

COREL 701

Book Reviews

Microemulsions and Emulsions in Foods, edited by M. El-Nokaly and D. Cornell, ACS Symposium Series 448., American Chemical Society, Washington, D.C., 1991, \$54.95.

This book is the result of a symposium held at the spring 1990 ACS meeting. The information is, therefore, most up to date. While I am generally critical of symposium proceedings because they often vary greatly in quality from chapter to chapter and lack continuity and comprehensiveness, I cannot fault this offering. The symposium organizers did an excellent job in selecting speakers and topics as well as providing the continuity often lacking. The organizers should also be complimented on selecting a topic, microemulsions in foods, that has been neglected, but needed. Perhaps this book will stimulate others to further investigate the use of microemulsions in the food area.

The first two chapters are introductory in nature. Chapter one sets up the history of emulsions and outlines how each of the book chapters fits into the overall goals of the symposium. Chapter two is devoted to a detailed discussion of the basics of micro and macroemulsions.

The second section of the book (next four chapters) is devoted to microemulsions in food systems. The uniqueness of this section is pointed out by Dr. Becker (chapter 1) who found only four references in his computer search using the key words "microemulsions" and "food". This is contrasted to 475 references using "emulsions" and "food". The titles in this section reflect the chapter contents and are: "Solubilization of water and water-soluble compounds in triglycerides", "Emulsions of reversed micellar phases and aqueous dispersions of cubic phases of lipids: some food aspects", "Preparation of 2-

monoglycerides" and "Dioctyl sodium sulfosuccinate-sorbitan monolaurate microemulsions".

The final section (twelve chapters) of this book deals with food emulsions. The majority of this section is devoted to emulsions stabilized by proteins, including discussions of protein-protein and protein-emulsifier interactions and their effects on interfacial films. Individual chapters are devoted to emulsions based on polysaccharides and sucrose esters as well as novel means of measuring emulsion stability. The work reported is original research rather than review in nature.

Overall, this book is very well done from selection of topic to speaker and final presentation. It will be of value both to the food technologist working in industry as well as academia.

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Colloidal Carriers for Controlled Drug Delivery and Targeting: Modification, Characterization and in vivo Distribution, by Rainer H. Müller, Wissenschaftliche Verlagsgesellschaft, Stuttgart, Germany, 1991, 227 figures, DM168.

This book presents a compilation of Dr. Müller's work in the area of colloidal carriers as injectable controlled release drug delivery systems. The focus of the work is to establish design criteria which will minimize uptake of the drug/carrier system by the reticular endothelial system (RES).

In the introductory chapter, Dr. Müller briefly explains the mechanism for recognition and up-

take of colloidal particles by the RES. He then makes a case for the use of surface coating techniques to avoid RES recognition and subsequently permit longer residence of the delivery system in the systemic circulation. This would permit targeting of drugs to intravascular sites such as lymphocytes and leukemia cells as well as prolonging the duration of effects of drugs with very short half lives, e.g. many peptides.

The second chapter, which comprises almost a third of the book, is devoted to methods for modifying the surface of colloidal particles and physically characterizing the resultant particles. Coating of the surface by adsorption surfactants is the primary method used to modify the surface, though consideration is also given to γ -irradiation and plasma etching.

Characterization parameters include size, charge, surface hydrophobicity, chemical analysis of the surface and stabilization capacity of the coating material. For each of these parameters, there are introductory comments explaining their importance, then methodology and results for several ways of measuring each is given and a comparison between methods is made. For instance, the use of Rose Bengal binding studies is compared to Hydrophobic Interaction Chromatography (HiC) as a method for determining surface hydrophobicity. Paraphrasing, the Rose Bengal method is an average parameter and is only useful for uncoated particles whereas HiC provides information on subpopulations with different surface hydrophobicities and can be applied to coated particles. The drawback of HiC is that it is much more time-consuming. This type of practical comparison of method will be especially useful for those actively working on formulations of this type.

The following section presents methodology for preparing colloidal systems comprised of non-biodegradable polymers, biodegradable polymers and biodegradable fat emulsions, in that order. The biodegradable polymers used in Dr. Müller's studies include polylactic acid (PLA) and polyhydroxyl butyrate (PHB). Selection of biodegradable polymers is discussed in some detail. In addition to preparation of the colloids,

incorporation into and rate of release of radiolabels and drugs from the particles is described.

The remainder of the book is devoted to *in vivo* distribution of colloidal particles and how variation in composition and coating affects this distribution. The relationship between surface properties and *in vivo* distribution is explored in detail.

A concise summary of the properties a carrier needs in order to avoid RES clearance and therefore serve as an intravenous SR formulation or as a targeting agent for specific tissues is given in the final chapter. The major conclusions are that to escape RES recognition, colloidal carriers need to be uncharged yet possess a hydrophilic surface, which does not result in opsonization. Ethylene oxide chains on the surface coating appear to provide the required protection.

The text is easy to read and the details of each test are readily accessible. There are almost 400 references, so between the presentation given and the references, there is a thorough and up-to-date coverage of this interesting and important field. Furthermore, the methods used and their evaluation are presented in sufficient detail to be of practical utility. The book is therefore highly recommended for those working in the area of injectables and injectable SR formulations. There is also sufficient background and rationale for use of colloidal systems as SR systems for the book to serve as a useful reference for those interested in SR in general.

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Therapeutic Monoclonal Antibodies, edited by Carl A.K. Borrebaeck and James W. Larrick, Stockton Press, New York, 1990, 369 pp.

Therapeutic Monoclonal Antibodies is a compilation of 20 well-written, concise, up-to-date reviews on the preclinical development, large-scale production, and therapeutic applications of some of today's most promising therapeutic