

CONTENTS

<i>Preface</i>	xvii
<i>List of Contributors</i>	xix

Part I: Advances in Sensory Science/Psychophysics

1. Dynamics of Aroma Release during Cheese Consumption: Influence of the Physiological State	3
Lauriane Boisard, Etienne Sémon, Laurent Brondel, Claude Yven, Christian Salles and Elisabeth Guichard	
2. The Dynamics of Aroma Release during the Consumption of Candies with Different Structures: Relationship with Temporal Perception	9
Isabelle Déléris, Anne Saint-Eve, Etienne Sémon, Jean Luc Le Quéré, Hervé Guillemin and Isabelle Souchon	
3. Quantification of Important Flavor Compounds in Beef Stocks and Correlation to Sensory Results by “Reverse Metabolomics”	15
Andreas Degenhardt, Rüdiger Wittlake, Stefan Seilwind, Margit Liebig, Christa Runge, Jens-Michael Hilmer, Gerhard Krammer, André Gohr and Ludger Wessjohann	
4. The Impact of Vision on Flavor Perception	21
Anne J. Kurtz, Harry T. Lawless, Brian Wansink and Terry E. Acree	
5. Perceptual Interactions in Complex Odor Mixtures: The Blending Effect	27
Charlotte Sinding, Gérard Coureaud, Claire Chabanet, Adeline Chambault, Noelle Béno, Thibaut Dosne, Benoist Schaal and Thierry Thomas-Danguin	
6. Measuring Odor Delivery for Sensory Testing	33
Andrew Taylor, Susan Skelton and Lewis L. Jones	
7. Advanced Analytical Sensory Correlation – Towards a Better Molecular Understanding of Coffee Flavor	39
Josef Kerler, Juerg Baggenstoss, Mireille Moser, Andreas Rytz, E. Thomas, A. Glabasnia, Luigi Poisson and Imre Blank	

- 8. Multiple Time–Intensity Profiling (mTIP) as an Advanced Evaluation Tool for Complex Tastants** 45
Katja Obst, Susanne Paetz, Jakob P. Ley and Karl-Heinz Engel
- 9. Odorant–Physiology Interactions: In Search of Effects Beyond Smell Perception** 51
Andrea Buettner

Part II: Effects, Meaning, and Role of Flavor in Nature

- 10. Explaining the Pleasantness of Bilberry and Crowberry Juices by Combining Sensory and Chemical Data** 61
Oskar A. Laaksonen, Johanna K. Ahola and Mari A. Sandell
- 11. Determination of Cell Morphology under 1,8-Cineole Treatment in Porcine Intestinal Cells** 65
Isabella Almstätter, Jakob Müller, Michael W. Pfaffl and Andrea Buettner
- 12. Electrophysiological Characterization of Neurotropic Activity of *Sideritis* Tea Volatiles** 71
Artur Kessler, Carmen Villmann, Hilal Sahin, Monika Pischetsrieder and Andrea Buettner
- 13. Monitoring of Hop Aroma Compounds in an *In vitro* Digestion Model** 77
Anja Heinlein and Andrea Buettner

Part III: Flavor Systems

- 14. Comparison of the Maillard-Derived Aroma Volatiles of Cooked Milled and Brown Rice** 83
Dody D. Handoko, Lisa Methven, J. Stephen Elmore and Donald S. Mottram
- 15. Molecular Insights into Off-Flavor Formation during Pineapple Juice Processing** 87
Martin Steinhaus, Karin Thomas and Peter Schieberle
- 16. Gas Chromatographic-Olfactometric Characterization of Key Aroma Compounds in Fresh and Frozen Lamb Meat using New Extraction Methods** 91
Mónica Bueno, Virginia C. Resconi, Maria Mar Campo, Juan Cacho, Vicente Ferreira and Ana Escudero

17. **The Flavor of Elderflower – Species Differentiation via Flavor Compounds** 95
Nicole Pabi, Georg Innerhofer, Erich Leitner and Barbara Siegmund
18. **Aroma Profile of a Red-Berries Yoghurt Drink by HS-SPME-GC-MS-O and Influence of Matrix Texture on Volatile Aroma Compound Release of Flavored Dairy Products** 101
Katharina Breme and Barbara Guggenbühl
19. **Importance of 3-Alkyl-2-Methoxypyrazines in Red Wines from Spain** 107
Elisa Gracia-Moreno, Ricardo Lopez, Juan Cacho and Vicente Ferreira
20. **Chemical Markers for Bitterness in Whole Wheat Bread** 111
Qing Bin, Deshou Jiang, In Hee Cho and Devin G. Peterson
21. **Differences in Chemical Composition of Aroma among Red Wines of Different Price Category** 117
Felipe San Juan, Juan Cacho, Vicente Ferreira and Ana Escudero
22. **Analysis and Sensory Evaluation of Gooseberry (*Ribes uva crispa* L.) Volatiles** 123
Katrin Hempfling and Karl-Heinz Engel
23. **Formation of Beer Volatile Compounds at Different Fermentation Temperatures using Immobilized Yeasts** 129
Daniela Smogrovicova
24. **Important Aroma Compounds in Salami and Correlations with Biogenic Amines** 133
Johanna K. Kreißl, Christine M. Mayr, Kerstin Söllner and Peter Schieberle
25. **Quantitative Analysis of a Wine Lactone Precursor in Wine** 137
Joanne Giaccio, Mark A. Sefton and Dennis K. Taylor
26. **The Effect of Methylobacteria Application on Strawberry Flavor Investigated by GC-MS and Comprehensive GC × GC-qMS** 141
Barbara Siegmund and Erich Leitner
27. **Aroma and Flavor Solvent: Impact on the Matrix** 147
Nicole Yang, Joanne Hort, Robert S.T. Linforth, Andrew J. Taylor, Keith Brown, Stuart Walsh and Ian D. Fisk
28. **Influence of Composition (CO₂ and Sugar) on Aroma Release and Perception of Mint-Flavored Carbonated Beverages** 151
Anne Saint-Eve, Isabelle Déléris, Elodie Aubin, Jean-Marc Rabillier, Dominique Ibarra and Isabelle Souchon

29. Aroma and Lipid: Predicting the impact <i>In vivo</i>	155
Robert S.T. Linforth, Ian D. Fisk and Andrew J. Taylor	
30. Role of Aroma–Matrix Interactions on Perception of Structured Emulsions	159
Solenn Coic, Chantalle Groeneschild and Carole Tournier	
31. Influence of the Manufacturing Process on Changes in the Concentrations of Selected Key Aroma Compounds of Dornfelder Red Wine	165
Stephanie Frank and Peter Schieberle	
32. Study of the Volatile Compounds Useful for the Characterization of Frozen Anchoita (<i>Engraulis anchoita</i>) by SPME-GC-MS	169
Leila Q. Zepka, Roger Wagner, Eduardo Jacob-Lopes, Marina M. Daltoé, Andriéli B. Santos, Aiana F. Torri, Jossiê Z. Donadel and Maria I. Queiroz	
33. Effect of Soil Nutrition on Aroma Compound Formation in Organically Grown Apples (cv. Golden Delicious)	173
Antonio Raffo, Antonio D'Aloise, Ewald Lardschneider, Flavio Paoletti, Federico Marini, Remo Bucci and Markus Kelderer	
34. Impact Odorants in Strawberry Vinegars	177
Cristina Úbeda, Raquel M. Callejón, Ana M. Troncoso, José M. Rojas, Francisco Peña and Maria Lourdes Morales	
35. Stereospecificity of <i>D. bruxellensis</i> in the Production of Ethylphenol Off-Flavor in Wine	183
Josh L. Hixson, Chris D. Curtin, Mark A. Sefton and Dennis K. Taylor	
36. Volatile Sulfur Differences in Nine Florida Strawberry Cultivars	189
Xiaofen Du, Vance Whitaker and Russell L. Rouseff	
37. Biotechnological Production of Fatty Aldehydes	195
Markus Buchhaupt, Fenja Kähne, Maria M.W. Etschmann and Jens Schrader	
38. Microbial Conversion of (\pm)Linalool to Linalool Oxides by <i>Corynespora cassicola</i>	201
Maria M.W. Etschmann, Sebastian Bormann and Jens Schrader	
39. Biosynthesis of Vanillin: Enzyme Involved in the Conversion of Ferulic Acid to Vanillin in <i>Vanilla planifolia</i>	205
Osamu Negishi and Yukiko Negishi	
40. Comparison of Ribose and Ascorbic Acid in Model Process Reactions Containing Cysteine	211
Jane K. Parker, Sandra Bishara, David A. Baines and Donald S. Mottram	

41. **Reaction Mechanism of the Strawberry Enone Oxidoreductase** 215
Wilfried Schwab and Dorothee Klein
42. **Gas Chromatography-Olfactometric Profiles of Eight Different Varieties of Peruvian Pisco Spirits** 221
Liliana Moncayo, Laura Culleré, Vicente Ferreira and Juan Cacho
43. **Odorant Polyfunctional Thiols Issued from Bottle Beer Refermentation** 227
Sabrina Nizet, Florence Peeters, Jacques Gros and Sonia Collin
44. **Formation and Stability of 2,3-Dehydro-1,8-Cineol in a Model Carbonated Beverage System** 231
Yaowapa Lorjaroenphon, Bethany J. Hausch and Keith R. Cadwallader
45. **Studies on Stability of Citrus Flavors and Insights into Degradation Pathways of Key Aroma Compounds** 237
Andreas Degenhardt, Margit Liebig, Birgit Kohlenberg, Beate Hartmann, Stefan Brennecke, Uwe Schäfer, Dirk Schrader, Günter Kindel, Stephan Trautzsch and Gerhard E. Krammer
46. **Generation of Roast-Smelling Compounds Upon Extrusion** 241
Tomas Davidek, Ondrej Novotny and Imre Blank
47. **Sensory and Molecular Characterization of the Aroma Profiles of Fish Oil Supplements** 245
Stefanie Sandgruber and Andrea Buettner
48. **Characterization of Odor-Active Compounds in Aromatic Caramel by GC-Olfactometry and GC-Mass Spectrometry** 251
Laurianne Paravisini, Karine Gourrat-Pernin, Cécile Gouttefangeas, Cédric Moretton, Henri Nigay, Catherine Dacremont and Elisabeth Guichard
49. **Investigation of Four Tropical Unifloral Honey Aromas using Sensory and GC-Olfactometer Analyses** 257
Kanjana Mahattanatawee, Pilar Ruiz Pérez-Cacho, Hortensia Galán Soldevilla and Russell L. Rouseff
50. **Effect of Temperature during Bottle Aging on the Flavor Profile and Antioxidant Capacity of Ruby Cabernet Red Wine** 263
Josefa Espitia-Lopez, Jose Ramon Verde-Calvo, Hector B. Escalona-Buendia and Daniel Mendez-Iturbe
51. **Comparison of Screw Cap and Cork Closure Effect on Volatile Sulfur Development during Post-Bottle Ageing** 267
Michael C. Qian, Juan He, Jim Peck and Rollin Soles

- 52. Variability of Allyl Hexanoate Concentration in Pineapple-Flavored Beverages and Yogurts** 273
Antonio Raffo, A. D'Aloise, Andrea D. Magrì, Antonio L. Magrì and Catherine Leclercq
- 53. Aroma Analysis and Data Handling in the Evaluation of Niche Apple Juices from 160 Local Danish Apple Cultivars** 277
Camilla Varming, José M. Amigo, Mikael A. Petersen and Torben Toldam-Andersen
- 54. Characterization of Volatile Compounds in Dark Chocolates by HS-SPME and GC-MS: Influence of Cocoa Origin and Roasting Conditions** 283
Miriam Torres-Moreno, Amparo Tarrega and Consol Blanch
- 55. Discovery and Structure–Activity Studies of Maillard-Modified Guanosine 5'-Monophosphates using Human Sensory Studies and Cell-Based Taste Receptor Assays** 289
Barbara Suess, Daniel Festring, Anne Brockhoff, Andreas Degenhardt, Silvia Billmeyer, Wolfgang Meyerhof and Thomas Hofmann
- 56. Effects of Distribution Chain on Flavor Formation in Ripening Fresh Tomatoes** 295
Antonio Raffo, Irene Baiamonte, Nicoletta Nardo, Stefano Nicoli and Flavio Paoletti
- 57. Estimation of the Aroma Potential of Grapes** 301
Belén Concejero-Pardos, Purificación Hernandez-Orte and Vicente Ferreira
- 58. Enzyme- and Microorganism-Guided Discovery of Natural Sulfur Compound Precursors** 307
Christian Starckenmann and Niclass Yvan
- 59. Characterizing Dry Riesling Wines' Aromatic Typicality with Sensory and Instrumental Analytical Methods – A Comparative Approach** 313
Armin Schüttler, Stephanie Fritsch, Rainer Jung, Doris Rauhut and Philippe Darriet
- 60. 2-Acetyl-1-Pyrroline Synthesis during Rice Plant (*Oryza sativa* L.) Growth under Controlled Salinity Conditions** 319
Janchai Poonlaphdecha, Isabella Maraval, Sandrine Roques, Alain Audebert, Renaud Boulanger and Ziya Gunata
- 61. Correlation between Flavor Profile and Sensory Acceptance of Two Pineapple Cultivars and their New Genotype** 325
Christofora Hanny Wijayaa, I. Silamba and B. Kusbiantoro

- 62. Key Odorants of Jura Flor-Sherry Wines: Strong Analogy with Gueuze Beers** 331
Sonia Collin, C. Scholtes, Thomas Claeys Bouuaert and S. Nizet
- 63. Sulfur-Containing Compounds in Butter and their Influence on Butter Aroma** 337
Silvia Mallia, Barbara Guggenbühl, Sophie Frapolli, Beata Beisert and Doris Rauhut
- 64. Highbush Blueberry Varietal Flavor Characters** 343
Christine Messner, Sukhraj Kaloya, Alistair Paterson, Robert D. Hancock and Julie Graham
- 65. Demonstration of Sesquiterpene Biosynthesis in Grape Berry Exocarp by Deuterium Labeling Studies** 347
Bianca May and Matthias Wüst

Part IV: Instrumental Aspects and other Tools of the Trade

- 66. Use of the Micro-Scale Platform for High Throughput Screening of Flavor Characteristics in Strains (Yeast/LAB) for Alcoholic Beverages** 355
Catrienus de Jong, Lucie A. Hazelwood, Annereinou Dijkstra and Liesbeth Pepin
- 67. Profiling Analysis of Volatile and Non-Volatile Compounds in Wine for a Better Understanding of Wine Quality** 361
Hans-Georg Schmarr, Sebastian Ganß, Ulrich Fischer, Stefan Koschinski and Jörg Bernhardt
- 68. Identification of Key Gin Aroma Compounds: An Integrative Approach Based on an Original Selection Procedure** 367
Pierre Dussort, Nicolas Deprêtre, Elias Bou-Maroun, Pascal Brunerie, Elisabeth Guichard, Yves Le Fur and Jean-Luc Le Quéré
- 69. Gas Chromatography Olfactometric Analysis of Some Cooked Ham Samples** 371
Lu Benet, Carlos Ibáñez and Josep Solà
- 70. Sucralose Analysis in Milk without Protein Precipitation** 375
Carlos Ibàñez, Josep Solà and Pere Peiró
- 71. Multiple Headspace Extraction – an Effective Method to Quantify Aroma Compounds in Bread Crumb** 379
Anja N. Birch, Åse S. Hansen and Mikael A. Petersen

72. **A Comparison of Headspace Sampling Techniques for the Analysis of Aroma in a Model Gel System** 385
Matthew D. Talbot and Lewis L. Jones
73. **Rapid Quantification Technique without Authentic Samples** 391
Alain Chaintreau, Emeline Tissot and Sabine Rochat
74. **The Effect of Gas-Chromatography Injection Parameters on the Analysis of Thiols and Polysulfides** 397
Lewis L. Jones and Stefano M. Nalli
75. **Improvement of Partition Coefficients Determination of Aroma Compounds in Food Matrices by the Phase Ratio Variation Method** 401
Anne Tromelin, Samuel Lubbers, Isabelle Andriot and Elisabeth Guichard
76. **Automatic and Total Headspace In-Tube Extraction for the Accurate Determination of Polar Volatile Compound from Wines** 407
Julián Zapata, Laura Mateo-Vivaracho, Ricardo Lopez, Juan Cacho and Vicente Ferreira
77. **Evaluation of Monolithic Material Sorptive Extraction (MMSE) as an Alternative Aroma Extraction Technique** 411
Marty Martens, Hermen Hogeekamp, Rita Boerrigter-Eenling and Carina Ponne
78. **Method Development and Optimization of Liquid–Liquid Extraction for the Quantitative Analysis of Volatile Compounds from Brazilian Grape Juices** 417
Andréa A.R. Alves, Elisabete B.P. Barros and Claudia M. Rezende
79. **Evaluation of Gas Chromatography-Olfactometry for Screening Purposes of Wine Off-Flavors** 423
Arancha De La Fuente, Ricardo Lopez, Juan Cacho and Vicente Ferreira
80. **Comparison of Muscadine Ester Volatiles Profiles of Wines Produced using Pectinase Pre-Treatment and Traditional Methods** 429
Ozan Gürbüz, June Rouseff and Russell L. Rouseff
81. **Evaluation of Beer Deterioration by Gas Chromatography-Mass Spectrometry/Multivariate Analysis: A Rapid Tool for Assessing Beer Composition** 435
João A. Rodrigues, António S. Barros, Beatriz Carvalho, Tiago Brandão, Ana M. Gil and António C. Silva Ferreira

- 82. Problems in the Analysis of VSCs and in the Work with “Oxygen-Free” Atmospheres** **441**
Ernesto Franco-Luesma, Laura Cullere, Daniel Ruiz, Ana Escudero, Juan Cacho and Vicente Ferreira
- 83. Fast Gas Chromatography-Surface Acoustic Wave Sensor and Capillary GC-MS for Evaluating Strawberry and Blueberry Maturity** **447**
Xiaofen Du and Russell Rouseff
- 84. Retention of Carvacrol and Ethyl Acetate in Aqueous Gels of Potato Starch and Konjac Glucomannan** **453**
Nathalie Cayot, Claire Chassefont, Liseth Goncalves, Chantal Hory, Céline Lafarge and Patricia Le Bail
- 85. Experiences with Off-Flavor Research over the Last Decade** **459**
Miriam Kort and Ben Nijssen
- 86. A Robust SPME Method for the Analysis of Wine Volatiles based on Multiple Internal Standards and Multivariate Regression** **465**
Paula Herrero, Julián Zapata, Juan Cacho and Vicente Ferreira

Part V: Modeling Sensory Perception

- 87. Perceptive Interactions on Typical Fruity Aroma in Wine** **473**
Georgia Lytra, Philippe Darriet, Gilles de Revel and Jean-Christophe Barbe
- 88. Relationships between Oral Characteristics, Bolus Formation, and Aroma Compound Releases during the Consumption of Fat Spread in Humans** **479**
Julie Poette, Anne Renault, Olivier Berdeaux, Etienne Sémon, Elisabeth Guichard, El Mostafa Qannari and Gilles Féron
- 89. Taste and Flavor Enhancement using Natural Ingredients: The Prediction and Optimization of Umami Taste in Real Food Systems** **483**
Lisa Methven, Maria Dermiki, Chutipapha Suwankanit, Orla B. Kennedy and Donald S. Mottram
- 90. Relationship between Human Taste Perception and the Persistence of Umami Compounds in the Mouth** **487**
Daniel Plyer, Emily S. Mort, Lewis L. Jones, Neil C. Desforges and James W. Marshall

- 91. Understanding the Dynamics of Flavor Compound Release During Food Mastication of Cheese Products in Relation to Perception** 493
Elisabeth Guichard, Claude Yven, Marie Repoux, Etienne Sémon, H  l  ne Labour   and Gilles Feron
- 92. Classification of the Aroma Quality of Pyrazine Derivatives using Random Forest Tree Technique** 499
Khaled Saadi, Mourad Korichi, Vincent Gerbaud, Thierry Talou and Pascal Floquet
- 93. The Perception of Riesling Varietal Character: The Role of 2,2,1-Trimethyl-Dihydronaphthalene (TDN)** 503
Terry E. Acree, Gavin L. Sacks, Anne J. Kurtz, Misha T. Kwasniewski, Robert C. Williams and Edward H. Lavin
- 94. The Potential Use of Raw and Deodorized Non-Conventional Protein Powder in Human Food** 507
Elias Bou-Maroun, Charlotte Cartier, Geoffroy Cabio'ch, C  line Lafarge, H  l  ne Labour  , Ana Luisa Medina and Nathalie Cayot
- 95. Synergistic/Suppressive Effects of Binary and Ternary Mixtures of Sweeteners in Semi-Skimmed Milk** 513
Christine Kersch-Counet, Renske Asma, Anne-Marie Wassink, Eric Schoen, Renske Dekkers and Carina Ponne
- 96. Molecular Features Underlying the Chemoreception of Odorant Binding Proteins and Olfactory Receptors. Insights from Molecular Modeling and Biophysical Data** 519
J  r  me Golebiowski, Landry Charlier, J  r  mie Topin, S  bastien Fiorucci and Serge Antonczak
- 97. Decoding the Taste of Red Wine using a Sensomics Approach** 525
Nadine Wollmann, Jan-Carlos Hufnagel and Thomas Hofmann

Part VI: Physiology of Flavour Perception

- 98. Impact of Swallowing on the Dynamics of Aroma Release and Perception During the Consumption of Alcoholic Beverages** 533
Isabelle D  l  ris, Anne Saint-Eve, Pascale Lieben, Marie-Louise Cypriani, Nathalie Jacquet, Pascal Brunerie and Isabelle Souchon
- 99. Quantitative Mapping of Taste-Active Compounds in Dashi Ingredients** 539
Gesa Haseleu, E. Lubian, Chris Courter and Stefan Mueller

Part VII: Practical and Industrial Aspects

- | | | |
|-------------|--|------------|
| 100. | Elucidation of Ashtray Odor
Felix Frauendorfer, Monika Christlbauer, Irene Chetschik and
Jean-Pierre Schaller | 547 |
| 101. | Evaluation of Gamma and Electron-Beam Irradiation on the
Aromatic Profile of Black Truffles (<i>Tuber melanosporum</i>) and
Summer Truffles (<i>Tuber aestivum</i>)
Laura Culleré, Vicente Ferreira, Maria E. Venturini, Pedro Marco and
Domingo Blanco | 553 |
| 102. | Determination of Odor Properties of Ortho- and Para-
Halogenated Phenols
Andrea Strube, Michael Czerny and Andrea Buettner | 557 |
| 103. | Assessment of the Intake of Flavoring Substances via
Consumption of Flavored Teas – Analysis of Earl Grey Teas
Marketed in the European Union
Anne-Marie Orth, Lu Yu, Iulia Poplacean and Karl-Heinz Engel | 563 |
| 104. | Aroma-Active Compounds of <i>Capsicum chinense</i> Var. Biquinho
Victor C. Castro Alves, Náyra O.F. Pinto, Maria Flávia A. Penha,
Bruna L. Gomes, Francisco J.B. Reifschneider and Deborah S. Garruti | 567 |
| 105. | Identification of a Sweet Taste Enhancing Vanillin Isomer from
<i>Mondia whitei</i> via Sensory-Guided Analysis
Katharina V. Reichelt, Susanne Paetz, Karen M. Swanepoel, Jakob P. Ley
and Gerhard E. Krammer | 573 |
| 106. | Reactions of Propylene Glycol with the Constituents of
Food Flavorings
J. Stephen Elmore, Andrew T. Dodson and Donald S. Mottram | 577 |
| 107. | Aroma and Oil Bodies: Potentially a Novel Delivery Route
Ian D. Fisk, Robert S.T. Linforth, Andrew J. Taylor and David A. Gray | 583 |
| 108. | Compensation of Salt Reduction with Aroma Compounds
Max Batenburg, Eric Landrieu and Rob van der Velden | 589 |
| 109. | Varietal Differences in the Volatile Profile of Bananas with
Resistance to Black Leaf Streak Disease
Maria Flávia A. Penha, Victor C. Castro Alves, Náyra O.F. Pinto, Hilton Cesar
R. Magalhães, Francisco J.B. Reifschneider and Deborah S. Garruti | 597 |

110. **The Role of Ethyl- β -D-Glucoside in the Pleasantness of Sea Buckthorn Juice** 601
Mari A. Sandell, Oskar A. Laaksonen, Sari Puputti, Heikki P. Kallio and Baoru Yang
111. **LC-MS/MS Studies on the Influence of the pH Value on the Formation of Iso- α -Acid Degradation Products in Beer** 607
Christina Schmidt, Annika Lagemann, Andreas Stephan and Georg Stettner
112. **Exploitation of Orange Peel for the Production of Flavor-Active Compounds with the Use of a Commercial Wine Strain** 613
Adamantini Paraskevopoulou and Fani Mantzouridou
113. **Production of 6-Pentyl- α -Pyrone by *Trichoderma harzianum* using Brazilian Espresso Coffee Grounds** 619
Felipe M. Rivera, Elisabete B. Paula Barros, Alcilucia Oliveira, Claudia M. Rezende and Selma G.F. Leite
114. **Flavor Studies on the Elaboration of Artisan-Type Mexican Beer: Effect of Different Conditions for Hops Addition** 623
Francisco J. Olachea-Martínez, Hector B. Escalona-Buendia, Jose Ramon Verde-Calvo and Francisco Ruiz-Teran
115. **Determination of Volatile Compounds for the Assurance of Quality, Security, and Health in the Use of Alimentary Oils and its Application to Home Appliances** 627
Ignacio Ontanón, Laura Culleré, Vicente Ferreira and Ana Escudero
116. **Season-Dependent Variation in the Essential Oil Composition of *Myrrhis odorata* L. and Evaluation of Antioxidant Capacity of By-Products** 631
Diana Dobravalskyté, Thierry Talou and Petras Rimantas Venskutonis
117. **Volatile Flavor Compounds and Sensory Evaluation of Commercially Available Apple Juices and Freshly Squeezed, Non-Blended Apple Juices** 635
Andreas Stangl and Herta Ziegler
118. **Volatile Profile of New Improved Brazilian *Capsicum chinense* Peppers** 643
Náyra O.F. Pinto, Victor C. Castro Alves, Maria Flávia A. Penha, Bruna L. Gomes, Francisco J.B. Reifschneider and Deborah S. Garruti

119. Volatile Flavor Compounds of Orange Juices Produced from <i>Valencia Late</i> Oranges of Different Geographic Origin	649
Andreas Stangl and Herta Ziegler	
120. Monitoring of Bacteria Causing Off-Flavors in Bologna-Type Sausages by SPME-GC-MS	655
Eva Schrampf, E. Leitner and Evelyn Stelzl	
121. A Metallic, Solvent-like Off-Flavor in Hazelnuts: Identification of Prenyl Ethyl Ether as a Key Flavor Compound and Formation Studies	661
Thomas M. Amrein, Hugo Schwager, Roberto Meier, Peter Frey and Klaus Gassenmeier	
122. Interest in Online Higher Alcohol and Ester Determinations during Winemaking Fermentations	665
Jean-Roch Mouret, Pamela Nicolle, Sumallika Morakul, Evelyne Aguera, M. Perez, Violaine Athes and Jean-Marie Sablayrolles	
123. Towards the Development of Molecular Markers for Apple Volatiles	671
Detlef Ulrich and Frank Dunemann	
124. The Off-Flavor of Pea Flour: Sensory Representation of Headspace Extracts	679
Chloé Murat, Karine Gourrat-Pernin and Nathalie Cayot	
<i>Index</i>	<i>683</i>