

## Book Reviews

**D.S. Hage, editor. Handbook of Affinity Chromatography, 2nd ed., CRC Press/Taylor and Francis Group, Boca Raton/FL, USA, 2006 (xix + 944 pp., £115.00, ISBN 0-8247-4057-2)**

Chemical separation is an essential component of modern research and is widely used to process complex samples. Liquid chromatography has become popular method for these separations because of its ability to work with a wide range of substances. When combined with appropriate support materials, this technique can be used in either high-performance separations for chemical detection and measurement or in systems designed to purify a desired product. One of the most versatile forms of liquid chromatography is the technique known as affinity chromatography, which can generally be defined as a liquid chromatographic technique that uses a specific binding agent for the purification or analysis of sample components. The *Handbook of Affinity Chromatography* provides information on the theory, applications, and practical use of affinity chromatography in different fields of science and technology.

The contents of the book are divided into six sections. An overview of affinity chromatography is given in Section I, and important factors to consider in the development of affinity methods including support materials, immobilization methods and application or elution conditions are discussed. Section II is focussed on the general affinity ligands and methods and it reviews the information on bioaffinity chromatography, immunoaffinity chromatography, DNA affinity chromatography, boronate affinity chromatography, dye-ligand and biomimetic affinity chromatography, and immobilized metal-ion affinity chromatography.

The preparative applications, analytical and semipreparative applications, and biophysical applications in various areas such as biochemistry, molecular biology, biotechnology, clinical testing, pharmaceutical, and environmental analysis are discussed in the Section III, IV and V of the book. Section VI is focussed on the recent developments in the field, including the affinity ligands in capillary electrophoresis, affinity mass spectrophotometry, microanalytical methods, chromatographic immunoassays, and molecularly imprinted polymers.

The book provides the latest information on the theory and practical use of affinity chromatography. The topics are well illustrated and range from fields of biochemistry, molecular biology and biotechnology to analytical chemistry, pharmaceutical and environmental science. This handbook can be an excellent source of information not only to the students but also to the persons involved in research and academia.

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**P.F. Fox, P.L.H. McSweeney, T.M. Cogan and T.P. Guinee, editors. Cheese: chemistry, physics and microbiology 3rd ed. Vol. 1, General aspects, Vol. 2, major cheese groups Vol. 1, Elsevier Academic Press, London, UK, 2004 (xvii + 1051 pp., £249.95, ISBN, Vol. 1, 0-12-263652-X; Vol. 2, 0-12-263653-8; Vol. Set 0-12-263651-1)**

Cheese is the most diverse group of dairy products and is produced in a wide range of flavours and forms throughout the world. While many dairy products, if properly manufactured and stored, are biologically, biochemically, chemically and physically very stable, cheeses in contrast, biologically and biochemically dynamic and consequently are inherently unstable. Although cheese making is an ancient art, modern cheese production relies on the application of much science and technology, including the use of induced enzymes, complex fermentations, sophisticated engineering and a dynamic biochemistry during ripening. Thus, researchers have created a very substantial literature on the different aspects of cheese technology. The third edition of *Cheese: Chemistry, Physics and Microbiology* covers the different scientific aspects of cheese and is available in two volumes entitled 'General Aspects' and 'Major Cheese Groups'.

Volume 1 provides information on the rennet and acid coagulation of milk and the properties of the acid coagulated milk gels, microbiology and genetics of starter cultures, microbiological aspects of cheese ripening, biochemistry of cheese ripening and characterization of cheese flavour. Consumer awareness about the food products has increased in recent years. Therefore, the topics of rheology and texture, nutritional aspects of cheese and sensory analysis of cheese have also been discussed in the book.

A great diversity of cheeses are produced from the same raw materials. Volume 2 is focussed on the various types of cheese, and the cheeses are grouped on the basis of their characteristics.

The first chapter of the volume provides an overview of the diversity of cheese varieties, and the general aspects of cheese technology are discussed in the second chapter. The market for cheese as a food ingredient has increased rapidly in recent years and now represents up to approximately 70% of cheese production in some countries. The uses of cheese as ingredient are discussed in the last chapter of the book.

In conclusion, this edition contains comprehensive information on the chemical, biochemical, microbiological and physico-chemical aspects of cheese in general as well as the principal families of cheeses. These volumes can be highly useful not only to the students and academicians but also to the researchers, production management and quality control personnel working in the dairy industry.

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numbers, hyphens, primes, subscripts and superscripts are ignored when ordering terms; neither are small capitals, hyphenated modifies and alphabetic Greek characters used to determine primary alphabetic order. One special merit has to be mentioned that extensive cross references within definitions to other terms appearing in the *Dictionary* are shown in bold. Thus, the entries for the bold terms show that the *Dictionary* also contains definitions for them.

In conclusion, the *Dictionary* should be a valuable tool for people working in related fields or anyone who has a general interest in the issues facing the international food sector. This *Dictionary* has been compiled to appeal to a wide range of users, not just for students of food science and technology and for teaching or research in this field or food processors.

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**International Food Information Service, Dictionary of Food Science and Technology**, Blackwell Publishing, Oxford, UK, 2005 (x + 413 pp., £75.00, ISBN 1-4051-2505-5)

The *Dictionary of Food Science and Technology* was compiled by the *International Food Information Service* (IFIS) which is a non-profit organization providing international products and services, commissioning research and providing education in information science for the international food science, food technology and human nutrition community. There are 7852 defined terms in this edition of the *Dictionary*.

It contains a large number of definitions of terms which are specific to food science and technology (covering sensory analysis, consumer research, food composition, nutrition [food related not clinical aspects], catering, and food safety) and is augmented with definitions of terms from cognate disciplines (including chemistry, biochemistry, physics, microbiology, public health, economics, engineering and packaging). The *Dictionary* also contains a large number of definitions covering food commodities of every description including processed and prepared foods of all types together with. Furthermore, the food biotechnology related terms are also involved in the *Dictionary* such as gene cloning, genetic engineering, gene transfer, immobilization, protein engineering, PCR, and bioremediation. Whenever appropriate, local names, synonyms and Latin names also appear.

Alphabetical order in the dictionary is determined not on word by word but letter by letter basis. Characters such as

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**C.O. Kappe and A. Stadler, Microwaves in Organic and Medicinal Chemistry**, Wiley-VCH, Weinheim, Germany, 2005 (xii + 409 pp., €139.00, ISBN: 3-527-31210-2)

There is currently an explosive growth in the general field of 'microwave chemistry'. Microwave chemistry has been used in both academic and industrial contexts. Especially the impact on the pharmaceutical industry, has led to the development of microwave-assisted organic synthesis (MAOS). *Microwaves in Organic and Medicinal Chemistry* offers a complete guide to microwave synthesis in organic and medicinal chemistry. This book focuses on the underlying theory, latest developments in microwave applications and includes a variety of examples from the recent literature, as well as less common applications that are equally relevant for organic and medicinal chemists.

The first chapter gives a brief introduction into microwave synthesis and its history. The physical principles behind and the factors determining the successful application of microwaves in organic synthesis are not widely familiar to chemists, so the next chapter offers a brief summary on the current understanding of microwaves and their interactions with matter. Although many of the early pioneering experiments in microwave-assisted organic synthesis were carried out with domestic microwave ovens, the current trend is undoubtedly to use dedicated instruments for chemical synthesis. This book also provides a detailed description of the various