

THE OILY PRESS



Oily Press books on fats, oils and other lipids

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A new book published by The Oily Press in 2010....

LIPID ANALYSIS Fourth Edition

WW Christie - 2010 winner of the Supelco/
Nicholas Pelick - AOCs Research Award

Lipid Analysis - Isolation, Separation, Identification and Lipidomic Analysis is written by William W. Christie (Scottish Crop Research Institute and Mylnefield Research Services, Scotland) and Xianlin Han (Washington University School of Medicine, USA).

ISBN 978-0-9552512-4-5. Published in 2010, 446 pages, 14 tables, 97 figures, 776 references.

Volume 24 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

This well-known and highly successful book was first published in 1973 and has been completely re-written in subsequent editions (published in 1982 and 2003). This new Fourth Edition has become necessary because of the pace of developments in mass spectrometry of intact lipids, which has given recognition of lipid analysis and 'lipidomics' as a distinct science. To bring the book up to date with these developments, author William W. Christie is joined by co-author Xianlin Han. Although devoting considerable space to mass spectrometry and lipidomics, *Lipid Analysis* remains a practical guide, in one volume, to the complexities of the analysis of lipids. As in past editions, it is designed to act as a primary source, of value at the laboratory bench rather than residing on a library shelf.

The contents include: •Lipids: their structures and occurrence •Chromatographic analysis of lipids: general principles •Lipid extraction, storage and sample handling •Analysis of simple lipid classes •Chromatographic analysis of phospholipids and glycosyldiacylglycerols •Chromatographic analysis of sphingolipids •Preparation of derivatives of fatty acids •Gas chromatographic analysis of fatty acid derivatives •Isolation of fatty acids and identification by spectroscopic and related techniques •Molecular species of triacylglycerols, diacylglycerols derived from complex lipids, and related lipids •Chromatographic analysis of molecular species of intact phospholipids and glycolipids •Positional distributions of fatty acids in glycerolipids •Introduction to mass spectrometric analysis of lipids in lipidomics •characterization of lipids by electrospray ionization mass spectrometry •practical identification of individual lipid species in lipid extracts of biological samples •quantification of lipid molecular species by electrospray ionization mass spectrometry

TRANS FATTY ACIDS IN HUMAN NUTRITION - Second Edition

Edited by Frédéric Destailats (Nestlé, Switzerland), Jean-Louis Sébédio (INRA, France), Fabiola Dionisi (Nestlé, Switzerland) and Jean-Michel Chardigny (INRA, France).

ISBN 978-0-9552512-3-8. Published in 2009, 440 pages, 82 figures, 39 tables and 1221 references.

Volume 23 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

In this completely rewritten Second Edition of *Trans Fatty Acids in Human Nutrition* authors who are recognized international authorities in their field have addressed the major areas of *trans* fatty acids (TFA) research such as consumption, analysis, biochemistry, synthesis and natural TFA biosynthesis, health effects, food formulation, and also regulation and consumer perception. Each chapter contains the latest references and major advances and breakthroughs in a specific area of *trans* fatty acids research. Furthermore, the book also includes a discussion of a major issue — the health effects of the 'natural *trans* isomers', comparing their effects to those observed for TFA produced during hydrogenation. The First Edition carried out a very similar task for the state of our knowledge in the late 1990s but the rapid expansion and progress in the subject meant that it had to be completely re-written and expanded from the original 9 to the present 15 chapters of the Second Edition.

The contents include: •Prologue (German) •Biosynthesis of TFA in ruminants (Enjalbert and Troegeler-Meynadier) •Formation of TFA during catalytic hydrogenation of edible oils (Bezelgues & Dijkstra) •Formation of TFA during deodorisation of edible oils (Bezelgues & Destailats) •Chemical synthesis of monounsaturated TFA (Mouloungui & Candy) •Analysis of TFA of partially hydrogenated vegetable oils and dairy products (Ratnayake & Cruz-Hernandez) •Replacement of partially hydrogenated oils in food products: a technological challenge (Napolitano & Giuffrida) •Metabolism of TFA isomers (Sébédio & Christie) •Biosynthesis and biological activity of ruminic acid: a natural CLA isomer (Lock, Kraft, Rice & Bauman) •Biosynthesis, synthesis and biological activity of *trans*-10,*cis*-12 conjugated linoleic acid (CLA) isomer (Tissot-Favre & Waldron) •Observational epidemiological studies on intake of TFA and risk of ischaemic heart disease (Jakobsen & Overvad) •Dietary TFA and cardiovascular disease risk (Malpuech-Brugère, Morio & Mensink) •Dietary TFA: from the mother diet to the infant (Chardigny & Combe) •Evolution of worldwide consumption of TFA (Craig-Schmidt & Yinghui Rong) •Legislation relating to *trans* fatty acids (Duhem) •Consumer concerns and risk perception related to TFA (Aubertin).

PHOSPHOLIPID TECHNOLOGY AND APPLICATIONS

Edited by Frank D. Gunstone, Scottish Crop Research Institute, Dundee, Scotland

ISBN 978-0-9552512-2-1. Published in 2008, 213 pages, 45 figures, 28 tables and 553 references.

Volume 22 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

Phospholipid Technology and Applications should be of special value to technologists developing food and cosmetics products, scientists researching phospholipids in biological and food systems, technologists in fats and oils refining, and scientists developing drugs and drug delivery systems and carriers. Today, phospholipids find many uses in the food industry and in other industries which exploit the amphiphilic nature of these compounds. The early chapters in this book are devoted to the more common glycerol-based phospholipids, while the final chapter is devoted to another kind of phospholipid, the sphingolipids, in which there is a growing interest.

The contents include: ●Chemical structure and biological function (Wang) ●Major sources, composition and processing (Schneider) ●Enzymatic modification of phospholipids and related polar lipids (Xuebing Xu, Vikbjerg, Zheng Guo, Long Zhang & Acharya) ●Uses of phospholipids as functional ingredients (Hernandez & Quezada) ●Physical properties of phospholipids (Carlsson) ●Chemical modification (Bonekamp) ●Clinical and nutritional properties of phospholipids (Duttaroy) ●Sphingolipids (Nilsson)

LONG-CHAIN OMEGA-3 SPECIALTY OILS

Edited by Harald Breivik, Neperdo Biomarine, Porsgrunn, Norway

ISBN 978-0-9552512-1-4. Published in 2007, 312 pages, 57 tables, 52 figures, 620 references.

Volume 21 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

Unlike the many other books on omega-3 fatty acids, *Long-Chain Omega-3 Specialty Oils* is not concerned with nutrition but instead is aimed primarily at those people working to develop, manufacture and market long-chain omega-3 oils and the food, drink and pharmaceutical products containing them. It concentrates on the long-chain acids eicosapentaenoic (EPA) and docosahexaenoic (DHA), rather than *alpha*-linolenic acid. Although often thought of as "fish oils", these omega-3 oils are also available from other sources.

The contents include: ●Omega-3 fatty acids - introduction (Gunstone) ●Fish oil sources (Nichols) ●Microbial oils: production, processing and markets for specialty long-chain omega-3 polyunsaturated fatty acids (Wynn & Ratledge) ●Processing of marine oils (Bimbo) ●Concentrates (Breivik) ●Enzymatic processing of omega-3 specialty oils (Xuebing Xu, Kittikun & Hong Zhang) ●Applications in food products (Muggli) ●Optimization of oxidative stability of omega-3 enriched foods (Jacobsen & Nielsen) ●Analysis of oils and concentrates (Curtis) ●The regulation of fish oils and omega-3 fatty acids in the European Union (Berry Ottaway) ●Markets for fish oils and fish oil concentrates (Hjaltason & Haraldsson)

ANTIOXIDANTS IN FOOD AND BIOLOGY: FACTS AND FICTION

Written by Edwin N. Frankel (author of the Oily Press best-seller *Lipid Oxidation*)

ISBN 978-0-9552512-0-7. Published in 2007, 266 pages, 67 tables, 44 figures, 656 references.

Volume 20 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

The field of antioxidants has expanded over the last six decades into a wide variety of multi-disciplinary areas that impact foods and health. *Antioxidants in Food and Biology: Facts and Fiction* is a handbook designed to help all those who need to prevent or control oxidation, especially in food products, or to understand the properties of antioxidants in food, nutrition, health and medicine.

The contents include: ●Introduction to antioxidants ●Chemistry of antioxidation ●Antioxidant action in multi-phase systems ●Antioxidant protocols for foods and biological systems ●Food antioxidants ●Antioxidants in biology ●Browning and glycation reaction products in biology ●Future perspectives ●Glossary ●Abbreviations

LIPIDS: STRUCTURE, PHYSICAL PROPERTIES AND FUNCTIONALITY

Written by Kåre Larsson, Peter Quinn, Kiyotaka Sato and Fredrik Tiberg

ISBN 978-0-9531949-9-5. Published in 2006, 280 pages, 14 tables, 119 figures, 584 references.

Volume 19 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

In *Lipids: Structure, Physical Properties and Functionality*, Professors Kåre Larsson, Peter Quinn, Kiyotaka Sato and Fredrik Tiberg have provided an up-to-date description of the diversity of lipid molecular arrangements in different physical states as a basis for the understanding of lipid functionality in biological and technical systems. This new and up-to-date book replaces Kåre Larsson's popular book *Lipids: Molecular Organization, Physical Functions and Technical Applications* published by The Oily Press in 1994.

The contents include: ●Basic concepts ●Solid-state behaviour of polymorphic fats and fatty acids ●Liquid-crystalline lipid-water phases ●The liquid state ●Lipids at the air-water interface — monolayers and multilayers in surface films, bubbles and foams ●Dispersions of lipid-water phases ●Interaction of lipids with proteins and polypeptides ●Emulsions ●Lipids of biological membranes ●Lipid barriers at the environment-body interface ●Drug delivery ●Foods

LIPID OXIDATION — SECOND EDITION

Written by Edwin N. Frankel, University of California, USA

ISBN 978-0-9531949-8-8. Published in 2005, 486 pages, 152 tables, 148 figures, 87 equations, 849 references.

Volume 18 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

In his definitive book on lipid oxidation, Professor Frankel's main objective is to develop the background necessary for a better understanding of what factors should be considered, and what methods and lipid systems should be employed, to

achieve suitable evaluation and control of lipid oxidation and rancidity in complex foods, biological systems and disease states. The need to understand lipid oxidation is greater than ever with the increased interest in long-chain PUFA, the reformulation of oils to avoid hydrogenation and *trans* fatty acids, and the enormous attention given to natural phenolic antioxidants.

The contents include chapters dealing with: ●Free radical oxidation ●Hydroperoxide formation ●Photooxidation of unsaturated fats ●Hydroperoxide decomposition ●Methods to determine extent of oxidation ●Research methods ●Stability methods ●Control of oxidation ●Antioxidants ●Oxidation in multiphase systems ●Foods ●Frying fats ●Biological systems ●Glossary and List of Abbreviations.

BIOACTIVE LIPIDS

Edited by Anna Nicolaou, University of Bradford, UK, and George Kokotos, University of Athens, Greece

ISBN 978-0-9531949-7-1. Published in 2004, 294 pages, 21 tables, 47 figures, 1127 references.

Volume 17 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

Bioactive Lipids brings together an international team of authors to discuss the nomenclature, structures, biochemistry, pharmacology and recent developments in the main classes of bioactive lipids. These lipids are essential components of the cell membrane and play many dynamic roles in mediating and controlling a wide array of cellular activities. The importance of these lipids is increasingly recognized in the pharmaceutical and food industries.

The topics covered are: ●Fatty acids (Calder & Burdge) ●Diacyl and monoacyl glycerols (Becker & Hannun) ●Phosphoinositides (Payraastre) ●Lysolipids: sphingosine 1-phosphate and lysophosphatidic acid (Pyne) ●Plasmalogens, PAF and other ether lipids (Farooqui & Horrocks) ●Ceramide (Vaena de Avalos, Jones & Hannun) ●Glycosphingolipids (Kolter) ●Prostanoids (Nicolaou) ●Leukotrienes - lipoxins (Fiore) ●Endocannabinoids (Kokotos) ●Isoprostanes (Basu).

ADVANCES IN LIPID METHODOLOGY — FIVE

Edited by Richard O. Adlof, NCAUR, USDA-ARS, Peoria, USA

ISBN 978-0-9531949-6-4. Published in 2003, 384 pages, 24 tables, 110 figures and 929 references.

Volume 16 in The Oily Press Lipid Library. Hard cover. Price £95 or US\$193.

The topics covered are: ●Analysis of edible oils by differential scanning calorimetry (Tan & Che Man) ●Lipid analysis by silver ion chromatography (Nikolova-Damyanova) ●Analysis of genetically modified oils (Hazebroek) ●APCI-MS in lipid analysis (Byrdwell) ●Fatty acid profiling in metabolic disorders (Christophe) ●Process for development of standard methods for the analysis of fats, oils and lipids (Daun & Cantrill) ●Supercritical fluid chromatography (SFC) — global perspective and applications in lipid technology (King).

CONFECTIONERY FATS HANDBOOK

Written by Ralph E. Timms

ISBN 978-0-9531949-4-0. Published in 2003, 441 pages, 90 tables, 146 figures, 725 references.

Volume 14 in The Oily Press Lipid Library. Hard cover. Price £95 or US\$193.

Fat is the most expensive component in confectionery such as chocolate. It may comprise cocoa butter, milk fat, palm oil, lauric oil, exotic fats etc. This new handbook, with many figures and tables, provides a comprehensive guide to all aspects of confectionery fats. The author is recognized worldwide as a leading expert in the practical as well as the theoretical aspects.

The following topics are covered. ●Introduction ●Physical chemistry ●Analytical methods ●Raw materials ●Processing of raw materials ●Production and properties ●Applications ●Bloom, rancidity and migration ●Adulteration, detection and quantification ●Legislation and regulatory aspects ●Appendices: Suppliers and products.

LIPIDS FOR FUNCTIONAL FOODS AND NUTRACEUTICALS

Edited by Frank D. Gunstone, Scottish Crop Research Institute, Dundee, Scotland.

ISBN 978-0-9531949-3-3. Published in 2003, 322 pages, 65 tables, 44 figures, 1183 references.

Volume 13 in The Oily Press Lipid Library. Hard cover. Price £85 or US\$174.

The active ingredients and components of functional foods and nutraceuticals often include lipids. This is the first book to address specifically the use of lipids in such products and it will be essential reading for those who produce the lipids and those who seek to incorporate them into appropriate formulations.

Chapters cover the following topics: ●Introduction (Young) ●Carotenoids (Che Man & Tan) ●Tocopherols, tocotrienols and vitamin E (Stone & Papas) ●Other natural antioxidants (Hall) ●Diacylglycerols (Watanabe & Matsuo) ●Lipase-catalysed synthesis of modified lipids (Bornscheuer, Adamczak & Soumanu) ●Phytosterols (Salo, Wester & Hopia) ●Omega-3 (*n-3*) fatty acids (Li, Bode, Drummond & Sinclair) ●Oils containing oleic, palmitoleic, gamma-linolenic and stearidonic acids (Yang, Gunstone & Kallio) ●Conjugated linoleic acid (CLA) (Fernie).

The following books are also still available.....*Lipid Glossary 2* by Frank D. Gunstone and Bengt G. Herslöf. *Lipids in Nutrition and Health: a Reappraisal* by Michael I. Gurr. *Advances in Lipid Methodology — Four* by William W. Christie. *Advances in Lipid Methodology — Three* by William W. Christie.

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