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### ***“Nonthermal Preservation of Foods”***

Gustavo V. Barbosa-Cánovas, Usha R. Pothakamury, Enrique Palou, Barry G. Swanson, Marcel Dekker, New York; 1998, 276 pages, US\$ 135; ISBN 0-8247-9979-8

For many years nonthermal preservation of food has played an important role. Because of increasing energy costs, new technologies have been developed and published in journals or patented. The authors Gustavo V. Barbosa-Cánovas, Usha R. Pothakamury, Enrique Palou, and Barry G. Swanson made efforts to summarize a great variety of papers on this subject and were able to publish for the first time a book, which exclusively deals with nonthermal preservation of foods.

Each chapter is divided into parts which explain on the one hand the technology of the process, but show also biological effects, possibilities and limits of the methods. The facts are clearly illustrated by many pictures, drawings and diagrams.

The first chapter, entitled ‘Emerging technologies in food preservation’, gives a survey of methods of high hydrostatic pressure, oscillating magnetic fields, high intensity pulsed electric fields, intense light pulses, irradiation, chemicals, biochemicals, and hurdle technologies, which have been developed with the goal of achieving food preservation, but to avoid quality degradation, such as loss of vitamins, essential nutrients, or flavors, which is often the result of heat treatment. Additionally a significant decrease of energy and other costs can be achieved by these new techniques.

In the second chapter ‘High hydrostatic pressure food processing’, the authors explain high pressure treatment in detail, when necessary with the help of figures and tables. Besides technological aspects, the advantages of the method which result from its special activity on biological systems, such as microorganisms, enzymes, and other microbial cells are clarified. Moreover, several applications are presented, which again show the possibilities of the techniques, particularly maintenance of product quality.

High intensity pulsed electric field techniques (PET) are detailed in the subsequent chapter. After a brief introduction into the theoretical background of the method, the authors place emphasis on the description of different process systems. Possible applications and the activity on biological systems are described in the following chapter.

The method of oscillating magnetic fields shows another

example of nonthermal food preservation. The authors explain in this chapter the effects of the technique with particular attention to biological aspects. With the help of descriptive pictures and sketches the physical background of the method can easily be understood. A short section about future developments makes clear that this upcoming method has still a great potential.

Besides of the application of light pulses, irradiation of foods for food preservation is included. Starting with historical aspects and the technological background, the advantages and limits of the method are revealed. In this context a main focus is set on microbiological, chemical, and nutritional changes occurring during irradiation. Furthermore the chapter deals with commercial applications and customer acceptance, including aspects of the international food trade and current legislation.

In addition to various technological processes of nonthermal preservation of foods, the book also covers chemical and biochemical preservation in a separate chapter.

The last chapter deals with hurdle technology, combining technical and chemical preservation methods. Similar to the previous chapters, major aspects here are microbiological stability and maintenance of food quality. Due to synergistic effects arising by combination of different methods, according to the authors, new possibilities are available, which are as yet only marginally used.

In the preface the authors claim that their goal was to create a book which gives a detailed survey of different methods of nonthermal preservation of food. They have definitely succeeded in summarizing an abundance of information and literature clearly, informatively, and with a lot of expertise. Thus, we found a book which can be valuable in the same way for both students and teachers in the fields of food technology and food chemistry.

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### ***“Pharmacokinetics in Drug Discovery and Development”***

Ronald D. Schoenwald (Ed.); RCR Press, Boca Raton, London, New York, Washington; 2002, 426 pages, ISBN 1-5667-6973-6, US\$ 59.95

In the past six decades pharmacokinetics including clinical pharmacokinetics has evolved into a well-established discipline with numerous subspecialties, which is applied by

the pharmaceutical industry in the development of novel compounds and which is incorporated by regulatory institutions to guarantee efficacy and safety of new drugs. In the 1970s the bioavailability regulations were passed into law allowing generic manufacturers to establish bioequivalence based on pharmacokinetic data. Considering the development of increasing complexity of this discipline it becomes more and more difficult to become an expert and to get information combined from all areas of pharmacokinetics. Therefore, the intention of this book is to gather the current knowledge in the field and to give an executive summary at hand of the interested pharmacokineticist.

To give a short overview: The book is divided into four major sections: (1) basic principles; (2) industrial and regulatory applications; (3) clinical applications and (4) research applications. Section I provides in 30 pages the definitions of ADME (absorption, distribution, metabolism, elimination), gives an introduction into the principles of classical pharmacokinetic compartmental models and outlines the approaches to single and multiple dosing kinetics. The 80 pages of Section II of the book are structured in four chapters dealing with PK/PD correlations and their applications in different disease areas, implications of drug metabolism on pharmacokinetics, phases I, II and III FDA submissions and finally bioavailability and bioequivalence. Factors affecting drug bioavailability as well as study design and bioequivalence evaluation criteria are discussed in detail in that chapter. Section III (115 pages) contains six chapters giving examples of approaches to a clinical pharmacokinetic monitoring based on a selection of widely used drugs in various therapeutic areas, such as antiarrhythmic agents, psychotropic agents, anti-asthma drugs and anticonvulsant agents. Section IV (150 pages in five chapters) addresses classical modeling, non-compartmental modeling

and examples of physiologically based pharmacokinetics as well as population pharmacokinetics and linear systems approaches.

All together, the book exhibits a comprehensive coverage of pharmacokinetic concepts and industrial and clinical applications. It is very well structured; all chapters are illustrated with sufficient black and white diagrams and definitions and key terms are summarized in user-friendly box tables. Each chapter ends with a list of special references to be read by pharmacokineticists interested in further details. Sometimes, there is some redundancy, e.g. compartmental models are explained in several chapters; however, this has to be accepted in a multi-author publication and does not lessen the overall value of the book. Its particular attractiveness is that it is not too specialized like many other books in that area but that it is written in an easy way which can be understood not only by the pharmacokinetic expert but also by students and readers who would like to get a first hand access into the field.

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