmaceuticals. The physico-chemical aspects of microscopy are considered in chapter on microscopy and imaging. The final chapter deals with another important aspect of process analysis in the pharmaceutical industry. We hope this book would be excellent source of reference to persons involved in the pharmaceutical research and make them familiar to broad range of techniques and their various applications.

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