

Alternative Sweeteners

Third Edition, Revised and Expanded



edited by

Lyn O'Brien Nabors

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*Calorie Control Council
Atlanta, Georgia*



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Preface

Alternative sweeteners, both as a group and in some cases individually, are among the most studied food ingredients. Controversy surrounding them dates back almost a century. Consumers are probably more aware of sweeteners than any other category of food additive. The industry continues to develop new sweeteners, each declared better than the alternatives preceding it and duplicative of the taste of sugar, the gold standard for alternative sweeteners. In truth, no sweetener is perfect—not even sugar. Combination use is often the best alternative.

While new developments in alternative sweeteners continue to abound, their history remains fascinating. Saccharin and cyclamates, among the earliest of the low-calorie sweeteners, have served as scientific test cases. They have been used to “test the test.” For example, saccharin’s fate has rested on adverse findings in second-generation rat studies. Only in the late 1990s did scientific technology become sophisticated enough to understand these findings and demonstrate conclusively that man is not a big rat. The International Agency for Research on Cancer (IARC) and the U.S. National Toxicology Program (NTP) now incorporate mechanistic data into their determinations, and saccharin was the first substance to be evaluated on the basis of these new criteria by NTP, and among the first for IARC.

The numerous sweetener developments throughout the 1990s have facilitated combination use. With the availability of numerous low-calorie and reduced-calorie sweeteners and improved technology, higher-quality products can be produced, and in greater quantity. In some parts of the world, foods and beverages are available that contain as many as three or more alternative sweeteners. Regulatory authorities recognize the reduced caloric value of polyols, and

these sweeteners are being used increasingly. Researchers have developed a sweetener-sweetener salt in which aspartame and acesulfame are combined at the molecular level. Petitions are pending in various countries for new sweeteners, such as neotame and D-tagatose.

This book provides the latest information on numerous alternative sweeteners and their combination use. Some are currently approved and used in various countries, some are expected to be available in the future, and some are presented as a matter of scientific interest. All chapters that appeared in the second edition of *Alternative Sweeteners* have been updated, and chapters on neotame, D-tagatose, trehalose, erythritol, and the aspartame-acesulfame salt have been added. As in the earlier editions, a chapter on fat replacers is also included. More and more low-calorie foods are expected to contain not only sweetener combinations but also sweeteners plus fat replacers. A concerted effort has been made to provide the reader with comprehensive, current information on a wide variety of alternative sweeteners and substantial references for those who wish to learn more.

Lyn O'Brien Nabors

Contributors

- Sue E. Andress** The NutraSweet Company, Mount Prospect, Illinois
- Michael H. Auerbach** Danisco Cultor America, Ardsley, New York
- Abraham I. Bakal** ABIC International Consultants, Inc., Fairfield, New Jersey
- Hans Bertelsen** Arla Foods Ingredients amba, Videbaek, Denmark
- Barbara A. Bopp** TAP Pharmaceutical Products, Inc., Deerfield, Illinois
- Francisco Borrego** Zoster, S. A. (Grupo Ferrer), Murcia, Spain
- Saskia Brokx** PURAC biochem bv., Gorinchem, The Netherlands
- Allan W. Buck** Archer Daniels Midland Company, Decatur, Illinois
- Harriett H. Butchko** The NutraSweet Company, Mount Prospect, Illinois
- C. Phil Comer** The NutraSweet Company, Mount Prospect, Illinois
- César M. Compadre** University of Arkansas, Little Rock, Arkansas
- Ronald C. Deis** Product and Process Development, SPI Polyols, Inc., New Castle, Delaware

- Lee B. Dexter** Lee B. Dexter & Associates, Austin, Texas
- Laura Eberhardt** Calorie Control Council, Atlanta, Georgia
- Milda E. Embuscado** Cerestar USA, Inc., Hammond, Indiana
- Kristian Eriknaer** Arla Foods Ingredients amba, Viby, Denmark
- John C. Fry** Connect Consulting, Horsham, Sussex, United Kingdom
- Leslie A. Goldsmith** McNeil Specialty Products Company, New Brunswick, New Jersey
- Lisa Y. Hanger** Nutrinova, Inc., Somerset, New Jersey
- Søren Juhl Hansen** Arla Foods Ingredients amba, Videbaek, Denmark
- Michael E. Hendrick†** Pfizer Inc., Groton, Connecticut
- Annet C. Hoek** Business Support Center, Holland Sweetener Company, Geleen, The Netherlands
- William E. Irwin*** Palatinit Süßungsmittel GmbH, Elkhart, Indiana
- Kazuaki Kato** Towa Chemical Industry Co., Ltd., Tokyo, Japan
- A. Douglas Kinghorn** Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois
- Rene Soegaard Laursen** Arla Foods Ingredients amba, Brabrand, Denmark
- Anh S. Le** SPI Polyols, Inc., New Castle, Delaware
- Graeme Locke‡** Cultor Food Science, Redhill, Surrey, United Kingdom
- Dale A. Mayhew** The NutraSweet Company, Mount Prospect, Illinois

† Deceased.

* Retired.

‡ Cultor Food Science is now Danisco Sweeteners.

- Carolyn M. Merkel** McNeil Specialty Products Company, New Brunswick, New Jersey
- Paul H. J. Mesters** PURAC biochem bv., Gorinchem, The Netherlands
- Helen Mitchell** Danisco Sweeteners, Redhill, Surrey, United Kingdom
- Helena Montijano** Zoster, S. A. (Grupo Ferrer), Murcia, Spain
- Frances K. Moppett** Pfizer, Inc., Groton, Connecticut
- Alan H. Moskowitz** Operations Development, Adams Division of Pfizer, Parsippany, New Jersey
- Kathleen Bowe Mulderrig** SPI Pharma Group, SPI Polyols, Inc., New Castle, Delaware
- Lyn O'Brien Nabors** Calorie Control Council, Atlanta, Georgia
- Philip M. Olinger** Polyol Innovations, Inc., Reno, Nevada
- Thomas F. Osberger** Food Industry Consultant, Upland, California
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- Alan B. Richards** Hayashibara International Inc., Westminster, Colorado
- James Saunders** Biospherics Incorporated, Beltsville, Maryland
- Djaja Djendoel Soejarto** Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois
- W. Wayne Stargel** The NutraSweet Company, Mount Prospect, Illinois
- Peter Jozef Sträter** Palatinit Süßungsmittel GmbH, Mannheim, Germany

John A. van Velthuijsen PURAC biochem bv., Gorinchem, The Netherlands

Gert-Wolfhard von Rymon Lipinski Scientific and Regulatory Affairs, Nutrinova Nutrition Specialties and Food Ingredients GmbH, Frankfurt/Main, Germany

John S. White White Technical Research Group, Argenta, Illinois

Marie-Christel Wijers* Palatinit of America, Inc., Morris Plains, New Jersey

Christine D. Wu College of Dentistry, University of Illinois at Chicago, Chicago, Illinois

* Retired.

Contents

Preface	iii
Contributors	ix
1. Alternative Sweeteners: An Overview <i>Lyn O'Brien Nabors</i>	1
Part I. Low-Calorie Sweeteners	
2. Acesulfame K <i>Gert-Wolfhard von Rymon Lipinski and Lisa Y. Hanger</i>	13
3. Alitame <i>Michael H. Auerbach, Graeme Locke, and Michael E. Hendrick</i>	31
4. Aspartame <i>Harriett H. Butchko, W. Wayne Stargel, C. Phil Comer, Dale A. Mayhew, and Sue E. Andress</i>	41
5. Cyclamate <i>Barbara A. Bopp and Paul Price</i>	63
6. Neohesperidin Dihydrochalcone <i>Francisco Borrego and Helena Montijano</i>	87