



Book Reviews

Functional Dairy Products

T. Mattila-Sandholm, M. Saarela (Eds.); Woodhead Publishing Limited, Cambridge, UK, 2003, xiii + 395 pages, ISBN 1-85573-584-9, £135

Dairy food products can be divided into three distinct groups, the first of which is the basic products (milk, fermented milks, cheeses, ice cream, etc.). The second group is the added-value products in which the milk composition has been changed (e.g. calcium- and vitamin-enriched milk products, low-lactose or lactose-free products, hypoallergenic formulae for milk-hypersensitive infants, etc.). The third group comprises functional dairy products, where milk is enriched with a component with a proven health benefit, such as probiotic, prebiotic and synbiotic functional food products. Probiotic products contain a living probiotic ingredient, i.e. microbial strain, such as lactic acid bacteria (LAB), which beneficially affects the host by improving intestinal microbial balance. Prebiotic products contain a prebiotic (non-digestible) ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of colonic bacteria. A synbiotic product contains both probiotics and prebiotics that beneficially affect the host by improving the survival of selected live microbial strains in the gastrointestinal tract. Designing and developing functionality in dairy-based products simply means modifying and/or enriching the healthy nature of the original base. The potential of such products has undergone considerable development in recent years and provides a range of new products for human consumption, not only as foodstuffs, but also as dietary supplements with the potential for protective/medicinal products in the near future.

This volume provides information on the definition, classification and types of functional dairy products, and provides detailed examples citing the benefits of such products on human health. The first part of the volume describes the health benefits of functional dairy products and their importance. Topics covered include how functional dairy products affect the immune system and prevent osteoporosis and chronic diseases such as cancer and cardiovascular disease. The relationship between dietary composition and cancer is examined from both experimental and epidemiological data for dairy products and their significant components (including calcium, casein, whey, sphingolipids and conjugated linoleic acid, CLA). The protective roles and mechanisms of action of milk

protein, bovine milk, fermented milks, prebiotics, probiotics, synbiotics and other functional dairy products is reviewed with respect to their therapeutic use for anticarcinogenicity, antigenotoxicity, food allergy and gastrointestinal inflammation.

The second part of the volume focuses upon key dairy ingredients, such as caseinophosphopeptides (CPPs), oligosaccharides, LAB, and CLA, discussing their functional benefits and uses, types, production, structural characteristics, physiological function, applications and health benefits. Detailed examples of the effects of such functional dairy ingredients on humans are provided, such as the cytomodulatory effects of CPPs, the effect of oligosaccharides on the immune system, intestinal infections, mineral absorption and gastrointestinal microflora, and the functional benefits of CLA with respect to anticarcinogenesis, atherosclerosis, immune function, diabetes and human lipid and protein metabolism. The final part of the volume is concerned with product development and such issues as clinical trials and safety evaluation of functional foods. Enhancing the functionality of prebiotics was investigated by application of carbohydrate chemistry to identify properties needed to achieve the desirable attributes. The manufacture of oligosaccharide mixtures with a controlled chain length distribution and hence a controlled rate of metabolism is presented. Establishment of the efficacy and tolerance of functional dairy products relies on clinical trials. Information is also provided on management and marketing, consumer attitudes, nutritional guidelines and health claims.

In conclusion, this volume is an excellent source of detailed information on functional dairy products and will be of great value to food scientists and any individuals with interests in the design and development of functional food products.

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