

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 |

| | | |
|-----------|---|-----|
| 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 Virgilio 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 |
|--------------|-----|