

Book reviews

Dictionary of Nutraceuticals and Functional Foods, N.A.M. Eskin, S. Tamir. CRC Press, Boca Raton, USA (2006). viii + 507 pp., £44.99, ISBN: 0-8493-1572-7

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Health professionals are recognising the major role that nutraceuticals play in health enhancement. As a direct result of this, there is a dramatic increase in research aimed at identifying new functional foods and nutraceuticals. This dictionary is part of the *Functional Foods and Nutraceuticals Series* and provides the reader with useful information on the nature of the 'bioactives' present in functional foods and their reported efficacy in cell cultures, animal studies and, in some case, human clinical trials.

Dictionary of Nutraceuticals and Functional Foods provides science-based information on over 470 nutraceutical and functional foods products and compounds. Each entry lists the most current information on the product or compound and its role in the promotion of health or the prevention of disease, as well as peer-reviewed literature references. In addition, this thorough reference contains numerous chemical structures, figures, reaction schemes, and tables, to facilitate recognition and understanding. Entries of particular interest to carbohydrate scientists include: acacia gum, amaranth, arabinoxylan, barley, buckwheat, chitin and chitosan, chondroitin sulphate, curdlan, mushroom polysaccharides (from *Ganoderma*), fructooligosaccharides, glucosamine sulphate, guar gum, honey, inulin, Jerusalem artichoke, lactulose, lectins, oats, oligofructose, palatinose (isomaltose), pectin, pinto beans, polydextrose, quinoa, resistant starch, rice starch, rye, sea cucumbers (fucan sulphates), whole grains, xanthan gum, and xylooligosaccharides.

Concise and accessible, this dictionary is a convenient single source reference that defines the most commonly used terms in the field of nutraceuticals and functional foods, and is highly recommended to food and pharmaceutical researchers.

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Organic Chemistry Principles and Industrial Practice, Mark M. Green, Harold A. Wittcoff. Wiley-VCH, Weinheim, Germany (2003). xx + 321 pp., £29-95, ISBN: 3-527-30289-1

There are a multitude of industrial products produced using the principles of organic chemistry, especially in the petroleum industry, which accounts for 95% of the 800 million tonnes of chemical products currently produced annually in the world. However, many such principles are taught to students without any reference to their commercial and practical importance. Organic chemistry can therefore appear to be somewhat irrelevant, since most students cannot relate such principles and practices with their actual industrial application. This volume was written to be used in conjunction with classical organic chemistry texts, and provide a source of accessible information that brings together such principles and industrial practices, thus enhancing the readers overall appreciation of organic chemistry.

The volume is composed of 10 concise chapters, which are written as tales of discovery, so that the reader may often be presented with facts whose basis, or mechanism, may only be revealed later. The first chapter provides meaning, structures and examples of petroleum, and how to convert it into useful materials. This is followed by more detailed information on petroleum products, such as polyethylene and polypropylene, the role of electrophilic aromatic substitution, synthesis of commercially important plastics (epoxy resins, polyurethanes, etc.), cross-linking, and glycerol. Information about the industrial synthesis of methyl methacrylate, nylon, natural rubber and rubber tires, elastomers, glue, dynamite, spandex and other products of ethylene and propylene, acetylene production, polycarbonate synthesis, etc.,

is also provided. The final chapter discusses how the replacement of dangerous and/or toxic chemicals in various industrial processes, such as the demise of acetaldehyde, has led not only to improved safety, but also to greater profit. A summary and study guide problems are provided at the end of each chapter, and a list of specialised books for further study and reference follows the final chapter.

This interesting volume provides a practical perspective and information on the historical development of both industrial and theoretical ideas, permitting an understanding of how industrial problems have been solved and how organic chemistry principles played a role. It is ideal for anyone learning or working in areas of organic chemistry, chemical engineering, particularly the petrochemical and polymer chemistry fields.

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Medical Textiles and Biomaterials for Healthcare, S.C. Anand, J.F. Kennedy, M. Mirafteb, S. Rajendran (Eds.). Woodhead, Cambridge (2006). xi + 508 pp., £150-00, ISBN: 1-85573-683-7

Medical textiles is a major growth area within the technical textiles industry and its range of applications continues to grow and increase in diversity with every new development. Medical textiles are utilised everyday in almost all healthcare environment activities, in the form of plasters, bandages, pressure garments, etc. This detailed volume is divided into eight parts, each of which begins with a comprehensive overview of the subject area, followed by selected papers from the MEDTEX conference, hosted by The University of Bolton.

The initial part of *Medical Textiles and Biomaterials for Healthcare* is composed of seven chapters on biomaterials utilised in medical textiles. The introductory overview provides information on the classification of natural and man-made textile fibres, natural and modified carbohydrate polymers and proteins used in medical textiles, and commercial applications and products using carbohydrate polymers. Specific topics covered in this part of the volume include new resorbable biomaterials, reformed collagen fibres, chitosan-alginate fibres, and biodegradable polylactides. The second part of the volume focuses upon healthcare and hygiene products. This is an important issue for the World Health Organisation because if healthcare units are not hygienic, then patients are at risk of becoming

unwell and getting infections. This part includes chapters on nonwoven applications, advanced textiles, wool and blended fabrics for the elderly, and ultrasonic cotton bleaching. The third part covers infection control and barrier materials, and includes ten chapters on what can be done to control infections if needed and the materials that will help to protect patients from getting infections, providing information on topics such as antimicrobial and antibacterial materials, biocidal textiles, breathable non-wovens, etc.

The fourth and fifth parts each contain seven chapters, which deal with bandaging and pressure garments, and woundcare materials, respectively. The treatment of venous leg ulcers is an important topic, which is covered in several chapters in part four, whilst part five deals with topics such as burns treatment, chitin-based dressings and drug release. The sixth part contains six chapters on implantable devices, providing information on interesting topics such as 3-dimensional tissue engineering textile architectures, and spider-silk supportive matrix. The penultimate part focuses on medical devices, containing ten chapters that include bi-directional surgical sutures, natural silk-based surgical threads, vascular prostheses, and nerve implants. The final part is about intelligent textiles for medical applications. This shorter, but equally important section, is composed of four chapters that discuss cell therapy delivery, textile finishing, and polymer surface gas plasma treatment.

This volume provides a comprehensive overview of the main aspects of the medical textiles area as applied to the healthcare sector, and provides the reader with detailed insight into some of the specific areas of investigation that are currently being developed to improve the quality of life and comfort of patients. It is therefore highly recommended to all individuals with academic, industrial and research interests in medical textiles.

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Carbohydrates: Fundamentals and Applications, S.P. Gimelli. Micelle Press, Weymouth, Dorset (2006). x + 207 pp., £59-00, ISBN: 1-870228-29-4

Carbohydrates are an essential part of human existence, and come as mono- (single), oligo- (several), and poly- (many) saccharides. The disaccharide sucrose (household 'sugar') has been known and utilised for thousands of years, and was produced in Europe in refineries as early