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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)

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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 it 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 the Section I, and important factors to consider in the development of affinity methods including support materials, immobilizations 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 biomimetric 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 excellent source of information not only to the students but also to the persons involved in research and academia.

Abdelhamid Elaissari, editor. Colloidal Biomolecules, Biomaterials, and Biomedical Applications, Marcel Dekker, New York, 2004 (xii + 488pp., £99.00, ISBN 0-8247-4779-8)

Magnetic latexes are colloidal composites that combine organic and inorganic materials. Each of the organic and inorganic components plays a specific role in the properties of the final hybrid material. Magnetic particles have been used as a support for the separation, selective isolation, and purification of molecules. For example, in biomedical diagnostics, they can replace the cumbersome steps of centrifugation or filtration.

Colloids provide a suitable solid-phase support as a carrier of various molecules, biomolecules, and active agents. In fact, diverse and varied particles have been developed and explored in numerous biomedical applications.

In biomedical diagnostics, the immobilization (adsorption, covalent grafting, and specific interactions) of biomolecules such as proteins, antibodies, peptides, nucleic acids, bacteria and viruses onto colloidal particles is of paramount importance.

Nowadays, the main objective in the therapeutic domain is the elaboration of new colloids-such as smart capsules and well-defined methodologies-in order to enhance the targeting efficiency. *Colloidal Biomolecules, Biomaterials and Biomedical Applications* is an authoritative presentation of established and newfound techniques promising to revolutionize the areas of biomedical diagnostics, therapeutics pharmaceutics, and drug delivery.

Colloidal Biomolecules, Biomaterials, and Biomedical Applications is divided in 15 articles where the following subjects are discussed: biomedical application for magnetic latexes, the agglutination test, latex immunoagglutination assays, capture and detection of biomolecules using dual colloid particles, polymer particles and viruses, polymer beads in biomedical chromatography, interaction of proteins with thermally sensitive

particles, DNA-like polyelectrolyte adsorption onto polymer colloids, amino-containing latexes as a solid support of single-stranded DNA fragments and their use in biomedical diagnosis, covalent immobilization of peptides onto reactive latexes, preparation and applications of silicone emulsions, colloidal particles, poly (alkylcyanoacrylates), preparation of biodegradable particles by polymerization processes, supercritical fluid processes for polymer particle engineering.

The chapters present original works, fresh results, new methodologies, and several applications of colloidal particles in biomedicines. In this way, this volume is a good manual for all kinds of subjects related with colloids in the biomedical field.

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Abdelhamid Elaissari, editor. Colloidal Polymers Synthesis and Characterization, Marcel Dekker, Santa Barbara, CA, USA, 2003 (xiii + 453pp., £99.00, ISBN 0-8247-4304-0)

Although emulsion polymers have been known as a products for over a half century, it is surprising to note that growth in the volumes used by industry worldwide has continued to rise and is still estimated at 6% a year up to 2005. The introduction of seeded polymerisation techniques in the 1960s, associated with more advanced monomers feeding programs, made possible not only to improve control of the particle size characteristics but also toad interestingly on the morphology and internal structure of particles. These seeded techniques paved the way for new innovation applied in industry from 1965 to 1970 so as to create rubber toughened plastics, thanks to graft copolymers such as acrylonitrile butadiene styrene (ABS) and methyl methacrylate butadiene styrene resins (MBS).

Polymerisation in dispersed media is increasing from both practical and fundamental points of view. The need for well-defined dispersion has led to the production of diverse types of particles. The specialty chemicals industry is particularly interested in a large number of uses involving the elaboration of latexes with specific characteristics, such as narrow size distribution, and often-surface fictionalisation.

Free radical polymerisation is widely utilised technology to prepare synthetic polymers in aqueous colloidal dispersion form. It is by far the most commonly used process in industry; manufacturers find that it has a large number of technical advantages and economic advantages. The synthetic latexes, which are obtained from polymerisation reaction vessels, can be processed on the production site to separate the polymer, dry it, and then market it in various dry forms.

Further, a selection of extended reviews and detailed papers are included in order to give an overview of related fields. In this way, this book examines the following points: synthesis of reactive polymer colloids, physico-chemical and colloidal characterisation of prepared latexes and biomolecules-polymer colloids interactions.

The main objective of this book is to report on the preparation of polymer colloids by presenting original processed and innovative materials leading to original properties. The goal of this book is to present recent result and information on polymer colloids beginning with their preparation and biomolecules interactions and going further into a study of some of their finer biomedical applications.

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Victor A. Vinci and Sarad R. Parekh, Handbook of Industrial Cell Cultures: Mammalian, Microbial and Plant cells, Humana Press, Totowa, NJ, 2003 (536pp., ISBN 1-58829-032-8)

Mammalian, microbial and plant cells are traditionally used for the manufacture of products derived directly or semi-synthetically from cellular metabolites. These cells are increasingly used as the cellular machinery to express the recombinant proteins of considerable economic and therapeutic value. Supporting the production of novel therapeutics in mammalian, microbial and plant cells is an impressive array of new methodologies from the field of molecular genetics, proteomics, genomics, analytical biochemistry, and screening. For an industrial bioprocess, manipulation and propagation of cells in order to elicit expression of a product is followed by the recovery, analysis, and identification of these products.

In *Handbook of Industrial Cell Cultures: Mammalian, Microbial and Plant cells*, a diverse team of researchers, technologists, and engineers describe, in simple and practical language the major current and evolving technologies for improving the biocatalytic capabilities of mammalian, microbial and plant cells. The authors present state-of-the art techniques, proven methods, and strategies for industrial screening,