

Preface

There is a growing community of researchers interested in the identification and isolation of polyphenols. Therefore, in this second edition, 92% of the topics are new additions to those that appeared in the first edition, making this book novel. The role of polyphenols in agriculture is covered in the first expanded new section. Siracusa reviews polyphenols in vegetable waste, and there is a chapter by Mourtzinou about their presence in agricultural byproducts. Tanase then describes polyphenol influence on physiological processes in plants. To improve the use of polyphenols, Aguirre discusses nanodelivery in food. Achnadi, as expected, outlines the economic perspective of polyphenols.

Section B focuses on an analysis of polyphenol structure. Hofmann describes HPLC in purification and identification. Weber completes this review with characterization of polyphenols in fruit, and Davis uses phenotypic diversity to define pigments in plants. Ledesma-Escobar analyses citrus flavonoids as an example of defining polyphenols in a fruit, and Tomaz reviews extraction from grapes as a model of understanding polyphenols. Several chapters then examine other extractions of phenolics, including using microwave technology, describing rice phenolics, and defining biosynthesis, chemical profiles, and biological activity in citrus. Oreopoulou concludes with a review of extraction and an overview of methods.

The final section centers on analysis techniques for polyphenols, a major component of the book. This comprises two chapters on classification, including the use of gas chromatography-mass spectrometry analysis, and consists of revised chapters from the first edition. Kammerer reviews methods using adsorption and ion exchange to increase polyphenol recovery, and Sentkowska supports this review with HILIC chromatography to improve analysis. Mu uses sweet potato leaf polyphenols to define composition and antioxidant activity, a special detailed example of analysis of a single plant. Gorvinhas then applies the methods in phytochemistry to understand the wine industry, a significant activity. Loung uses isolation techniques in the development of new compounds and their use in cancer therapy, followed by Lescano who concludes the book with her chapter defining polyphenols using pharmacological and nutraceutical approaches.