# Contents

**Introduction** ....................................................... xv  
M. Carmen Polo and M. Victoria Moreno-Arribas

**Part I Chemical and Biochemical Aspects of Winemaking**

1 **Biochemistry of Alcoholic Fermentation** ......................... 3  
Fernando Zamora

2 **Biochemical Transformations Produced by Malolactic Fermentation** .................................... 27  
Antonella Costantini, Emilia García-Moruno, and M. Victoria Moreno-Arribas

3 **Special Wines Production** ...................................... 59

3A **Sparkling Wines and Yeast Autolysis** ......................... 61  
Adolfo J. Martínez-Rodríguez and Encarnación Pueyo

3B **Biologically Aged Wines** ....................................... 81  
Rafael A. Peinado and Juan C. Mauricio

4 **Enzymes in Winemaking** ........................................ 103  
Maurizio Ugliano

5 **Use of Enological Additives for Colloid and Tartrate Salt Stabilization in White Wines and for Improvement of Sparkling Wine Foaming Properties** ...... 127  
Richard Marchal and Philippe Jeandet
Part II  Wine Chemical Compounds and Biochemical Processes

6  Nitrogen Compounds ................................................................. 161

6A  Amino Acids and Biogenic Amines ........................................ 163
    M. Victoria Moreno-Arribas and M. Carmen Polo

6B  Peptides .................................................................................. 191
    M. Victoria Moreno-Arribas, María Ángeles Pozo-Bayón,
    and M. Carmen Polo

6C  Proteins .................................................................................. 213
    Elizabeth Joy Waters and Christopher Bruce Colby

7  Carbohydrates ........................................................................... 231
    M. Luz Sanz and Isabel Martínez-Castro

8  Volatile and Aroma Compounds ............................................... 249

8A  Wine Aroma Precursors .............................................................. 251
    Raymond Baumes

8B  Polyfunctional Thiol Compounds ............................................ 275
    Denis Dubourdieu and Takatoshi Tominaga

8C  Volatile Compounds and Wine Aging ..................................... 295
    M. Soledad Pérez-Coello and M. Consuelo Díaz-Maroto

8D  Yeasts and Wine Flavour ........................................................... 313
    Maurizio Ugliano and Paul A. Henschke

8E  Identification of Impact Odorants of Wines ............................. 393
    Vicente Ferreira and Juan Cacho

8F  Interactions Between Wine Matrix Macro-Components
    and Aroma Compounds ........................................................... 417
    María Ángeles Pozo-Bayón and Gary Reineccius

9  Phenolic Compounds ................................................................. 437
Contents

9A Anthocyanins and Anthocyanin-Derived Compounds ............. 439
   María Monagas and Begona Bartolomé

9B Flavanols, Flavonols and Dihydroflavonols ....................... 463
   Nancy Terrier, Céline Poncet-Legrand, and Véronique Cheynier

9C Non-flavonoid Phenolic Compounds ............................... 509
   Michael Rentzsch, Andrea Wilkens, and Peter Winterhalter

9D Influence of Phenolics on Wine Organoleptic Properties ....... 529
   Celestino Santos-Buelga and Victor de Freitas

9E Health-Promoting Effects of Wine Phenolics ...................... 571
   Alberto Dávalos and Miguel A. Lasunción

Part III Spoilage of Wines

10 Aromatic Spoilage of Wines by Raw Materials and Enological
    Products .............................................................. 595
    Alain Bertrand and Angel Anocibar Beloqui

11 Wine Spoilage by Fungal Metabolites ............................ 615
    Manuel Malfeito-Ferreira, André Barata, and Virgílio Loureiro

Part IV Automatic Analysers and Data Processing

12 Automatic Analysers in Oenology ................................. 649
    Marc Dubernet

13 Statistical Techniques for the Interpretation of Analytical Data . . 677
    Pedro J. Martín-Álvarez

Index ................................................................. 715
Wine Chemistry and Biochemistry
Moreno-Arribas, M.V.; Polo, C. (Eds.)
2009, XV, 735 p., Hardcover
ISBN: 978-0-387-74116-1