Preface

Since the conceptualization of the electromagnetic spectrum and development of the magnetron, microwave energy has been utilized in many aspects and disciplines of science. Although adopted by multiple industries over the past quarter of a century, it is only within the past few years that microwave irradiation has been evaluated as a useful tool for the biochemical and chemical preparation of proteins and other biomolecules for proteomics and in particular mass spectrometric analysis. This book describes the evolution and integration of microwave energy into the biosciences with particular emphasis on the proteomic arena. An in-depth evaluation of a variety of techniques within the field of proteomics that benefit from microwave irradiation is given. This book chronicles the development of these microwave-assisted methods and provides a synopsis of the final protocols that have become standardized for each area discussed. This book also focuses on the types of instrumentation that may be employed for microwave-assisted protein chemistries and the hypotheses of mechanisms of action for the microwave-enhanced methodologies.

Although still in its infancy, the application of microwave assistance is gaining momentum in several fields, in particular that of proteomics and protein chemistry. A single monograph cannot comprehensively cover this rapidly evolving field; however, this publication should provide an in-depth introduction to the science of microwave-assisted proteomics and will hopefully ignite some ambition within researchers interested in trying these protocols in their own laboratories.

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Microwave-Assisted Proteomics
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